A mixed method assessment of the association between young mother’s education attainment and child malnutrition in Rural Malawi
Abstract

Malnutrition is a big public health concern in Malawi. Almost 40% of under-five children in Malawi suffer from malnutrition. Children born to poor mothers with low education levels have higher chances of being malnourished. Great disparities are also seen between children born in rural areas and those born in cities and towns. This research examines the linkages between mothers’ education attainment and child malnutrition. The Capability Approach and the UNICEF Conceptual Framework on child malnutrition was used in ascertaining how education affects mother’s choices and practices on child’s health and nutrition. The Explanatory Sequential Mixed Method Design was used. Combining elements of Qualitative and Quantitative research methods to provide depth and breadth of how mother’s education affects child’s health and nutrition. Findings from the Quantitative analysis of the 2015-2016 Malawi Demographic and Health Surveys data on child malnutrition and women’s education, informed the qualitative approach. The results guided in purposively sampling participants for the Qualitative research. Stata 14 was used to analyse qualitative data. Themes were drawn from the qualitative data and an analysis of the recurring themes was done using Atlas.ti 8. The study found that there is an association between mother’s education and child health. Children born to mothers with secondary and higher education qualification have lower odds of malnutrition and poor health. Inadequate knowledge on nutrition, food and nutrition insecurity, poverty and low welfare status of mothers with low education levels are contributing factors to high incidences of malnutrition among their children. Malawi needs to invest in girl’s education; particularly in rural areas where many girls do not transition to secondary school.

Key words: Child malnutrition, Malawi, Capability Approach, mother’s education
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A mixed method assessment of the association between young mother’s education attainment and child malnutrition in Rural Malawi

Chapter One

1. Introduction

Education is essential in the socio-economic development of countries. Girl’s education particularly, reduces child marriages and contributes to the well-being and health of children in society (Kaabwe 2000; Riddell 2003; Sebates et al. 2010). According to the United Nations (2016) education is crucial in ensuring that the world achieves the 2030 Sustainable Development Goals (SDGs). For many decades, the world has been grappling with ensuring that all children enrol and remain in school. Developed countries in Europe and Asia have managed to have all children in school. However, many children especially girls from poor countries in Asia and Sub Saharan Africa (SSA) have never been in school and those that are in school hardly complete primary and secondary education. Low education levels of young mothers have an impact on the health of the members of their households. The economic well-being of their household is also negatively affected in the long run.

Flourishing countries in the world have been known of having citizens with relevant skills and knowledge essential in running the affairs of the state. The promotion of widespread access to primary education and gender parity has been seen to be essential in poverty eradication, advancement of gender equality and improving the socio-economic wellbeing of individuals and societies (Lewin 2009). Education is one of the most effective forces necessary in equipping individuals with abilities as well as changing and transforming people’s lives (Flores-Crespo 2007). Education enhances one’s capabilities and contributes to the social mobility of individuals from disadvantaged positions in society to better conditions. Education puts people into various categories according to the levels they attain. The probability of the educated to live a better life in society is high as majority ably participate in the labour force and escape poverty (Lewin 2007). Scholars have also argued that there are more benefits when more girls are educated. Children born to literate mothers are less likely to be malnourished, have higher chances of being immunized at the right age and a country registers few infant/child mortality rates (Schultz 1989; Summers 1992; Weale 1992; World Bank 1992; UNICEF 2000b cited in Shabaya and Konadu-Agyemang 2004). Education is therefore promoted by several states as there are many profits which accrue to individuals and societies where majority are educated.

The world for the past 60 years has prioritized education. The fourth Millennium Development Goal (MDG) (UNDP 2000) and the Education for All (EFA) goals (UNESCO 2000) all pointed at ensuring
that there is equal access to education by all, especially girls from disadvantaged and difficult areas by 2015. The fourth SDG is promoting the agenda of making sure that all children in the universe are admitted in primary, secondary, vocational training and higher education by 2030 (Kumar et al. 2016). Malawi also realizes that education is essential in the attainment of many development goals. Development plans and frameworks have for decades prioritized human capital development. The Malawi Poverty Reduction Strategy Paper (Government of Malawi 2002), Vision 2020 (Government of Malawi 1998) and the Malawi Growth and Development strategies II and III (Government of Malawi 2011; Government of Malawi 2017) all recognize the importance of education especially girls’ education in the country’s development. Girl’s education is an investment that assists in ensuring that all children attain basic education (Maluwa-Banda & Kholowa 2002 cited in Maluwa-Banda 2004). In addition, children of literate mothers have higher chances of being healthy because of their mother’s knowledge of health and nutrition (UNICEF 2005.) Infant mortality reduces when more girls are educated. Keeping girls in school is also a good strategy of reducing fertility rate in a country (Kaabwe 2000). A country enjoys many benefits when more girls’ are educated.

Malawi’s basic education completion rates and transition to secondary education are however low and many girls drop out. Merely 31% of girls’ complete primary education (Government of Malawi 2014). Majority of dropouts either become pregnant or marry early (Government of Malawi 2014). The inadequate resources that the state allocates to the education sector are therefore wasted as they fail to achieve their intended purpose (Essama-Nssah, Leite and Simler 2008). Girls who drop out of school limit their chances in life and this also has a bearing on the well-being of their future family members. The vicious cycle of illiteracy, ill health and poverty is therefore perpetuated.

1.2 Study context

1.2.1 Malawi’s economy

Malawi is a landlocked nation with an economy dependent on a narrow export base and great reliance on imports and foreign aid. Agriculture and industry contributes 52% and 33% respectively to the country’s Gross Domestic Product (GDP) (Government of Malawi 2010). Almost 84% of Malawians are employed in Agriculture, forestry and fishing (Government of Malawi 2010). In the rural areas 90% of the population are employed in agriculture (National Statistics Office 2009). The country is categorized among 31 low-income states on earth (World Bank 2017). According to the World Bank, low income economies in 2017 and 2018 are those with a Gross National Income (GNI) per capita of $1,005.00 or less in 2016 (World Bank 2017). Malawi is also categorized as a low human
development country. The Human Development Index (HDI) looks at the three basic features of human development; long and healthy life, access to knowledge and a decent standard of life (UNDP 2016). The life expectancy for Malawi is 62.8 years, projected years of schooling are 10.8 years, typical years of learning are 4.3 years and the GNP per capita is $747 (2011 PPP). The HDI for Malawi in 2015 was 0.476, therefore, ranking the country on position 173 out of 188 states (UNDP 2016). The country has approximately 17 million people of which 53% are below the age of 18 which is one of the country’s great asset if given relevant skills, resources and opportunities (Government of Malawi 2010).

Malawi has put in place a number of policies to alleviate poverty in the country. These policies include the Poverty Alleviation Program (1994); the Malawi Poverty Reduction Strategy (2002-2005); and lately, the Malawi Growth and Development Strategy (MGDS) (2006-2011 and 2011-2016) (Government of Malawi 1994, 2002, 2012). Regardless of numerous poverty reduction strategies there has been a slight decline in poverty in Malawi in the last decade. The percentage of poor people has slightly decreased to 50.7% in 2011 from 52.4% in 2004 (Mussa 2017). Headcount poverty has also slightly declined between 2010 and 2013 at 40.2 percent and 38.7 percent, respectively (Government of Malawi 2016). Poverty headcount in the countryside increased marginally from 55.9% to 56.6% while poverty in towns and cities dropped from 25.4% to 17.3% between 2004 and 2011 respectively (Mussa 2017). Poverty is high in rural areas where almost 83% of Malawi’s population live.

The provision of social services in Malawi is poor. Weak macroeconomic environment prevailing in the country is a contributing factor to the government’s poor provision of social services to the citizenry (Manda 2007). The country’s GDP has been growing at an average of 2.6% between 1998 and 2010 (Government of Malawi 2010). As the nations’ agricultural sector is mainly rain dependent, environmental changes have a huge bearing on agricultural output and the GDP in the long run (Bandyopadhyay et al. 2011; Government of Malawi 2010). In order for the country to reduce poverty, a GDP increase of more than 6% would suffice (Government of Malawi 2010). Poor performance of agricultural sector chokes economic advancement and growth of the country. Access to electricity is very minimal in the country as almost 97.4% of the population use solid fuel for lighting and cooking. Only 2.5% of Malawians use electricity for cooking (Government of Malawi 2011). The World Bank (2016) approximations show that only 11.4% of Malawians had access to electricity in 2014.
A substantial portion of Malawi’s population experience extreme forms of food insecurity. It was estimated that 33% of Malawians live in very low food security (Government of Malawi 2011:45). This implies that households experience numerous signs of interrupted eating patterns and minimized food intake. Eight percent of the population has low food security while 2% are marginally food secure. Nearly 58% of Malawians are food secure throughout the year. Therefore 42% of the population is food insecure at some point in the year. The situation is high among female headed households where almost 42% are considered to be in severe food insecurity. It is also estimated that 47% of the poorest households face severe food insecurity (Government of Malawi 2011). Food insecurity is more linked to female headed households, poor and rural households in Malawi.

Transportation is a most important element of economic growth and it is also an important aspect in a person’s health, education and economic well-being (Raballand et al. 2011). Malawi has one of the smallest developed transportation infrastructures in Sub Saharan Africa (SSA). Nearly 48% of unpaved roads in Malawi were judged to be in poor condition and 38% of villages were not accessible by motorized vehicle in 2005 for the five-month rainy season (Goldberg et al. 2010). Only 33.6% of district roads are paved (Lall, Wang and Munthali 2009). Poor road conditions in rural areas make it difficult for people especially girls and women to safely and easily travel to get to social services like schools and hospitals. Poor feeder and secondary roads in the country impede many citizens from living a desirable life.

The healthcare system of Malawi is in a poor state. The system is crippled with inadequate health personnel, inadequate resources like equipment, high rates of illnesses like HIV/AIDS and insufficient funding from the state. Children are among the special interest groups affected by inefficient and non-effective health system. Diarrhoea, pneumonia and malaria are among the leading causes of death in children (WHO 2006 cited in Kidman et al. 2010), yet only 25 to 30% of children with these conditions obtain fitting treatment (UNICEF 2008 cited in Kidman et al. 2010). Approximately half of under-five children do not reach their fifth birthday because of malnutrition related sicknesses. Malnutrition is a major cause of death among infants in Malawi (UNICEF 2016).

Nationwide, there is only one doctor for every 20,000 people compared with an average of 4 per 20,000 people in Africa (Doctor and Weinreb 2013). Specialized doctors are not deployed in health centres and the district hospitals where majority of Malawians and the poor live. Pediatricians are placed in central hospitals where tertiary health care is provided. Maternal mortality and child mortality rates are also high in the country. It is estimated that one in 20 children die before the age of five (The Guardian 2016). According to the World Health Organization (WHO 2008), there were

http://etd.uwc.ac.za/
510 deaths of infants per 100,000 live births. As of 2010, nearly 20% of the national population did not have access to any toilet (Government of Malawi 2010). The country has nearly 79% of the population with access to improved water source (Government of Malawi 2011). This implies that 11% of the nation’s population gets water from unsafe points. With the poor economic performance, the government does not provide sanitation to poor citizens who cannot provide on their own. The health of citizens especially children is compromised when sanitation is poor. This is also one of the explanations to the high incidences of diarrhoea and malnutrition among children in Malawi.

1.3 Problem Statement
Malawi did not achieve Millennium Development Goals number two on universal access to primary education. By 2015, all Malawian children were supposed to have access to primary school. However by 2015 Malawi was far from having at least 80% of all children in primary school (Government of Malawi 2014). Though the Gross Enrolment Rate (GER) for Malawi is above 100% many children drop along the way. Statistics indicate that there are more dropouts among females than males at primary school. On average 19.5% and 11.2% of girls and boys respectively have been dropping out of school on average from 2011 to 2016 (McConnell and Mapuwaliywa 2016). Survival rate at final grade in primary school standard 8 was 47.2% for girls in 2011 (Government of Malawi 2014). According to the Education Management Information System (EMIS) 2015 Report (MoEST, cited in Robertson et al. 2017) the 2014–15 primary school completion rate for female students was 47% compared to male students whose completion rate was 56%. This is posing a challenge to the development agenda of the country. It is not surprising that development agencies like UNESCO argue that Malawi will achieve the 2015 agenda of full primary education to all citizens in 2070 (UNESCO 2016; UNESCO 2017). The average years of being in school in Malawi in 2015 were 4.4 years which is among the lowest on earth (UNDP 2016). The country is more likely to reduce population growth and reduce infant and child mortality rates if girls remain in school (UNESCO 2014). Apart from improving the wellbeing of women, the country is to save from health expenditure due to the advancement in child health and nourishment. Women will also contribute to the economic growth of the country when they start participating in well-paying jobs than the menial jobs which most of them are engaged in because of their lack of education (Shabaya and Agyemang 2004).

Early pregnancies and early marriages are major factors that push girls out of school in Malawi. Approximately, 26% of girls between 15 and 19 years old become pregnant (National Statistical Office & ICF International 2017). Teenagers from the lowest quintile have higher odds of becoming
pregnant at a younger age (National Statistical Office 2017). Almost 97% of out of school girls become pregnant. Child marriage is also high in Malawi as 50% of girls get married before the age of 18 (UN Women 2017). Child marriage is a strong contributor of school dropout among girls (Omoeva, Hatch and Sylla 2014). According to the Education Management Information System (EMIS) 2015 Report, pregnancy is another big factor that push many girls in secondary schools out of school. Almost 27.6% of secondary school girls' dropped out of secondary school because of pregnancy (MoEST, n.d.-b cited in Robertson, Cassity and Kunkwenzu 2017). Teen pregnancies contribute 20-30% of maternal deaths in Malawi (UN Women 2017). Additionally, babies born from girls with no education or dropouts are more likely to be stunted and suffer other malnutrition conditions.

Sub Saharan Africa has seen a slow progress of child stunting which is the highest in the world at 43% (Keino et al. 2014). For the past two decades there has not been a change in stunting rates in SSA. In Malawi, 37% of children are stunted (Government of Malawi 2016). Merely three percent of children are wasted and 5% are overweight. Only 12% of children are underweight. Stunting is a big public health concern in the countryside and among the poorest people in Malawi. Thirty-nine percent of children in the countryside are stunted while in cities and towns 25% of children are stunted. On the other hand, 46% of children born in families belonging to the poorest quintile are stunted and 42% of children whose mothers have primary education or no education are stunted (Government of Malawi 2016). Devastating effects of stunting are known to last for a lifetime. Stunted children experience a delay in motor development; have impaired cognitive functions and encounter challenges in learning; are remunerated less compared to their counterparts when they grow up and find difficulties to fully participate in their localities (UNICEF, WHO and the World Bank 2017). The aim of the research is to look at the link between young mothers’ education and child malnutrition. Focus is to look at how low education levels of young mothers correlates with malnutrition among children in rural Malawi.

Survey report (National Statistics Office 2016) indicates that there are high incidences of malnutrition in Malawi. Statistics have indicated that malnutrition is prevalent among children born to illiterate mothers. Reports also indicate that the problem is also high in rural areas compared to urban areas. This research would like to unearth the links between young mothers education and child malnutrition. This study will also establish factors that contribute to the high incidences of malnutrition in Malawi.
1.4 Theoretical and Conceptual Framework

This segment presents the theoretical and conceptual framework on which the research project is based. This research will use the Capabilities Approach and the UNICEF Conceptual Framework on Malnutrition to analyse the links between mothers’ education and child health.

The Capability Approach by Amartya Sen has for the past four decades become influential in understanding human welfare. Sen (2009) states that the Capability Approach is a logical discipline that gives a vital role to the assessment of an individual’s accomplishments and liberties in terms of his or her competence to do various things one can value being and doing. The Capability Approach primarily emphasises on what a person can efficiently do or be. The framework advances that policies and programs should look at providing quality life, removing obstacles and providing freedom to people to live a life they have reason to value (Robeyns 2005). The Capability Approach is significant because of its stress on freedom of choice, individual diversity and the multi-dimensionality of welfare (Vergunst et al. 2014).

The fundamental concepts of the Capability Approach are the functionings and capabilities. Capabilities is defined as the alternate combination of functionings that a person has motive to value and manages to accomplish by choice or not (Sen 1993). Functionings are the valuable features of existence for example getting educated; having a well-paying job and being healthy (Walker 2005). Functionings are results or accomplishments whereas capabilities are the actual results to accomplish important conditions of beings and doings (Robeyns 2006). A capability implies a person’s freedom to attain well-being. An educated individual for instance accomplishes other capabilities like liberation, health, bodily integrity, knowledge and respect for oneself and others (Robeyns 2005). Chances of participating in public activities are therefore limited for the uneducated. Resources are required if people are to achieve their functionings and capabilities. The functionings of being healthy are also highlighted in the UNICEF’s Conceptual Framework.

The UNICEF Conceptual Framework on child malnutrition asserts that there are basic, underlying and immediate causes of malnutrition. These causes are at an individual level, family and community level as well as at national level. Inadequate dietary intake and disease at personal level lead to malnutrition. Food shortages, poor sanitation and lack of potable water contribute to inadequate dietary intake and increased incidences of disease among children. Some policies at national level may hinder the agricultural sector and economic well-being of households. This results in food insecurity at household level and therefore inadequate dietary intake.
1.5 Research Objectives, questions and hypothesis

1.5.1 Research Objectives

The overall objective of this study is to discover how the mothers’ education attainment affects a child’s nutrition level.

1. To establish the link between mothers’ education and child malnutrition in rural Malawi
2. To highlight the causes of school dropout among girls in rural Malawi
3. To discover the reasons behind high child malnutrition among children of mothers with low levels of education in the countryside of Malawi
4. To provide policy suggestions to policy makers on how to reduce school dropout among girls and improve the nutrition of children born to young mothers

1.5.2 Research Questions

To achieve the stated objectives, the study answers the general research question; how do levels of maternal education relate to the child’s nutritional status in the rural area in Malawi? The more specific research questions are listed below.

1. Is there an association between young mothers’ education and child health in Malawi and are there rural and urban differences?
2. Why are there high levels of child malnutrition in rural area in Malawi?
3. How is low education level of young mothers associated with child malnutrition and poor health in rural Malawi?
4. What are the reasons for high child malnutrition rates among children of mothers with low or no education in rural Malawi?

1.5.3 Hypothesis

The general hypothesis that responds to the research question is that; low levels of education of mothers in rural areas ensure that these mothers do not have adequate economic opportunity and information on nutrition which leads to high levels of malnutrition in rural children in Malawi.
1.6 Research Methodology

1.6.1 Research design

This study was done using a Mixed Method Approach. According to Creswell and Plano Clark (2011) mixed method research is the type of inquiry in which a researcher puts together elements of Qualitative and Quantitative research approaches in order to provide depth and breadth of understanding and corroboration. This study will use the Explanatory Sequential Mixed Methods Design (Creswell 2014). In this research design, a researcher collects and analyses quantitative data. Findings of the Quantitative data inform a follow on Qualitative inquiry on the matter (Creswell 2014). The Quantitative findings inform the types of participants to be purposefully selected for the qualitative phase and the kind of questions that will be asked to the participants (Creswell and Plano Clark 2011).

1.6.2 Research methods

This research used secondary data from the cross-sectional Malawi Demographic and Health Survey (MDHS 2015-16). The 2015-16 MDHS was conducted by the National Statistics Office (NSO) of Malawi in joint partnership with the Ministry of Health and the Community Health Service Unit (CHSU). The first MDHS for Malawi was conducted in 1992 and yet again in 2000, 2004 and 2010. The fifth in the sequence is the 2015-16 MDHS. The survey is grounded on a nationwide representative sample that makes available estimations at the countrywide and regional levels and for rural and urban areas with important indicator approximations at the district level. The survey included 26,361 households, 24,562 female respondents and 7,478 male respondents (NSO 2016). The 2015-16 MDHS includes households and respondent’s characteristics on a number of issues including; reproduction and family planning, malaria, new-born and child health and mortality, mother’s health and maternal and adult mortality, adult and child nutrition, HIV/AIDS, gender based violence, disadvantaged children and orphans. The 2015-16 MDHS involved HIV testing. The data from the HIV tests was used to ascertain HIV prevalence in the country. The same was also done in the 2004 and 2010 MDHSs. The 2015-16 MDHS was similarly done together with the Micronutrient Survey (MNS), which was conducted by the NSO in collaboration with the Department of Nutrition, HIV and AIDS (DNHA).

The National Statistical Office (NSO) used a standard sampling frame based on the Malawi Population and Housing Census conducted in Malawi in 2008. A similar sampling frame was used for the 2015-16 MDHS. A comprehensive list of all census Standard Enumeration Areas (SEAs) generated for the 2008 census was applied in collecting data for the MDHS. A SEA covers an average of 235 households.
The MDHSs deliberately oversample the Northern Province and towns and cities so that provincial and urban-rural contrasts can be done. Therefore, the Malawi Demographic and Health Survey is not self-weighting (Madise and Mpoma 1997). The Northern regions population percentage is 12% of the national population while 49% of the country’s population is from the southern region (NSO 2016). Similarly, 85% of Malawians live in the countryside whilst only 15 percent live in cities and town.

The study also conducted an in-depth investigation of how low education attainment affects child health in rural areas in Malawi. The thorough investigation of the matter was done using Qualitative research approaches. In Qualitative research, a researcher studies acts of human beings from the viewpoint of the social players themselves (Babbie and Mouton 2011). Sandelowski (2000) argues that researchers progressively use Mixed Method technique to enlarge the scope and extend their understanding of a phenomenon under review. A Mixed Method allows a researcher to answer additional questions that could have necessitated the researcher to conduct a new research altogether (Morse 2016). Instead of conducting two different research projects on the same topic, through the Mixed Method a researcher conducts a thorough investigation on a matter.

1.6.3 Data collection

A Purposive Sampling Method was used in the qualitative aspects of this study to select young mothers for an in-depth interview. According to Babbie and Mouton (2011) Purposive Sampling is done based on the researcher's judgement which is guided by the intention of conducting the research. Welman et al. (2012) asserts that a researcher can rely on his/her experience, ingenuity or previous research findings to deliberately obtain units of analysis. The researcher selected young mothers whose children were benefitting from the hospital feeding program in two health facilities in Machinga and Mangochi districts. A one on one interview was then conducted with each of the sampled young mothers. The Qualitative Approach acknowledges the participants not as mere respondents but as counterparts in the research and investigation that plays a major part in the production of information (Hesse-Biber 2006). It is in this respect that this approach has been picked in this research work.

1.6.4 Data analysis

Statistical tool will be used to analyse quantitative data and draw conclusions on the link between young mother’s education and child well-being and health in Malawi. The researcher will get data of variables on young mothers’ education and child malnutrition from the MDHS data set. Stata version 14 will be used to conduct a number of tests to assess the correlation between young mothers’
education and child malnutrition. Findings will be presented graphically and a narrative of the graphics will be provided.

Qualitative data according to Babbie and Mouton (2010) is analysed by ascertaining patterns and themes in order to make meaning. When one is conducting a qualitative research, one is supposed to ensure that main themes in the qualitative data are identified. Theme identification is one of the main tasks in Qualitative research. Themes are ‘umbrella’ concepts which are usually recognized by the investigators beforehand, after and during data collection (Welman et al. 2012). After the researcher transcribes the recordings, a number of techniques will be used to identify themes. Word analysis, reading of larger units, analysis of metaphors, transitions and connectors and physical manipulation of the texts are the main technics that will be employed to draw themes (Welman et al. 2012). Coding will later be done to understand material that is unclear. Matrices will be used to graphically present the findings of the study. The researcher will analyse the data during the collection process so as to perceive the initial results which might sway the rest of the information that is to be collected.

1.7 Study Scope and Limitation
This study will be looking at the link between young mothers’ education and child malnutrition in selected rural areas in Malawi. An analysis of the Demographic and Health Survey (DHS 2015-2016) data will be used. DHS data like all recall based datasets in some instances contains biased information because information on the nutrition status of the child and general health history dependent on the memory of the mother. With low literacy levels among mothers in rural Malawi, sometimes the information they provide may not be reliable. This however, is not a major limiting factor as many scholars, government entities and development partners use the DHS in planning and implementation of various development programs.

The other limitation of the study will be the process of translating data from English to Chichewa and Yao as the targeted study areas Mangochi and Machinga are typical Yao and Chewa with high levels of illiteracy. There might be misinterpretation of the questions which might lead to the capturing of inappropriate and irrelevant data. The researcher will consult native Yao colleagues to assist with the translation. The translated script will be given to another Yao Speaker to translate it into English. This process will help to assure the researcher of minimal loss of meaning in translation.
Finally the researcher anticipates challenges in reaching the rural women during rainy season as roads might become impassable and some places unreachable. As indicated above, many roads in rural Malawi become impassable during rainy season; this might have implications on the data collection timeframe. The researcher will conduct field work when the areas start receiving minimal rains at the end of the rainy season.

1.8 Chapter outline
This research paper contains five chapters. The first chapter introduces the subject under study. It explains the study context, problem statement, states the objective of the study and the research questions and hypothesis as well as a brief description of the methodology. The First Chapter further provides an overview of the methodology of the study and highlights limitations. Theories and empirical literature is discussed in Chapter Two. Methods of the research are explained in detail in Chapter Three. Chapter Four provides an analysis of the research conducted. The chapter also responds to the research questions asked in the first chapter. The final chapter, Chapter Five summaries the discussion of the research project, provides a conclusion and gives recommendations to policy makers. The contribution of the study to knowledge is discussed in Chapter Five. Areas that require further study are also discussed in the same chapter.
2.1 Introduction
This chapter will discuss the theoretical debate underpinning the discourse of child malnutrition and mother’s education. Through the Capability Approach, the chapter will deliberate on how government policies, social, physical and environmental factors affect the choices and freedom mothers and children have in living a healthy life and a life they desire. The study will as also use UNICEF’s Conceptual Framework on child malnutrition in explaining basic, underlying and immediate causes of child malnutrition in Malawi. The theoretical and conceptual frameworks will guide in understanding how various factors including maternal education play a role in increasing child malnutrition cases in Malawi. The chapter will as well review literature on child malnutrition and mother’s education and identify the gap in the literature.

2.2 The Capability Approach
Development is about making sure that human beings flourish rather than only accumulating more wealth. An end to development in this case, is the enhancement of human well-being. Capability Approach theorists argue that individuals differ profoundly in their capability to translate resources into cherished activities and well-being due to differences in people’s internal attributes, for instance, physical health, strength and outward characteristics like place of residence, socio-economic status and family circumstances (Cookson 2005). Researchers refer to the Capability Approach for various kinds of analysis with different research goals, using different approaches with diverse corresponding roles for functionings and capabilities (Robeyns 2005b:1938 cited in Tao 2010). The expansion of capabilities or positive freedoms is the ultimate goal of human development according to leading Capability Approach scholars (Sen 1999a). The Capability Approach asserts that the objective of social justice and poverty alleviation initiative is to increase the freedom that disadvantaged individuals have to enjoy valuable beings and doings (Alkire 2005).

The Capability Approach is premised on the idea that social arrangements are supposed to expand people’s capabilities that is their freedom to promote or achieve valuable beings and doings for human flourishing (Comim et al. 2011). Capability entails different combinations of functionings that the person can achieve. Capability is therefore a set of vectors of functionings reflecting an individual’s freedom to lead one kind of life over another (Sen 1992 cited in Alkire 2005). A person therefore has the freedom of choosing to live a type of life they have reason to value.
Functionings are the different things a person may value doing or being (Robeyns 2006). Functionings signify different features of life that individuals esteem. According to Sen (1999a p. 79 cited in Alkire 2005) functionings are numerous things that a person may value doing or being for instance being nourished, being educated or being able to participate in political activities. Capabilities show the freedom that one has to lead a life a person has reason to value (Robeyns 2003). Capabilities show the freedom or the real opportunities one has pertaining to the life they desire and intend to lead (Sen 1987 cited in Comim et al. 2011). Capabilities are enhanced when people have access to important resources and are able to decide on things they believe are essential to them. Availability of money makes households choose on the type of food they will eat as well as the lifestyle they should live.

Agency in Capability Approach entails the ability to follow goals that one has value and has reason to value. One’s level of agency shows the measure of independent action and of empowerment in the context of choice (Comim et al. 2011). According to Zheng (2007) agency is the freedom a person has to make and go for his/her own goals and desires. Women’s agency in Mchinji district in Malawi for example was enhanced as women through community mobilization interventions took control of their health choices and made choices of their children’s health (Rosato et al. 2010). Agency can also be seen in instances where one advances agenda’s for the wellbeing of others other than one’s wellbeing only. Sen (1985; 2001) elaborates that one’s ‘agency freedom’ is what an individual is free to do and accomplish in pursuit of the goals or values the individual believes is important. Agency can vary according to age in some capabilities. The Capability Approach can be used to look at the functionings and capabilities of adults and children. By looking at the resources children have at their disposal through the Capability Approach it is easy to determine the functionings that children may possess. Children may require various resources and policies to enjoy the same basic capabilities and achieved functionings. For instance, nutrition requirements of adults and children are different hence different amount of resources are required by adults and children in order for both of them to be healthy.

The Capability Approach apart from discussing about agency, it also advances the concept of well-being. In the Capability Approach, well-being is defined in regards to people’s opportunities to do things and activities they desire to engage in and be whom they want to be (Robeyns 2003). As agency focuses on the goals that individuals have according to their values in life, analysts measure human development by looking at important dimensions of well-being freedom. According to Sen (1999) well-being freedom refers to ones’ opportunity to achieve happiness. Well-being achievement on the
other hand explains the level at which well-being is achieved. Agency freedom describes the chance that an individual possesses to realize the goals they highly esteem. Sen (1999) also discusses agency achievement as the level to which the goals one values are achieved. In measuring one’s human development using the Capability Approach, one assesses the things that a person is able to be or be. Additionally one assesses the well-being freedom by looking at the real opportunities that comes along one’s life (Tao 2010). Another big component of the Capability Approach is functioning.

### 2.2.1 Functionings

Functionings are the different sides of life that are valued by people. According to Conradie (2013) functionings entail anything an individual can be or do. Functionings are also regarded as achievements which one values like being educated, being able to reason creatively, being resourceful, being able to use a computer and being healthy among many achievements. The Capability Approach advances the attainment of these functionings. When assessing a person’s or a society’s wellbeing, the Capability Approach emphasises that the attainment of ones functionings and the freedom to achieve them (capabilities) should be determining factors.

A capability signifies an individual’s liberty to achieve a given functioning for ones well-being. Sen (1992:40) admits that “capability is a set of vectors of functionings which reflects a person’s freedom to lead one type of life or another”. This denotes to an individual's or group’s freedom to realise valued functionings (Alkire 2005:121). As such, freedom or capability reveals the honest chances that a person has, and is able to use in one way or another. When an individual is educated, other capabilities like autonomy and creative thinking, knowledge, physical honesty, health, safety and respect for oneself and others are also achieved (Robeyns 2005). Illiteracy refutes individuals from future opportunities, limits them in state and political participation and hinders their probability of living a complete, resilient and fruitful life. Malnutrition and poor child health limits chances of a child acquiring education and participating actively in economic platforms of the country. Capability set is a set of attainable functionings in a person (Alkire 2005).

### 2.2.2 Resources and conversion factors

The achievement of ones being and doings requires the availability of resources in the form of goods and services. These resources are in most instances physical resources which one can convert into a functioning. Conversion factors enable one to convert a resource into a functioning. There are social,
environmental and personal conversion factors (Robeyns 2006). These may hinder one’s attainment of a functioning. Some cultures for instance in Ethiopia restrict other food groups to pregnant mothers and young children. This practice restricts mothers and under-five children from attaining the capability of living a well-nourished and healthy life (Hirvenen 2017). Communities with poor road network and without schools may restrict girls from attaining a functioning of being educated. Similarly, poor access to health facilities contributes to poor child health outcomes as seen in one of the studies in Burkina Faso (Schoeps et al. 2013). Physically and mentally challenged girls and boys may not attain a functioning of being educated even though relevant resources like schools and teachers are available.

Availability of structural opportunities like policies promoting girl’s education and child nutrition and health are necessary if girls and children are to achieve their functionings and capabilities respectively. The Malawi government has a number of policies aimed at promoting girls education like the Free Primary Education Policy, Girl’s Education Strategy and the Girl’s Education Communication Strategy (Government of Malawi 1994 cited in Kadzamira and Ross 2003; Government of Malawi 2014). The nation also has the National Nutrition Policy and Strategic Plan (Government of Malawi 2009) which highlights strategies of enhancing nutrition of Malawians. The above mentioned policies are a guide to ensuring that girls attain basic literacy and education and also ensuring the well-being of all children in Malawi.

2.3 Application of the Capability Approach and empirical evidence

2.3.1 Capability Approach, Nutrition and Health

Capability is principally about freedoms. It highlights about varieties of options an individual has in deciding the kind of life to lead (Dreze and Sen 1995 cited in Saito 2003). Freedom is one of the aspects of well-being. People whose capability is enhanced are free to decide and choose the kind of life they intend and value to live. Scholars like Saito (2003) have questioned the use of the Capability Approach on children. It is argued that children remain in the care of others and that they have no freedom of choosing what to learn in school or making decisions on their own. Saito (2003) argues that it is difficult to state that children have functionings because they do not make decisions on their own. This position has been contested by Amartya Sen who claims that children must have more freedom when they grow up (Sen 1999). Capabilities that older people enjoy are heavily dependent on what they experienced in their childhood. Lack of basic capabilities like being healthy in infancy
reduces the well-being of those suffering them and there are negative consequences that the society faces.

Capability theorists on children argue that children are not merely recipients of freedoms but are active social actors and agents in their own communities (Ballet et al. 2011). If the children are malnourished and have other physical disabilities coming because of choices by parents and caregivers, the life the children will live in future becomes complicated. Freedom for a child should be looked at in a lifelong perspective. Saito (2003) in his article on “Amartya Sen’s Capability Approach to education: a critical exploration” states that education expands children’s capabilities and abilities. Education expands opportunities. When one is trained in mathematics one can become an accountant, a mathematician, an architect, a chemist and many more professions. However, learning is affected when a child is malnourished in his or her infancy. Poor health and malnutrition affects biological development of the brain (Schoenmaker et al. 2015). Malnutrition is also associated with grade repetition and poor school performance (Abebe et al. 2017). High repetition and school dropout rates are mainly in Sub-Saharan Africa where cases of malnutrition are also prevalent (UNESCO 2012). Moreover, malnutrition adversely affects social skills development among children and the youth. Effects of a poorly developed brain are seen with low cognitive skills in most learners with poor health and malnutrition.

Education enhances child’s autonomy in life. When children are enrolled in school, they are unaware of the numerous opportunities that will open up for them once they graduate. Education makes a child independent. Many children in rural areas in food insecure countries in sub Saharan Africa learn on an empty stomach (Dheressa 2011; Kazianga et al. 2013). Health and nutrition status of many learners in rural areas is poor and this affects their performance in class. Dealing with the vices of poor health and nutrition during infancy and early childhood is one major way of ensuring that all children enrol and remain in school to attain functioning of being educated (Jukes 2007). School feeding programs have become popular in many developing countries because of its affirmative results on dietary intake and educational outcomes of learners (Jomaa et al. 2011). Educated people have the ability to read and write and even express themselves in public meetings. For a child to make decisions in his or her life, the child needs to be autonomous through schooling. Child health and nutrition are key factors to be considered in the promotion of education.

Capability theorists on children (Ballet et al. 2011) assert that children depend on their parents and caretakers if they are to achieve other capabilities. This is because children do not make decisions. Even though children are seen to be incapable of making choices on their own, the choices parents
make on their behalf have an impact on the choices the children will make in future. Ballet et al. (2011) in their study on “Children’s agency and the Capability Approach: A conceptual framework,” highlighted on the relevance of conversion factors for children to convert the resources into functionings. Conversion factors are internal and societal or environmental. Availability of roads, hospitals, schools is of ultimate importance if children are to achieve their functionings of being healthy and being literate. As shown in Chapter One, some villages in rural Malawi are inaccessible by a motor vehicle and access to health care centres and schools is also difficult. Achievement of functionings is therefore hampered in the absence of essential social services. At family level, children’s opportunities in health and education increase when the mother is educated and has enough resources to provide good care.

Actions and decisions of mothers determine the freedoms and the capabilities children can enjoy in their infancy and when they grow up. Maternal health and nutrition for instance has an enormous impact on the birth weight and nutrition status of the child. Malnourished mothers have a higher probability of bearing an undernourished child (Senbanjo et al. 2013; Abuya 2012). Mother’s education on the other hand correlates with child’s health and education. Uneducated mothers engage in manual labour for their daily living. Children therefore provide extra hands for the labour of the household therefore making them become subject to bonded labour. Mother’s education affects a child’s occupation in future since capabilities of parents are transferred to children. If mothers have poor health, low education and low welfare it follows that children’s capabilities and functionings may fail to expand even though it is not their own fault (Mehrotra and Biggeri 2002 cited in Ballet et al. 2011). Children inherit destitution and deprivation when they are food insecure, receive poor health care and lack access to education and other opportunities in life.

The Capability Approach permits individuals to realize various needs and choices of people from different social groups (Wang 2011). In assessing social exclusion and inequality in higher education in China, Wang (2011) used the Capability Approach in order to show that there are factors beyond resources that may be referred to in assessing inequalities in education. As Unterhalter et al. (2007) elaborates, there are differences in the way various people convert resources to ability and from ability to functioning. Through the Capability Approach, a number of unjust structures that tend to create social problems like social exclusion and inequality are discovered.

In evaluating inequality in higher education in China, it was concluded that children from disadvantaged homes in China are more likely to struggle to attain higher education due to structural and economic challenges they face (Wang 2011). Continuation of prevailing socio-economic inequalities in education
increases probabilities of poor education attainment of children from poor households (Bradshaw et al., 2004; Waters, 2006; Healy and Slowey, 2006 cited in Wang 2011). Students from poorer households are deprived of the freedom to esteemed choice of higher education due to exorbitant tuition fees and lack of financial assistance to the needy students for instance student loans. Children from poor regions and poor families are left to either enrol in poor performing universities and colleges or to forego higher education in general. The institutional design confines people to specific states or provide a podium to enhance capability of real freedom of choosing to go for tertiary education. Freedom to choose to go to university is undermined by the flawed and socially constructed factors for instance family background. Even though universities are there in China and children especially from poor homes are willing to further their education, social conversion factors like policies on place of origin and residence as well as privatization of universities limits many from advancing their education qualifications (Wang 2011; Wang 2012).

The Capability Approach was also used by Tao (2010) in evaluating education quality in primary schools in Tanzania. Education quality in primary schools in Tanzania is affected by a number of factors that prevent many learners from achieving their functionings and capabilities. According to an ethnographic study conducted in one primary school in Tanzania, teachers and students behaviours and attitudes play a role in dwindling quality of schooling. According to Tao (2010) high absenteeism by both teachers and learners, inadequate teaching and learning materials, lack of school feeding programs, inadequate salaries for teachers as well as lack of strong parental involvement contribute to poor education quality. These physical, social as well as environmental conversion factors limit learners from learning effectively (Tao 2010; Robeyns 2005; Walker 2006). The challenges that teachers and learners encounter affect the choices they make. Learners choose to drop out of school once they realize that they are not enhancing their literacy and numeracy skills due to the challenges they encounter in school. On the other hand, teachers choose to deliver using teacher centred pedagogy due to high learner teacher ratio, inadequate teaching and learning materials as well as avoiding overloading themselves with more work due to change of lesson delivery method.

Additionally, families opt to withdraw their children from school especially girls due to opportunity cost of keeping girls in school. Some parents believe that education does not bring more economic gains to one’s life hence most families in Tanzania withdraw their children from school. Using the Capability Approach, Tao (2010) highlights how deprived communities like the ones in Tanzania are disadvantaged in accessing quality and relevant education. In cases where children walk long distances from home most children especially girls do not enrol and they later on drop out of school due to
susceptibility to sexual harassment (Nekatibeb 2000 cited in Shahidul and Zehadul Karim 2015) other studies concluded. Supplementary capabilities that come with education are at risk of not being achieved due to poor access and delivery of education.

2.3.2 Child nutrition and health capability
Health capability incorporates health outcomes like nourishment and health agency. The details highlight reasons behind some children being well nourished compared to others regardless of having access to similar resources as articulated by the health capabilities (Ruger 2010). The structural constraints and opportunities as well as the conversion factors like cultural norms and practices are better elaborated in the health capability. Health capability comprises health functioning and health agency. Agency in the context of health is an individual’s aptitude to realize health objectives for instance child health and nutrition as well as act as mediators of their own health and well-being. Nutrition and health capability provides a platform to evaluate a number of inequalities other than injustices on resources. Through the health capabilities, features like social norms, decision making abilities, self-management, knowledge and skills are assessed on how they affect one’s nutrition and health choices and freedoms.

Díaz Ruiz et al. (2015) argue that choice is enhanced by programs, freedom and agency. For instance when the agency of disadvantaged groups are not well taken care of it becomes difficult for them to enjoy social justice. Advancing justice is at the centre of the Capability Approach. Failure to promote social justice is less likely to improve the situation of the deprived groups like the disabled and the malnourished. The study conducted by Díaz Ruiz et al. (2015) in Chile showed that the program for the 65 year olds and above disabled citizens failed to achieve its intended objectives. The program fell short of enhancing achievement, agency, freedom and well-being of the targeted populations. Again using the Capability Approach in health and education, Mutanga and Walker (2015) in analyzing the capabilities of students with disabilities in higher education in South Africa identified eleven capabilities highly esteemed by the disabled students. The students valued aspiration, cultural value, choice of identity, educational resilience, knowledge and imagination, language, mobility, religious affiliation, respect dignity and recognition, social relations and social networks and voice (Mutanga and Walker 2015). The study showed that capability deprivations are multifaceted and most of them are not addressed in the curriculum the students are exposed to with abled learners in institutions of higher learning. In order to enhance the capabilities of all learners regardless of their physical abilities curriculums have to incorporate needs of all learners in South Africa and beyond. Individual

http://etd.uwc.ac.za/
agency and choice is crucial in every individual, most importantly among marginalized and deprived people.

While using the Capability Approach in analyzing the impact of poverty on the disabled, Trani et al. (2015) concluded that disabled women greatly experience multiple deprivations than persons without disabilities. Their research showed that poverty alleviation programs and policies in Morocco and Tunisia were more likely to make significant transformation if concerns of the marginalized and deprived people like the disabled were incorporated in the policies. Only when capabilities of the disadvantaged groups are enhanced can policies be meaningful to the populace.

2.4 Conceptual Framework on Malnutrition

Conceptual frameworks are developed to understand different social issues. UNICEF’s concept on malnutrition was developed to be used in the context of under-nutrition in rural areas in developing countries. The framework is however also used in many developed countries to analyse issue of over-nutrition. Malnutrition is seen to have basic causes, underlying causes and intermediate causes. Inadequate dietary intake and disease are the immediate causes of malnutrition while insufficient access to food, inadequate care for children and mothers, poor health services and an unhealthy environment form part of the underlying causes of child malnutrition (Sassi 2014). Malnutrition is said to be caused by various aspects at individual, family or community and at national level.

The UNICEF’s Conceptual Framework looks at how household food insecurity, poor access to health care and facilities and inappropriate feeding and caring behaviour lead to diseases and inadequate dietary intake for children (UNICEF 1990). This framework highlights that child nutrition relies on more than availability, access and utilization of food. According to Drèze and Sen (1989 cited in Cornia et al. 2016) a child can avoid malnutrition when health care and health facilities are available and accessible. Good parental care, water, sanitary facilities as well as basic education for the caretakers are also crucial in promoting child nourishment. De Schutter (2013) shares the same sentiments and argues that improving primary education is important in promoting child nutrition as it helps children and their caregivers comprehend basic nutrition science. The framework provides a holistic approach of looking at basic, underlying and immediate causes of malnutrition.

Household food insecurity according to UNICEFs Conceptual Framework is as a result of inadequate access to services as well as basic failures in the prevailing political, social and economic systems (UNICEF 1990). According to the Rome Declaration on World Food Security, food security is based
on three basic dimensions of availability, accessibility and utilization of food (Aberman et al. 2014). This implies that food has to be available to all citizens at an affordable cost. Once the food is consumed, the bodies should ably utilize nutrients acquired from the consumed food. Malawi’s economy has been characterized by erratic growth. The minimal fiscal space that the country is forced to operate on is seen by the poor social services for its citizens (Tostensen 2017). The country exports less and it imports more hence leaking it capital (Mohr 2015). Domestic debts have been increasing and the country is hardly servicing its international debts. Excessive debt institutes a hindrance to sustainable growth and poverty reduction (Siddique et al. 2015). With the high lending rates of 38-40% few people risk to get these loans from banks in order to invest in small-scale businesses or even in agriculture (Kreibich et al. 2017). According to Malawi’s recent Integrated Household Survey (NSO 2017) only 4.3% and 10.6% of the population from Mangochi and Machinga respectively accessed loans. The average inflation rate since 2012 has been between 23 and 25% (Kreibich 2017). Many Malawians especially the poor find it difficult to survive when the cost of living goes up. Inadequate resources at household level which is as a result of government political and economic systems contributes to food insecurity as households struggle to purchase food.

As already highlighted in Chapter One, poverty levels of Malawians have slightly reduced from 52.4% in 2004 to 50.7% in 2011 (Mussa 2017). Headcount poverty is still high in Malawi at 38.7% (Government of Malawi 2016). Poverty headcount in rural areas minimally increased from 55.9% to 56.6% (Mussa 2017). Machinga district for instance has 75% of its population living below the poverty line with 39.2% of the population living in ultra-poverty (Government of Malawi 2017). High population growth in Mangochi and Machinga of 3.55% and 2.9% respectively is one of the contributing factors to high poverty levels and food insecurity (Government of Malawi 2017). Almost 85% of the households in the districts rely on farming for their livelihood. When weather conditions are not favourable for farming many families become food insecure. The alternative way of finding food is through purchasing as they wait for the next harvesting season. De Schutter (2013) argued that improving dietary quality in Malawi involves reducing unemployment as well as increasing minimum wage which currently is estimated at one of the lowest in the world. Few households manage to buy food in lean periods. Food for work is a common response to seasonal food insecurity in Malawi however, it is targeted (Bloom et al., 2005; McCord, 2008, Chapter 8 cited in Ellis and Manda 2012). Some deserving families are left out and their households remain food insecure. The probability of their children becoming malnourished therefore becomes high.
Weak policies and programs in the agricultural sector affect many people especially those from underprivileged households. Malawi has been experiencing famines for some time. The 2001-2002 famine is however attributed to the weak policies and decisions by the ones in decision making positions (Devereux 2002). Maize that was in stock at the National Food Reserve Agency (NFRA) was sold in order to service loans by the agency. When dry spell came many poor Malawians suffered since they could not afford to buy maize as prices were adjusted up by 240% (Ellis and Manda 2012:8). In 2013, the government was encouraged by the International Monetary Fund (IMF) to join the alliance on food security and nutrition with an intention of eliminating stunting and ending hunger. The IMF imposed the country to devalue the currency in order to offset the balance of payment (Patel et al. 2015). That decision did not benefit poor Malawians as it was thought; rather, the IMF and other international bodies fulfilled their agenda.

The Malawi government is also implementing a Farm Input Subsidy Program (FISP) targeting capital-constrained farmers in order to enhance their productivity (Government of Malawi 2011). Even though this is the case, some studies have shown that above 25% of the deserving poor are left out during targeting exercises (Cullen and Lawson, 2005; Levy and Barahona, 2002; Levy et al., 2004 cited in Holden and Lunduka 2012). The poor who are left out do not manage to buy seeds and fertilizer at high prices. They end up producing less than they could if they had benefited from subsidized seeds and fertilizer. Studies on Malawi’s Farm Input Subsidy Program (FISP) have also shown that increases in the price of fertilizer reduce income of the farmers and total consumption changes as well (Komarek et al. 2017; Lunduka et al. 2013). In moments of surplus maize externalization is curtailed by legislation, licencing and ad hoc policies (Ellis and Manda 2012). Small holder farmers fail to export maize when there is surplus and cannot import when there is not enough food. Programs and policies which on paper are said to enhance food security for the poor end up not fulfilling the goal. The vicious cycle of poverty and food insecurity is hence perpetrated.

Malawi is vulnerable to climate change and weather inconsistencies which results in droughts and floods and other calamities. Dry spells, floods and droughts significantly reduce agricultural production of any country. Agriculture produces food for peoples’ consumption and it is a source of income for 36 percent of the entire global labour force (FAO 2008). Studies indicate that 64% of
Malawians depend on agriculture for their daily life (Tostensen 2017). Agriculture is a major sector for sustainable development of many developing countries (Xiong, Lin, Ju and Xu 2007). When farming is affected by climate change many people, especially the rural poor become vulnerable and their proneness to food insecurity and malnutrition grows (FAO 2008). This livelihood strategy is not sustainable because many fail to recover from the climate related shocks and stresses. Moreover, Malawi still uses archaic methods of farming and has not adapted with the change in weather and climate and its farming is rain fed (Falco, Veronisi and Yesuf 2011). Even the government is yet to diversify the farm inputs especially seeds that are allocated for the national Farm Input Subsidy Program (FISP). The subsidy program is not being adjusted to suit with the times and situations the country is at the moment (Tostensen 2017). Crop diversification and promotion of interventions that will reduce the impact of climate change on agriculture and food insecurity is crucial.

As the world is grappling with the effects of climate change it is estimated that maize yields will fall 10-20% in Africa by 2050 (Alderman 2003; IPCC 2007). The production of other cereals apart from maize will also be reducing due to climate related factors. The production of Malawi’s staple food maize has been reducing in recent years as well. Maize production in 2016 was 2.4 million tonnes; this was a 15% decrease from 2.8 million tonnes in 2015 (FAO 2016). The reduction in maize production pushed prices of the cereal high as supply was lower than the demand. The price of maize in June 2016 in Malawi was 58% more than the three-year national average prices (WFP 2016). Only those who could afford to buy food were buying while the poor reduced the quantity of food and the quality they were getting on a daily basis. Since 2015 the country has been declared a state of emergency as above 6.5 million people is estimated to be in need of food assistance (Tostensen 2017). With the large number of families being chronically food insecure, it is unsurprising to see that malnutrition cases among children have minimally changed over the years.

Inadequate access to services like health facilities contributes to child malnutrition and poor health. Limited availability and accessibility of these services prevents many from accessing the services (Palamuleni 2011). As pointed out in Chapter one, it is estimated that the ratio of doctor to the population in Malawi is 1 to 20,000 (Doctor et al. 2013). The number of health facilities is also inadequate in the country. Machinga district for instance has a population of 647,401 yet it has 22 health facilities with a bed space of only 375 (Government of Malawi 2017). This implies that people travel long distances to get to health facilities and the hospitals especially the district hospital is congested. The Malawi National Health Policy provides for at least one health facility for every 10,000
people (Government of Malawi 2012). Machinga district alone requires 65 health facilities to serve the people well. This trend of inadequate health facilities and health workers is a stumbling block to reducing diseases as well as child malnourishment.

The country also has poor indicators of sanitation. Studies have revealed that diarrhoea is the second largest killer of under-five children (Tate et al. 2016). Nearly 88% of diarrhoea is contributed to poor water supply and inadequate hygiene and sanitation (Adane et al. 2017). It is estimated that 87% of rural households use improved source of water supply (Government of Malawi 2016). As indicated in Chapter One, nearly 20% of Malawians do not have access to any toilet (Government of Malawi 2010). Slightly above 52% of Malawi use improved sanitation facilities (Government of Malawi 2016). Research also indicates that less than 28% of Malawians wash their hands using soap (Park et al. 2017). Additionally, only 5% have hygienic mechanisms of disposing off children’s stool (Park et al. 2017). The poor indicators of sanitation and hygiene are a pointer to why Malawi has many cases of diarrhoea. The presence of disease in a child’s body affects dietary intake. Reduced dietary intakes exist due to decrease in appetite, nutrient loss and problems with digestion (UNICEF 1990). Decreased intake of food leads to further undernutrition (Maleta 2006). The cycle of undernutrition is therefore promoted.

One of the main primary causes of malnutrition is inadequate food, feeding and care practices. Some scholars have argued that the sustenance, growth and advancement of a child are influenced by three essential elements which are availability of adequate food, health care and a healthy surroundings and care (Engle et al. 1999). Care refers to practices of caregivers that have an impact on nutrient intake, health and the logical and psychosocial advancement of the youngster (ICN 1992 cited n Engle et al. 1999). According to Jonsson (1995) caretakers and mothers of children provide adequate care if they have sufficient education, time and support from the family and the community. Enough care is also provided where resources are available. These resources are in the form of education and knowledge that the caregiver has; good nutrition status and health; psychological wellbeing; lack of anxiety, self-confidence and assertiveness; good management of resources and independence, minimal dependence on other people; realistic and reasonable workload. Mothers and care givers also need adequate time to relax moral and social support from their families and neighbourhood (Engel et al. 1999). Provision of care to children becomes apparent in the presence of the resources and support mentioned above.
Educated mothers commit themselves to taking good care of their children by ensuring that the house and surroundings are clean. When the child is sick they immediately rush to get medical attention. Maternal education translates into much health care utilization including formal prenatal and postnatal hospital visits (Güneş 2015). Besides health care utilization, educated mothers have greater knowledge of modern health care and easily communicate with clinicians and health care providers on the health condition of the child (Caldwell 1979 and Barrera 1990 cited in Güneş 2015). Schooling exposes mothers on ways of enhancing cognitive development in children. Some studies have shown that educated mothers devote their time to breast-feeding their children because they understand the significance of breast milk in child development (Engel et al. 1999). Education promotes assertiveness and it becomes easy for mothers and caregivers to promote good health practices for their households and their children.

Child care in cases of household food insecurity becomes minimal. When there is hunger women spend much of their time looking for food and income. As mothers or caregivers work hard to make ends meet; little attention and care is given to the children. It is estimated that 20 to 40 percent of families in Malawi run out of their food before the harvest comes in. When this happens, unintended and unplanned work in other peoples’ fields—ganyu—becomes subsistence approach (NSO 2012). Studies show that female-headed households with low literacy levels are the ones most likely to rely on casual or unintended labour to survive unlike male-headed households (Kerr 2005). The time caretakers spend in doing piece jobs reduces the time they have to provide care to their children. Educated mothers on the other hand have higher income therefore they ably buy enough quality food for their children (Güneş 2015). The poor dietary intake of mothers from food insecure homes contributes to the statistics which indicate that almost 42% of women in developing countries have iron deficiency (Zimmermann and Hurrell 2007). Iron deficiency leads to lack of adequate energy to fend for the family as well as to taking care of children.

The socio cultural norms and practices impact on child care practices. In many societies in Malawi, most husbands control assets and other resources the family holds. This has also been proved by most gender inequality studies in many African countries which show that men are culturally expected to be dominant and women powerless in their relationship (Susser & Stein 2000 cited in Mbweza et al. 2008; Patel 2015). When women control household resources in many cases they apportion a larger share of the money towards buying food for the children, unlike when the resources are controlled by the husband (Engel et al. 1999). Statistics indicate that only 55% of women contribute
in making decisions on household purchases in Malawi (Government of Malawi 2016). This indicates that nearly half of women in Malawi do not contribute in deciding on how the family should use their resources including money. In addition, women are culturally expected to do many household chores than men. Women in Malawi spend more time fetching firewood, drawing water, farming, preparing food and taking care of children. As women occupy themselves with household chores, limited time is left for child nurturing and care.

The UNICEFs Conceptual Framework brings into play a number of factors that play a role in causing child malnutrition. A thorough analysis of the causes of child malnutrition gives a clear guidance on approaches to put in place to address the complex concern of child malnutrition.

2.5 Empirical review of child malnutrition and maternal education
Child malnutrition is a major cause of poor child health and development, and approximately one third of child mortality cases are as a result of malnutrition. Of the aspects seen to be linked with health, the proof is predominantly strong for income, education, and profession (Urke et al. 2011). One crucial indicator of lasting malnutrition in childhood is stunting; which is short stature for age. In Malawi stunting is higher among children born in the rural areas at 39% than in urban areas where stunting is at 25% (Government of Malawi 2016).

Urke et al. (2011) argue that socio economic status of parents, particularly mothers contributes significantly to the reduction of malnutrition rates. Using the World Health Organization Commission on Social Determinants of Health Conceptual Framework, Peruvian Andes Survey data and the Demographic and Health Survey for Peru, the researchers found that socio economic status was significantly related to malnutrition. Chances of malnutrition were high in children born in families with lower welfare compared to those born in well to do families. The likelihood of malnutrition was lower in children born to mothers with secondary education compared to those children born to mothers with incomplete primary education. Results showed that in the poor region of Andes access to health information is low, social and health services are poor and few have access to a variety of nutritious food. Educated mothers in Andes showed to be using the limited available resources in their community very well compared to mothers with incomplete primary education. The results also showed that children whose mothers had professional occupation had higher odds of being malnourished compared to children whose mothers were working at home.
In another study conducted in rural Bangladesh, children born to employed mothers had higher odds of being malnourished compared to those children born to stay home mothers (Ferdous et al. 2016). These results support the findings by Urke et al. (2011) on how occupation outside the home adversely impacts child’s health and nutrition. Children need adequate and nutrition food as well as enough care for them to grow healthy. Time for child care is reduced as mothers participate in income generating activities and other household chores. Economic empowerment is increasing and many women including in urban Bangladesh are engaging in empowerment activities. Using the UNICEF’s Conceptual Framework on child malnutrition and data from children admitted at a hospital an analysis was made to see the connection between mothers dwelling in slums participation in employment and child undernutrition. The children of mothers who were involved in salaried work had a 1.14 intervals higher possibility of undernutrition¹ than children of mothers not involved in an income generating activities. The link between mother’s employment and stunting, wasting and underweight separately was also significant. The causal relationship is however problematic to justify due to cross-sectional study design and other detailed information regarding their work. As much as women’s involvement in income generating activity is a strategy of fighting poverty, it can also pose challenges on the children of these mothers. This applies more to mothers from poor households living in urban slums. Others scholars (Jimenez et al. 2015; Glewwe 1999; Yoong, Rabinoch and Dipeveen 2012) however challenge this position. They argue that employed mothers have more money to support their children.

Education improves ones socio-economic status and enhances empowerment. Maternal education has stronger child health and nutrition association than paternal education. As mothers socio-economic status improves through employment and entrepreneurial activities their economic base expands (Jimenez et al. 2015; Glewwe 1999). Yoong, Rabinoch and Dipeveen (2012) concluded that mothers devote more resources to their children’s education and health than fathers do. Maternal education does not only contribute to allocation of resources but also contributes to the number of children that women give birth to, dietary decisions and decisions about her own health care (Alderman and Headey 2017). Improved numeracy and literacy skills of mothers contribute to the general well-being of their children (Glewwe 1999). Studies have however shown than poor education quality in many low-income countries is leading to poor literacy attainment for many mothers in those poor countries (Alderman and Headey 2017). Once comprehension of health messages and other

¹ Undernutrition is being understood as the occurrence of stunting, wasting and underweight
nutrition information is problematic, implementation of the same becomes difficult. At the community level, average schooling years can help improve sanitation and medical services and consequently child nutrition outcomes (Alderman et al. 2003; Desai and Alva 1998).

A study among Nigerian mothers showed that mother’s education had a greater influence on child survival than household economic characteristics (Caldwell 1979). Mother’s education is more relevant than father’s education in the promotion of child health. Research done in Colombia, Thailand, and the Dominican Republic supports the assertion and established that children of illiterate mothers were at least two times likely to be stunted as children of literate mothers without considering economic status of mothers (Cleland 2010). It is argued that educated mothers have increased knowledge of causes of diseases, preventive and curative measures. Educated mothers may complete all prenatal visits, fully vaccinate their children and make informed choices of their children’s health care. Studies have shown that countries like China, Sri Lanka and Costa Rica achieved high life expectancy because of sustained political commitment to enhancing human capital for all citizens regardless of sex (Cleland 2010).

Alderman (2003) measured how education of mothers in Peruvian neighbourhoods impacts on the nutrition of children in the household and in the community. The paper assessed how shared knowledge significantly impacts on nutrition status of children in a particular community. When more mothers are educated in a community there are more benefits compared to only having a few educated mothers. The paper also highlighted that there are more benefits when water and sanitation services are available to many in the community compared to only one or few households. Using the public goods theory, Alderman (2003) highlights how negative externalities of poor sanitation affect the whole community including those with improved water and sanitation facilities. Alderman (2003) based his study on the model which assumes that nutrition status of a child in a family is a result of the availability of nutritious food, health and child care. The model also looks at how the child’s genetic potential contributes to nutrition status.

Chen and Li (2009) found that mother’s education is an important determinant of the health of adopted children even after controlling for income, number of siblings, health environments, and other socioeconomic variables. Their study which looked at the effect of maternal education on the health of adopted children in China also showed that the outcome of mother’s education on adopted
children is similar with effect on educated mothers who nurture their own biological children (Chen and Li 2009). Mother's education plays a significant role in child health especially in post-natal nurturing.

Makate and Makate (2016) used the DHS data for Malawi to assess the causal effect of mothers schooling on under-five children health and the passages through which schooling is done. The results indicated that one year spent in school leads to a 3.22% reduction in infant mortality and 6.48% reduction in under-five mortality. Makoka and Masibo (2015) agree to the assertion that mother's education reduces child malnutrition in Malawi, Tanzania and Zimbabwe. Makoka and Masibo (2015) used DHS data for Malawi (2010) Tanzania (2009-10) and Zimbabwe (2005-6) to assess the threshold level of maternal education sufficient to reduce child undernutrition in the three countries highlighted above. Whilst using the UNICEF (1998) framework that links maternal education and child nutrition. The framework highlights that the possible pathway by which mothers education influences nutritional outcome of children is through acquisition of knowledge and skills that contributes to enhanced understanding about health care and nutritional knowledge. While Makate and Makate (2016) looked at mother's education in general, Makoka and Masibo (2015) found that stunting, wasting and underweight is lower on children whose mothers had secondary education and above.

According to Makate and Makate (2016) educated parents have improved access to economic resources which they attain because of their high education level as well as enhanced knowledge which comes with longer stay in school. They stress that highly educated women have high socio-economic status which enables them to provide necessary and nutritious food to their families. Educated mothers may have more economic powers which may allow them to have access to better quality services for their children. Makate and Makate (2016) agree with Urke et al. (2011) that mothers with basic education make good use of resources available to them compared to illiterate women. As mothers are key to making decisions on the health of their children, the more educated they become, the better decisions they make in terms of the health care services provided to their children.
There has been a debate on the level of education critical in making meaningful strides in the promotion of child nutrition (Alderman and Headey 2017; Caldwell 1979). Some researchers concluded that a few years of education even before mothers acquire functional literacy skills is important for the survival of their child (Cleland 2010). Studies in India have also shown that children of illiterate mothers are less likely to die in communities where majority are educated. Improved health behaviours in the community contribute to the reduction of infections more likely to affect children. Societies that have many educated habitants follow improved sanitation methods. Studies have shown that improved sanitation practices have a positive impact on children’s nutrition (Alderman et al. 2003; Desai and Alva, 1998 cited in Makate and Makate 2016). Some scholars (Makoka and Masibo 2015) are of the opinion that maternal education is more significant when girls stay longer than 13 years in school compared to primary education only. It is believed that health care messages and behaviour change messages are more complex and require more than basic education (Alderman and Headey 2017). In Zimbabwe, research findings revealed that children born to mothers who have attended secondary education are 12% less likely to die (Grépin and Bharadway 2015). Additionally, any yearly increase of secondary education of mothers reduces the chances of child dying by nearly 21%. Grépin and Bharadway (2015) study was based on classic theories of how education improves health directly through efficiency in allocation of resources as well as productive efficiency mechanisms (Grossman 2006 cited in Grépin and Bharadway 2015).

Studies on the role of caregivers on child nutrition concluded that caregivers’ good understanding of food groups plays a significant role in enhancing children’s nutritional status (Bhutta et al. 2013; Black et al. 2013). Yabanci et al. (2014) concluded that many mothers who have higher nutritional knowledge level have children with normal weight compared to children whose mothers have low nutrition knowledge. Mothers with higher level nutritional knowledge feed their children more with vegetable, fruit, legumes, and less sugared drinks. Yabanci et al. (2014) study aimed at determining the impact of nutritional knowledge level of mothers about the nutritional attitudes and behaviours of the children in Ankara, Turkey. The results indicated that several mothers who have advanced nutritional knowledge level have children with normal weight unlike children of mothers with lower nutritional knowledge. This is contrary to what mothers with low education do. The study revealed that the diets given to children make them overweight. Children raised by educated mothers are more nourished and deaths that come as a result of malnutrition are lessened.
Glewwe (1999) looked at how health knowledge contributes most to child health in Morocco. The results showed that mother’s health knowledge is crucial for raising child health. The study revealed that health and nutrition knowledge is not imparted on the mothers in school through the curriculum but rather in health literacy programs in communities. The study looked at a framework that has four determinants of child health. Parental schooling, household assets, local health environment and child health endowment are key factors that contribute to child health and child nutrition.

Studies in Ethiopia have shown that mothers do not feed their children vegetables, meat and other animal source foods because of beliefs that children find difficulties to digest such foods as well as stomach illnesses (USAID 2011; Alive & Thrive, 2010 cited in Hirvon et al. 2017). Ethiopia is one of the countries in Sub-Saharan Africa with chronic malnutrition as shown by 38% stunting rate for under-five children. In arguing on the importance of mother’s nutrition knowledge Hirvon et al. (2017) concluded in their study that children’s dietary diversity improves not only because of mother’s nutrition knowledge but also because of good access to markets. In their study, Hirvon et al. (2017) analysed how caregivers’ nutrition knowledge and access to markets plays a role in child health and nutrition. Quantitative data from areas with easy access to markets and another area with difficult access to market was collected. The results indicated that better knowledge of nutrition leads to improvements in the diet of children however this was the case to only those mothers who had reasonably good access to food. Mother’s nutrition knowledge has limited impact on children’s dietary diversity in isolated communities. Mother’s nutrition knowledge on its own cannot make a big significance except when mothers can easily access a market.

Mother’s education has also been attributed to reductions in infant mortality in developing countries. A study conducted in rural Bangladesh concluded that under-five mortality were 38% lesser for children with educated mothers having secondary education compared to the children with illiterate mothers (Akter et al. 2015). The study aimed at assessing the association between parental education and under-five mortality rate using panel data from rural Bangladesh. The research showed that there are fewer benefits to child health attributed to father’s education compared to mother’s education. Child health is improved when more mothers acquire education (Akter et al. 2015; Global Partnerships for Education 2015).
Alderman and Headey (2017) assessed the effect of parental education on child health and nutrition using Demographic and Health Survey (DHS) secondary data from 56 low income nations. They also analyzed if maternal education has larger effect than paternal education in promoting health and nutrition for the next generation. The model they followed stipulates that nutrition is an outcome of a productive function where food in the household, health and sanitation input to produce nutrition and other welfare outcomes under limited resources. The framework further asserts that the prices of food and other materials as well as the income of the family determine the input the family gets. The results indicate that parental education is one of the key factors that contribute to child health and nutrition. Maternal education was proved to be of more benefit to child’s health and nutrition when compared to paternal education results that were also found by Akter et al. (2015). The study also highlighted that it is quality education and more years of schooling, that plays a role in child nutrition and child health. The results showed that significant reduction in malnutrition will only take place when low income countries invest in universal secondary education (Alderman and Headey 2017; Akter 2015). This assertion of promoting universal secondary education is questioned because most of the developing countries are still grappling with implementing universal primary education (Omoeva and Gale 2016; Longenecker and Barnum 2017). Financing universal secondary education is more likely to be difficult for most developing countries.

Environmental conditions and other community unobserved characteristics also play a role in improving nutrition status. Alderman’s model borrows some concepts from the UNICEF conceptual framework (Alderman 2003). The paper found that there are positive externalities of increasing access to education to all citizens. In addition, many benefit when infrastructure and sanitation services are provided to all households unlike when services are provided to selected households in the community. Overall Alderman (2003) concluded that education of females in rural areas has positive impacts on nutritious status of children as a whole in the community regardless of the education level of a child’s own caretaker. Water and sanitation investment in the neighbourhood plays a huge role in enhancing nutrition status of children in a community compared to the availability of water and sanitation infrastructure to only one household. Provision of sanitation facilities compared to provision of water supply is more important. Promotion of female education; increases in funding towards girls education as well as provision of water and sanitation infrastructure are crucial in the promotion of child health and nutrition.
Black et al. (2013) used the framework that shows the best way to achieving fetal and child growth and development instead of the UNICEFs framework that shows determinants of undernutrition in children. The new framework shows how diet, behaviour and health factors, growth and development are affected by basic elements of food security, caregiving resources as well as environmental factors situations. The availability of food and environmental circumstances are influenced by economic and social conditions at national and international levels and governance. This paper observed how the determinants could be transformed to promote growth and improvement. The framework explains how nutrition-specific programs can avert the direct causes of poor growth and development. The possible results of the interventions in reducing the primary causes of malnutrition are outlined in the framework. Furthermore, the framework highlights different ways that assist in creating a good environment to support programs aimed at advancing nutrition, growth and development. The paper looked at the prevalence of nutritional conditions and how they negatively impact on the health and development of an individual. Through using the life-course perspective, the author conceptualized the effects of poor nutrition status of the mother in fetal development in the first two years, at adolescent stage as well as when the young woman starts bearing children. These assertions were also made by Senbanjo et al. (2013) in Nigeria.

Senbanjo et al. (2013) added that malnutrition cases tend to be more among children born to malnourished mothers particularly from rural areas. In their study Senbanjo et al. (2013) used a cross sectional survey of women in reproductive age group and under-five children to analyse the relationship between the nutritional status of mothers and their children. Special focus to urban and rural disparities of mothers and children living in rural and urban communities of Lagos state, Nigeria showed that undernutrition is more prevalent in rural areas than in urban areas. In rural communities, the risk of stunted mothers having stunted children is about 7 times higher than mothers that are not stunted (Senbanjo et al. 2013). Similar trends were seen among undernourished mothers who also had undernourished children 11 times higher compared to well-nourished mothers in urban settings. Mothers in rural communities have low education levels, low welfare status which limit the use of resources at their exposure. Mothers and children therefore minimally benefit from these resources and this affects their wellbeing.
Though some scholars argue that malnutrition is linked with staying in rural areas (Senbanjo et. 2013; Black et al. 2013) some researchers argue that undernourishment is also prevalent among the urban poor. Abuya et al. (2012) highlighted that stunting is associated with living in urban slums. With increases in urbanization it is believed that proportions of urban poor will increase including urban underfed (Ernst and Phillips 2013). In some countries in East Africa the numbers will surpass the underfed in rural areas (Abuya et al. 2012). The urban advantage for younger children is being eroded as standards of living are diminishing in slums in urban areas. Rapid population growth in many urban slums is surpassing the provision of health, water and sanitation services. The effects of unhealthy slum situation and overcrowding include incidences of diarrhoea occurrences for a number of days which leads to increased cases of malnutrition, poor health, and death among infants. Using data from the maternal and child health component of a broader longitudinal study entitled Urbanization, Poverty and Health Dynamics (UPHD) in sub-Saharan Africa, Abuya et al. (2012) analysed the effect of maternal education on child malnutrition. The results showed that the chances of child stunting are higher for mothers with no education or with primary education compared to mothers that have secondary education. The results also showed that a male child born at a Traditional Birth Attendant (TBA) with low weight has higher odds of being malnourished compared to a female child born at the hospital with the low weight. There are also higher chances of being stunted when a child is born in a family belonging to the lowest wealth category. Children’s chances of being stunted are more when they are born in a family with more than one child and when they are born to a single mother compared to when they are born to a married mother.

Literature has shown that there are a number of factors that lead to child malnutrition. Inadequate food, underutilization of food as well as inadequate nutrition knowledge among mothers are some of the drivers to high malnutrition rates among children. Insufficient energy supplies as well as limited time for child care and nurturing have also been highlighted to have contributed to increased rates of malnutrition among under five-children. There is however a need to better understand the link between the education level of a mother and child malnutrition.

This study intends to look at how young mothers education in Mangochi and Machinga influence the choices they make in regards to the health of their children. The study will answer the gap in research on how young mothers make use of the nutrition information acquired in school to promote their child’s nutrition and health. The research will look at how the resources and the opportunities young mothers encounter are converted to achieve the functioning of being healthy and having well-nourished children.
2.6 Conclusion
This chapter explained the Capability Approach on which this paper is based on. The section has discussed key components of the approach and explained how some scholars used the approach to analyse and evaluate child health and malnutrition and maternal education issues. The chapter also explained the UNICEF's Conceptual Framework and how it is used to explain various factors that play a role in child malnutrition as well as the need for a multidimensional approach in overcoming the problem. A reference has also been made in this chapter on how other scholars discussed linkages between mother’s education and child health and malnutrition as well as causes and impact of child malnutrition in different parts of the world. This study intends to establish the link between mother's education and child malnutrition. Based on the research questions and some literature reviewed in this section, the research will describe the causes of school dropout in Malawi.
Chapter Three

Research Methodology

3.1 Introduction
The chapter outlines the methodology that was followed in doing the study. The section will discuss the data collection tools and procedure and data analysis techniques. The chapter will also include a description of the location of the study and a recount of researchers’ experiences from field data collection. Ethical considerations and the relevance of this study will be elaborated.

3.2 Research design
This research work followed a Mixed Method Approach. The Mixed Method research is a type of study where an investigator uses both Qualitative and Quantitative research approaches (Creswell and Plano Clark 2011). Mixed Methods approaches can be used for a number of reasons and this study used the approach to answer a research question that needs both quantitative and qualitative analysis to unpack and to give a deep understanding of the subject under study. Explanatory Sequential Mixed Methods Design was followed in the study (Creswell 2014). Quantitative data from the Demographic and Health Survey was first of all analysed to find the linkages between mother’s education and child malnutrition. Results from the quantitative data analysis informed the qualitative study. This is according to what Creswell (2014) highlights that findings of quantitative study provide a guide on how qualitative study should be conducted.

The preliminary analysis of the quantitative data provided guidance on the people to be sampled for the qualitative study. The questions for the one on one interview were formulated based on the findings. A number of scholars have researched on child malnutrition in Malawi using data from Demographic and Health Surveys as well as Integrated Household Surveys (Sassi 2014: Sassi 2015: Harttgen and Klasen 2012: Harttgen et al. 2016). Some researchers have used qualitative research to understand factors contributing to child malnutrition in Malawi (Patel et al. 2014). The researcher did not come across research work that used Explanatory Research Method in discussing child malnutrition in rural Malawi and Machinga and Mangochi districts in particular.
3.3 Research methodology

3.3.1 Quantitative

The study used secondary data for its quantitative analysis from the cross-sectional Malawi Demographic and Health Survey (MDHS 2015-16). The National Statistics Office (NSO) of Malawi together with the Ministry of Health and the Community Health Service Unit (CHSU) conducted the 2015-16 MDHS. This is not the first time the country has conducted DHS. The initial DHS was done in 1992. Thereafter, other DHS studies were conducted in 2000, 2004 and 2010. The fifth in the sequence is the 2015-16 MDHS.

The survey is based on a nationally representative sample that offers estimates at the national and regional levels and for rural and urban areas with key indicator estimates at the district level. The survey involved 26,361 families, 24,562 female respondents and 7,478 male respondents (NSO 2016). The 2015-16 MDHS contains households and respondent’s characteristics, family planning and reproduction, new-born and child health and mortality, maternal health and maternal and adult mortality, nourishment among children and grown-ups, disadvantaged children and orphans, malaria, HIV/AIDS and domestic and gender based domestic violence. The Department of Nutrition, HIV and AIDS (DNHA) also commissioned a Micronutrient Survey (MNS) jointly with the NSO during the DHS survey. The response rate for the 2015-16 MDHS was 99%. A total of 27,516 households were selected for the sample of which 26,564 were occupied. A total of 26,361 questionnaires were successfully filled. The response rate for women was 98% while men’s response rate was 95%. There was however, minimal variation in response rate according to place of residence (NSO 2016).

3.3.1.1 Sampling

The sampling frame used for the 2015-16 MDHS is the same frame used in the 2008 Malawi Population and Housing Census conducted in Malawi. The census frame is a comprehensive summary of all census Standard Enumeration Areas (SEAs) created for the 2008 census. A SEA covers an average of 235 households. The MDHSs deliberately oversample the Northern Province and cities so that provincial and city-rural assessments can be made. Thus, the Malawi Demographic and Health Survey is not self-weighting (Madise and Mpoma 1997). The Northern regions population percentage is 12% of the national population while 49% of the country’s population is from the southern region (NSO 2016). Similarly, 85% of Malawians stay in the country side while only 15 percent live in cities and towns.
3.3.2 Qualitative method

Based on results from quantitative analysis that suggested that the challenge of child malnutrition was more prevalent in rural areas (results presented in Chapter Four) an in-depth inquiry of how low education attainment affects child health and malnutrition in rural areas in Malawi was conducted using qualitative research approaches. The quantitative analysis also suggested that there are more mothers in rural areas have low education qualification. Qualitative research refers to a research process which uses inductive data analysis to understand the meaning that research participants have on certain social issues in their localities through identifying themes and patterns (Lewis 2015). Human action is studied from the perspective of the social actors themselves (Babbie and Mouton 2011). Open ended questions were used to collect information which was later grouped into themes, categories and codes when analysing.

Sandelowski (2000) argues that researchers progressively use mixed method technique to enlarge the scope and extend their understanding of a phenomenon under review. Additional questions that could have been answered by another study are answered in a mixed method research approach (Morse 2016). Instead of conducting two different research projects on the same topic, through the mixed method time will be saved as a thorough investigation will be conducted. There are different types of mixed methods research design. There are advantages of classifying the type’s mixed-method research (Creswell et al. 2003 cited in Bryman 2006). When researchers specify, it shows that they are thorough in the work they are doing and they guide their readers on what they intend to do and accomplish in the study.

3.3.2.1 Qualitative sampling techniques

A Purposive Sampling Method was used in the qualitative aspects of this study to choose young mothers for an in-depth interview. According to Babbie and Mouton (2011) Purposive Sampling is done based on the researcher’s judgement which is led by the aim of conducting the study. Welman et al. (2012) asserts that a researcher can depend on his/her experience, creativity or former study outcomes to intentionally find elements of analysis. The qualitative approach acknowledges the participants not as mere respondents but as co-researchers that play an important part in producing knowledge (Hesse- Biber 2006). Purposive sampling was used to select a district with low education levels and high rates of drop out. The approach of sampling was multi-stage and purposive at all levels; districts were purposefully selected and women were also purposefully selected. It is in this regard
that this approach was adopted in this study. Mangochi and Machinga have low education indicators. School dropout rates for girls are high. The districts also have high rates of early pregnancies and child marriages.

### 3.3.2.2 Participants

Since Purposive Sampling method was used, the researcher contacted the District Nutritionists in Machinga and Mangochi to assist in selecting young mothers to participate in the study. A total of ten respondents were targeted in both districts; five from each district. The researcher finally interviewed two more women than the targeted five therefore making the total number of interviewed mothers in Mangochi seven. In total, 12 respondents participated in the interviews. The Nutritionists in both districts allowed the researcher to interview mothers who came for Nutrition Rehabilitation Clinics on designated days at the two hospitals. The mothers were recruited at the nutrition rehabilitation units in Machinga and Mangochi. The researcher met the mothers of malnourished children at a clinic where the mothers had come for their children to get medical attention. Mothers of malnourished children interviewed in Machinga had come to the Nutrition Rehabilitation Clinic to get food supplements and do routine check-up of their malnourished child. In Mangochi, all the participants of the study had children who were admitted at the nutrition rehabilitation ward and the children were under supervision of health experts. The criterion was to get young mothers who were 35 years old or younger. The Nursing Assistants from the two district hospitals supported the researcher in selecting mothers to participate in the survey.

### 3.3.2.3 Study Area

Malawi is a landlocked country which shares boundaries with Mozambique, Zambia and Tanzania. The nation’s population is approximately 18 million. The country has three regions; South, Central and North and it is further divided into 28 districts. Nearly 85% of Malawians live in rural areas. Even though the country has been making crucial fiscal and operational reforms its economic growth has remained minimal. The economy heavily relies on agriculture which is vulnerable to external shocks like climate change. Poverty is prevalent in Malawi. One in every two people in the countryside is poor. Poverty is propelled by poor performance of the agriculture sector, unstable economic growth, rapid population growth, and inadequate chances in non-agricultural undertakings. Poverty and illiteracy is high in the Southern region of Malawi compared to other regions. Infrastructure development and uptake of technology is low in Malawi. Fertility rate is down to 4.4 children per
woman in 2016 from 6.7 in 1992. Life expectancy is at 63.9 years in 2017 up from 62.8 in 2016. This study was conducted in two districts in the Southern Region; Mangochi and Machinga.

Mangochi

Mangochi District is situated in the Southern Region of Malawi at the Southern end of Lake Malawi. The district shares boundaries with Machinga to the South East, Balaka, Ntcheu Dedza in the South-West, Salima in the North and share an international boundary with Mozambique in the East and North East. The projected total population of the district is 1,091,666 with the annual growth rate of 3.6% according to 2008 Population and Housing Census (NSO 2008). The rapid population growth is creating pressure on the land resource and other natural resources. Poverty rate in the district is 60.7%. High illiteracy levels, food and nutrition insecurity at household level, low access to water and sanitation, poor road and communication network are some of the major development issues the district is facing. Primary school completion rate for boys and girls in 2016 was 19% and 16% respectively. Nearly 86% of the population is reported to have inadequate food in Mangochi in 2016 (Government of Malawi 2017). Taps and boreholes are not accessible by all people in the district. Less than 75% of the population has access to potable water and 12% have access to improved sanitation facilities. Malaria, Diarrhoea Acute Respiratory Diseases and Malnutrition are the major causes of death in the district. Shortage of essential services like water and sanitation facilities is one of the contributory factors to the poor socio economic indicators in the district.

Machinga

Machinga district is located in the Southern Region of Malawi. It is between Lakes Chilwa, Chiuta and Malombe and shares common boundaries with Mangochi district in the North, Zomba district in the South and Balaka district in the West and Mozambique in the East. Population is estimated to be 657,401. The population growth rate is 2.8%. The district has 75% poverty rate. Health facilities are inadequate and some households have no access to clean potable water. Waterborne diseases like Diarrhoea are prevalent. Farming is the major livelihood strategy with nearly 80% of the households depending on farming. Climate related droughts and floods are common in the district. In 2016, 94% of households reported of not having adequate food (Government of Malawi 2017). The district has high dropout rates as well as illiteracy rates. Female illiteracy rate is 47% that is below the national literacy rate of 74% (Government of Malawi 2017).
3.3.2.4 Data collection

An interview guide was drafted with questions that aimed at inquiring more from mothers with malnourished children. The interview guide focused on the knowledge that women acquired in school. This knowledge was on child health and nutrition. Findings from the quantitative study informed the qualitative study that was conducted later on. The feedback from the research committee on the knowledge that mothers acquire from community health workers was also incorporated in the questionnaire. With the support of Nutrition officers, the researcher was directed to mothers of malnourished children. In Mangochi and Machinga there are Nutrition Rehabilitation Units where clinics are conducted for out-patient malnourished children and there is also an admission ward for the critically malnourished. Young women that came for the clinics were interviewed in Machinga. In Mangochi young women that were found in the Nutrition Rehabilitation admission ward were interviewed.

One on one interviews with the mothers were conducted. The setting of the interviews could not accommodate focus group discussions. Conducting focus group discussions could entail curtailing the routine of the doctors and nurses which could have had a negative impact on the children that were being attended. One on one interviews, therefore, allowed the researcher to work around the schedule of doctors and nurses. Doctors and nurses were attending to the children and my presence at the health centre did not disturb their schedule.

Twelve women were purposively sampled in the two districts of Machinga and Mangochi. Probability sampling is a type of nonprobability sampling where things to be observed are nominated based on the judgement of the researcher concerning the units that are more useful, relevant and representative (Babbie 2007). This study aimed at studying a subset of mothers with low education levels who have malnourished children. It was easy to purposively identify these women at a nutrition rehabilitation unit. Enumeration of all these women could have been nearly impossible. By studying the subset of the mothers the study gathered sufficient data for purposes of understanding the linkages between mother’s education and child malnutrition. A semi structured interview guide was used in the discussion with the mothers. The methodology that was used in the qualitative study aimed at learning from the participants their views on how they acquire knowledge and utilize knowledge on nutrition and child health. The number of interviews was based on principle of data saturation. The interviews were conducted in the national language Chichewa and for some
participants it was conducted in Chiyao. A Health Surveillance Assistance at Mangochi district assisted the researcher in translating from Chichewa to Chiyao and from Chiyao to Chichewa. The interviews lasted between 25 and 35 minutes and were done using a semi-structured interview guide using mostly open ended questions.

3.3.2.5 Ethical considerations
Ethics in research refers to the moral discussion, choice and responsibility on the part of investigators during the course of the research (Miller 2012). While the study did not involve minors as respondents, mothers were asked to answer questions that related to the nutritional status of young children. In this regard care was taken to ensure that minors were not harmed in any way by the study. Mothers were not required to mention names of minor children or even provide detailed description of these children. The study recognised that the targeted respondents were vulnerable since they belonged to the low income category and their education standard was low. The study ensured that no harm was done to them by this work. The mothers were not exploited in any way in order to participate in the study. There was no promise given to them on social or monetary benefits to force them participate in the study. All necessary information regarding the study was given prior to the survey. Questions that could make them feel bad or traumatize them about their socio economic status were avoided at all cost. Participants were not forced to join the research study but rather asked to participate based on informed consent. Each participant was informed about the purpose of the study and its potential outcomes as well as any possible benefits of the study. The respondents were later on asked to sign a consent form. The consent form was read to them in a language they understood and they were asked if they were willing to participate in the study. All participants who participated in the study showed that by signing on the consent form or thumb printing on the consent form.

Babbie (2007) expressed on the importance of not causing any harm to research subjects. In this study, privacy of the information respondents gave was respected. Their identities were not revealed in any way in the analysis and dissemination of the results. Confidentiality of the information they shared was concealed in this regards. Codes were marked on the questionnaires and when referring to the information they provided, their names were not used. Instead, the respondents were identified by the questionnaire codes given. Since the respondents were found at a health facility, consent of the District Health Office was sought. Mangochi District Research Committee and
Machinga District Health Office through the Nutrition Coordinator approved this study. The District Health Offices were informed that the research was part of my study to obtain a Master Degree.

Ethical codes on the university’s ethics declaration form and the informed consent form were adhered to. The aim and objectives of the study were stated to the respondents. The district health officials on the other hand were given a summary of the proposal of this study. The feedback they gave to the researcher on how to conduct the study in Mangochi district was taken on board.

3.3.2.6 My experience during data collection exercise

When I started off to Malawi to embark on the data collection exercise I was so excited. The excitement came because I was eager to learn what my respondents would say in as far as my study is concerned. Since it was my first time to do a study that is linked to nutrition and health, I made up my mind that I was to use my social capital in order to get consent in the two districts where I was to conduct the study.

When I consulted a friend who is a medical doctor I was referred to the research committee in the one of the districts, Mangochi. I submitted my proposal to them and made a PowerPoint presentation. The main concern of the research committee in Mangochi was that there was no money that was allocated for the study to be conducted in Malawi. There was a mention of field assistants like the translator and the Health Surveillance Assistants whom I was to consult in the course of my field work. I gathered from that meeting that I was supposed to submit my proposal to the ethics committee at the University of Malawi particularly College of Medicine for their approval before presenting at the research committee.

The ethics committee at College of Medicine sits once in a quarter. This implied that I was to spend a longer period of waiting for their consent. I used my negotiation skills in order to make them understand my situation to have the interviews done in the period I was proposing. This experience has enhanced my research skills. I had to explain the reasons why I could not go through College of Medicine since my focus was on the literacy of mothers with malnourished children and not necessarily the malnourished children themselves.
3.4 Data analysis

Statistical tool were used to analyse quantitative data and draw conclusions on the link between young mother’s education and child health in Malawi. The researcher used data of variables on young mothers’ education and child malnutrition from the MDHS data set. The statistical software, Stata version 14 was used to conduct a number of tests to assess the correlation between young mothers’ education and child malnutrition. Ohyver et al. (2017) explain on the types of regression analyses ideal in assessing child malnutrition and stunting. Regression has been frequently used in studies on child nutrition (Makate and Makate; Makoka and Masibo 2015; Hirvonen et al. 2015). Logistic regression analysis was used to ascertain the relationship between mother’s characteristics including mother’s education and child malnutrition. Findings were presented graphically and a narrative of the graphics is provided in Chapter Four.

Qualitative data according to Babbie and Mouton (2010) is analysed by ascertaining patterns and themes in order to make meaning. Theme identification is one of the main tasks in qualitative research. Themes are ‘umbrella’ concepts which are usually recognized by the investigators beforehand, after and during data collection (Welman et al. 2012). After the researcher transcribed the interviews, a number of techniques were used to identify themes. Atlas.ti 8 software was used to analyse the data. Word analysis, reading of larger units, analysis of metaphors, transitions and connectors and physical manipulation of the texts are the main tactics that were employed to draw themes (Welman et al. 2012). Coding was also done to understand the material that was unclear. Quotations from the codes were presented in the findings of the study in Chapter Four. The quotations from the codes provide an explanation of the theme under discussion. Themes coming out from the qualitative study are clarified from the codes. The researcher started analysing the qualitative data during the collection process so as to perceive the initial results which could have swayed the rest of the information to be collected.

3.5 Conclusion

In summary, this research work was based on quantitative data from the Demographic and Heath Survey 2015/2016. Statistical results of the quantitative analysis informed the qualitative study. The study used the explanatory sequential mixed method design. Key informants were selected purposively in Machinga and Mangochi. Qualitative data was analysed using Atlas.ti 8 while the
quantitative data was analysed using Stata version 14. Findings from the collected and analysed data are discussed in Chapter Four.
Chapter Four

Research findings and discussion

4.1 Chapter overview
Over the years there have been studies conducted (Harttgen and Klasen 2012; Abuya et al. 2012; Desai and Alva 1998; Ferdous et al. 2016) to understand the factors that contribute to poor child health and malnutrition. A number of factors have been assessed and some studies have looked at how socioeconomic factors and mothers’ education affect child health and nutrition. This chapter presents the results of the analysis conducted using the Demographic and Health Survey (DHS) 2015/16 data as well as the primary data collected in 2018 using the semi structured interview guide in Mangochi and Machinga districts in Malawi. The chapter responds to the research questions asked as well as meet the objectives highlighted in the first chapter. This research aims to comprehend the association between mothers’ education and child malnutrition as well as realizing the causes of school dropout among girls in Malawi. The findings that will be discussed in this chapter will also be linked to the reviewed literature, the theoretical framework as well as the conceptual framework used in this study.

4.2 Descriptive statistics
The analysis in this study is based on 4,486 women of 15 to 49 years old. These are women of child bearing age. The mean years are 28.6 with 15 years being the minimum and 49 years maximum. Under-five children in this study are 4,863. Their mean age in months is 29.5 and maximum age is 59 months. A large percentage of mothers reside in rural areas. The highest education level for many mothers is Primary level. Fewer mothers belong to the wealthiest welfare group while a larger proportion belongs to the poorest and poorer groups. Table 1 highlights the mother’s characteristics.
Table 1: Summary table of mother’s characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of mothers in this analysis</td>
<td>4,486</td>
<td></td>
</tr>
<tr>
<td>Mothers mean age</td>
<td>28.6 years</td>
<td></td>
</tr>
<tr>
<td>Max mothers age</td>
<td>49 years</td>
<td></td>
</tr>
<tr>
<td>Minimum mothers age</td>
<td>15 years</td>
<td></td>
</tr>
<tr>
<td>Mothers age categories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-26 years</td>
<td>1307</td>
<td>40%</td>
</tr>
<tr>
<td>26-35 years</td>
<td>1434</td>
<td>44%</td>
</tr>
<tr>
<td>35-49 years</td>
<td>565</td>
<td>16%</td>
</tr>
<tr>
<td>Number of under-five in this study</td>
<td>4,863</td>
<td>100%</td>
</tr>
<tr>
<td>Mean age of children</td>
<td>30 months</td>
<td></td>
</tr>
<tr>
<td>Minimum age of children</td>
<td>0 months</td>
<td></td>
</tr>
<tr>
<td>Maximum age of children</td>
<td>59 months</td>
<td></td>
</tr>
<tr>
<td>Children’s age categories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-20 months</td>
<td>1663</td>
<td>34%</td>
</tr>
<tr>
<td>21-40 months</td>
<td>1639</td>
<td>34%</td>
</tr>
<tr>
<td>41-59 months</td>
<td>156</td>
<td>32%</td>
</tr>
<tr>
<td>Stunting (proportion)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>63%</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>37%</td>
</tr>
<tr>
<td>Mothers place of residence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td></td>
<td>16%</td>
</tr>
<tr>
<td>Rural</td>
<td></td>
<td>84%</td>
</tr>
<tr>
<td>Mothers wealth quintiles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poorest</td>
<td>1109</td>
<td>23%</td>
</tr>
<tr>
<td>Poor</td>
<td>1106</td>
<td>23%</td>
</tr>
<tr>
<td>Middle</td>
<td>938</td>
<td>19.60%</td>
</tr>
<tr>
<td>Rich</td>
<td>839</td>
<td>17.50%</td>
</tr>
<tr>
<td>Richer</td>
<td>800</td>
<td>16.70%</td>
</tr>
<tr>
<td>Mothers education level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No education</td>
<td>668</td>
<td>14%</td>
</tr>
</tbody>
</table>

http://etd.uwc.ac.za/
Table 2: Energy, water and sanitation indicators at household level

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location of water source</strong></td>
<td></td>
</tr>
<tr>
<td>In dwelling</td>
<td>0.30%</td>
</tr>
<tr>
<td>In yard</td>
<td>5%</td>
</tr>
<tr>
<td>Elsewhere</td>
<td>94.70%</td>
</tr>
<tr>
<td><strong>Time to water source</strong></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>38 minutes</td>
</tr>
<tr>
<td>Minimum</td>
<td>1 minute</td>
</tr>
<tr>
<td>Maximum</td>
<td>840 minutes</td>
</tr>
<tr>
<td><strong>Treat water</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>30.00%</td>
</tr>
<tr>
<td>No</td>
<td>70.00%</td>
</tr>
<tr>
<td><strong>Availability of water for hand washing</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>41%</td>
</tr>
<tr>
<td>No</td>
<td>59%</td>
</tr>
<tr>
<td><strong>Use soap for hand washing</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>15%</td>
</tr>
<tr>
<td>No</td>
<td>85%</td>
</tr>
<tr>
<td><strong>Access to electricity</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>13%</td>
</tr>
<tr>
<td>No</td>
<td>87%</td>
</tr>
<tr>
<td><strong>Cooking fuel</strong></td>
<td></td>
</tr>
<tr>
<td>Firewood</td>
<td>83%</td>
</tr>
<tr>
<td>Charcoal</td>
<td>15%</td>
</tr>
</tbody>
</table>

Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and health survey

Table 2 depicts some socio-economic characteristics of the households where the mothers in this study are from. Water and sanitation are some of the determining factors of poor child health and contribute to child malnutrition. Availability of piped water in dwelling places is minimal as less than one percent of the mother’s population has water in their dwelling places. Good sanitation practices are also hampered as fewer households use soap for hand washing.
| Electricity | 2% |

Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

The DHS 2015/16 sample as shown in Table 1 above shows that 18% of Malawians live in urban areas while 82% live in rural areas. The results reflect statistics indicated in Chapter One which showed that 85% of Malawians live in rural areas. The results also showed that 84% of mothers live in rural areas while 16% live in urban areas as shown in Figure 1 below.

![Figure 1: Mothers' place of residence](http://etd.uwc.ac.za/)

Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

*Wealth and welfare*

The DHS computes an asset based wealth index using Principal Component Analysis technique due to the absence of income and expenditure variables (Malawi Government 2016). Assets based variables have been used in the measurement of poverty and socioeconomic status and has been found to be consistent with other measures of welfare such as; income and expenditure (Arndt et al. 2017). The DHS assets index is based on the ownership of durable assets such as land, a house, a bank account and a mobile phone.
The socioeconomic distribution based on the asset index shown in Figure 2 below indicates that 23% of mothers belong to the poorest quintile. Only 17% of mothers are in the richest quintile. Outcomes of the descriptive statistics show that 46% of Malawian mothers are categorized in the first two poorest quintiles. Therefore it can be deduced that a considerable number of mothers in Malawi are struggling to make ends meet. Qualitative results also showed that many mothers are in deprivation. Respondent 06 in Mangochi Malawi highlighted, “I work in an estate where I earn $21.00 a month because there is no one to support me and my three children.” The money some mothers receive from their employers is inadequate, hence making it difficult for some mothers to make ends meet.

There are also disparities in wealth measured using the asset index according to geographic places of residence. There are more mothers in the lowest quintiles residing in rural areas than in urban areas. As Table 3 below shows, 3.6% of mothers are poorest in urban areas compared to 96.4% in rural areas.

**Table 3: Mother’s welfare and place of residence**

<table>
<thead>
<tr>
<th>Mothers place of residence</th>
<th>Poorest</th>
<th>Poor</th>
<th>Middle</th>
<th>Rich</th>
<th>Richer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>40</td>
<td>39</td>
<td>57</td>
<td>163</td>
<td>449</td>
<td>748</td>
</tr>
<tr>
<td></td>
<td>3.60%</td>
<td>3.50%</td>
<td>6.10%</td>
<td>19.40%</td>
<td>56.10%</td>
<td>15.60%</td>
</tr>
<tr>
<td>Rural</td>
<td>1069</td>
<td>1067</td>
<td>881</td>
<td>676</td>
<td>351</td>
<td>4044</td>
</tr>
<tr>
<td></td>
<td>96.40%</td>
<td>96.50%</td>
<td>93.90%</td>
<td>80.60%</td>
<td>43.90%</td>
<td>84.40%</td>
</tr>
<tr>
<td>Total</td>
<td>1109</td>
<td>1106</td>
<td>938</td>
<td>839</td>
<td>800</td>
<td>4792</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Source:** Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

Wealth quintile information is crucial in comparing the influence of wealth on child health and nutrition indicators. The poor are in most instances limited to access some services due to inadequate financial resources.

**Mother’s highest education level**

The findings in Figure 3 below show that 13% of mothers have no education while 65% of the mothers have primary education. There are 21% of mothers who have attained secondary education and only 2% that have acquired post-secondary or higher education.
Figure 2: Mothers’ highest education level

![Diagram showing the distribution of mothers' highest education level.](http://etd.uwc.ac.za/)

Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

Figure 2 above shows that few mothers transition to secondary and post-secondary education in Malawi. The highest level of education for almost two thirds (65%) of mothers is primary education.

The first official education experience for many learners in Malawi is primary education. The formal education system in Malawi encompasses eight years of primary education. Primary education is from Standard 1 to 8; four years of secondary (Form 1 to Form 4) and four years of university level education (World Bank, 2010 cited in Rock et al. 2016). The official ages for primary school in Malawi are 6 to 13. Primary education is divided into sections; infant section for Standard 1 to 2; Junior Section for Standards 3, 4 and 5 and 6, 7 and 8 as senior sections (Milner et al. 2011). As shown in Figure 2 above, most mothers enrol in primary school however few transition to secondary and post-secondary education.

Studies (Milner et al. 2011; Wasanga et al. 2012) have shown that mothers with less than 6 years of schooling have low literacy and numeracy skills. Malawian children, particularly girls, do not master the required numeracy and literacy skills by the time they reach Standard 6 (Government of Malawi 2014). As girl’s take on the role of mothers once they start having children, a considerable number of them lack functional numeracy and literacy skills. Five of the mothers interviewed in this study opted to put their fingerprint on the consent form because they do not know how to write. This is one of the indications of poor literacy skills of some mothers in rural Malawi.
**Education level and place of residence**

Results have revealed that education levels of mothers are lower in rural areas compared to urban areas except for primary education. The results in Figure 4 below indicate that nearly 16% of mothers in rural areas have never been in school compared to only 6% of mothers in urban areas. Access to secondary education is minimal for mothers in the rural areas as 14.3% have attained secondary education compared to 41% of mothers in urban areas. Post-secondary education is nearly not available to mothers from rural areas. Only 0.7% of mothers in rural areas have attained post-secondary education compared to 7.3% of mothers in urban areas as shown in the figure below.

*Figure 3: Mother’s highest education level and place of residence*

![Bar chart showing education levels and place of residence](http://etd.uwc.ac.za/)

**Source:** Author's own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

Number of mothers attaining secondary education and higher keeps diminishing in Malawi. As shown in Table 4 below, there are many mothers in rural areas with no education and primary education compared to women in urban areas. As shown in Table 3 below, 627 mothers in rural areas have not acquired any education compared to 41 mothers in urban areas. The relationship between mother’s level of education and mother’s place of residence is significant as shown by the p-value of less than 0.05.

*Table 4: Mother’s highest education level and type of residence*

<table>
<thead>
<tr>
<th>Mother’s highest educational level</th>
<th>Mother’s type of education</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No education</td>
<td>41</td>
<td>627</td>
</tr>
<tr>
<td>Primary</td>
<td>344</td>
<td>2810</td>
</tr>
<tr>
<td>Secondary</td>
<td>306</td>
<td>580</td>
</tr>
<tr>
<td>Post-secondary</td>
<td>57</td>
<td>27</td>
</tr>
</tbody>
</table>

http://etd.uwc.ac.za/
| Total | 748 | 4044 | 4792 |

Pearson Chi2 (3) = 513.40  
Pr. 0.000

Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

These results agree with the Government of Malawi (2014) report referred in Chapter One which shows that 31% of females complete primary education in Malawi.

### 4.3 The link between education and child’s health

Education is one factor that contributes to lowering fertility rate by delaying girls from getting married at younger ages. Mothers with few children devote more time in taking care of the children as well as the environment where children live (Glewwe 1999). As the UNICEF Conceptual Framework indicates, child care practices play a crucial role in the prevention of malnutrition and poor health (UNICEF 1998). Provision of good care to children is a good strategy of reducing malnutrition and poor health indicators among children as Engel et al. (1999) showed in their study reviewed in Chapter Two above.

Provision of health care for children requires more than basic literacy and numeracy skills which is acquired by many mothers in primary school. Health care and behaviour change communication messages and practices are at times multifaceted and require some analytical skills which are acquired in upper primary, secondary or tertiary institutions. There are many benefits of keeping girls in school beyond primary school. Age of marriage and first birth is delayed; the demand for children is reduced. As highlighted in Chapter Two by Alderman and Headey (2017) education promotes autonomy as women are empowered to make decisions that they could not make if they were not educated.

#### 4.3.1 Education enhances mother’s agency

According to the in-depth discussions with young mothers who dropped out of school, most of their husbands decide on how the resources they have are used in the home as well as on the food the family buys and consumes.

“My husband keeps the money we realise from selling farm produce. He is the one who decides on kind of food we eat in our home,” explained Respondent 02.
Even though the mother might have knowledge on the type of food to prepare, if she has no money or control over how the money is used, she hardly makes the most of the health knowledge she has. Educated mothers make good use of modern health facilities and decide on when to have children; they plan child bearing. As shown in Chapter Two, the agency of educated mothers is more than the agency of uneducated mothers (Comim et al. 2011; Sen 2001). Empowered mothers have higher odds of making good health decisions for their children and families.

4.3.2 Education improves the social status of mothers
Educated mothers are free to choose and live the life they want to live (Chen and Li 2009). Uneducated mothers have limited choice of place of residence. According to Respondent 6, she stated

“I live in a dilapidated servant house at the farm because there is no alternative house for me and my children.”

When a mother has adequate resources, she can afford renting or constructing a good house for herself and her children. Availability of resources expands one’s choices. Respondent 12 however highlighted that

“My husband and I do not own a house as a result we are renting a $7.00 house. The condition of the house is not good. The pit latrine for example is in a bad state and it is unsafe.”

Place of residence and food one accesses in most cases differs depending on one’s social and economic statuses. Most educated mothers reside in favourable environments for the well-being of their children. Educated mothers are mindful of the hygiene of their surroundings. Sicknesses that come as a result of poor water and sanitation services are therefore prevented. When good care is given to children, their health is guaranteed.

4.4 Water and sanitation

4.4.1 Availability of water in people’s dwelling places
Poor water and sanitation services contribute greatly to the spread of infectious diseases like diarrhea. Bodies of children with poor health slowly absorb nutrients from the food the children consume and this leads to malnutrition. Inadequate supply of water and sanitation as well as malnutrition is mostly linked to poverty in most households and communities (Null et al. 2018). The outcomes of the analysis depict that almost 95% of the people in Malawi do not have water in their dwelling places.

http://etd.uwc.ac.za/
Merely 5% have water in their yard and 0.34% in their own dwelling as shown in Figure 5 below. This is an indication that availability of water is a challenge in many disadvantaged households. Most mothers interviewed in this study are from the poorest category and have poor water and sanitation services according to their socio-economic status. According to Respondent 3, she states that

“I give my child the water I draw from an unprotected well close to our garden.”

There are higher chances drinking contaminated water from unprotected boreholes. Boreholes in some areas in Malawi are sparsely located. Therefore nearest unprotected boreholes are utilized hence leading to waterborne diseases. Availability of diseases in the child’s body affect nutrition intake.

4.4.2 Time to get to water source
On average mothers travel 38.3 minutes to get to a water source. The distance to water source disadvantages many mothers who apart from doing household chores are also responsible of providing care to children and other household members. The longer the time spent in other activities, the lesser the time mothers have to provide adequate care to their children. Time mothers spend on other socio economic activities is also limited. Table 5 below highlights the mean minutes mothers take to get to a water source.
Table 5: Mother’s time to water source

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to water source</td>
<td>4,024</td>
<td>38.29</td>
<td>45.47</td>
<td>1</td>
<td>840</td>
</tr>
</tbody>
</table>

Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

Mothers in rural areas travel longer distances to get to a water source compared to mothers in urban areas. According to findings in Table 6 below, rural mothers on average travel 39 minutes to get to a water source compared to 31 minutes travelled by mothers in urban areas. The P-value of 0.0019 shows that the test is significant and that there are differences in time spent to draw water in rural and urban areas. Table 6 below shows that there is a -7.75 minute difference in getting to the water source for urban and rural mothers.

Table 6: Tests results for time travelled to water source in minutes by place of residence; urban or rural

<table>
<thead>
<tr>
<th>Group</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Err</th>
<th>Std. Dev</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>367</td>
<td>31.25</td>
<td>2.17</td>
<td>41.52</td>
<td>26.99 - 35.51</td>
</tr>
<tr>
<td>Rural</td>
<td>3657</td>
<td>39</td>
<td>.76</td>
<td>45.80</td>
<td>37.88 - 40.48</td>
</tr>
<tr>
<td>Combined</td>
<td>4024</td>
<td>38.29</td>
<td>.72</td>
<td>45.48</td>
<td>36.88 - 39.70</td>
</tr>
<tr>
<td>Diff</td>
<td></td>
<td>-7.75</td>
<td>2.49</td>
<td></td>
<td>-12.62 - -2.87</td>
</tr>
</tbody>
</table>

\[
\text{Diff} = \text{mean (1)} - \text{mean (2)} \quad t = -3.14 \\
\text{Ha: diff} = 0 \quad \text{degrees of freedom} = 4022 \\
\text{Ha: diff} \leq 0 \quad \text{Ha: diff} = 0 \\
\text{Ha: diff} > 0 \\
\text{Pr (T}<t) = 0.0009 \quad \text{Pr (|T|}>|t|) = 0.0019 \quad \text{Pr (T}>t) = 0.9991

Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

The longer the distance mothers travel to a water source, the lesser the time they have to provide adequate care to the under-five children. Additionally chances of using unprotected and unsafe water for household use become high when drawing water is a daunting task.
4.4.3 Water safety

Nearly three quarters of households do not treat their water before consuming. Statistics in Figure 5 below indicate that 70.24% do not do anything to ensure that water is potable.

*Figure 5: Treating water to make it safe*

![Pie chart showing 70.00% No and 30.00% Yes for anything done to water to make it safe.](http://etd.uwc.ac.za/)

Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

As nearly 15% of the population get water from unprotected wells, rivers and lakes which have high risks of containing bacteria it is important to treat water in order to make it safe.

4.5 Sanitation

Nearly 59% of Malawians do not have water present at hand washing places. Only 41% reported to having water for hand washing at hand washing places. The use of soap is heavily encouraged as one of the measures of reducing bacterial infections. In Malawi however, only 15% of the population use soap for hand washing and 85% do not use soap. Unhygienic practices contribute to poor child health.

Again, inadequate access to energy for instance electricity limits many mothers in storing perishable food good for the nourishment of their children.

4.6 Access to electricity

Access to electricity is a challenge to a large percentage of Malawians. Almost 87% have no access to electricity. Only 13% have access to electricity. The major source of energy is firewood which is used by 83% of the population. Charcoal is used by nearly 15% of the population whereas 2% use electricity as shown in the Figure 6 below.
Time spent in search of firewood could be used for other productive tasks including allocating more time for child care. Electricity in recent years has not been reliable therefore nearly 90% of all households in rural and urban areas either use charcoal or firewood. Few households manage to use gas for cooking. As a nation which has strong gender stereotypes, mothers and girls are the ones who spend more time searching for firewood to use in the homes. When more time is spent searching for firewood, mothers minimize time spent in providing adequate care to their children.

4.7 Bivariate regression analysis of child malnutrition and mother’s characteristics

Stunting is higher among children born to mothers with no education or primary education. Forty-two percent of children born to mothers who have never been to school are stunted in Malawi. As depicted in Figure 8 below this rate is three times more than the rate of stunting among children born to mothers with higher education or post-secondary education which is at 10%. The P-value of 0.000 in this analysis shows that the relationship of stunting and mother’s highest education level is significant.
The findings above illustrate that malnutrition drops significantly among children whose mothers have secondary or post-secondary education. As shown in Figure 8 above, 58% of children born to mothers with no education are not stunted while 90% of children born to mothers with post-secondary education are not stunted. There is an association between mothers’ education and child malnutrition and health. Malnutrition level declines when the education level of a mother increases. This indicates that cases of malnutrition will be decreased in Malawi when among other factors the country invests in girls’ education; particularly secondary and post-secondary education. The chi-square results of stunting and mother’s education in Table 7 below also show that the more a mother acquires education the lesser the likelihood of her child being stunted and the relationship is significant.

Table 7: Mother’s education and stunting

<table>
<thead>
<tr>
<th>Stunting</th>
<th>No education</th>
<th>Primary</th>
<th>Secondary</th>
<th>Post-secondary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not stunted</td>
<td>359</td>
<td>1890</td>
<td>596</td>
<td>69</td>
</tr>
<tr>
<td>Stunted</td>
<td>259</td>
<td>1078</td>
<td>227</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>618</strong></td>
<td><strong>2968</strong></td>
<td><strong>823</strong></td>
<td><strong>77</strong></td>
</tr>
</tbody>
</table>

Pearson Chi2 (3) = 55.616  
Pr. 0.000

Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey
The results are of the Chi square are significant as shown by P-value of 0.000. These results are consistent with the literature on the link between mothers’ education and child health. As highlighted by Makoka and Masibo (2015) there are more health gains if girls attain secondary and post-secondary education.

A logistic regression analysis of stunting and mother’s education and mother’s wealth showed that there is an association of mothers’ education to stunting. The logistic regression analysis is preferred in many studies on malnutrition because the link between different variables to malnutrition is clearly seen. The P-value of 0.000 depict that the relationship is significant. As portrayed in Table 8 below, the odds ratio of being stunted is high among children born to mothers with no education and primary education compared to children born to mothers with higher education. The odds ratio for children born to mothers with primary education is 0.8 which is closer to one compared to 0.2 for children born to mothers with higher education.

The findings of this analysis are similar to the results Grépin and Bharadway (2015) found in their study in Zimbabwe. The results showed that there are less chances of a child being stunted or malnourished when the child is born to an educated mother. The results of a study by Chen (2008) also depicted that mothers’ education is an important determinant of the health of children. Some researchers (Grépin and Bharadway 2015; Makoka and Masibo 2015) found that it is secondary and higher education that brings significant impact on the health of a child. The results in this study also show that children born to mothers with secondary and higher education have lower odds of being stunted. It is secondary and higher education which brings more health gains to a child compared to primary education and no education at all.

The bivariate analysis depicts that stunting is high among children born in rural areas where the rate of stunting is 37%. On the other hand only 24% of children born in urban areas are stunted as shown in Figure 8 below. On the contrary 76% of children born in urban areas are not stunted while 63% of children born in rural areas are not stunted. Malnutrition is relatively high among children in rural areas compared to children in urban areas.
Figure 8: Level of stunting and place of residence

![Stunting and place of residence chart](http://etd.uwc.ac.za/)

Source: Author's own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

**Stunting by mothers’ wealth**

After running a bivariate analysis of stunting and mother’s wealth, results indicate that stunting decreases when mothers’ wealth increase. For instance, 44% of children born to poorest mothers are stunted. On the contrary, 22% of children born to wealthiest mothers are stunted as shown in Figure 9 below. The figure also shows that 56% of children born to mothers from the poorest category are not stunted compared to 73% of children born to mothers from the wealthiest category. Malnutrition decreases among children in wealthier households and increases among children in poor households.

Figure 9: Stunting and mothers’ wealth

![Stunting and mother's welfare chart](http://etd.uwc.ac.za/)
Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

Food security is mostly guaranteed in households with adequate financial resources. The availability of sufficient and nutrition food in households promotes nutrition among family members including children.

Stunting and mother's welfare

Table 9: Bivariate Logistic regression; stunting as dependent variable and mother’s wealth as independent variable

| Stunting | Odds Ratio | Std. Err. | Z    | P>|z| [95% Conf. Interval] |
|----------|------------|-----------|------|---------------------|
| Mothers_wealth |            |           |      |                     |
| Poorer    | .801       | 0.071     | -2.48| 0.013               | .673 | .954 |
| Middle    | .694       | 0.066     | -3.86| 0.000               | .577 | .835 |
| Richer    | .533       | 0.053     | -6.28| 0.000               | .439 | .649 |
| Richest   | .365       | 0.039     | -9.33| 0.000               | .295 | .450 |
| Constant  | .790       | 0.050     | -3.76| 0.000               | .699 | .894 |

Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

Results from a regression of stunting and mothers wealth shown in Table 9 above indicate that there is an association between mothers’ wealth and stunting. The P value of 0.000 and 0.013 shows that the relationship is significant as it is less than 0.005. Additionally, the odds of being stunted are more on children born to mothers who belong to the poorest quintile compared to those born to mothers with more wealth. The odds ratio for the poorest and the richest are 0.8 and 0.4 respectively. The results indicate similar results of studies conducted by some scholars (Jimenez et al. 2015; Glewwe
1999; Yoong, Rabinoch and Dipeveen 2012) concluded that mothers allocate more resources to the education and health of their children therefore preventing some diseases. Education improves mothers’ socio economic status and the well-being of their children.

These results support the assertion made by some researchers (Engel et al. 1999) who highlighted that mothers who have money have a strong purchasing power. Availability of food in their homes as well as ability to pay for other health needs contribute to the well-being of their children. Educated mothers have higher chances of getting an employment. This entails that they can finance the expenses in their homes. The availability of financial resources acts as a conversion factor to attaining good health and nutrition since they can buy nutritious food for their households. Educated mothers seek medical attention in time before situation becomes worse. Using knowledge acquired in school, they diagnose some sicknesses and they conduct the first prescription to the ailments. Educated women have agency as explained in Chapter Two.

4.8 Multivariate regression analysis of stunting and mother’s characteristics

When a multivariate regression analysis was conducted, results indicated that there is an association between mother’s education, mother’s wealth, mother’s age, mother’s place of residence and stunting. The relationship is significant as shown by the P-value of <0.05. The odds of being stunted are high among children born to rural, poor and uneducated mothers. This implies that the three explanatory variables or independent variables can be used to explain stunting and poor health in children born to mothers with post-secondary education, mothers residing in urban areas and belonging to the wealthiest quintile. Children born to mothers with the three highlighted characteristics are less likely to be stunted as shown by the odds ratio in Table 10 below.
Table 10: Multivariate regression; stunting as dependent variable and mothers and household characteristics and independent variables (mother’s education, mother’s economic status, Mother’s place of residence and mother’s age).

|                         | Odds Ratio | Std. Err. | Z    | P >|z| | [95% Interval Conf.] |
|-------------------------|------------|-----------|------|-----|---|----------------------|
| **Mothers educ. level** |            |           |      |     |   |                      |
| Primary                 | .837       | .080      | -1.86| .063| .694| 1.010                |
| Secondary               | .748       | .094      | -2.30| .021| .584| .958                 |
| Higher                  | .310       | .123      | -2.95| .003| .142| .675                 |
| **Mothers wealth**      |            |           |      |     |   |                      |
| Poorer                  | .806       | .073      | -2.27| .018| .674| .963                 |
| Middle                  | .703       | .068      | -3.65| .000| .582| .849                 |
| Richer                  | .577       | .060      | -5.26| .000| .470| .708                 |
| Richest                 | .478       | .062      | -5.65| .000| .370| .617                 |
| **Mothers place of res**|            |           |      |     |   |                      |
| Rural                   | 1.225      | .138      | 1.81 | .071| .983| 1.527                |
| **Mothers age**         |            |           |      |     |   |                      |
| 16 years                | .099       | .17       | -1.31| .191| .003| 3.167                |
| 29 years                | .564       | .81       | -0.40| .689| .034| 9.312                |
| 49 years                | .742       | 1.490     | -0.15| .882| .014| 38.013               |

Logistic regression

Number of obs = 4,465
LR chi2 (42) = 165.25
Prob > chi2 = 0.0000
Log likelihood = -2812.0718
Pseudo R2 = 0.0285

http://etd.uwc.ac.za/
When mother’s age is also added to the regression analysis, odds of a child born to a young mother being stunted are higher compared to a middle aged mother where the odds are 0.99 and 0.56 respectively as shown in the table 9 above. As the mother advances in age, the odds of her child being stunted also start increasing. Table 9 above shows that the odds of a child born to a 49 year old mother being stunted are 0.74.

### Table 9

<table>
<thead>
<tr>
<th>Term</th>
<th>Coefficient</th>
<th>SE</th>
<th>z-value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.202</td>
<td>1.715</td>
<td>0.13</td>
<td>0.897</td>
</tr>
</tbody>
</table>

Source: Author’s own computation based on data from the 2015/2016 Malawi Demographic and Health Survey

4.9 Reasons for high malnutrition rates among children born to mothers with low or no education in rural Malawi

Using in-depth interviews, a number of themes were drawn from the information the participants shared on reasons for high malnutrition rates among children whose mothers have no or low education levels

i. Inadequate food in households

Inadequate food in households is one of the major reasons for high malnutrition rates. Most of the households in rural Malawi, including those in Mangochi and Machinga depend on rain fed farming. After harvesting, households sell some crops and keep some for consumption. When they run out of food before the next harvesting season, the family reduces quantity and frequency of having meals. The functioning of living with healthy and well-nourished bodies is compromised.

Respondent 3 for instance stated that

“in most cases food is insufficient in our home”.

The qualitative results indicate that food insecurity is a challenge among some households in Malawi. Even though there might be food on the market, high poverty levels hinder many underprivileged families from having food. As shown in Chapter Two, poverty levels in Mangochi and Machinga are high.

“I live on MK5, 000.00 ($7.00) a month” explained Respondent 10.

“I buy soap, skin moisturizer, food and other necessities for the baby and myself. When I
run out of food, my child and I sleep on an empty stomach,” she continued. Lack of adequate income among young uneducated mothers is having an impact of food security and food choices in their households. The results show that households of mothers from the lowest wealth quintile are more likely to be food insecure. Under-five children are greatly affected when a household has inadequate food.

Respondent 5 highlighted

“I don’t make any choices of food for my child. I give my child the food that I have Is available on that particular day.”

Food secure households have adequate food and have choices on the food they can eat. However, the study shows that mothers have limited choice of food that they provide to their children.

Respondent 7 explained that she does not give her child a snack because

“for one to buy additional food for the baby like snacks one needs to have enough cash.”

Lack of financial resources at household level limits disadvantaged mothers from providing adequate food to their children. A child is greatly affected whenever food is inadequate in their homes. Households with limited resources lack avenues of getting extra resources to purchase food. Children are therefore given food that every household member eats. Buying snacks for the children is seen as a luxury, which many mothers fail to fulfill.

ii. Poverty

Poverty is one of the major causes of food insecurity in many homes in rural Malawi. The food that some mothers provide is the one that is convenient and affordable. Respondent 3 stated that

“I know that porridge with salt is not good enough for our children even though elderly mothers in our community recommend it. Nevertheless, to us who cannot afford buying good food like meat or milk, cooking oil and sugar, maize flour porridge is a meal our children are living on.”

Unavailability of enough money to buy food limits many mothers from providing what they could have wanted to provide. Convenient and readily available food is preferred when mothers have inadequate resources.

“When there is no money and food in the home our family stays hungry for a period up until we find money,” highlighted Respondent 1.
Coping strategies in times of food insecurity includes reducing quantity and quality of food consumed by all household members including children as highlighted by Respondent 1 above. Inadequate finances to purchase food, contributes to food insecurity at household level. Families that do not harvest enough and have inadequate finances are greatly affected with food insecurity. Children born and raised in these families more likely miss out on food hence compromising on the nutrition intake.

iii. **Inadequate knowledge and adherence**

Most mothers in rural Malawi have inadequate knowledge on good child feeding habits and practices. Nutrition needs differ between infants, adolescents and older people. However, results show that most children eat what the rest of the household members eat. According to Respondent 7, the food is prepared for everyone in the home. She stated,

“I give to the child the food that is available for everyone in the home. I don’t have the liberty of preparing and specifying food for the child and for adults. Whatever food is available, is for all of us.”

The study revealed that in most households, the same kind of food is given to all family members regardless of their age. Additionally, children are given food whenever everyone in the household is having a meal. Few mothers prepare a different kind of food to meet the nutrition requirement of a particular age group. Children are given three meals a day because many mothers prepare food in their homes three times a day for everyone. The results also showed that many children are given maize flour porridge with salt in the morning, afternoon and in the evening. If a mother is to solely prepare food for her child it entails that she will require extra firewood and time. However, most mothers in rural areas do not separately prepare food for their children because of such additional demands. When the household is missing a meal, the same applies to under-five children.

iv. **Food as Reward**

Results showed that uneducated mothers give their children carbonated drinks when the children likes them and as a reward. Respondent 9 claimed that

“I have tried giving my child fizzy drinks and I have seen that she likes them so when I have money I buy her fizzy drinks.”

Carbonated drinks contain more sugars and calories and no nutrients, however, because the drinks contain sugar, most mothers believe the drink has macro nutrients that make children full and grow well. Respondent 3 also stated that she gives her child fizzy drinks to reward the child.
“I spend my day at our farm land so I have no time to prepare food for the child. I just buy a fizzy drink for him,” she argued.

Most mothers believe that the sugar that is in fizzy drinks gives energy to their children therefore the children can stay longer without feeling hungry. The interviews revealed that most mothers with low levels of education rarely pay attention to the sugar content and the dangers of giving their children fizzy drinks. Respondent 3 explained that

“I do not see any effect of giving a child a fizzy drink because many children have been taking them and there have not been any consequences.”

Effects of consuming more sugar at a tender age manifest when one is growing older with some non-communicable diseases. Some mother’s with low education levels as shown by Respondent 3 above have inadequate knowledge on the consequences of giving children more fizzy drinks. Educated mothers have a tendency of adhering to instructions on good feeding and care habits. Educated mothers tend to provide adequate care to their children. Compared to the uneducated counterparts, educated mothers follow both preventive and curative measures in promoting child health. Educated mothers particularly from the upper wealth quintile understand the implications of feeding their children on non-healthy foods like Sodas and they make sure their children stay away from such habits as highlighted by Yabanci’s study in Turkey in Chapter 2 (Yabanci 2014). This is contrary to feeding habits and behaviours of mother’s from the poorest quintiles.

v. Socially acceptable food, learned feeding

Mothers that were interviewed revealed that they give maize porridge to children because that is what they see other mothers do in their communities. Maize is a staple food of many Malawians. Interviewed mothers could not explain the micro nutrient value of the porridge and “nsima” (thick maize porridge) that is given to children. The results show that there is minimal food diversification on the menu given to children born to uneducated mothers. Some mothers rely on the information they acquired from their grandmothers on how to take care of children as well as on feeding patterns. When the nutritional knowledge of the grandmother is inadequate it implies that the young mother will also acquire inadequate information that is in some instances incomprehensive hence affecting child’s health and nutrition. As Respond 3 stated,

“I do what my grandmother taught me to do.”
This also applies to the food that the young mothers give to their children. Whatever the young mothers learnt from their grandmothers and mothers on feeding is applied. Furthermore, when the children do not develop allergies to the food then most mothers prove that the food they are proving to their children is good. Respondent 7 highlighted that she knows that the food given to her child is good when there are no side effects to the child after she eats the food.

“The food I have been giving to my child so far has not given her any allergies so I assume that she is fine with the food,” Respondent 7 elaborated.

Another mother, Respondent 2 explained that

“If the child looks healthy then I know that the food I am giving him is right”

The results show that socialization of mothers on the food available in their areas as well as learned feeding habits from mothers and grandmothers have a big role in child health and nutrition.

4.10 Reasons for dropping out of school

i. Early pregnancy

Discussion with mothers of malnourished children in Mangochi and Machinga in Malawi showed that there are various reasons that push them out of school. Early pregnancy is the main cause of dropout among many mothers in rural Malawi. When Respondent 10 realized she was pregnant, she dropped out of school to take care of her pregnancy and baby after delivery.

“When I got pregnant my mother was so disappointed with me. She stopped supporting me and she told me that I should get support from the father of my child,” explained Respondent 10.

In many Malawian societies once a girl becomes pregnant she is believed to be a grown up therefore worth entering marriage. Many parents stop supporting their daughters when it is known that their daughters are pregnant. The responsibility of supporting the girl shifts to the man responsible for the pregnancy as expressed by Respondent 10 above. A considerable number of girls’ dropout of school and some enter into early marriages.

ii. Lack of parental care and guidance

Lack of parental care and guidance is another push factor from school.

“When my parents passed on, there was no one to support me so I stopped going to school,” explained Respondent 12.
Attaining education is more than enrolling in school. When one is in school one needs school necessities including emotional support from parents and guardians. When this support is minimal due to death of a guardian, chances of dropping out of school become high as expressed by Respondent 12 above.

iii. Orphanhood

When children loose their parents to deaths, they rarely receive the care their parents could have provided. The death of a breadwinner brings so many complications in the household. Respondent 12 stated that

"there was no one to provide support and buy school necessities like school uniform for me when my mother passed away."

Inadequate support from caretakers of orphans as shown above by Respondent 12 leads to school dropout. These orphans therefore start looking for opportunities in order to find their daily needs. In most cases orphans are also required to provide labour in order to find food and other current necessities. Education brings financial returns after some time hence, in most poorly resourced homes, chances of pursuing studies are slim for orphans. Poor investment in the education of orphans deprives them of future well-being including lasting incomes as expressed by Respondent 12 above.

iv. Hidden cost of education

Even though education at primary school is free, many mothers did not attend school due to the hidden cost of education. Malawi introduced free primary education in 1994 where tuition was no longer necessary for primary school learners (Kadzamira and Ross 2003). However, other charges like development fund, security contribution, funds for running school governance structures like Parents Teachers Association (PTA) and school uniforms becomes a challenge for other families to provide.

"I did not have school uniform, notebooks and pens because my parents could not afford," explained Respondent 4.

The sentiments above show that lack of financial resources at household level is a determinant of low enrolment, retention and completion of education among young mothers. The expenses incurred by parents are huge for many poor households. Due to high poverty levels, not all parents manage to provide the necessary expenses for schooling. The end result is absenteeism and school dropout.
v. **High levels of poverty and the lack of basic needs**

Some mothers dropped out because of poverty and food insecurity in the homes they were coming from. Respondent 8 highlighted that she lacked basic necessities including school materials.

> “I grew up with my aunt who was poor. My aunt could not afford to buy necessary materials for school like school uniform and school shoes,”

Lack of necessary materials like clothes and writing materials is a push factor that contributes to high dropout among girls in rural Malawi as highlighted by Respondent 8 above.

iv. **Combining high levels of Household chores with school work**

Household chores and tasks like taking care of siblings and sick parents are also reasons that forced some mothers to drop out of school. Children particularly girls provide support to their mothers in many households. More girls however compared to boys fail to attend classes some days due to various errands and chores they are given. Respondent 1 explained that she dropped out of school because she was given the task of taking care of her siblings.

> “My mother always tasked me to take care of my two brothers when she was going to the garden to farm. I was not doing well in class, I later on decided to drop out of school” Respondent 1 explained.

Erratic attendance of classes affects academic performance and achievement. Frequent absenteeism later leads to dropout as Respondent 1 explained. Most mothers who in their childhood and adolescence did many chores at the expense of attending school have no or less education.

4.11 **How mother’s low education level is associated with child malnutrition and poor health in rural Malawi**

i. **Low education level is associated with low welfare status.**

Results of the study showed that all mothers with no education or incomplete primary education were either stay home mothers or were employed in low paying jobs. For instance Respondent 12 works as a domestic worker and earns $14.00 a month. When interviewed she stated that

> “Half of the money I earn ($7.00) is for house rent. I therefore remain with $7.00 to buy...
food and other basic needs for my house. This is the reason why I run out of food every month,” she explained.

The results from the qualitative research above indicate that the food most households harvest hardly takes them throughout the year. During lean periods mothers have to purchase food. Mothers with inadequate financial resources remain food insecure. Food insecurity has negative impact on the health and nutrition of children. Most mothers are aware of the importance of feeding their children a balanced meal; however, some mothers fail to do so because of their health condition. As Respondent 6 argues

“I don’t earn much because for a number of days in a month I don’t work because my last born child and I are sick. I earn MK20, 000.00 ($27.00) a month and this is all I use to take care of my three children.”

Findings from mothers in Malawi show that mothers with low education levels have low socioeconomic and welfare status. Poor mothers are food insecure during certain period of the year. Inadequate food at household level leads to inadequate dietary intake which then leads to malnutrition.

ii. Literacy, numeracy and other life skills are acquired at school.

The longer one stays in school, the more the literacy and numeracy skills are enhanced. The outcomes of the study in Chapter Four showed that mean years of schooling for mothers are 4 years. Standard 4 is in the junior category of primary education. There is not much on life skills that is covered by Standard 4. As also indicated in Chapter 4, few learners acquire literacy skills at Standard 4. Reading and comprehending materials on child health becomes difficult for some mothers. A number of the respondents stated that the information they acquired in school does not influence their food choices. This is because most of them dropped out of school in infant section before they fully acquired literacy skills. Reading and comprehending texts is challenging. As Respondent 4 explains,

“I forgot everything that I was taught and I cannot claim to be using the information that I learnt from school. I have been out of school for a long period of time.”

Respondent 1 also shared the same sentiments as she argued that

“there is nothing I can remember from Standard One for I have only been in school for a year.”

http://etd.uwc.ac.za/
Some skills and knowledge on feeding, food groups and sanitation are passed on to learners in school. The lesser the time a mother stays in school the lesser the health and nutrition knowledge she acquires.

iii. Inadequate knowledge on nutrition

Most mothers with low education levels have limited access to social services like hospitals as well as health workers. Only mothers who can engage with literature on health issues on their own or have access to other mediums of communication can have advice on child health issues. Most mothers who were interviewed showed to have inadequate knowledge of right quantities and quality of food given to a child. According to Respondent 8

“I give any kind of food that is available in the home,” she argued.

There is limited knowledge on food and food groups. As long as the food makes the child full then the mothers are fine with it.

iv. Food and nutrition insecurity

Failure to provide adequate and nutritious food to children is because of lack of food in their homes. Most mothers that were interviewed indicated that they have inadequate access to nutritious food because of their socio-economic status. The main livelihood strategy of these mothers is farming which is also rain dependent. The staple food, maize, is commonly grown by almost all families in Malawi. Using corn flour, mothers prepare breakfast, lunch and supper. There is minimal food diversification. Some mothers do not harvest enough hence they rely on buying food. Respondent 12 expressed that she runs out of food in a month because she budgets on $7.00 for all the necessities in their household.

“Every month I remain with $7.00 for food and other necessities in our home; this amount is always inadequate, we always run out of food,” stated Respondent 12.

Most mothers have inadequate access to nutritious food required for optimal growth therefore leading to malnutrition of their children.

v. Lack of women empowerment

Most mothers interviewed show some indicators of lack of empowerment. Women empowerment is recognized to be crucial in ending many social concerns including eradicating hunger and defeating
malnutrition (UNDP 2000). Some mothers explained that they do not have the autonomy to make decisions on household food security and income issues. Even though the mother might have the knowledge on the importance of dietary diversity, she is limited in executing the knowledge because of having inadequate access and control to resources that can enable her provide the right food for her family. A considerable number of mothers interviewed had no control over household resources. The money realized from selling crops was kept by the husband. Respondent 4 Stated that:

“my husband buys all the food that we eat, I am hardly given money to buy the food that we need.”

The mothers might have the knowledge on the appropriate food to provide to their children; however they fail to buy the food because they have no access and control of the household resources. As Responded 4 above highlighted, food choices are skewed mainly towards the preferences of the fathers in most households who have access and control of the resources. Empowered mothers have the autonomy and can use the resources they have and control to buy nutritious food and improve dietary diversity. Empowered mothers have power to make changes to improve themselves socially, economically and gain autonomy. Education enhances mother’s agency and autonomy. Reliance on a spouse for financial support is minimized.

4.12 Conclusion
The chapter has highlighted that malnutrition is high among children born to mothers with low education levels. Malnutrition is high in rural areas and mostly among children born to mothers belonging to the lowest welfare category. The results have shown that there is a strong link between mother’s education and child malnutrition in Malawi. Most uneducated mothers are poor, food insecure and have inadequate nutrition knowledge. Their children are therefore given inadequate food, non-nutritious and unvarying diets which later leads to inadequate dietary intake and malnutrition. These findings are in line with the UNICEF’s Conceptual Framework on Malnutrition. The Framework highlights that food insecurity, poor access to health care and facilities and inappropriate feeding and caring behaviour lead to diseases and inadequate dietary intake. Diseases and poor diet contribute greatly to child malnutrition. The Capability Approach used in this study indicate that lack of resources and conversion factors hinders individuals like children from achieving the functioning of being healthy. As highlighted in this section, there are many factors that undermine child health outcomes. Poverty, inadequate nutrition knowledge, poor access to services and low education levels of mothers play a role in challenging the health outcomes of mothers especially

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nutrition outcomes. Poverty, early pregnancies, inadequate care and parental support are the major reasons attributed to school dropout among girls in Malawi.
Chapter Five
Summary, conclusion and recommendations

4.1 Introduction
Based on the problem the study intended to address as well as the findings in the preceding chapter, this section intends to provide a summary of the study. Demographic characteristics of mothers in the chapter and their socio-economic characteristics will be highlighted in this study. An explanation of the association between mother’s education and child malnutrition will be given. The chapter will also highlight the policy recommendations. Key research areas particularly on young mother’s education and child health that require further investigation will be explained in the chapter. Lastly, the chapter will provide a conclusion of the study in its entirety.

4.2 Summary of the chapters
Malawi is grappling with achieving universal primary education. The school dropout rate among girls is high. Nearly half of girls who enrol in Standard 1 complete primary education. Few girls transition to secondary school and fewer attain post-secondary education. Approximately 97% of out of school girls become pregnant. In Malawi half of girls get married before 18 years. Early marriages and early pregnancies are some of the reasons that force girls to drop out of school. Child health indicators are also low in Malawi. Almost one third of children in Malawi are stunted. Malnutrition is a major cause of death among under-five children in Malawi. Malnutrition rates are higher among children born to mothers with no education and those from the poorest welfare category. Effects of malnutrition last for a life time. Malnourished children delay in motor development; have decreased cognitive functions and encounter learning difficulties which lead to poor performance in academics.

The research aimed at analysing the link between young mothers’ education and child malnutrition. The study looked at the factors that cause malnutrition among children born to mothers with low education levels. The research also looked at the causes of school dropout among young mothers in rural Malawi.

This research used the Capability Approach as the theoretical underpinning. The Capability Approach focuses on enhancing people’s well-being, freedom and choices. Availability of physical, environmental and social resources enables people to achieve their functionings and capabilities. The resources can only be utilized and converted into a functioning only when there are enabling conversion factors. When societies create an enabling environment for people to realize their goals and support others in achieving their goals, people's freedoms and choices are expanded.
UNICEF’s Conceptual Framework on Malnutrition has also been used in this research. The framework highlights the basic causes, underlying causes and intermediate causes of malnutrition. The immediate causes of malnutrition are inadequate dietary intake and disease. Insufficient access to food, inadequate care for children and mothers, inappropriate feeding and caring behaviours, poor health services and an unhealthy environment are some of the underlying causes of child malnutrition. Poverty, lack of appropriate policies on child health and nutrition are the intermediate causes of child malnutrition. Studies reviewed in this research highlighted that there is an association between mother’s socioeconomic status and child health. Malnutrition is high among children whose mothers have low socio economic status while it is low among children whose mothers have high socioeconomic status. Education of mothers is highly associated with child health and nutrition compared to paternal education. The reviewed literature also showed that there are more benefits on the health and nutrition status of the child when a mother attains secondary or post-secondary education. Acquisition and utilization of nutrition knowledge is easy among educated mothers compared with mothers with low education levels. Availability of water as well as proper sanitation facilities also contributes to child health and nutrition.

The study used the Explanatory Sequential Mixed Methods Design. First of all, quantitative data from the Demographic and Health Survey (DHS) was analysed to unearth the association between mother’s education and child malnutrition in Malawi. Stata 14 was used in analysing the DHS data. Results from the quantitative data analysis informed the qualitative research. Purposive sampling of young mothers in Mangochi and Machinga was done to identify respondents for the qualitative study. The qualitative data was analysed using Atlas ti. 8.

5.3 Summary of findings
This study aimed at finding the linkages between maternal education and child malnutrition in Malawi. The research intended to establish reasons that lead to high occurrences of child malnutrition in Malawi. The results of quantitative analysis showed that majority of mothers reside in rural areas compared to few who reside in urban areas. The analysis revealed that few mothers complete secondary education. Majority of mothers have primary education as their highest level of education with a minimal percentage of mothers in rural areas having post-secondary education qualification. Numeracy and literacy skills are low among mothers with no education at all and those with less than
five years of education. Majority of the mothers with low education reside in rural areas with few residing in urban areas.

The study revealed that there is a strong association between mother’s education and child malnutrition. Nearly half of children born to mothers with no education are malnourished. On the contrary, fewer children whose mothers had higher education were malnourished. Malnutrition cases among children were also high in rural areas compared to urban areas. Many children born to mothers from the lowest welfare category were malnourished compared to few from the wealthiest welfare group. A multivariate logistic regression analysis depicted that there are higher odds of children being malnourished if their mothers have no education. The association between child malnutrition and mother’s education is significant.

Qualitative findings have shown that there are a number of factors that lead to high malnutrition rates among children born to mothers with low education levels. Some of these reasons are inadequate food in households and poverty. When households run out of food and finances, little attention is paid to nutrition content of food but rather food that satisfies their hunger. Selected mothers give food to their children as a reward hence any food that they decide to give is given to them regardless of nutrition content. The research also revealed that some food choices are as a result of adhering to socially accepted food and learned feeding practices from elderly mothers. A combination of inadequate knowledge and adherence, as well as lack of food and limited food to choose from, seemed to be underlying factors driving malnutrition among under-five children in Malawi. Majority of the mother’s with low education level dropped out of school because of early pregnancies, early marriage, lack of parental care and guidance, orphanhood, food insecurity, poverty and lack of basic needs and child labour the study revealed.

The study showed that there are different ways how mother’s low education level is associated with child malnutrition and poor health in Malawi. Low education level is associated with low welfare status. Majority of mothers with low socioeconomic status struggle to consistently provide nutritious food to their children compared to mothers with high socioeconomic status. Literacy, numeracy and other life skills are acquired at schools. Functional literacy and numeracy skills including life skills are minimal among mothers with low education levels. Reading and comprehending literature on child health and nutrition becomes challenging among many mothers with no education or less education.
Many mothers with low education have inadequate knowledge on nutrition and are food and nutrition insecurity. The study also revealed that mothers with no education are not as empowered as mothers with some primary and secondary education. Majority of mothers with no education hardly participate in decision making in households on utilization of resources including decisions on the food to purchase for the household. Preparation of nutritious food is hampered by lack of nutritious food in the household or resources to purchase nutrition food.

5.4 Policy recommendations

1. Increased funding towards girls education

The benefits that are accrued in nutrition and health status of children born to educated mothers are a pointer to the need for the country to promote girl’s education. As Alderman et al. (2003) highlighted in their paper on Peru, Malawi is to benefit more if funding is increased towards education and girl’s education in particular. Barriers to girl’s education need to be removed. Challenges that are preventing more girls from transitioning to secondary education as well as post-secondary education need to be addressed. Secondary and post-secondary education in Malawi is not free. Due to high poverty levels as indicated in the first and second chapters, deliberate efforts need to be made by the government to provide scholarships at secondary school and higher education especially for girls. Girls who drop out due lack of school fees will then access secondary education. Results in Chapter Four have shown that there are low chances of a child becoming malnourished when he/she is born to a mother with secondary or higher education. When girls are kept in school, child bearing is delayed.

2. Promote family planning interventions among adolescent girls

Family planning methods should be enhanced as one way of reducing girl’s schools dropout rate as well as rapid population growth. Results in Chapter Four have shown that many girls dropout because of early pregnancies and early marriages. Access to family planning methods will reduce cases of unplanned and unwanted pregnancies. Girl’s chances of completing primary and secondary education will be improved. A study conducted in 25 African countries showed that increase in use of contraceptives reduced number of birth and increased primary school attendance (Longwe and Smits 2013). Countries like Ethiopia, Nigeria and Kenya registered increases in the number of girls that remained in school. Higher enrolment and retention rates are crucial for future economic growth. Additionally, as highlighted in Chapter Two, food production in Malawi is not keeping up with the
growth of the population. High population growth is resulting in high levels of food insecurity and low nutrition outcomes for under-five children.

3. **Introduce cash transfers to all mothers with under-five children**

Malawi should enhance and expand social protection interventions targeting resource constrained households particularly in rural areas. The results in Chapter Four have shown that children are not given adequate food because of food insecurity in most resource constrained households. These cash transfers with the caveat that they must be implemented in a context where is easy and affordable to access services like health care, nutrition education and other social services.

Cash Transfers (CCTs) should be given to all under-five mothers on the condition of them adhering to all health demands for the child. This policy was implemented in Mexico’s Oportunidades program and there was a significant reduction in child stunting (Fernald 2008). The health condition of children improved. The poor should also be given incentives like food and money when they send their girls to school. Social spending on education and health are essential in alleviating poverty and in enhancing child health and nutrition. There should also be universal school feeding programs in all Early Childhood Development Centres and Primary Schools. Apart from boosting child nutrition, repetition and dropout cases that occur as a result of poor cognitive development will be reduced. Mothers of under-five children should also be targeted for the food for work or public works programs. Mothers are more likely to prioritize the well-being of their children through buying food and paying for health care.

4. **Encourage diversification of income**

Malawi government should encourage diversification of income sources for households as well as at national level. The expansion of income sources is crucial in orchestrating the escape of many deprived people from poverty. Since many families in the rural areas depend on farming, deliberate efforts should be made to promote pro poor agricultural growth and economic growth. In instances of floods and droughts the poor will manage to buy food for their households if they have other income generating activities. The Ministry of Agriculture in Malawi should find ways of enhancing access to markets in rural areas so that the poor should realize more money from the crops they sell. Profits realized from selling crops will be used for paying school fees as well as other household needs. At national level the country should look at other sectors like mining and manufacturing that can contribute to the economic growth of the country. Libya for instance was able to provide free quality basic, secondary and post-secondary education in public schools because the country had
diversified its sources of income (Otman and Karlberg 2007). Apart from relying on oil, they invested in manufacturing, agriculture and mining. The leader then ensured that enough resources were allocated to education.

5. **Promote irrigation farming and crop diversification**

Likewise, as adverse effects of climate change on agriculture are being witnessed. It is crucial that the government should find mechanisms of promoting crop diversification. Crop diversification provides alternative strategies for sustained year-round food availability. Families should not only rely on rain fed maize production. Crops that do well even in times of droughts like cassava and sweet potatoes should be promoted for production. The country also needs to come up with contingency plans of overcoming the adverse problems of food insecurity and effects of climate change. Makate et al. (2016) concluded in their study in Zimbabwe that crop diversification enhances food security and nutrition among rural farmers and their households. Crop diversification is also a viable climate smart agricultural practice that promotes crop productivity. Advancement of irrigation farming as well as backyard gardening will contribute towards food access and availability even in times of droughts. There is a correlation between the number of crops produced and the number of foods consumed by rural households.

6. **Improve water and sanitation services in the districts**

The state should increase access to potable water for people living in rural areas. The UNICEF Conceptual Framework shown in this study indicates the importance of sanitation facilities as well as availability of potable water. The Malawi government needs to increase funding towards water and sanitation services in the country including Mangochi and Machinga districts. When more households have access to clean and potable water and good sanitation facilities, the benefits will extend to communities. Provision of water and sanitation services by the market is disadvantaging many poor people. Progress in hand washing, water quality, nutrition and sanitation in four districts in Bangladesh contributed to child health (Tofail et al. 2018). Improvements in sanitation and water positively contribute to the general wellbeing of children as shown in Bangladesh study.

8. **Provide food supplements to all under-five children in rural areas**

Malawi will make huge gains in child nutrition and health when food supplements are given to all under-five children. This preventive measure is better compared to the curative measure of Nutrition Rehabilitation Units (NRUs) which are present in district hospitals. In a study that was conducted in six Mexican cities children and lactating mothers were given fortified nutrition supplements and
families received nutrition education, health care and cash transfers. Those that received the food supplements grew better in height among the poorest compared to the children that were not receiving food supplements (Rivera et al. 2004). Bringing back on track malnourished children in terms of cognitive development is a daunting task which also comes with huge financial implications. The universalization of food supplements to children will minimize malnutrition cases that are treated at the NRUs. Since the country has inadequate Doctors and Clinicians, the preventive approach of combating malnutrition is more effective and efficient.

9. **Invest in behaviour change communication and community mobilization**

Policy makers should invest in behaviour change communication strategies. Community mobilization activities like drama and community engagement should be promoted to change mother’s mind-set. Mothers need to diversify the food they give to their children as well as the food they grow. Educational programs on nutrition, child health as well as the importance of girl’s education should be promoted at community, district as well as national level. Different mass media platforms should be used to relay the messages that will trigger behaviour change. Behaviour change communication interventions have been applied in many developing countries like Bangladesh. There was significant reduction in moderately-malnourished children whose mothers received intensive nutrition education unlike those children whose mothers did not receive any nutrition education. The frequency of child feeding and home-based complementary feeding improved significantly. Before the intervention only 15% of women could identify malnutrition however after the intervention 99% could identify malnutrition (Roy et al. 2005). Health seeking behaviour among mothers will be promoted with an increase in awareness of child nutrition issues.

10. **Promote gender equality and women empowerment**

Decision makers in Malawi should enhance the incorporation of crosscutting issues like gender in development planning and implementation. Results showed that few mothers have access to household resources particularly in male headed households. There are also fewer mothers who control resources in their families. Women empowerment programs should reach out to young mothers in rural areas. Assertive and empowered mothers are more likely to demand access to household and community resources. Furthermore, mother’s capacity on how to use money and the food they harvest should be built. Prudent utilization of family resources including food is necessary in ensuring household food security. Some countries in Asia like India, Nepal and Bangladesh have tried making strides in empowering women. Assessments conducted in these countries showed that children whose mothers had final decision-making power on their own health and household...
purchases had children with higher HAZ in India (Desai and Johnson 2005). Mothers with financial and physical autonomy as well as decision-making power in Andhra Pradesh India have children with lower odds of being stunted (Shroff et al. 2009). Therefore improving the financial independence and decision-making power of women will more likely contribute to the reduction of child malnutrition in rural Malawi.

5.5 Further Study
Malnutrition is a multifaceted public health issue which cannot be addressed by a single study only focusing on mother’s education. A multipronged approach is needed in dealing with this problem. Malnutrition is one of the major public health concerns in Malawi. There has however been minimal research on how low education levels of mothers in Malawi contribute to malnutrition among children born to them. There is need for other studies that will look at how education enhances adherence to child health concerns as guided by medical practitioners. Another area that needs further study is the Malawi primary and secondary school curriculums. A study should be done to ascertain if the curriculums contains adequate information on child health and nutrition.

5.6 Contribution to knowledge
The study has shown that there is a strong association between mother’s education and child malnutrition. There are more health and economic benefits when mothers attain secondary and post-secondary education. Inadequate knowledge on nutrition, socialization and lack of agency in most mothers are some of the factors that play a role in child malnutrition. The study has shown mothers with low education levels are not as economically and socially empowered like mothers with higher education levels. The level of empowerment has a bearing on the food choices and health behaviours of their households. Only when husbands give consent on decisions to be made do mothers act. Empowered mothers focus on the well-being and welfare of their children and families. Additionally, the study has shown that grandmothers shape feeding practices. Nutrition interventions that target grandmothers have a positive impact on the mothers and their children.

5.7 Conclusion of the study
Child malnutrition is a crucial health concern in Malawi. This study aimed at understanding the association between mother’s education and child malnutrition. Many girl’s in Malawi dropout before they complete primary education. Few mothers are therefore less educated. Majority of Malawians live in rural areas where provision of social services like schools and hospitals is inadequate. Many mothers in rural areas have some primary education only and majority are poor. Early pregnancies,
poverty and lack of support from guardians are the major factors that push girls from school. Using the Capability Approach and the UNICEF Conceptual Framework on malnutrition, the study unveiled that there are various factors that lead to child malnutrition. Poverty, food insecurity, scanty dietary intake, care, poor water and sanitation facilities lead to disease and later contribute to inadequate dietary intake. The presence of disease and insufficient nutritional consumption are the major causes of child malnutrition. Studies reviewed in this research showed that mother’s nutritional knowledge, care and feeding practices play a crucial role in child’s health and nutrition (Yabancı et al. 2014; Alderman and Headey 2017). Reviewed literature showed that poor living conditions in urban slums and in most rural areas lead to high occurrences of diseases which lead to malnutrition (Abuya et al. 2012; Senbanjo et al. 2013).

The study used Explanatory Sequential Mixed Method Approach. Malawi’s 2015-16 DHS data was used. After analysing the secondary data using Stata 14, a qualitative inquiry was conducted in Mangochi and Machinga in Malawi. The survey intended to understand the rationale of high malnutrition rates among children whose mothers are uneducated. Through this investigation, reasons why mother’s education is associated with poor child health and nutrition were discovered. Results in this study showed that there is an association between mother’s education and child malnutrition. The higher the education level of a mother the lesser the probability of her child being malnourished. Most uneducated mothers have inadequate nutritional knowledge, are food insecurity and poor. Chances of their children being malnourished are high.

Effects of child malnutrition on individuals and the nation are enormous. Various strategies will assist in overcoming this problem. Sustainable and profound benefits of child nutrition and health will only be attained when girl’s education is promoted and poverty is eradicated. Appropriate socio-economic policies are needed in order to make long lasting gains in child health and nutrition. Social protection strategies targeting resource constrained households will play a critical role in reducing food insecurity and school dropout rate. Improving mother’s education and well-being is vital in the development of Malawi and achievement of the Sustainable Development Goals.
Reference


Alderman, H., 2009. Safety nets can help address the risks to nutrition from increasing climate variability. *the Journal of Nutrition*, 140(1), pp.148S-152S.


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Kumar, S., Kumar, N. and Vivekadhish, S., 2016. Millennium development goals (MDGS) to sustainable development goals (SDGS): Addressing unfinished agenda and strengthening sustainable development and partnership. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine, 41*(1), p.1.


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UNIVERSITY OF THE WESTERN CAPE

ETHICAL CLEARANCE APPLICATION FORM (HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE)

PLEASE NOTE THAT THE FORM MUST BE COMPLETED IN TYPED SCRIPT. HANDWRITTEN APPLICATIONS WILL NOT BE CONSIDERED

SECTION I: PERSONAL DETAILS

1.1 Surname of Applicant: Sanga
1.2 First names of applicant: Linice Rumbani
1.3 Title of Applicant: Ms. (Ms/ Mr/ Mrs/ Dr/ Professor etc)
1.4 Applicant’s gender: Female
1.5 Applicant’s Race: African (African/Coloured/Indian/White/Other)
1.6 Student Number: 3604944 (where applicable)
1.7 Staff Number: (where applicable)
1.8 Department / Unit /School / Institute: Institute for Social Development

http://etd.uwc.ac.za/
1.9 Faculty: Faculty of Economic Management Sciences

1.10 Existing Qualifications: Honours Development Studies, BA Humanities.

1.11 Proposed Qualification for Project: Masters

(In the case of research for degree purposes)

2. **Contact Details**

Tel. No.: +27 6 0866 4265

Cell. No: linice2011@gmail.com or 3604944@myuwc.ac.za

E-mail: 3604944@myuwc.ac.za

Postal address: C/o Institute for Social Development

EMS Faculty,

University of the Western Cape

Private Bag X17, Bellville, 7535

South Africa
3. SUPERVISOR/ PROJECT LEADER DETAILS

<table>
<thead>
<tr>
<th>NAME</th>
<th>TELEPHONE NO.</th>
<th>EMAIL</th>
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<tr>
<td>Dr. Coretta Jonah</td>
<td>+27 21 959 3856</td>
<td><a href="mailto:cjonah@myuw.ac.za">cjonah@myuw.ac.za</a> /cmpjonah@gmail.com</td>
<td>Institute for Social Development</td>
<td>PhD</td>
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SECTION 2: PROJECT DESCRIPTION

Please do not provide your full research proposal here: what is required is a short project description of not more than two pages that gives, under the following headings, a brief overview spelling out the background to the study, the key questions to be addressed, the participants (or subjects) and research site, including a full description of the sample, and the research approach/ methods.

2.1 Project title:
A mixed method assessment of the association between young mother’s education attainment and child Malnutrition in Rural Malawi

2.2 Location of the study (where will the study be conducted)
Machinga and Mangochi in Malawi

2.3 Objectives of and need for the study
(Set out the major objectives and the theoretical approach of the research, indicating briefly, why you believe the study is needed.)
The overall objective of this study is to ascertain how mothers’ education attainment affects child’s nutrition. Specifically the study intends:

5. To establish the link between young mothers education and child malnutrition in rural Malawi

6. To highlight the causes of school dropout among girls in rural Malawi

7. To discover the reasons behind high child malnutrition among children born to uneducated young mothers in the countryside of Malawi

8. To provide policy suggestions to policy makers on how to reduce school dropout among girls and improve nutrition of children born to teen mothers

The study will use the capability approach. The capability approach is influential in understanding human welfare. Sen (2009) states that the capability approach is a logical discipline that gives a central role to the evaluation of a person’s achievements and freedoms in terms of his or her actual ability to do the different things a person has reason to value being and doing. The approach primarily focuses on what individuals are efficiently able to do and be. The framework advances that policies and programs should look at providing quality life, removing obstacles and providing freedom to people to live a life they have reason to value (Robeyns 2005). The capability approach is significant because of its stress on freedom of choice, individual diversity and the multi-dimensionality of welfare (Vergunst et al. 2014). Capability of being educated contributes to the achievement of other capabilities like liberty and health.

It is envisaged that the study will contribute to the discussion on promoting girls education as a strategy to reducing child malnutrition in rural Malawi. The study will also guide policy makers in coming up with sustainable programs to reduce child malnutrition. The findings will also inform Non-Governmental Organizations to design and implement programs to enhance women’s education in rural areas.

2.4 Questions to be answered in the research

(Set out the critical questions which you intend to answer by undertaking this research.)

Specifically, the study strived to answer the following questions:
5. Is there a correlation between young mothers’ education and child health in Malawi and are there rural and urban differences?

6. How is low education level of young mothers associated with child malnutrition and poor health in rural Malawi?

7. What are the reasons for high child malnutrition rates among children of mothers with low or no education in rural Malawi?

8. What are alternative strategies that can be employed to reduce girls drop out and improve child health of young dropout mothers

2.5 Research approach/ methods

(This section should explain how you will go about answering the critical questions which you have identified under 2.4 above. Set out the approach within which you will work, and indicate in step-by-step point form the methods you will use in this research in order to answer the critical questions – including sample description, sampling strategies, data collection methods, and data reduction strategies.

This research work will be done using a mixed method approach. Elements of qualitative and quantitative research approaches will be used. The study will use the explanatory sequential mixed methods design (Creswell 2014). The researcher will firstly analyse qualitative data from the 2015-16 Malawi Demographic and Health Survey. Findings from the quantitative study will inform the qualitative inquiry. Participants for the qualitative study will be sampled purposefully. The findings from the quantitative analysis will also determine the kind of questions that will be asked to the participants (Creswel and Plano Clark 2011). A tentative semi structured guide has been attached to the ethical application. Please note that the questions on the tentative semi structured guide may slightly change based on the quantitative outcomes. Notes and voice recordings will be taken throughout the semi-structured interviews. The qualitative data will be transcribed and analyzed under qualitative thematic analysis to get key themes on which the results will be categorized.

For a study that involves surveys, please append a provisional copy of the questionnaire to be used. The questionnaire should show how informed consent is to be achieved, as well as indicate to respondents that they may withdraw their participation at any time, should they so wish.

A tentative semi structured interview guide has been attached. The informed consent has also been attached.

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2.6 Proposed work plan

Set out your intended plan of work for the research, indicating important target dates necessary to meet your proposed deadline.

<table>
<thead>
<tr>
<th>STEPS</th>
<th>DATES</th>
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<tbody>
<tr>
<td>1. Finalizing a full research proposal</td>
<td>- September – October 2017</td>
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<tr>
<td>2. Formulating and refining tools</td>
<td>- November – December 2017</td>
</tr>
<tr>
<td>3. Data Collection</td>
<td>- January 2017 – February 2018</td>
</tr>
<tr>
<td>4. Analysis and discussion of findings</td>
<td>- March 2018 – July 2018</td>
</tr>
<tr>
<td>5. Submission of Thesis</td>
<td>- August 2018</td>
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SECTION 3: ETHICAL ISSUES

The UWC Research Ethics Policy applies to all members of staff, graduate and undergraduate students who are involved in research on or off the campuses of University of the Western Cape. In addition, any person not affiliated with UWC who wishes to conduct research with UWC students and/or staff is bound by the same ethics framework. Each member of the University community is responsible for implementing this Policy in relation to scholarly work with which she or he is associated and to avoid any activity which might be considered to be in violation of this Policy.

All students and members of staff must familiarise themselves with, AND sign an undertaking to comply with, the University’s “Code of Conduct for Research”.

QUESTION 3.1
Does your study cover research involving:

<table>
<thead>
<tr>
<th>YES</th>
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<tr>
<td><strong>Children</strong></td>
<td>✓</td>
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<tr>
<td><strong>Persons who are intellectually or mentally impaired</strong></td>
<td>✓</td>
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<td><strong>Persons who have experienced traumatic or stressful life circumstances</strong></td>
<td>✓</td>
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<td><strong>Persons who are HIV positive</strong></td>
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<td><strong>Persons highly dependent on medical care</strong></td>
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<td><strong>Persons in dependent or unequal relationships</strong></td>
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<td><strong>Persons in captivity</strong></td>
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<tr>
<td><strong>Persons living in particularly vulnerable life circumstances</strong></td>
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In-depth interviews for the study will be conducted with poor, young mothers, both of whom are considered to be a socioeconomically vulnerable group. However, the questions and topics to be addressed are not considered emotive and care has been taken in the design of the instrument to ensure that they do not feel stigmatized or victimized in any way both during the interview and beyond well into the analysis and presentation of findings. To further ensure their interests are protected all throughout the process, they will be assured that withdrawing at any stage of the interview is possible and has no ramifications. Additionally, interviews will be conducted in a language that is well understood by the participant to ensure their views are rightly conveyed.

**QUESTION 3.2**

<table>
<thead>
<tr>
<th>YES</th>
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<tr>
<td><strong>Access to confidential information without prior consent of participants</strong></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Participants being required to commit an act which might diminish self-respect or cause them to experience shame, embarrassment, or regret</strong></td>
<td>✓</td>
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Participants being exposed to questions which may be experienced as stressful or upsetting, or to procedures which may have unpleasant or harmful side effects | √  
---|---  
The use of stimuli, tasks or procedures which may be experienced as stressful, noxious, or unpleasant | √  
Any form of deception | √

If “Yes”, explain and justify. If appropriate, indicate what steps will be taken to minimise any potential stress/harm.

N/A

**QUESTION 3.3**

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<thead>
<tr>
<th>Will any of the following instruments be used for purposes of data collection:</th>
<th>YES</th>
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<tbody>
<tr>
<td>Questionnaire</td>
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<tr>
<td>Survey schedule</td>
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</tr>
<tr>
<td>Interview schedule</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Psychometric test</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Other/ equivalent assessment instrument</td>
<td></td>
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</tr>
</tbody>
</table>

If “Yes”, attach copy of research instrument. If data collection involves the use of a psychometric test or equivalent assessment instrument, you are required to provide evidence here that the measure is likely to provide a valid, reliable, and unbiased estimate of the construct being measured. If data collection involves interviews and/or focus groups, please provide a list of the topics to be covered/ kinds of questions to be asked.

The study will use a questerview (which will combine self completing questions with more in-depth style interview in one instrument. A copy of the instrument has been included in the submission.

http://etd.uwc.ac.za/
**QUESTION 3.4**

<table>
<thead>
<tr>
<th>Will the autonomy of participants be protected through the use of an informed consent form, which specifies (in language that respondents will understand):</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>The nature and purpose/s of the research</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>The identity and institutional association of the researcher and supervisor/project leader and their contact details</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>The fact that participation is voluntary</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>That responses will be treated in a confidential manner</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Any limits on confidentiality which may apply</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>That anonymity will be ensured where appropriate (e.g. coded/ disguised names of participants/ respondents/ institutions)</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>The fact that participants are free to withdraw from the research at any time without any negative or undesirable consequences to themselves</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>The nature and limits of any benefits participants may receive as a result of their participation in the research</td>
<td>√</td>
<td></td>
</tr>
</tbody>
</table>
Is a copy of the informed consent form attached? √

If NO to any of the above: (a) please justify/explain, and (b) indicate what measures will be adopted to ensure that the respondents fully understand the nature of the research and the consent that they are giving.

**QUESTION 3.5**

Specify what efforts been made or will be made to obtain informed permission for the research from appropriate authorities and gatekeepers (including caretakers or legal guardians in the case of minor children)?

**N/A**

**QUESTION 3.6**

**STORAGE AND DISPOSAL OF RESEARCH DATA:**

Please note that the research data should be kept for a minimum period of at least five years in a secure location by arrangement with your supervisor.
How will the research data be secured and stored? When and how (if at all) will data be disposed of?

The records of the study, the notes, the audio recordings and the transcripts shall be confidential. All the hard copy records shall be kept in a lockable filing cabinet and all the electronic data will be coded. Only the researcher and supervisor shall have the codes to access the data. The hard copy records will be disposed after the thesis has been submitted and candidate has graduated.

QUESTION 3.7

In the subsequent dissemination of your research findings – in the form of the finished thesis, oral presentations, publication etc. – how will anonymity/confidentiality be protected?

Participant identity is not central to the study objectives and thus all through the life of the research each study participant will be identified using a code. Where names have to be used to give a face to outcomes pseudonyms will be used to protect the identity of the participants. Description of participate will be done in such as way as to ensure comments are not traceable back to the individual. There will be no direct reference to any study participant throughout the life of the research.

QUESTION 3.8

Is this research supported by funding that is likely to inform or impact in any way on the design, outcome and dissemination of the research?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>√</td>
</tr>
</tbody>
</table>

If yes, this needs to be explained and justified.
**QUESTION 3.9**

Has any organization/company participating in the research or funding the project, imposed any conditions to the research?

**NO**

If yes, please indicate what the conditions are.

**N/A**

**QUESTION 3.10**

Do you, or any individual associated with or responsible for the design of the research, have any personal, economic, or financial interests (or any other potential conflict of interests) that could reasonably be regarded as relevant to this research project?

**NO**

If you answered YES to Question 3.10 please provide full details:
### SECTION 4: FORMALISATION OF THE APPLICATION

**APPLICANT**

I have familiarized myself with the University’s Code of Conduct for Research and undertake to comply with it. The information supplied above is correct to the best of my knowledge.

| NB: PLEASE ENSURE THAT THE ATTACHED CHECK SHEET IS COMPLETED |
| DATE: 19th October 2017 | SIGNATURE OF APPLICANT |

**SUPERVISOR/PROJECT LEADER/DISCIPLINE ACADEMIC LEADER**

| NB: PLEASE ENSURE THAT THE APPLICANT HAS COMPLETED THE ATTACHED CHECK SHEET AND THAT THE FORM IS FORWARDED TO YOUR FACULTY RESEARCH COMMITTEE FOR FURTHER ATTENTION |
| DATE: 19 October 2017 |

**SIGNATURE OF SUPERVISOR/ PROJECT LEADER/DISCIPLINE LEADER**
## RECOMMENDATION OF FACULTY RESEARCH ETHICS COMMITTEE/HIGHER DEGREES COMMITTEE

The application is (please tick):

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommended and referred to the Human and Social Sciences Research Ethics Committee for further consideration</strong></td>
<td></td>
</tr>
<tr>
<td>Not Approved, referred back for revision and resubmission</td>
<td></td>
</tr>
<tr>
<td>Other: please specify:</td>
<td></td>
</tr>
</tbody>
</table>

**NAME OF CHAIRPERSON OF FACULTY RESEARCH COMMITTEE:**

________________________________________

**SIGNATURE:**

________________________________________

**DATE**

_______________________________

---

**RECOMMENDATION OF UNIVERSITY RESEARCH ETHICS COMMITTEE (HUMANITIES AND SOCIAL SCIENCES)**

**NAME OF CHAIRPERSON:**

________________________________________

**SIGNATURE:**

________________________________________

**DATE:**

_______________________________
## CHECK SHEET FOR APPLICATION

### PLEASE TICK

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Form has been fully completed and all questions have been answered</td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td><strong>2.</strong> Questionnaire attached (where applicable) <strong>(Questerview)</strong></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td><strong>3.</strong> Informed consent document attached (where applicable)</td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td><strong>4.</strong> Approval from relevant authorities obtained (and attached) where research involves the utilisation of space, data and/or facilities at other institutions/organisations</td>
<td><strong>NA</strong></td>
</tr>
<tr>
<td><strong>5.</strong> Signature of Supervisor / project leader</td>
<td><strong>YES</strong></td>
</tr>
<tr>
<td><strong>6.</strong> Application forwarded to Faculty Research Committee for recommendation and transmission to the Research Office</td>
<td><strong>YES</strong></td>
</tr>
</tbody>
</table>