

CHAPTER ONE

INTRODUCTION

1.0 Overview

In this chapter, the researcher provides the background to the study. In addition, the researcher gives the statement of the problem, purpose of the study, research objectives, research hypotheses, research questions, significance of the study, conceptual framework, delimitation, limitation, and definition of terms. The organization of the dissertation and a summary of all the issues covered in this chapter are also given at the end.

1.1 Background to the study

A mother is the principal provider of the primary care that her child needs during the first years of his/her life. Owing to this, mothers affect the timing and frequency of interactions with health care providers. In one sense, a mother's health seeking behaviour at home also affects her child because the mother spends more time with the child. The quality of primary health care a mother provides for the child is dependent on the mother's education. Routine decisions such as feeding, bathing and general care affect the child's health. Barrera (1990) suggests that maternal education has the greatest impact on child health among children aged 0-2 years.

Education makes a woman conscious about the well-being of herself and her family. It gives the basic ideas about the path to well-being and also equips and increases a mother's knowledge on healthy living and helps her to form the attitude to practice manners of hygiene.

Education equips mothers with the knowledge of scientific causes of disease and proper health behaviour for preventive and curative aspects of illnesses. Moreover, it encourages mothers to adopt proper feeding practices. Education makes the mothers more willing to use health care services when necessary and prepares them for overcoming the barriers in doing so. Doctors and nurses are more likely to listen to an educated mother, as she can demand their attention, whereas the illiterate might be completely rebuffed. Education allows greater exposure to the mass media, which can keep mothers better informed about the health issues. Furthermore, education empowers mothers to make and implement proper and timely decisions regarding their children's health. Thus, maternal education acts as a gate way toward diversified aspects of modern life that significantly affect children's morbidity and mortality.

Govindasamy and Ramesh (1997) state that cross-country comparisons using large data sets such as the World Fertility Survey (WFS) and the Demographic and Health Surveys (DHS), have shown that education in general, and female education in particular exerts a very strong influence in reducing child morbidity and mortality. This claim is also supported by studies done by Boerma, Weinstein and Rutstein(1990); Bicego and Boerma (1993); and Caldwell and Caldwell (1990). According to Caldwell (1979), work from the developing world shows that maternal education is an important factor for improving child survival and health.

Education leads to capacities like correct knowledge about health and attendant behaviours. Mothers are able to make health decisions such as whether smoking is harmful to health or giving the child more fluids when managing a diarrhea attack is good.

Moreover, an educated mother would be able to tell whether a child's temperature has risen and figure out whether mopping the child with a wet cloth could bring the temperature down. Educated mothers boil their water for drinking and take sick children to a health care provider.

Zarcadoolas, Pleasant and Greer (2005) define health literacy as the wide range of skills and competencies that people developed to seek out, comprehend, evaluate and use health information and concepts to make informed choices, reduce risks and increase quality of life. Safer and Keenan (2005) state that Health literacy is basic reading and numerical skills that allows a person to function in the health care environment. Borooah (2000) argues that there is an association between higher years of schooling in mothers and lower incidence of illness, better immunization status, healthier nutritional position and improved scores of cognitive tests.

1.2 Statement of the problem

A lot of literature highlights the independent impact of maternal education on child health(see Abuya, Kimani and Onsomu 2003; Ali, Chaudry and Naqvi 2011;Blunch 2004; Govindasamy and Ramesh 1997; Caldwell 1979; Kleinman and Madans 1985; Arntzen, Moum, Magnus and Bakketeig 1996; Vikram, Desai and Vanneman2010; Glewwe 1999; and Mirowsky and Ross, 2003).

Blunch (2004) argues that one of the strongest and most consistent findings in development and health economics is the positive relationship between mothers' schooling and child health. This empirical relationship has been confirmed in numerous studies across different time periods, countries, and measures of child health. However, these studies generally treat education as a grade or level reached by the mother. **What is measured is not what the mother has learned in terms of skills such as literacy, numeracy and health knowledge, but rather what level or grade she has reached.** Levine, Dexter, Velasco, Levine, Joshi, Stuebing and Uribe (1994) argue that even the literacy measures that were reported were often problematic in that they were based on women's self-report of literacy, with the attendant possibilities for reporting error; or they treated literacy as a simple ability, either present or absent which could easily be estimated. Against this background, this study investigated maternal health literacy and weighed its impact on child health promoting behaviours.

1.3 Purpose of the study

This study sought to investigate the effect of maternal health literacy on child health promoting behaviours among post natal mothers in selected clinics in Lusaka and Mazabuka Districts.

1.4 Research objectives

1.4.1 Main Research Objective

To investigate the effect of maternal health literacy on child health promoting behaviours among post-natal mothers in selected clinics in Lusaka and Mazabuka Districts.

1.4.2 Specific Research Objectives

In this study, the specific objectives were:

- i. to determine the level of maternal health literacy among post-natal mothers;
- ii. to assess health promoting behaviours among post-natal mothers; and
- iii. to examine the strength of association between maternal health literacy and child health promoting behaviours among post natal mothers.

1.5 Research questions

1.5.1 Main Research question

Does post natal mothers' maternal health literacy impact on child health?

1.5.2 Specific Research Questions

- i. What is the level of maternal health literacy among post-natal mothers?
- ii. What behaviours do post-natal mothers employ in order to promote child health?
- iii. What is the strength of association between maternal health literacy and child health promoting behaviours among post-natal mothers?

1.6 Hypotheses

In this study, the statistical hypotheses were as follows:

- i. There is no association between maternal health literacy and child health promoting behaviours.
- ii. There is an association between maternal health literacy and child health promoting behaviours.

1.7 Significance of the study

Vikram et al (2010) argue that the acquisition of education leads to better human, social and cultural capitals among mothers, which should be associated with increased child survival. In one sense, this study was different in that it was designed to investigate maternal health literacy within the context of child health promoting behaviours. The Children's clinic card which is a typical health literacy piece and a child health monitoring tool informed this study. It is hoped that the findings of this study may be of use to policy makers, researchers and health practitioners.

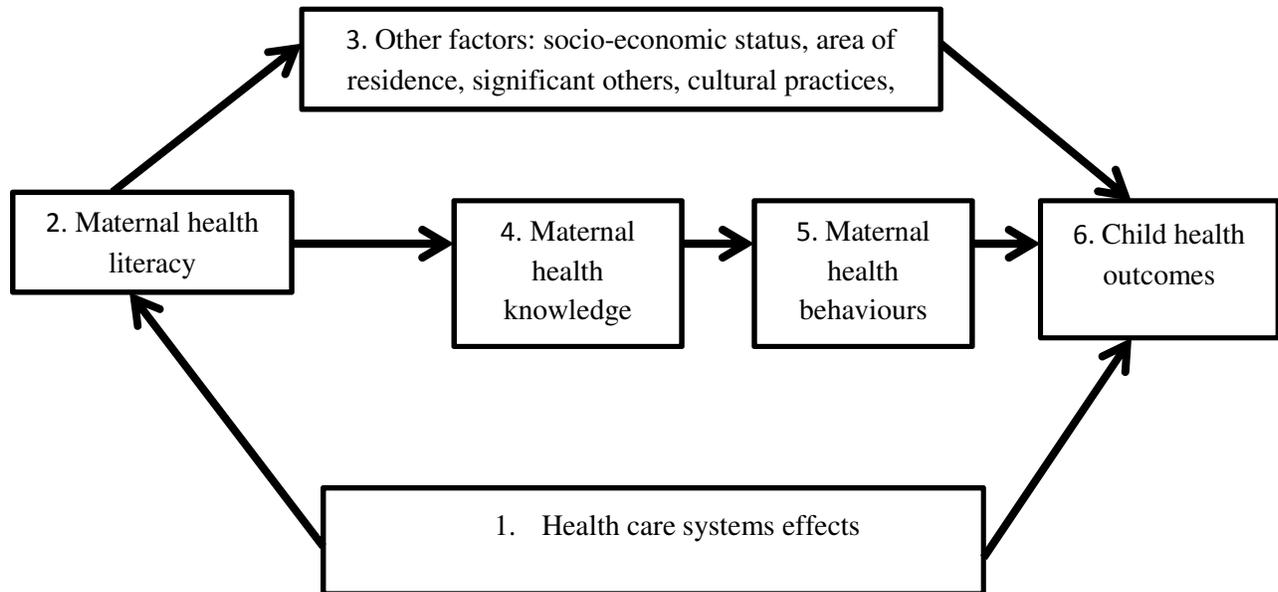
For policy makers, it is hoped that the findings of this study may give them a deeper understanding of how maternal health literacy impacts on the overall health of a child. This might give them insight into how future policies may bring together the field of education and health in addressing matters around mothers and child care and ultimately child health.

In terms of research, it is hoped that the results of this study might add new information to the already existing body of knowledge in this domain. In addition, it is also hoped that this study might stimulate further research into maternal health literacy and child health.

For practitioners, both in the education and health fields, it is hoped that the findings of this study may spur interest and appreciation of the role which maternal health literacy plays in promoting child health.

1.8 Conceptual framework on maternal health literacy and child health outcomes.

Figure 1



The Conceptual framework in Figure 1 above shows the relationship between maternal health literacy and child health outcomes.

There is an enduring link between boxes 1 and 2; health care systems and maternal health literacy. Nutbeam (2001) defines health literacy as the ability to understand instructions on prescription drug bottles, appointment slips, medical education brochures and posters, doctor's directions, consent forms, the ability to negotiate complicated health systems through reading, listening, analyzing and decision making. The health care systems can be extended to include facilities such as hospitals, clinics and other health care providing centers. In one sense, for a post-natal mother to navigate the health care system, they will need their maternal health literacy.

Another link is between boxes 1 and 6; health care system effects and Child health outcomes. The health care system determines the overall child health outcomes. In a country like Zambia the health care system encompasses all the services provided by the various stake-holders and government inclusive. Ultimately, the goal is to have positive Child health outcomes.

There is a very strong link between boxes 2 and 3; maternal health literacy and other factors such as socio-economic status, area of residence, significant others and cultural practices. Vikram et al (2010) argue that there is a link between maternal literacy and the acquisition of human capital, social capital and cultural capital. Education, as the main human capital, leads to the acquisition of capacities such as accurate knowledge about health and health behaviours. Social capital empowers mothers to interact and gain access to knowledge, advice and contacts which enhance their ability to understand the severity of disease, seek treatment and good care. Cultural capital enables mothers to carry a position of privilege which commands respect from health care providers and enables families to manipulate health systems to their advantage.

There is a link between boxes 2, 4, 5 and 6; maternal health literacy and maternal health knowledge, maternal health behaviours and ultimately, Child health outcomes. Maternal health literacy empowers post-natal mothers with health knowledge. They use this health knowledge to promote child health. Child health promoting behaviours result in child health outcomes. Therefore, there is a relationship between maternal health literacy and child health.

1.9 Delimitation of the study

This study was carried out in Lusaka and Mazabuka districts. The post-natal mothers in Lusakawere drawn from Chilenje and George clinics. The post-natal mothers in Mazabuka were from Kaleya and Ndeke clinics. The choice of these clinics was motivated by the health, socio-economic factors which affect both the mothers and children. These are areas with high poverty levels, high illiteracy levels, and poor attitudes towards personal hygiene which all have a bearing on people's health.

1.10 Limitations of the study

The study targeted children who were between 12 months and five years. Post-natal mothers seldom take their children to the children's clinic once they have completed all the vaccination injections. It was difficult to get data on older children. This might have affected the quality of data collected. Elsewhere, the vaccinations end by year one and once a post-natal mother has done them all, their attendance of the children's clinic became erratic. This means the record on the child's clinic card was compromised. The data collection was at the health centers where questionnaires and health literacy tests were administered. Such an environment was stressful to the post natal mothers and this affected the final scores. Thus data was affected. Some mothers were not able to read English. This required translation into a local language they could understand; Citonga or Cinyanja. Translations sometimes distorted the initial meanings of texts; consequently, more time and therefore resources were spent.

1.11 Operational definition of terms

The definition of terms gives the context in which they have been used in this study.

Anthropometric measurements - measurements of head circumference, height-for-age, weight-for-age and upper arm circumference which assess children's nutritional status.

Children's clinic card - a tool which shows the overall health progress of the child.

Child development- the physical and cognitive growth of a child.

Child health - the National Research Council and Institute of Medicine (2004), define child health as the extent to which children are able or enabled to develop and realize their potential, satisfy their needs and develop the capacities that allow them to interact successfully with the biological, physical and social environment.

Exclusion criteria - factors which dissuade a subject from taking part in a research as a participant.

Health literacy -the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions.

Immunization - Abuya et al (2003) define immunization as the number of vaccinations a child receives.

Inclusion criteria - Factors which qualify a subject to take part in a research as a participant

Post-natal mothers- these are mothers in selected clinics in Lusaka and Mazabuka whose children were aged five years or below.

1.12 Organization of the Dissertation

This dissertation is made up of six chapters. In the first chapter, the researcher provides the introduction to the study. In addition, he covers the following items: background, statement of the problem, purpose of study, objectives, research questions, research hypotheses, significance of the study, conceptual framework, delimitation and limitation of the study and definition of terms. The other parts include the organization of the dissertation and a summary of the items dealt with.

In the second chapter, the researcher reviews literature related to the study. In this chapter, the following sections are covered: studies conducted outside Africa. The review also looks at studies done in Africa and lastly, a study done in Zambia. A summary of the literature reviewed is provided at the end of the chapter.

In the third chapter, the researcher dwells on the methodology used in the data collection of the research. In this section, sub sections such as the research design, target population, sample size and sampling techniques, research instruments, data collection procedures, data analysis and ethical issues are covered.

In the fourth chapter, the researcher presents the research findings. The presentation is guided by the research questions. In the fifth chapter, findings of the study are discussed. The discussions are guided by the research objectives and research hypotheses.

A summary of the research, conclusions and recommendations are made in chapter six. Again, in this chapter, implications and suggestions of areas which require further investigations are presented as well. References and appendices are on the subsequent pages.

1.13 Summary of the Chapter

In chapter one, the researcher provided the background which put the problem under study; health literacy into context. The background cites several studies which delved into maternal education and child health. It also covered the statement of the problem; the inability of studies done thus far to measure maternal health literacy.

In addition, the researcher covered the following items: purpose of the study, research objectives, research questions, research hypotheses, significance of the study, the conceptual framework, delimitation and limitation of the study and definition of terms and organization of the dissertation. In the next chapter, the researcher focuses on the review of the studies related to the topic under study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Overview

This study sought to investigate the effects of maternal health literacy on child health promoting behaviours. In chapter one, the researcher provided the introduction. In the current chapter, the researcher focuses on reviewing the related literature which dwells on maternal education and child health. Literature review is significant as it gives the researcher an understanding of the other studies done in the area under investigation. The problem addressed in this study was the inadequacy of identified studies in isolating the pathway in education which resulted in mothers' behaviour impacting on child health. The methodologies used, as mentioned in the statement of the problem in chapter one, were not thorough. Stuebing (1997) agrees with (Mosley 1984; Freund 1987; Hammad and Mulholland 1992) that literacy was not directly measured in demographic and health surveys.

In this study, a methodological review of literature was made. Neuman (2006), states that a methodological review of literature is a special type of integrative review in which the author compares and evaluates the relative methodological strength of various studies and shows how different methodologies (e.g research designs, measures, samples) account for different results. Consequently, the researcher will be able to notice paths not beaten to death and fit in their study. Studies done outside Africa were covered first. This was followed by studies done within Africa and finally a review of literature on a study done in Zambia is given. A summary of the methodological literature review is provided at the end.

2.1 Studies conducted outside Africa

Cammu, Martens, Maele and Amy (2010) investigated the effect of maternal education on foetal and infant mortality. They sampled 170, 948 Belgian women and used a Chi square test to conclude that foetal death rate was significantly associated with maternal education. They also found out that the incidence of preterm birth, low birth weight, neonatal morbidity had an education gradient and were least common in mothers with the highest level of education in Belgium. The independent variable in the study was maternal education described as high level, medium level and low level. The dependent variables were pre term birth, birth weight, foetal and infant mortality. The description of education by the word level is so general that it is difficult to isolate particular grades or classes.

This study used no schooling, basic, high school, tertiary diploma and tertiary bachelor's, masters' or doctorate degrees to describe education. The study in Belgium did not measure the literacy levels among the 170, 948 women. This study measured the literacy levels among the 181 post-natal mothers by using the Rapid Estimate of Adult Literacy in Medicine (REALM) and the Child Health Reading Comprehension Test (CHRCT). The literacy tests were generated from the Children's Clinic Card which is not only a child health monitoring tool but a literacy piece.

It was difficult to reliably conclude that general levels of education such as high level, medium level or low level could have an impact on preterm birth, low birth weight and neonatal morbidity. There ought to have been something in the education level which could have led to pre term birth, low birth and neonatal morbidity among the infants.

Govindasamy and Ramesh (1997) used a quantitative design which was informed by the data from the National Family Health Survey (NFHS) in India to study maternal education and the utilization of child health services in eight states. The survey ran for two years from 1992 to 1993. Sample sizes were in excess of 40,000 for children. Three questionnaires were used to capture information on maternal education and child health. These were the Household Questionnaire, the Woman's Questionnaire and the Village Questionnaire. This study used only one questionnaire to elicit child health promoting behaviours.

The measures for education in the study were illiterate, literate less than middle school, complete and middle school complete and above. In this study, education was described as; no schooling, basic, high school, tertiary diploma and tertiary bachelor's, master's and doctorate.

The indicators for child health included percentages of vaccinations, occurrences of diarrhea and Oral Rehydration Salts (ORS) interventions and/or Recommended Home Fluids (RHF) and acute respiratory (ARI) infection and whether the children were taken to a health facility or provider. They used regression analysis and found that a higher level of maternal education resulted in improved child survival. This is because the utilization of Maternal and Child Health services (MCH) were used to a greater extent by mothers with higher education than those with little or no education (Govindasamy and Ramesh 1997, p.18). This study used correlations to analyze the effect of maternal health literacy on child health promoting behaviours. It was not known whether a higher level of maternal education was equivalent to literate. The study concluded that the benefits of maternal education persisted even when other socioeconomic factors were taken into account.

The sample size and the delimitation were so large that self-reported beliefs or behaviours were used for data. This study used a sample size of 181 mother and child pairs. In the study, the mothers reported, for instance, that they had taken their children to a health center for treatment of Acute Respiratory Infection (ARI). Elsewhere, they reported that they had treated their children at home for diarrhea with Oral Rehydration Salts (ORS) or Recommended Home Fluids (RHF).

The study did not take into account the role of nutrition which is so crucial in child health. Regan (2011) reports the study done by Stanley and Mei Chung (2007) which looked at breastfeeding and maternal and infant health outcomes in developed countries and suggested that breastfeeding was of considerable importance to the young infant. It was important for nutrition and development, for reducing infections and diseases and positively impacted cognition, vocabulary and intelligence.

Lastly, there was no test of maternal literacy skills which could have been garnered during years of schooling/education by the mothers. It was such skills which could have enabled them read prescriptions, know when to administer drugs for an Acute Respiratory Infection (ARI) attack or prepare Recommended Home Fluids (RHF) to arrest diarrhea.

The study, in describing maternal education, included words and terms such as literate and illiterate alongside middle school, and middle school and above. Whether illiterate is equal to less than middle school is anyone's guess. Where there was no clear cut measure of literacy skills it was therefore difficult to attribute the findings to the input of maternal education.

This study sought to investigate the effects of maternal health literacy on child health promoting behaviours by measuring maternal health literacy through the Child Health Reading Comprehension Test (CHRCT), the Rapid Estimate of Adult Literacy in Medicine (REALM) and a questionnaire which captured the child health promoting behaviours. Child health promoting behaviours were captured through two variables; complete immunization and weight for age. All the maternal health literacy tests were generated from the children's clinic card which was not only a literacy piece but a child health promoting behaviour tool kept by the mother and used as a child health monitoring tool by health care providers.

Thus maternal education categorized as; no schooling, basic, high school, tertiary diploma, tertiary bachelor's/ masters/ doctorate was evaluated through maternal health literacy. A correlation was done between maternal health literacy scores and education.

Similarly, Vikram et al (2010), argue that the acquisition of education led to better human, social and cultural capitals among mothers, which ought to be associated with increased child survival. They used regression analysis and found that there was a significant association between maternal education and child mortality.

They used the Indian Human Development Survey (IHDS) of 2005 in their study; Maternal Education and Child Mortality: Exploring the pathways of influence. They identified human capital, social capital, cultural capital and gender empowerment as pathways of influence.

They pointed out that education, as capital, equipped mothers with health knowledge and health behaviours which helped them to deal with child health. Glewwe (1999) argues that improved health-related knowledge was associated with better child health outcomes.

In terms of social capital, they identified interdependencies driven by cohesiveness, presence of networks and civic associations in the community which enabled mothers to deal with child health. Educated parents had social networks which allowed them access to knowledge, advice, and contact which enhanced their ability to recognize the danger posed by a disease, look for treatment and locate better care.

The study stated that language and communication styles were very important components of cultural capital. Communication styles gave individuals a certain position in society especially if they were able to use English.

Govindasamy and Ramesh (1997) maintain that the education of a mother was associated with greater uptake of health services for children and cultural capital may have been a pathway through which education influenced interaction with health systems. Greater education of the mother may have imbued her with greater confidence, greater facility with language and a greater ability to interact with the health system.

The last pathway identified in the study was gender empowerment. Education provided the basis upon which women got autonomy in the household and outside. By taking a sick child to a health care provider, women were using autonomy to exhibit health seeking behaviour.

This was decision making autonomy at an individual level. It was through autonomy that mothers had the courage to engage with health care providers and get the best treatment for their children.

The IHDS survey data used in the study was nationally representative with 33, 480 ever married women between the ages of 15 to 49 being interviewed about their fertility history and utilization of health care for themselves and their children. The sample size for households was 41,554 spread over 383 districts, 1503 villages and 971 urban blocks of India. The sample size for children aged between 1 and 5 was 11, 908. The dependent variables were neonatal mortality, infant mortality and child mortality. The independent variable was mother's education captured as; illiterate, any primary education, any upper primary education, any secondary education, any senior secondary education and any college education (Vikram et al 2010, p.6).

This study had a sample size of 181 mother child pairs drawn from 4 clinics in Lusaka and Mazabuka Districts. The post natal mothers were aged between 18 and 47 years. The children were aged between 12 months and 5 years.

There were four hypotheses tested in the study; that the higher the education, the greater the acquisition of human capital among mothers as measured through health knowledge which was associated with child survival, that average education of women in the community had a significant association with child mortality, that a measure of the social capital of a mother reflected her ability to navigate the bureaucratic health system and that greater education led to greater decision making and physical autonomy of the mother (measured as autonomy in

decision making regarding child health and visiting health centres) which was associated with improved survival of the child (Vikram et al 2010, p3).

This study used two hypotheses; the first one stated that there was no association between maternal health literacy and child health promoting behaviours and the second one maintained that there was an association. Maternal health literacy was the independent variable and Child health promoting behaviours was the dependent variable.

There were seven categories of maternal education which was the independent variable in the study; illiterate, any primary education, any upper primary education, any secondary education and any college education. This study used six descriptions of education. Thus maternal education was categorized as; no schooling, basic, high school, tertiary diploma, tertiary bachelor's, masters and doctorate. The study does not give further information about illiterate.

The main dependent variable was child mortality which had two further categories; neonatal mortality and infant mortality. This was a correlation research design. This study had one main independent variable; maternal health literacy and one dependent variable; child health promoting behaviours which had two categories; complete immunization and nutrition.

The sample size was 33, 480 ever married women between the ages of 15-49. 11,908 children in the age group 1-5 years were captured in the study. This study's sample size was 181 mother and child pairs. Children's age ranged from 12 months and 5 years. The mothers' ages ranged from 18 to 47 years.

Findings in the study indicated that there was a significant association between maternal education and infant and child mortality. They argue that education and associated human, social and cultural capital improve health-seeking behaviour, which was reflected in greater survival rates.

Moreover, the study found out that higher education was negatively correlated with neonatal, infant and child mortality and upper primary education (between 6 to 8 years of education) was negatively correlated with infant and child mortality. This demonstrated that women who had attained higher education experienced less infant and child mortality. Those who had attained upper primary education also experienced less infant and child mortality. While the correlations confirmed the influence of maternal education on child mortality, no maternal health literacy tests were carried out in the study. Higher education was found to be negatively correlated with neonatal, infant and child mortality. It was not known which of the three categories; any secondary education, any senior secondary education and any college education was driving the correlation.

A description of primary education was given; between 6 to 8 years of education. This was the number of years spent in school. It was not known whether the stated number of years, were progressive or repetitive but it was this primary education which was found to be negatively correlated with infant and child mortality. There was a lot of obscurity in terms of relating maternal education (interpreted in seven categories) to child mortality. In terms of Child mortality, the study did not take into account the role which nutrition plays in child health.

All the four hypotheses were accepted; that the higher the education, the greater the acquisition of human capital among mothers as measured through health knowledge which was associated with child survival, that average education of women in the community has a significant association with child mortality, that a measure of the social capital of a mother reflected her ability to navigate the bureaucratic health system and that greater education led to greater decision making and physical autonomy of the mother (measured as autonomy in decision making regarding child health and visiting health centre) which was associated with improved survival of the child. In the study, it was difficult to differentiate between higher education and greater education.

This study categorized education as; no education, basic, high school, tertiary diploma and tertiary bachelor's degree, master's and doctorate. In the study, pathways like human capital and health knowledge were combined. It was not known which one was significant.

Ali et al (2011) conducted a comparative study in Pakistan in which they investigated the effect of maternal literacy on child health. The objective was to compare the child health of children born to literate and non-literate mothers in terms of their nutritional grade, vaccination status, personal hygiene and social development. The study was conducted at Kuwait Teaching Hospital, Peshawar Medical College in Pakistan from February the first 2008 to June the thirtieth 2008. It was a correlational study design.

This study was conducted at selected clinics in Lusaka and Mazabuka districts in 2013. It was also a correlational study design. A total of 400 mothers constituted the sample size which was

selected using the convenient sampling technique. These were mother child pairs. In terms of nationality, there were 41 non literate and 85 literate Pakistanis. The number of non- literate Afghani women was 159 and the literate ones were 115. The sample was further divided into two groups of 200 each. Group A was made up of mothers who were not able to read headings of a local newspaper and Group B consisted of mothers who were able to read headings of local newspapers. In this study, 181 post natal mothers and their children aged between 12 months and five years were selected from clinics in Lusaka and Mazabuka districts.

The women were included without considering their ability to read. These were also mother child pairs. Mothers who had just given birth were not included as taking part in the literacy tests and completing the questionnaire would have been stressful. The 12 months lower limit threshold because it falls within the 12-23 months which is recommended by the World Health Organization (WHO). This group covers children older than 11 months (by which age they should have been fully vaccinated) and because it contains the most recent information (older children may not have been covered by more recent health programmes).

There were 40 post natal mothers from the three clinics except one which had 41. Since the post-natal mothers were screened, purposeful sampling was used. The post natal mothers sat for two literacy tests; the Rapid Estimate of Adult Literacy in Medicine (REALM) and the Child Health Reading Comprehension Test (CHRCT). They also filled out a questionnaire on Child Health promoting behaviours.

The overall health status of the child for the study in Pakistan was assessed through nutrition, vaccination, hygiene and social development. Vaccination status was arrived at after checking

the recommended routine immunization. Nutrition was assessed by plotting anthropometric measurements. These were weight, height and head circumference in children more than 5 years old. This study assessed the overall health status of the children aged between 12 months and five years in line with the Ministry of Community Development and Mother and Child Health(MCDMCH) children's clinic card or the under- five card by capturing the weight for age and complete immunization. The weight for age gave the nutritional status and physical development.

The results from the study conducted in Pakistani showed that 156 (i.e.78%) of the children whose mothers were in group A, were below normal in terms of weight. Mothers in group A were regarded as being illiterate. Group B mothers were literate and 128 (i.e. 64%) of their children were below normal weight. This gave a difference of (i.e. 28=14%) more children of illiterate mothers were below normal weight. Regarding the height percentile for nutrition, 156 (i.e.78%) children in group A and 122(i.e. 61%) children in group B were below the standard 50th percentile.

The difference for height was (i.e.34=17%) more children of the illiterate mothers were below the normal height. In group A,50 (i.e.25%)children showed delay in development in terms of motor and speech while only 10 (i.e.5%) children of the literate mothers in group B had delay in fine motor and speech function. The difference was (i.e. 40=20%) more children of the illiterate mothers showing delay in motor and speech function.

The vaccination status indicated that 131(i.e. 65.5%) children of the illiterate mothers in group A completed their vaccinations as compared to 171(i.e. 85.5%) children in group B of the literate

mothers. The difference was 40(i.e.20%) more children of the literate mothers completed their vaccinations. 50(i.e 25%) children in group A of the illiterate mothers did not complete their vaccination as compared to 29(i.e. 14.5%) children from group B of the literate mothers. The difference was 21(i.e.14.5%) more children of the literate mothers completed their vaccination. Then 19(i.e. 9.5%) children from group A were not vaccinated at all whereas there were none in group B (Ali et al 2011, p101).

The study used newspaper reading as a measure for maternal literacy. If a mother read headings of a local newspaper, they were deemed to be literate. This measure was unreliable and problematic because it treated literacy as a simple ability, either present or absent which could easily be estimated as explained in the statement of the problem in chapter one. Headings of local newspapers could not have constituted the correct literacy pieces in as far as maternal health literacy and child health were concerned. In a country like Pakistan which was beset by violence, the probability of having had more local newspaper with headlines on violence than health matters was high. This study used the children's clinic card to generate the literacy tests; the Rapid Estimate of Adult Literacy in Medicine (REALM) and the Child Health Reading Comprehension Test (CHRCT) which the post-natal mothers sat for.

The sample consisted of 400 women and 274(i.e. 68.5%) of these were Afghani immigrants. These were women who had fled conflict from Afghanistan and gone to live in Pakistan as refugees.

As immigrants, they faced exclusionary barriers in accessing services such as health or education. Thus Afghani women were more of the illiterate, faced challenges in accessing health

centers to immunize their children and feeding them very well. This resulted in poor physical and social development of the Afghani women's children. Thus the sample had inherent challenges and may not have given reliable results. This study used 181 Zambian post natal mothers. These were also mother child pairs. In the study done in Pakistan, the literacy measure used was not adequate and nationality was a huge confounding factor.

2.2 Studies done in Africa

Abuya et al (2003) used a quantitative design and investigated the influence of maternal education on child health in Kenya using data from the Kenya Demographic Health Survey (KDHS) of 2003. They identified social economic status (SES), knowledge, attitudes, autonomy and reproductive factors as pathways through which maternal education could influence child health. They argued that social economic status was the most important pathway linking maternal education to health outcomes. Their conceptual model; the human capital and status attainment of schooling hypothesized that schooling enabled people to acquire skills to use to work in the various sectors of the economy. These also shaped their health and well-being. This was extended to mothers. Unlike in this study where skills were captured as maternal health literacy, the study did not specify what sort of skills in schooling enabled the mothers to work in various sectors of the economy.

The dependent variables examined were immunization and nutrition of the child as shown by height for age. Maternal education was the independent variable and was categorized as no education, primary, and secondary and higher. The sample size of children aged between 12 and

35 months was 2,169 for immunization and for nutritional status 5,949. Access to information was measured by three variables; listening to radio, newspaper reading and watching television. This was an unreliable way of measuring literacy skills.

On the contrary, this study used maternal health literacy as opposed to maternal education in order to unlock the loaded word; education as explained in the statement of the problem in chapter one. It also used nutrition and complete immunization to capture child health promoting behaviours. The sample was made up of 181 mother child pairs with the age range of children being between 12 months and 5 years.

The pathways (variables) linking maternal education and child health investigated were socioeconomic status, knowledge and reproductive factors. These were weighed against immunization and nutrition. They argued that it was difficult to measure attitudes and autonomy yet these were included.

In the study, 80% of the children in Kenya who were 0-60 months were found to be stunted. Among the sample of children who were stunted, their mothers' level of education was termed as low with 58% of women having primary education. Children who were born to mothers with a primary education were found to be 2.17 times more likely to be fully immunized compared with those with no education at all.

Those born to mothers with a secondary education were found to be 2.68 times more likely to be immunized compared to those with no education at all. The study did not indicate what it was in education which made the mothers with particular levels of education exhibit immunization as a

child health promoting behaviour. The objective of the study was to assess the effect of maternal education on Child health in Kenya, as measured by complete immunization and nutritional status. The objective of this study was to investigate the effects of maternal health literacy on child health promoting behaviours as also measured by complete immunization and nutritional status (Abuya et al 2003, p.14).

They concluded that formal education was important in imparting health knowledge to women, which in turn led to important improvements in child health although nothing in education is mentioned as imparting health knowledge. The study categorized maternal education (the main predictor independent variable) as no education, primary education, secondary education and higher. This was linked to social economic status, health knowledge, reproductive factors, attitude and autonomy. They maintained that health knowledge could be imparted from primary through to higher education. It also had an influence on reproductive factors. A woman who had health knowledge would know how to space her births. Attitude may have affected the use of health knowledge and the ability of a woman to exercise autonomy. A woman who believed in tradition, may have not sought modern medical help if the child fell sick. Social economic status may have influenced autonomy and reproductive factors.

This study investigated the effect of maternal health literacy on child health promoting behaviours using two dependent variables; complete immunization and weight for age to represent nutrition status. In this case, the practices of a mother having her child immunized and

feeding the child with the right quality and quantities of food constituted child health promoting behaviours.

The study in Kenya used a regression analysis of data and concluded that formal education was important in imparting health knowledge to women, which in turn led to improvements in child health. There was no measure of maternal health literacy. Self-reported reading of newspapers, listening to radio and watching television on the part of the mothers were included in the study. Newspapers, radios and television sets all came at a cost. Newspapers may have had limited circulation and may have been read in the urban areas only. Television and radio reception may have been poor and had restrictive coverage. It was therefore difficult to justify these as measures of literacy. They may not have conveyed the most useful information in terms of child health. It could have been better to dwell on specific health information which could have swayed the mothers' child health promoting behaviours.

This study used the children's clinic card which the post natal mothers use, as a basis for testing maternal health literacy. The tests used included the Child Health Reading Comprehension Test (CHRCT) and the Rapid Estimate of Adult Literacy in Medicine (REALM). The child health promoting behaviours questionnaire was used to get the behaviours post natal mothers employed to manage their children's health.

Blunch (2004) conducted a study in Ghana in which he investigated Mothers' Skills and Schooling and Child Health in Ghana and used data from the 1988/89 Ghana Living Standards Survey (GLSS). The mothers' skills covered by the study were Ghanaian reading and writing

proficiency. The other one was English reading and writing proficiency. The head of the household or any adult member of the household who was able to give information on the other household members provided answers on the English and Ghanaian proficiency questions. The questionnaire asked the respondents whether a named member of the household could write a letter in English and whether they could do the same in a given Ghanaian language. The question on written calculation or numeracy just wanted to find out whether one could do a calculation. The responses were; yes or no. These were reported behaviours and not real measures of literacy.

This study administered literacy tests in reading comprehension and vocabulary. These were the Child Health Reading Comprehension Test (CHRCT) and the Rapid Estimate of Adult Literacy (REALM) in medicine respectively.

In the study, child health outcomes were described as inputs. These included vaccinations, pre and post natal care and child mortality. All data on these child health outcomes was generated by self- reported responses from the mother. This study used the children's clinic card to capture the child health outcomes which were immunization and weight for age. Complete immunization meant all the vaccinations had been done. Weight for age gave the nutritional status of the child. To have a child vaccinated and well fed meant a post-natal mother exhibited child health seeking behaviours.

In the study, a correlation analysis led to the conclusion that there was a positive association between formal education and child health. Formal education imparted literacy, numeracy and health knowledge. It was difficult to attribute the levels of schooling the study brought out which

included primary, middle school, junior secondary school and secondary school and above to specific literacy, numeracy and health knowledge. The study included adult literacy but even with this, it was not known whether vocational and other educational levels represented adult literacy programmes. Nutrition was not considered at all yet this is important for child health in terms of promoting health and mitigating mortality.

2.3 Studies conducted in Zambia

Stuebing (1997) carried out a study to examine the relationship between literacy skills and comprehension of health information in Chifubu suburb in Zambia. The study addressed the question; how was a woman's school acquired decontextualized language skills and reading comprehension related to her understanding of broadcast and printed health messages? The goal was to understand the cognitive and psycholinguistic aspects of decontextualized language skills as acquired in schools lacking books where print literacy was inadequately imparted or retained, and to investigate the effects of these skills on a woman's comprehension abilities, both oral and written, as an indication of how her language skills might have led to improved health for her children. The sample consisted of 157 women aged 30 years and below.

In this study, the objective was to investigate the effect of maternal health literacy on child health promoting behaviours. The print literacy used was the children's clinic card. It was used to generate the reading tests; the Rapid Estimate of Adult Literacy in Medicine (REALM) and the

child health Reading Comprehension Test (CHRCT). This study used a sample of 181 mother and child pairs. The age range for the post natal mothers was between 18 and 47 years.

In the study, a noun definition task was used to assess women's decontextualized language skill in Bemba or English. The task was designed to measure a woman's ability to give formal definitions of common nouns, definitions which never shared a context with the listener. Each woman was asked to tell someone who did not know what each of the common nouns such as pot, thief and bed meant.

The women were asked to direct their answers to hypothetical listeners. A reading comprehension score was obtained for each of the women based on their decoding aloud of a grade 1 passage and the percentage of ideas she could repeat back after silently reading health passages from readers for grades 3, 5 and 7. Each woman was judged to have passed if she repeated 50% of the ideas from the passage at that level.

Each woman's practical language and literacy skills were assessed by listening and a reading comprehension task using general health messages. In the listening comprehension task, each woman was asked to listen to a tape recording of brief health messages in both Bemba and English that had been broadcast on Zambian radio. After each message, she was asked to repeat back the ideas covered, and her total score was the percentage of ideas she was able to repeat. For the reading comprehension task, brief printed health messages in both Bemba and English were presented to each woman, and she was again asked to repeat back the ideas in the message. All the women were given the printed messages regardless of their scores on other aspects of the

literacy assessments, and 51 women were unable to repeat back any ideas in the printed messages. These and similar messages were commonly seen on posters in clinics (Stuebing 1997, p. 156).

In this study, for the Rapid Estimate of Adult Literacy in Medicine (REALM), the post natal mothers were asked to read 66 words in 6 minutes. These words came from the children's clinic card. The 66 words were multiplied by 1.52 to bring the total to 100. A score of 75-100, was described as adequate, 60-74 marginal, and 0-59 inadequate.

The Child Health Reading Comprehension Test (CHRCT) had 10 multiple choice questions to be done in 15 minutes. The scores and descriptions were the same as those for the Rapid Estimate of Adult Literacy in Medicine (REALM). A questionnaire to capture child health promoting behaviours was also administered.

Simple correlations were estimated between language and comprehension measures and simple and multiple regression models were fitted predicting the practical oral and written comprehension of health messages.

The general conclusion was that school acquired literacy skills and especially oral decontextualized language skills were indeed a missing link in the relationship between maternal schooling and child health generally, and between maternal schooling and adult comprehension of health information.

The study did not present any information on the children of these women. Nothing was known about their health status. This would have given a balanced judgment of the mothers' literacy skills in promoting child health. The study concentrated on one variable; mothers' schooling and comprehension without extending it to children's health status. Moreover, no mothers' level of schooling was captured. Blunch (2004) investigated mother's schooling and child health in Ghana and concluded that there was a positive association between formal education and child health. Their age range was between 15 and 45 years. Education was described as primary, middle school, junior secondary school and secondary school and above. The mothers' skills covered by the study were Ghanaian and English reading and writing proficiency. The Child health outcomes were vaccinations, pre and post natal care and child mortality. Ali et al (2011) found a strong and consistent correlation between maternal education and child health. The mean age group for a sample of 400 mothers was 26 years. These were categorized in groups of 200, as literate or illiterate. Mothers' reading ability was determined by headings of a local newspaper. Their children's health status was captured through children's immunization, height for age and development of motor skills.

This study used the Rapid Estimate of Adult Literacy in Medicine (REALM) and the Child Health Reading Comprehension Test (CHRCT) to measure the post natal mothers' literacy skills. Maternal education was captured as no schooling, basic school, high school, tertiary diploma, bachelor's degree, master's degree and doctorate. The sample size was 181 mother and child

pairs. The children's health status was determined by immunization and weight for age. The post natal mothers' child health promoting behaviours were assessed through a questionnaire.

2.4 Summary of the Literature review

In this chapter, the researcher looked at literature review. The researcher started by looking at studies done outside the continent of Africa. The studies reviewed outside Africa included the ones done in Belgium, India and Pakistan. Then studies done within the boundaries of Africa were reviewed. These were from Ghana and Kenya. Lastly one study conducted in Zambia was also reviewed. What came out from the review of literature was that the effect of education in equipping mothers with literacy skills needed to promote and sustain their children's health was well known. This came out strongly in the literature which was reviewed. The role of mothers as primary care givers for their children was acknowledged throughout the literature review.

Since this was a methodological review of literature, it was discovered in the literature review that literacy was not directly measured in the demographic and health surveys. This was the problem addressed by this study as outlined in chapter one. Stuebing (1997) reports studies done by (Mosley 1984; Freund 1987; Hammad and Mulholland 1992) which confirmed this. Furthermore, this was also confirmed in this literature review in the studies done by (Govindaswamy and Ramesh 1997; Abuya et al 2003; Blunch 2004; and Vikram et al; 2010).

More studies on maternal health literacy and child health need to be done in Zambia. Only one study has been done so far.

This study, therefore, dwelt on the influence of maternal health literacy on child health promoting behaviours. In the next chapter, the researcher focuses on the methodology of collecting data which was used in this study.

CHAPTER THREE

METHODOLOGY

3.0 Overview

In the previous chapter, the researcher discussed the literature review. In this chapter, the researcher discusses the methodology used in this study. The researcher covers the research design, target population, sample size and sampling techniques, research instruments, data collection procedures, data analysis and ethical considerations.

3.1 Research Design

The study used a correlational design to examine the strength of association between two variables. A correlation is a connection or relationship between two or more things which is not caused by chance. Kombo and Tromp (2006) state that; a correlational design enables the researcher to assess the degree of relationship which exists between two or more variables. The two variables in this study were maternal health literacy and child health promoting behaviours among post-natal mothers. This correlational design was selected owing to the nature of variables and purpose of study which was to examine over time, the potential effect of the independent variable (maternal health literacy) on the dependent variable (child health promoting behaviours).

3.2 Location of the Study

This study was conducted in selected clinics in Lusaka and Mazabuka districts. These were Chilenje and George clinics in Lusaka, and Kaleyia and Ndeke clinics in Mazabuka District.

3.3 Target Population

Zikmund (2000) defines target population as a specific, complete group relevant to the research project. The target population in this study was all the post-natal mothers and their children aged between 12 months and five years in the selected clinics in Lusaka and Mazabuka districts.

3.4 Sample size and Sampling procedures

Larson and Farber (2006) define a sample as a subset of a population. In this study, the sample consisted of 181 post natal mothers and their children aged between 12 months and five years selected from Lusaka and Mazabuka districts. These were mother child pairs. Mothers who had just given birth were not included as taking part in the literacy tests and completing the questionnaire would have been stressful. The mothers were aged between 18 and 47 years old. There were 45 post natal mothers from Kaleya, Ndeke and Chilenje clinics. George clinic had one extra post-natal mother. Since the post-natal mothers were screened, purposeful sampling was used. Neuman (2006) defines purposive sampling as one in which the researcher selects unique cases that are especially informative. In selecting the post-natal mothers, the inclusion and exclusion criteria were used.

Inclusion criteria: The consenting mothers were aged between 18-47 years, both literate and non-literate, and their children aged 12 months – 5 years took part in this study. These were mother child pairs.

Exclusion criteria: The non-consenting mothers who were aged below 18 years or over 47 years and their children aged below 12 months or older than 5 years did not take part in this study.

3.5 Research Instruments

3.5.1 The Children's Clinic card

This is a Child health monitoring tool used by the Ministry of Community Development Mother and Child Health (MCDMCH). The Children's clinic card was the literacy piece used to generate all the other research instruments which were used in the study. The other instruments were the Child health promoting behaviours questionnaire, the Rapid Estimate of Adult Literacy in medicine (REALM) and the Child Health Reading Comprehension Test (CHRCT). The children's clinic card was used to collect the weight for age as shown by the graph on it. The figure for the child's weight was captured from the children's clinic card and recorded on the background section of the questionnaire and so was the age at last birthday.

3.5.2 The Child health promoting behaviours questionnaire

Section 1 of this questionnaire captured the background demographic indicators like gender, ethnicity, age and level of education for the post natal mothers. The weight for age and immunization status, were also covered in section 1 of the questionnaire. Since this was a motherchild paired sample, there was provision made for the age of the child, weight and immunization status as well. Section 2 of the questionnaire captured information on child health promoting behaviours drawn from the Children's clinic card. It had 10 questions.

3.5.3 REALM – Rapid Estimate of Adult Literacy in Medicine

The REALM was a 66 word recognition and reading test that measured the domain of health related vocabulary. The average administration time was 6 minutes. This REALM was adopted and adapted to the study. Instead of the generic medicine vocabulary used words from the Children's clinic card which was a literacy piece.

3.5.4 CHRCT - Child Health Reading Comprehension Test

This tested the post-natal mothers' comprehension skills in 10 minutes. It was a 10 questions multiple choice Comprehension Test which used authentic material drawn from the Children's clinic card.

3.6 Data collection procedure

Data collection took three weeks. The Ministry of Community Development Mother and Child Health (MCDMCH) personnel were oriented on the administration of the data collection instruments. In turn, they explained the significance of the study to the post-natal mothers. The post-natal mothers were given the Participants' Information Sheet which outlined the activities they would participate in. In addition, the Informed Consent Form was presented to them as well. Having gone through both documents; the participants' information sheet and the informed consent form, the post-natal mothers signed both if they agreed to participate in this study. The questionnaire on Child health promoting behaviours which was in two sections was administered. The first section had demographic indicators like gender, age, marital status, education level, age of the child, weight and immunization status. The second section had questions on Child health promoting behaviours.

There were also Cinyanja and Tonga versions of the child health promoting behaviours for those who could not attempt the English one. Two tests were administered; the Rapid Estimate of Adult Literacy in Medicine (REALM) and the Child Health Reading Comprehension Test (CHRCT). All the data collection instruments were served at the clinic premises. The clinics were Chilenje and George in Lusaka district. The clinics in Mazabuka district were Ndeke and Kaleya.

Post-natal mothers were reluctant to participate in this study. Their understanding was that the researcher was a satanist who wanted to use their children in rituals. It took a lot of diplomacy and persuasion to have them take part in the study.

3.7 Data analysis

Data collected by the research instruments; the child health promoting behaviours questionnaire, the Child Health Reading Comprehension Test (CHRCT) and the Rapid Estimate of Adult Literacy in Medicine (REALM) was analyzed by the use of the version 20 of the Statistical Package for the Social Sciences (SPSS) software. Processing of the data involved descriptive analysis which entailed running frequency tables to show the distribution of some variables in percentages. Statistical analyses such as correlations were also done to establish the relationship between variables.

The correlations were between Maternal health literacy scores in the Rapid Estimate of Adult Literacy in Medicine (REALM) and Child Health Reading Comprehension Test (CHRCT) on one hand and the Child health promoting behaviours captured as dependent variables. These were complete immunization and weight for age.

Maternal health literacy was the independent variable. It was divided into three categories which were adequate, marginal and inadequate. In order to determine the level of maternal health literacy, participants were assigned to one of the scores on the Rapid Estimate of Adult Literacy in Medicine (REALM); 75-100 (adequate) for “2”, 60-74 (marginal) for “1” and 0-59 for “0” (inadequate) respectively.

There were 66 items in the Rapid Estimate in Adult Medicine (REALM) and these were multiplied by 1.52 to bring the level of the score to 100. The Child Health Reading Comprehension Test (CHRCT) was analyzed in a similar manner. The 10 multiple choice comprehension questions were multiplied by 10 to take the level to hundred. Determination of literacy on the Child Health Reading Comprehension Test (CHRCT) was 75-100 adequate for “2”, 60-74 marginal for “1” and 0-59 inadequate for “0”.

The child health promoting behaviours were captured from the questionnaire and were coded according to themes generated. The correlation between maternal health literacy and child health promoting behaviours was tested using the Pearson r coefficient and the Spearman rank correlation r_s depending on the nature of data. This also examined the existence and strength of the relationship to determine the acceptance or rejection of the research hypotheses. Education attainment was correlated with the maternal health literacy descriptions. In each situation a correlation matrix summarized the correlations among the three levels of literacy and the child health promoting behaviours characteristics (complete immunization and weight for age).

To be fully immunized, the child ought to have gotten the eight mandatory vaccinations; one dose of Bacille Calmette Guerin (BCG), one dose of measles vaccine, three doses of polio vaccine and three doses of Diphtheria-pertussis-tetanus (DPT) vaccine. A figure of “1” was recorded if a child had received all the eight vaccinations and a “0” for none. Physical development was determined by weight for age. A child below the normal curve on the Children’s card was recorded “0” then for normal it was “1”.

Above the normal curve, it was “2”. The three levels of maternal health literacy were; adequate – “2”, marginal – “1” and inadequate “0”. The data was analyzed using SPSS version 20.

3.8 Ethical Issues

This study was cleared by the Ethics committee at proposal stage. The Ministry of Community Development Mother and Child Health (MCDMCH) came in at a later stage and gave clearance to get into the clinics. It took seven months to get clearance from the Ethics committee and the Ministry of Community Development Mother and Child (MCDMCH). Data collection was facilitated by nurses in the Maternal and Child Health (MCH) department and psycho-social counselors in order to ensure ethics were followed. Participants’ autonomy was cardinal in terms of participation and withdrawal. Confidentiality and anonymity of participants were observed in order to safe-guard their identities and information. The activities they undertook were explained to them on the Participants’ Information Sheet. Post-natal mothers who agreed to participate in the study signed the Participants’ Information Sheet. This was translated into Cinyanja and Citonga. An Informed Consent Form in English, Citonga and Cinyanja was also presented to them. Post-natal mothers who agreed with the terms, signed the two documents and participated in the study. Collected data from questionnaires and maternal health literacy tests was locked up

in cabinets. Names of post-natal who participated in this study were not used but serial numbers. Thus, identities were shielded.

3.9 Summary of the Chapter

In this chapter, the researcher discussed the methodology which was used in the study. It covered such things as; the research design, target population, location of the study, sample size and sampling procedures, the research instruments, data collection procedures, data analysis and ethical issues. In the next chapter, the researcher presents the findings.

CHAPTER FOUR

PRESENTATION OF FINDINGS

4.0 Overview

Chapter 3 outlined the methodology used in the collection of data which constitutes this chapter. In this chapter, findings of the study to investigate the effects of maternal health literacy on child health promoting behaviours will be presented. Findings on the post-natal mothers' background information will be presented first. The background information was on age and education level. Since this was a mother child paired sample, the immunization status and children's weight for age findings will be presented as well.

After the presentation of findings on background information for the mothers and their children, the findings will be presented according to the research questions. The research questions were as follows: (i) What is the level of maternal health literacy among post-natal mothers in selected clinics in Lusaka and Mazabuka Districts? (II) What behaviours do post-natal mothers in selected clinics in Lusaka and Mazabuka Districts employ in order to promote child health? (III) What is the strength of association between maternal health literacy and child health promoting behaviours among post-natal mothers in selected clinics in Lusaka and Mazabuka Districts?

This will be followed by the determination of the hypotheses which are given below.

- I. There is no association between maternal health literacy and child health promoting behaviours.
- II. There is an association between maternal health literacy and child health promoting behaviours.

4.1 Background characteristics of the 181 Post-natal mothers and their children.

Table 1: Distribution of post-natal mothers by age

Age Cohort	Frequency	Percent
18-22	38	21.0
23-27	55	30.4
28-32	48	26.5
33-37	31	17.1
38-42	9	5.0
Total	181	100.0

In table 1 above, it is clear that the highest number of post-natal mothers (i.e. 55=30.4%) fell within the age cohort 23-27 years. This was followed by 48 (i.e. 26.5%) post-natal mothers represented by the age cohort 28-32 years. Then 38 (i.e. 21.0%) post-natal mothers were represented by the 18-22 years age cohort. Next were the 31 (i.e. 17.1%) post-natal mothers which represented the age cohort 33-37 years. The least representation was by 9 (i.e. 5.0%) post-natal mothers who were represented by the age cohort 38-42 years old.

Conclusively, the majority of post-natal mothers (i.e. 55=30.4%) fell in the age cohort 23-27.

Table 2: Distribution of post-natal mothers by education attainment

Education attainment	Frequency	Percent
no schooling	16	8.8
Basic	60	33.1
high school	71	39.2
Diploma	27	14.9
bachelor's degree	7	3.9
Total	181	100.0

Table 2 above shows that most of the post-natal mothers (i.e. 71= 39.2%) attained high school education.

This was followed by 60 (i.e. 33.1%) post-natal mothers who had attained basic education. Then 27 (i.e. 14.9%) post-natal mothers were diploma holders. 16 (i.e. 8.8%) post-natal mothers had no schooling. The least representation of post-natal mothers in the study stood at 7 (i.e. 3.9%) who were bachelor's degree holders. This data indicates that the majority (i.e. 71=39.2%) post natal mothers had attained high school education and the most educated at bachelor's degree level of education were the least representing only 7 (i.e. 3.9%) post-natal mothers.

Table 3: Distribution of children aged between 12 months and 5 years by immunization status

Immunization status	Frequency	Percent
Not immunized	15	8.3
Immunized	166	91.7
Total	181	100.0

Table 3 above indicates that 15 children (i.e. 8.3%) were not immunized. Then 166 (i.e. 91.7%) were immunized. Therefore, majority children aged between 12 months and 5 years (i.e. 166=91.7%) were immunized.

Table 4: Distribution of children aged between 12 months and 5 years by weight

Weight for age	Frequency	Percent
below normal	40	22.1
Normal	99	54.7
above normal	42	23.2
Total	181	100.0

It is evident in table 4 above that 99 (i.e. 54.7%) Children had normal weight. This was followed by 42 (i.e. 23.2%) children whose weights were above normal.

Then 40 (i.e. 22.1%) had below normal weight. In terms of weight for age therefore, 141(i.e.77.9%) children between 12 months and 5 years were healthy in terms of nutrition.

4.2What is the level of maternal health literacy among post- natal mothers in selected clinics in Lusaka and Mazabuka?

This section responds to the first research question which was; what is the level of maternal health literacy among post-natal mothers in selected clinics in Lusaka and Mazabuka? In order to gather data in response to the first research question, two tests were administered to the post-natal mothers. These were the Child Health Reading Comprehension Test and the Rapid Estimate of Adult Literacy in Medicine. The findings are presented below:

Table 5: Distribution of post-natal mothers byChild Health Reading Comprehension

Scores

Score	Frequency	Percent
0	2	1.1
10	1	.6
20	5	2.8
30	3	1.7
40	5	2.8
50	9	5.0
60	21	11.6
70	32	17.7
80	47	26.0
90	48	26.5
100	8	4.4
Total	181	100.0

Table 5 above shows that 8 (i.e. 4.4%) post-natal mothers scored 100% in the Child Health Reading Comprehension Test. This was followed by 48 (i.e. 26.5%) post-natal mothers who scored 90%. Next were the 47 (i.e. 26.0%) post-natal mothers who scored 80%.

Then 32 (i.e. 17.7%) post-natal mothers scored 70% while 21 (i.e. 11.6%) post-natal mothers scored 60%. 9 (i.e. 5.0%) scored 50%. 5 (i.e. 2.8%) post-natal mothers managed a score of 40% and 3 (i.e. 1.7%) scored 30%. The last group of post-natal mothers (i.e. 5 = 2.8%), (i.e. 1 = 0.6%) and (i.e. 2 = 1.1%) scored 20%, 10% and 0% respectively. What is clear in the findings above is that there was a range of 100 in the child health reading comprehension scores. Furthermore, majority (i.e. 48 = 26.5%) post-natal mothers scored 90%.

Table 6: Distribution of post-natal mothers by description of child health reading comprehension Scores

Description	Frequency	Percent
Inadequate	23	12.7
Marginal	48	26.5
Adequate	110	60.8
Total	181	100.0

Table 6 above clearly shows that 110 (i.e. 60.8%) post-natal mothers had adequate reading comprehension skills. This was followed by 48 (i.e. 26.5%) post-natal mothers who had marginal reading comprehension skills while 23 (i.e. 12.7%) post-natal mothers had inadequate reading comprehension skills. Conclusively, the post-natal mothers' performance was good because a combination (i.e. 158 = 87.3%) of the marginal and adequate reading comprehension skills posted a clear majority leaving only a clear minority (i.e. 23 = 12.7%) of the post-natal mothers.

Table 7: Correlation of level of education of post-natal mothers with their Comprehension descriptions

		Level of education	Comprehension description (CD)
Spearman's rho	Level of education	Correlation Coefficient	1.000
		Sig. (2-tailed)	.297**
		N	.000
	Comprehension description (CD)	Correlation Coefficient	.297**
		Sig. (2-tailed)	1.000
		N	.000
		N	181
			181

** . Correlation is significant at the 0.01 level (2-tailed).

Table 7 above shows that the level of education of post-natal mothers was positively correlated 0.297** (i.e. at 0.01 level of significance) with comprehension descriptions. Therefore, there was a very strong association between the level of education and reading comprehension skills.

Table 8: Distribution of post-natal mothers by their rapid estimate of adult literacy in medicine descriptions

Description	Frequency	Percent
Inadequate	81	44.8
Marginal	19	10.5
Adequate	81	44.8
Total	181	100.0

It is evident from table 8 above that 81 (i.e. 44.8 %) post-natal mothers had adequate reading skills. Similarly, 81 (i.e. 44.8%) post-natal mothers also had inadequate reading skills. Then 19 (i.e. 10.5%) post-natal mothers had marginal reading skills.

Therefore, the data in the table above indicates that there was an equal number (i.e. 81= 44.8%) of post-natal mothers at the extreme descriptions of reading; inadequate and adequate. Then those in the marginal description (i.e.19=10.5%) post-natal mothers were very few.

Table 9: Correlation of level of education of post-natal mothers with their reading descriptions

		Level of education	Reading description (RD)	
Spearman's rho	Level of education	Correlation Coefficient	1.000	
		Sig. (2-tailed)	.458**	
		N	.000	
	Reading description (RD)	Correlation Coefficient	.458**	1.000
		Sig. (2-tailed)	.000	.
		N	181	181

** . Correlation is significant at the 0.01 level (2-tailed).

In table 9 above, it is evident that post-natal mothers' level of education was positively correlated 0. 458**(i.e. at 0.01level of significance) with their reading descriptions. There was, therefore a very strong association between the level of education and reading descriptions.

Table 10: Distributions of post-natal mothers by the rapid estimate of adult literacy in medicine grade equivalents.

	Frequency	Percent
Grade 3 or below	54	29.8
Grade 4-6	33	18.2
Grade 7-9	43	23.8
Grade 10-12	51	28.2
Total	181	100.0

It is evident from table 10 shown above that 54(i.e. 29.8%) post-natal mothers were reading at the level of grade 3 or below while 51(i.e. 28.2%) post-natal mothers were reading at the level between grades 10-12. Then 43 (i.e. 23.8%) post-natal mothers read between grade 7-9 and 33 (i.e. 18.2%) post-natal mothers read at the level between grades 4-6. According to the findings above, just slightly above half (i.e. 94=52%) of the post natal mothers were reading at between grade 10-12 and grade 7-9. Then 87 (i.e. 48%) were reading at the level of grade 3 or below and between grade 4 and 6. In conclusion, slightly more than half (i.e. 94=52%) of the post natal mothers had good reading skills.

Table 11: Correlation of the post-natal mothers' level of education with their reading equivalents

		Level of education	Grade equivalent range (GER) in percentage
Spearman's rho	Level of education	Correlation Coefficient	1.000
		Sig. (2-tailed)	.000
		N	181
	Grade equivalent range (GER) in percentage	Correlation Coefficient	.552**
		Sig. (2-tailed)	.000
		N	181

** . Correlation is significant at the 0.01 level (2-tailed).

In table 11 above, it is evident that the post-natal mothers' level of education was positively correlated 0. 552**(i.e. at 0.01level of significance) with their grade equivalent range. There was, therefore a very strong association between the level of education and grade equivalent range.

Findings on the levels of maternal health literacy presented above responded to the first research question; What is the level of maternal health literacy among post-natal mothers in selected clinics in Lusaka and Mazabuka Districts? The results were from the two literacy tests which were administered to the post-natal mothers. These were the Child Health Reading Comprehension Test (CHRCT) and the Rapid Estimate of Adult Literacy in Medicine (REALM). The findings in response to the second research question in this study are presented in the section below.

4.3 What behaviours do post-natal mothers in selected clinics in Lusaka and Mazabuka districts employ in order to promote child health?

This section, which follows below, responds to the second research question which was; what behaviours do post-natal mothers in selected clinics in Lusaka and Mazabuka employ in order to promote child health? To gather data on what sort of behaviours post-natal mothers employ to promote child health in selected clinics in Lusaka and Mazabuka, a questionnaire was administered. The findings are given in the tables below:

Findings from the questionnaires administered to post-natal mothers.

Table 12: Distribution of post-natal mothers by their understanding of child health

Child health	No. of post-natal mothers	%	No. of post-natal mothers who did not think so	%
Good nutrition	33	18.2	148	81.7
Hygiene	20	11	161	88.9
Attendance of the Child health clinic	30	16.5	151	83.2
Early detection of onset of illness	13	7.18	168	88.9

Table 12 above shows the responses by post-natal mothers to the question as to how they understood child health. 33(i.e. 18.2%) post-natal mothers said good nutrition and 148 (i.e. 81.8%) never thought so. 20(i.e. 11%) post-natal mothers said hygiene while 161(i.e. 88.9%) did not mention hygiene. 30(i.e. 16.5 %) post-natal mothers said attendance of the Child health clinic yet 151(83.2%) never mentioned attendance of the Child health clinic. 13(i.e. 7.18%) post-natal mother thought early detection of the onset of illnesses whereas 168(i.e. 88.9%) did not mention early detection of the onset of illness. Clearly results seem to indicate that post-natal mothers understood the meaning of child health in four different ways.

According to table 12, some post-natal mothers thought child health was synonymous with good nutrition while others indicated that it was hygiene. The other post-natal mothers felt child health was equivalent to attendance of the child health clinic. Another group was of the view that child health was early detection of the onset of an illness.

Table 13: Distribution of post-natal mothers by the activities performed to manage child health.

Activities	No. of post-natal mothers	%	No. of post-natal mothers who did not mention the activity	%
Feeding the child	128	70.9	53	29.2
Bathing the child	62	34.2	119	65.7
Seeking treatment early when child is ill	17	9.3	164	90.6
Taking child to the Children's clinic for vaccinations	39	21.5	142	78.4

Table 13 above shows the responses by post-natal mothers when asked what activities they employed to manage child health; 128 (i.e. 70.9%) said feeding the child whereas 53 (i.e. 29.2%) never mentioned the feeding the child. 62 (i.e. 34.2%) post-natal mothers indicated bathing the child and 119 (65.7%) did not think bathing the child was activity which managed child health. 17(i.e. 9.3%) said seeking treatment early and 164 (i.e. 90.6%) never mentioned seeking early treatment. 39 (i.e. 21.5%) post-natal mothers indicated taking the child to the children's clinic for vaccinations and 142 (i.e. 78.4%) never said that taking the child to the children's clinic for vaccinations. According to the data in table 11 above, it can be conclusively said that the majority 128(i.e. 128= 70.9%) of the post-natal mothers rated feeding as the most important activity in terms of promoting child health.

Table 14: Distribution of the post-natal mothers by their understanding of the benefits of immunization

Immunization	No. of post-natal mothers	Benefit %	No. of post-natal mothers	Did not say %
Fully protects the child from the 5 major killer diseases	176	97.2%	5	2.8%

In table 14 above are responses post-natal mothers gave when they were asked what they thought the benefits of immunization were. 176 (i.e. 97.2 %) post-natal mothers said immunization fully protected the child. Only 5 (i.e. 2.8%) post-natal mothers did not think that immunization fully protected the child. In short, the majority (i.e. 176=97.2%) respondents thought as a child promoting behaviour, immunization fully protected from tuberculosis, measles, polio, tetanus and diphtheria.

Table 15: Distribution of post-natal mothers by their understanding of the benefits of good nutrition

Good nutrition	No. of post-natal mothers	Benefits %	Did not say so	%
Good mental development	2	1.1	179	98.9
Physical development	119	65.7	62	34.3
Protection from illnesses	120	66.2	61	33.8

Table 15 above clearly shows the responses post-natal mothers gave when asked what the benefits of good nutrition were. 2 (i.e. 1.1%) post-natal mothers indicated that good nutrition promoted mental development of the child whereas 179 (i.e. 98.9%) did not say good nutrition promoted mental development. 119 (i.e. 65.7%) post-natal mothers said good nutrition aided the physical development of the child and 62 (i.e. 34.3%) did not attribute physical development to good nutrition. Then 120 (i.e. 66.2%) post-natal mothers indicated that good nutrition protected the child from falling ill as compared to 61 (i.e. 33.8%) who did not equate good nutrition to lack

of illness. More than half (i.e. 119= 65.7%) and (i.e.120=66.2%) thought good nutrition helped in the physical development and protected the child from diseases respectively.

Conclusively, almost all 179 (i.e. 98.9%) post-natal mothers did not know that good nutrition aided the mental development of the child.

Table 16: Distribution of post-natal mothers by their understanding of the weight for age graph on the Children’s clinic card

Weight for age graph	Number of post-natal mothers	Understanding %
Monitoring child’s growth	140	77.3
Don’t understand	41	22.7

Table 16 above, highlights the responses given by post-natal mothers when they were asked whether they understood the weight for age graph on the children’s clinic card. 140(77.3%) post-natal mothers indicated they understood the weight for age graph by stating that it was for monitoring the child’s growth. On the other hand, 41(22.7%) post-natal mothers indicated that they did not understand the weight for age graph on the children’s clinic card. Therefore, majority (140= 77.3%) of the post-natal mothers understood the weight for age graph on the children’s clinic card.

Table17: Distribution of post-natal mothers by their understanding of the benefits of Vitamin A supplementation

Vitamin A supplementation	No. of post-natal mothers	Benefits %
Promotes good eyesight	86	47.5
Don’t know	95	52.5

Table 17 above, clearly shows the responses from post-natal mothers when asked what the benefits of Vitamin A supplementation were. 86 (47.5%) post-natal mothers said that vitamin A supplementation promoted good eyesight whereas 95(52.5%) indicated that they did not know

the benefits of vitamin A supplementation. Slightly, more than half (i.e. 95=52.5%) of the post-natal mothers, did not know the benefits of vitamin A.

Table 18: Distribution of post-natal mothers by their understanding of the importance of de-worming

De-worming	No. of post-natal mothers	Importance %
Protects children from anaemia and malnutrition	171	94.4
Don't know	10	5.6

In table 18 above, are responses from post-natal mothers when asked what the importance of de-worming was. 171(94.4 %) post-natal mothers said de-worming protected children from anaemia and malnutrition whereas 10 (5.6%) post-natal mothers said they did not know. Almost all (171=94.4%) understood that de-worming protected children from anaemia and malnutrition. A few (10=5.6%) did not understand that de-worming protected children from anaemia and malnutrition.

Table 19: Distribution of post-natal mothers by their understanding of the disadvantages of not having their children vaccinated.

Not having your child vaccinated	No. of post natal mothers	Disadvantages %
Exposes the child to diseases	176	97.2
Don't know	5	2.8

Table 19 above shows responses given by post-natal mothers when asked what the disadvantages of not having the child vaccinated were. 176 (97.2%) post-natal mothers said not having the child vaccinated exposed the child to diseases whereas 5(i.e. 2.8%) post-natal mothers said they did not know. In conclusion, majority 176(97.2%) of the post-natal mothers indicated that not having the child vaccinated exposed the child to diseases.

Table 20: Distribution of post-natal mothers by their understanding of information displayed on the children’s clinic card

Information on children’s clinic card	No. of post-natal mothers	Understanding %
Yes	99	54.7
No	82	45.3

Evident in table 20 above are responses from post-natal mothers when asked whether they understood the information displayed on the children’s clinic card. 99 (i.e. 54.7%) post-natal mothers indicated that they understood the information on the children’s clinic card whereas 82 (i.e. 45.3%) said that they did not understand. A good number (i.e. 82= 45.3%) of the post-natal mothers did not understand the information on the children’s clinic card. In short, they were illiterate in so far as the children’s clinic card was concerned.

Table 21: Distribution of post-natal mothers needing help to understand the information displayed on the children’s clinic card.

Help to understand information on children’s clinic card	No. of post-natal mothers	Helper %
Health staff	82	45
Other	99	55

Table 21 above shows the responses post-natal mothers gave when asked who could help them understand the information displayed on the children’s clinic card. 82(i.e. 45%) post-natal mothers said health staff and 99(i.e. 55 %) said other people. It is therefore evident that the post-natal mothers needed help to understand the children’s clinic card.

Findings presented above were in response to the second research question; what behaviours do mothers in selected clinics in Lusaka and Mazabuka employ in order to promote their children’s health? The responses were from the child health promoting behaviours questionnaire

administered to the 181 post-natal mothers. It had 10 questions. The findings presented below are in response to the third research question.

4.4 What is the strength of association between maternal health literacy and child health promoting behaviours among post-natal mothers in selected clinics in Lusaka and Mazabuka districts?

This section responds to the third research question which was; what is the strength of association between maternal health literacy and child health promoting behaviours among post-natal mothers in selected clinics in Lusaka and Mazabuka districts. To find out the strength of association between maternal health literacy and child health promoting behaviours among post-natal mothers in selected clinics in Lusaka and Mazabuka districts, simple correlations (Pearson r 's) were done between the independent variable which was maternal health literacy and the dependent variable which was child health promoting behaviours. The Child Health Reading Comprehension Test and the Rapid Estimate of Adult Literacy in Medicine constituted Maternal Health Literacy. Then, Weight for age and Immunization constituted the Child Health Promoting Behaviours.

Table 22: Correlation of maternal health literacy with child health promoting behaviours.

		Immunization status	Child health reading comprehension score (CHRCS)	Rapid estimates of adult literacy in medicine (REAL)	Weight for age
Immunization status	Pearson Correlation	1	.169*	.221**	.124
	Sig. (2-tailed)		.023	.003	.096
	N	181	181	181	181
Child health reading comprehension score (CHRCS)	Pearson Correlation	.169*	1	.377**	.189*
	Sig. (2-tailed)	.023		.000	.011
	N	181	181	181	181
Rapid estimates of adult literacy in medicine (REALM)	Pearson Correlation	.221**	.377**	1	.182*
	Sig. (2-tailed)	.003	.000		.014
	N	181	181	181	181
Weight for age	Pearson Correlation	.124	.189*	.182*	1
	Sig. (2-tailed)	.096	.011	.014	
	N	181	181	181	181

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

According to table 21 above, the child health reading score was positively correlated (i.e. 0.169*) with immunization status at 0.05 significance level. Again, the child health reading score was positively correlated (i.e. 0.189*) with weight for age at 0.05 significance level. Then the rapid estimate of adult literacy in medicine is positively correlated (i.e. 0.221**) with immunization status at 0.01 significance level whereas the same rapid estimate of adult literacy in medicine was positively correlated (0.182*) with weight for age at 0.05 significance level.

4.5 Hypotheses

In this study, the statistical hypotheses were as follows:

- I. There is no association between maternal health literacy and child health promoting behaviours.
- II. There is an association between maternal health literacy and child health promoting behaviours.

According to table 21 above, there were correlations between maternal health literacy and child health promoting behaviours. These were as follows: the child health reading score was positively correlated (i.e. 0.169* at 0.05 significance level.) with immunization status. Again, the child health reading score was positively correlated (i.e. 0.189* at 0.05 significance level) with weight for age. Then the rapid estimate of adult literacy in medicine was positively correlated (i.e. 0.221** at 0.01 significance level) with immunization status whereas the same rapid estimate of adult literacy in medicine was positively correlated (0.182* at 0.05 significance level.) with weight for age. Owing to the positive correlations, these results indicated that there was a strong association between maternal health literacy and child health promoting behaviours. This confirms that the mothers' literacy skills acquired in school; reading and writing enabled them to look for health information, process it and used it to promote their children's health.

4.6 Summary of the Chapter

Chapter four presented findings of this study which was carried out to investigate the effects of maternal health literacy and child promoting behaviours. The findings responded to the three research questions which were as follows: (I) what is the level of maternal health literacy among post-natal mothers in selected clinics in Lusaka and Mazabuka districts? (II) what behaviours do post-natal mothers in selected clinics in Lusaka and Mazabuka employ to promote their children's health? and (III) what is the strength of association between maternal health literacy and child health promoting behaviours in selected clinics in Lusaka and Mazabuka? Chapter four also presented the results of the determination of the two hypotheses;

- (I) There is no association between maternal health literacy and child health promoting behaviours.
- (II) There is an association between maternal health literacy and child health promoting behaviours.

The correlations in table 22 above indicated that there was a strong association between maternal health literacy and child health promoting behaviours. Hypothesis (I) was therefore rejected and hypothesis (II) was accepted.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 Overview

In chapter four, the researcher presented the research findings. In this chapter, he discusses the findings of the study. The discussion will be guided by the research objectives which were as follows:- (I) to determine the level of maternal health literacy among post-natal mothers; (II) to assess health promoting behaviours among post-natal mothers; and (III) to examine the strength of association between maternal health literacy and child health promoting behaviours among post natal mothers in selected clinics in Lusaka and Mazabuka districts.

This chapter also discusses the status of the two hypotheses which were as follows:-

- I. There is no association between maternal health literacy and child health promoting behaviours.
- II. There is an association between maternal health literacy and child health promoting behaviours.

5.1 To determine the level of maternal health literacy among post-natal mothers in selected clinics in Lusaka and Mazabuka Districts.

Maternal Health Literacy was the independent variable in this study. The level of maternal health literacy was arrived at after administering two tests. One was the Child Health Reading Comprehension Test (CHRCT) which consisted of 10 multiple choice questions. The other one was the Rapid Estimate of Adult Literacy in Medicine (REALM) which was a 66 word recognition test.

The results of the Child Health Reading Comprehension Test (CHRCT) ranged from 0-100 (refer to table 5). Thus the level of literacy ranged from very bad to very good. The results indicated that 23 (i.e. 12.7%) post-natal mothers had inadequate reading comprehension skills, 48 (i.e. 26.5%) had marginal reading comprehension skills, and 110(i.e. 60.8%) had adequate reading comprehension skills (refer to table 6).

A combination of the inadequate and marginal reading comprehension skills was 39.2%. Blunch (2004), investigated mothers' skills and schooling and Child Health in Ghana, argued that first the production of child health depends on literacy and numeracy skills – being able to read and accurately follow prescriptions, for example. These were skills which were potentially obtainable from either formal education or adult literacy course participation, although the former seems to be much more efficient in generating literacy and numeracy skills in Ghana. This is in line with the findings on maternal health literacy (refer to tables 5, 6, 8 and 10). Stuebing (1997) conducted a study to investigate maternal schooling and comprehension of child health information in urban Zambia in which comprehension tests was administered to 157 mothers. The reading passages came from printed general health messages and 50 (i.e. 31.8%) mothers were unable to repeat back any ideas in the printed messages. This means that 107(i.e.68.2%) mothers were able to repeat back any ideas in the printed messages.

Similarly, in this study, the Child Health Reading Comprehension Test (CHRCT) contained questions which were generated from the Children's clinic card which also had printed messages on child health. These were not general health messages. They covered areas in health knowledge such as immunization, nutrition, weight for age, hygiene, diarrhea and pneumonia attack management, deworming and Vitamin A supplementation(refer to appendixJ). In this study 23(i.e 12.7%) post-natal mothers had inadequate reading comprehension skills, 48(i.e 26.5%) post-natal mothers had marginal and 110 (i.e 60.8%) post-natal mothers had adequate reading comprehension skills (refer to table 6).

The post-natal mothers were always in possession of the Children's card and some of them had had multiple births. One could therefore hypothesize that since they were familiar with the Children's clinic card, they performed better than the mothers whose comprehension was based on printed general health messages.The level of education of post-natal mothers was positively correlated 0.297** (i.e at 0.01leve of significance) with comprehension descriptions. Therefore, there was an association between the level of education and reading comprehension skills (refer to table 7).

Those with literacy skills were able to read and understand the health knowledge and attempt the questions with a higher probability of doing very well. Similarly, Vikram et al (2010), in their study of maternal education and child mortality: exploring the pathways of influence hypothesized that the higher the education, the greater the acquisition of human capital among the mothers as measured through health knowledge which increased child survival. By extension, health knowledge could only be acquired through reading comprehension skills.

This is supported by Ali et al (2011) who conducted a comparative study in Pakistan to investigate the effect of maternal literacy on child health and using the anthropometric measures of height for age, weight for age and head circumference. Then immunization, nutrition, personal hygiene and social development were the additional dependent variables. Two groups of women; literate and illiterate constituted the sample size of 400 mother child pairs. Results showed that 156 (i.e. 78%) of the children whose mothers were in group A, were below normal in terms of weight. Mothers in group A were regarded as being illiterate. Group B mothers were literate and 128 (i.e. 64%) of their children were below normal weight. This gave a difference of 28 (i.e.14%) more children of illiterate mothers were below normal weight.

Regarding the height percentile for nutrition, 156 (i.e. 78%) children in group A and 122(i.e. 61%) children in group B were below the standard 50th percentile. The difference for height was 34 (i.e.17%) more children of the illiterate mothers were below the normal height. In group A 50 (i.e. 25%) children showed delay in development in terms of motor and speech while only 10 (i.e. 5%) children of the literate mothers in group B had delay in fine motor and speech function. The difference was 40 (i.e. 20%) more children of the illiterate mothers showing delay in motor and speech function.

The vaccination status indicated that 131 (i.e. 65.5%) children of the illiterate mothers in group A completed their vaccinations as compared to 171(i.e 85.5%) children in group B of the literate mothers.

The difference was 40 (i.e 20%) more children of the literate mothers completed their vaccinations. 50(i.e 25%) children in group A of the illiterate mothers did not complete their vaccination as compared to 29(i.e 14.5%) children from group B of the literate mothers. The difference was 21(i.e 14.5%) more children of the literate mothers completed their vaccination. The print literacy pieces used were headings of local newspapers.

The Child Health Reading Comprehension Test (CHRCT) scores also reflected the findings on the understanding of the information displayed on the Children's clinic card which showed that 99(i.e.54.7 %) post-natal mothers understood it and 82(i.e. 45.3%) did not actually understand the information (refer to table 20).

The second test administered to post-natal mothers to determine their literacy levels was the Rapid Estimate of Adult Literacy in Medicine (REALM). This was a 66 word recognition test which was conducted in 6 minutes. The words came from the children's clinic card. The results revealed that 81 post-natal mothers (i.e. 44.8%) had inadequate, 19 (i.e. 10.5%) had marginal and 81(i.e.44.8%) had adequate reading skills (refer to table 8).

In terms of extremes, the findings are in line with Stuebing (1997), whose noun identification and reading test produced a highest score of 81.42% and a majority of scores between 18.57 and 48.7%. The reason advanced was that women did well for those words they often used in their daily life or contextualized nouns. On the other hand they found it difficult to identify and read words which could have been learnt in a school setting or decontextualized words.

This study used words from the Children's clinic card; a literacy piece they were very conversant with. The outcome of this study also showed that 54 (i.e. 29%) post-natal mothers were reading at grade 3 or below, 33 (i.e. 18.2%) were reading at the level between grade 4-6, 43 (i.e. 23.8%) were reading at the level between grade 7-9 and 51 (28.2%) were reading at the level between grade 10-12 (refer to table 10). The post-natal mothers' level of education was positively correlated 0.552** (i.e. at 0.01 level of significance) with their grade equivalent range. There is, therefore an association between the level of education and grade equivalent range (refer to table 11).

The data above shows that those who had inadequate reading skills 81 (i.e. 44.8%) post-natal mothers were almost the same as those who were reading at grade 3 or below and between the grade 4-6 level combined 87 (i.e. 47%) post-natal mothers combined. The results also reveal that a combination of those post-natal mothers 43 (i.e. 23.8%) who were reading at grade 7-9 level and 51 (i.e. 28.2%) grade 10-12 level was (i.e. 94= 52%) just above those post-natal mothers 81 (i.e. 44.8%) with adequate reading skills. This study aimed at investigating the effect of maternal health literacy among post-natal mothers in selected clinics in Lusaka and Mazabuka districts. Inadequate reading levels such as these 81 (i.e. 44.8%) post-natal mothers and low reading at grade 3 or below and between grade 4-6 combined (i.e. 87=47%) post-natal mothers are synonymous with low maternal health literacy and therefore at variance with child health promoting behaviours. Looked at in a different way, the combined figure is (i.e. 166= 91.8%) post-natal mothers were found to have very low reading levels. Therefore, only (i.e. 13= 8.2%) post-natal mothers were reading at the correct level.

In the next section below, the researcher discusses findings with respect to the second study objective which was to assess health promoting behaviours among post-natal mothers in selected clinics in Lusaka and Mazabuka districts.

5.2 To assess child health promoting behaviours among post-natal mothers in selected clinics in Lusaka and Mazabuka Districts

This study investigated the effect of maternal health literacy among post-natal mothers in selected clinics in Lusaka and Mazabuka Districts. The independent variable was maternal health literacy whereas the dependent variable was child health promoting behaviours. The independent variable was interpreted through weight for age and complete immunization.

Data for the dependent variables was collected through the administration of the child health promoting behaviours questionnaire. Citonga (see appendix H) and Cinyanja (see appendix I) questionnaires were also administered.

This study showed that post-natal mothers had different interpretations of child health. This meant that they understood child health in different ways. The National Research Council and Institute of Medicine (2004) define child health as the extent to which children are able or enabled to develop and realize their potential, satisfy their needs and develop the capacities that allow them to interact with the biological, physical and social environment.

Findings indicated that 33 (i.e.18.2%) post natal mothers indicated that child health was synonymous with good nutrition. On the other hand 148 (i.e.81.72%) never mentioned good nutrition as child health (refer to table 12). Children eat with their caregivers; their mothers or anybody taking care of them hence most of the post-natal mothers highly rated nutrition. Hygiene was also mentioned as a child health promoting behaviour as 20 (i.e.11%) post-natal mothers indicated this but 161(i.e.88.9%) never thought so (refer to table 12). Results showed that 30(i.e. 16.5%) post-natal mothers indicated that attendance of the child health clinic was equivalent to child health whereas 151(i.e.83.2%) never defined child health in this way (refer to table 12). Data also showed that 13(i.e. 7.18%) mothers defined child health as early detection of the onset of illness. On the other hand, 168 (i.e. 88.9%) did not define child health in this light (refer to table 12).

Outcomes of this study showed that post-natal mothers carried out different activities to manage their children's health. Feeding the child was the most popular activity as 128 (i.e. 70.9%) post-natal mothers mentioned it as compared to 53(i.e. 29.2%) who never indicated that feeding the child was important (refer to table 13). This is so because children have to breastfeed exclusively for the first six months before solid foodstuffs are introduced in the child's diet. Moreover, young children usually eat together with their mothers or caregivers. When asked about the benefits of good nutrition, post-natal mothers clearly understood. According to the findings, 120 (i.e. 66.2%) thought good nutrition was good for protection from illness as opposed to 61(i.e. 33.8%) post-natal mothers (refer to table 15). Then 119(i.e. 65.7%) post-natal mothers indicated that good nutrition promoted physical growth in the child as compared to 62 (i.e. 34.3%) (refer to table 15). It was difficult for the post-natal mothers to link the child's

mental development to good nutrition as only 2(i.e. 1.1%) thought good nutrition promoted mental development in the child as compared to 179 (i.e. 98.9%) post-natal mothers who did not think so (refer to table 15).

It is clear from the findings above that post-natal mothers thought that feeding the child was important and good nutrition promoted the physical development of the child and at the same time protected the child from the killer diseases. Good nutrition as a child health promoting behaviour was captured through the weight for age findings in this study. The findings revealed that 40 (i.e.22.1%) children were found to have been below the normal weight, 99 (i.e. 54.7%) had normal weight and 42(i.e. 23.2%) were above the normal weight (refer to table 4). Thus a combination of normal to above normal children in terms of weight for age, showed that 141(i.e.77.6%) children had acceptable weight for age. In conclusion, since the sample was made up of mother child pairs (refer to sample size), 141 post-natal mothers were feeding their children very well or in other words,141 children had no malnutrition.

The weight for age graph on the children's clinic card showed the nutrition status of the child. The child health promoting behaviour questionnaire sought to find out whether post-natal mothers understood the weight for age graph. Findings indicated that 140 (i.e. 77.3%) said that the graph was for monitoring the child's growth and 41(i.e. 22.7%) said they did not understand the weight for age graph (refer to table 16).

Data revealed that 62 (i.e. 34.2%) post-natal mothers said that bathing the child constituted hygiene whereas 119 (i.e. 65.7%) did not mention it at all (refer to table 13). This understanding of hygiene was narrow as bathing the child is but just one hygienic practice.

Ali et al (2011) investigated the effect of maternal literacy on child health in Pakistan and assessed hygiene by personal cleanliness of the child in terms of nail trimming, clothing and oro-dental hygiene.

The outcome of this study showed that only 17 (i.e.9.3%) post-natal mothers thought seeking early treatment when the child was ill, was equivalent to child health (refer table 13).

Govindasamy and Ramesh (1997) included percentages of vaccinations, occurrences of diarrhea and Oral Rehydration Salts (ORS) interventions and/or Recommended Home Fluids (RHF) and Acute Respiratory Infection (ARI) and whether the children had been taken to a health provider as indicators of child health in their study in India. Early treatment could have been provided by the mother at home or by a health care provider if the mother sought their intervention.

This study investigated the effect of maternal literacy on child health promoting behaviours in selected clinics in Lusaka and Mazabuka Districts. All the data collection instruments were generated from the children's clinic card which is a monitoring tool for child health. Part of the children's clinic card indicates whether a child has been vaccinated to prevent attacks from the five major killer diseases. Results in this study showed that only 39(i.e. 21.5%) post-natal mothers thought this activity was important to effectively manage a child's health (refer to table 13). On the contrary, 142(i.e. 78.4%) mothers did not mention taking the child to the children's clinic for vaccinations as an activity to manage child health (refer to table 13). Despite this low ranking of vaccinations by post-natal mothers, data also showed that only 15 (i.e.8.2%) children were not immunized whereas 166(i.e.91.7%) were immunized (refer to table14).

This is in line with results on attainment of education by the post-natal mothers which showed that 16 (i.e. 8.8%) post-natal mothers had no schooling and may not have taken their children to the children's clinic for vaccinations.

This is further supported by Ali et al (2011) whose results showed that 69 (i.e.34.5%) children of the illiterate mothers did not complete immunization as compared to 29 (i.e.14.5%) children of the literate mothers. These findings were from a study which investigated the effect of maternal literacy on child health in Pakistan.

However, 176 (i.e. 97.2%) post-natal mothers said that immunization completely protected the child from the killer diseases as compared to 5 (i.e. 2.8%) who did not think so. This was further confirmed by 176(i.e. 97.2%) post-natal mothers who thought not vaccinating the child exposed it to the killer diseases and again 5(i.e. 2.8%) did not think not vaccinating children did not expose them child to killer diseases(refer to table 14).

The outcome on Vitamin A supplementation in this study showed that 86(i.e. 47.5%) of the post-natal mothers thought that it promoted good eyesight whereas 95(i.e. 52.5%) indicated that they did not know (refer to table 17). This is a supplement which is given during the children's clinic visits. Data on the importance of de-worming showed that 171(i.e. 94.4%) post-natal mothers rightly indicated that it protected children from anaemia and malnutrition and on the other hand, only 10(i.e. 5.6%) did not know (refer to table 18). Again, de-worming is an activity which is carried out during the children's clinic.

The Children's clinic card (see appendix J) was the literacy piece used in this study aimed at investigating the effect of maternal health literacy on child health promoting behaviours in selected clinics in Lusaka and Mazabuka Districts. It contains a lot of information; particulars of the child and parents, immunization status of the five killer diseases, menus, nutrition record, weight for age graph, de-worming record, vitamin A supplementation dosage, Prevention of Mother to Child Transmission (PMCT) treatment, diarrhea and pneumonia attack management and topics for discussion. The post-natal mothers were asked whether they understood all the information displayed on the children's clinic card. Responses revealed that 99 (i.e. 54.7%) post-natal mothers understood and 82 (i.e. 45.3%) did not understand the information displayed on the clinic card (refer to table 20). As to who could help them understand the information on the clinic card, 82 (i.e. 45%) post-natal mothers indicated that health staff could help them whereas 99 (i.e. 54.7%) said that other people could help (refer to table 21).

Vikram et al (2010) argue that the ability of a mother to navigate a bureaucratic health system depended on her cultural capital of which language and communication styles formed a major component. Similarly, the 99 (i.e. 54.7%) (refer to table 21) post-natal mothers lacked the necessary language and communication styles to engage the health staff who could have helped them understand the Children's clinic card and thought other people could help them instead. This argument is supported by Govindasamy and Ramesh (1997) who posted that greater education of the mother imbued her with greater confidence, greater facility with language and a greater ability to interact with health systems.

The results discussed above were findings gathered through the administration of the child health promoting behaviours questionnaire. There were 10 questions all generated from the children's clinic card. Data showed that post-natal mothers carried out child promotion behaviours in different ways. The behaviours included visits to the monthly children's clinic, good nutrition, hygienic behaviour and seeking early treatment when the child was ill. Most of the children were immunized and had acceptable weights for age. In the section below, the researcher discusses the third objective which was to examine the strength of association between maternal health literacy and child health promoting behaviours among post natal mothers in selected clinics in Lusaka and Mazabuka Districts.

5.3 To examine the strength of association between maternal health literacy and child health promoting behaviours among post natal mothers in selected clinics in Lusaka and Mazabuka districts.

This study aimed at investigating the effects of maternal health literacy on child health promoting behaviours among post-natal mothers in selected clinics in Lusaka and Mazabuka districts was a correlation design. It used a correlational design to examine the strength of association between two variables. The two variables in this study were maternal health literacy and child health promoting behaviours among post-natal mothers. This correlational design was selected owing to the nature of variables and purpose of study which was to examine over time, the potential effect of the independent variable (maternal health literacy) on the dependent variable (child health promoting behaviours).

Outcomes from this study indicated that the child health reading score was positively correlated (i.e. 0.189*) with weight for age at 0.05 significance level. Then the rapid estimate of adult literacy in medicine was positively correlated (i.e. 0.221**) with immunization status at 0.01 significance level whereas the same rapid estimate of adult literacy in medicine was positively correlated (i.e. 0.182*) with weight for age at 0.05 significance level. Then the child health reading comprehension score was positively correlated (i.e. 0.169*) with immunization status at 0.01 significance level (refer to table 22).

The association was not very strong as revealed by the correlations. The low correlation figures point out to the very low reading levels by post-natal mothers (refer to tables 7 and 8) owing to lack of literacy skills. Some were completely unable to read while others read at a very low grade. Leedy and Ormrod (2001) caution that correlation does not, in and of itself, indicate causation but acts as a signpost which points to further discovery. The good researcher is never content to stop at the point of finding a correlation. Hence, in this study, further investigations were done through the administration of the child health promoting behaviours questionnaires to find out if post natal mothers were employing the child health promoting behaviours. Results showed that only 15 (i.e. 8.3%) children between the ages of 12 months and 5 years were not immunized and 166 (i.e. 91.7%) were immunized (refer to table 3). In terms of weight for age 40 (i.e. 22.1%) children were below the normal weight, 99 (i.e. 54.7%) had normal weight and 42 (i.e. 23.2%) children had above average weight.

5.4 Hypotheses

According to table 21 above, there were correlations between maternal health literacy and child health promoting behaviours. These were as follows: the child health reading score was positively correlated (i.e. 0.169* at 0.05 significance level.) with immunization status. Again, the child health reading score was positively correlated (i.e. 0.189* at 0.05 significance level) with weight for age. Then the rapid estimate of adult literacy in medicine was positively correlated (i.e. 0.221** at 0.01 significance level) with immunization status whereas the same rapid estimate of adult literacy in medicine was positively correlated (0.182* at 0.05 significance level.) with weight for age (refer to table 22).

Maternal Health literacy, the independent variable was captured through the Child Health Reading Comprehension Test (CHRCT) scores and the Rapid Estimate of Adult Literacy in Medicine (REALM) scores. The independent variable was Child Health promoting behaviours represented by weight for age and complete immunization. The Child Health promoting behaviours questionnaire validated the dependent variable. These results in Table 22 above indicate that there was an association between maternal health literacy and child health promoting behaviours. Therefore, the null hypothesis was rejected and the alternative one was accepted.

5.5 Summary of the chapter

In this chapter, the researcher discussed the findings of this study which investigated the effect of maternal health literacy on child health promoting behaviours in selected clinics in Lusaka and Mazabuka Districts. The discussion was guided by research objectives and close reference to the literature review in chapter two.

The maternal health literacy levels were discussed first. These were discussed in terms of the scores and their descriptions. This was followed by discussing the objective relating to the child health promoting behaviours. The third and last objective on the strength of association between the independent and dependent variable was also discussed in light of the findings from the correlations. Then the two hypotheses were also discussed.

First, the chapter discussed findings on maternal health literacy levels. The findings from the Child Health Reading Comprehension Test, pointed out that the post-natal mothers had a wide range of literacy levels as shown by the scores which ranged from 0-100. Most of them scored well above the half mark of fifty. The scores were described as inadequate, marginal and adequate. Most of the scores fitted in the marginal and adequate category.

Another test administered to the post-natal mothers, was the Rapid Estimate of Adult Literacy in Medicine (REALM). This was a reading test. This test revealed that post-natal mothers with adequate and inadequate reading skills were the same. Very few post-natal mothers had marginal literacy skills. In terms of grade levels, it was found that a good number were reading below the grade three level with the same number reading high school level (grades 10-12).

Another group of post-natal mothers were reading at the level of between primary (grade 7) and basic (grade 9). The least number of post-natal mothers were reading at the level between grade 4 and grade 6. This study also set out to assess the child health promoting behaviours mothers were employing to manage their children's health. The findings indicated that most of the children were completely immunized and had normal to above normal weight. Therefore the post-natal mothers were employing the necessary child health promoting behaviours.

The last findings to be discussed were on the hypotheses. The correlations presented positive correlations between maternal health literacy as captured through the REALM (Rapid Estimate of Adult Literacy in Medicine) and CHRCT (Child Health Reading Comprehension Test) with child health promoting behaviours. Although the correlation figures were low, owing to the poor literacy skills of some of the post natal mothers, they were significant. Thus there was a strong association between the two variables and the null hypothesis was rejected. In the next chapter, the researcher discusses the conclusions and recommendations.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Overview

This study sought to investigate the effects of maternal health literacy on child health promoting behaviours among post-natal mothers in selected clinics in Lusaka and Mazabuka Districts. The previous chapter discussed the findings. This chapter concludes the study and also makes recommendations based on the major findings of the study. It also gives implications for future research.

6.1 Conclusion

This study was based on three objectives and responds to three research questions. The first research objective and question sought to determine the levels of maternal health literacy skills among the post-natal mothers. Both this research objective and research questions were answered through the administration of the Child Health Reading Comprehension Test (CHRCT) and the Rapid Estimate of Adult Literacy in Medicine (REALM).

Through the administration of the Child Health Reading Comprehension Test (CHRCT), the study revealed that the reading comprehension skills of most post-natal mothers were good. This meant that most of mothers were able to make sense out of the phrases and sentences given hence providing the correct answers. Most of the post-natal mothers had high school education, tertiary diploma and bachelor's degrees. These levels of education meant that they had stayed longer in school, accumulated enough human capital and empowerment through the acquisition of the necessary literacy skills.

By extension, these post-natal mothers were able to exploit social and cultural capital to address the health needs of their children within their families and communities. This is in line with Vikram et al (2010) who argues that mothers need social and cultural capital to navigate the health system in order to meet the health needs of their children. Thus, their performance was good.

Few post-natal mothers had basic or no schooling and did not do well in the child health reading comprehension test. They had no schooling and some only managed to acquire basic education as the highest attainment. These post-natal mothers had spent none and less time in school.

They had not acquired enough human capital and empowerment through the acquisition of the necessary literacy skills. Again, by extension, they were unable to exploit social and cultural capital to address the health needs of their children within their families and communities. Thus, their performance was not good.

There was a close fit between the levels of education; no schooling, basic school, high school, diploma and bachelor's with the description of the child health reading comprehension scores. These were inadequate reading comprehension skills, marginal reading comprehension skills and adequate reading comprehension skills.

The correlation between child health reading comprehension scores and levels of education was positive and showed that there was a very strong association. Therefore, the study demonstrated that the number of years spent in school enabled post-natal mothers develop their reading comprehension skills.

However, through the Rapid Estimate of Adult Literacy in Medicine (REALM) the study revealed that the post-natal mother's reading skills were not good. Close to half of them were not able to read complete sets of words. They had inadequate reading skills. Close to half had adequate reading skills and the rest had marginal reading skills. Those with marginal reading skills could fall either way; adequate or inadequate. The post-natal mothers who had inadequate reading skills were reading at Grade 6 or below with more than half of them again were reading at grade 3 or below. More than half were reading at Grade 7 or above.

The correlation between level of education and reading level was positive and showed a very strong association. Those with comparatively higher education were able to demonstrate adequate reading skills than those with lower education. The poor performance in this test pointed to the fact that most post-natal mothers do not read the information on the Children's clinic card. This is a tool they always keep and some of them had had multiple births and kept more than one Children's clinic card. Some of these mothers were not able to read because they lacked adequate reading skills. Thus, the study demonstrated that in order for post-natal mothers to understand the Children's clinic card, they needed adequate reading skills.

The second research objective and question sought to establish the child health promoting behaviours which post natal mothers employed in managing their children's health. Both the objective and research question were tackled through the administration of the Child health promoting behaviours questionnaire.

Through the Child health promoting behaviours questionnaire responses, the study established that some mothers do not understand the information on the children's card. This was so because they were unable to read. They had possession of the children's clinic card all the time and some had more than one as they had had multiple births. They expressed a strong wish to be helped to understand the information on the children's clinic card by health staff and others. Some post-natal mothers did not understand the weight for age graph on the children's clinic card. The study established that post-natal mothers employed the right child health promoting behaviours; right nutrition and making sure the children were completely immunized.

The study findings also revealed that post-natal mothers lacked scientific knowledge. They could not explain the significance of Vitamin A supplement and de-worming. The children always received the Vitamin A supplement in form of a pill when they visited the under five clinic. The anti-worms drug was also given during the under five clinic.

The third objective and research question aimed at determining the strength of association between maternal health literacy and child health promoting behaviours. Both the objective and research question were answered through running correlations. The findings of the study indicated that there was a positive correlation between maternal health literacy and child health promoting behaviours. In terms of the REALM (Rapid Estimate of Adult Literacy in Medicine) the positive correlation statistic pointed to a weak association between maternal health literacy and child health promoting behaviours owing to the poor reading skills by some of the post-natal mothers.

The study tested two hypotheses. In one sense, the hypotheses were tested by the correlation findings. Owing to the positive correlations, the second and alternative hypothesis was accepted and the first and null hypothesis was rejected.

This study also established that despite the poor reading skills exhibited by some of the post-natal mothers, they were still able to exercise the child health promoting behaviours by having the children completely immunized and providing the correct nutrition. This implied that the role of promoting child health in the household was not solely for the mother. All members of the household took an active role in looking after the children and this was possibly captured as promoting behaviours being exhibited by the mother. Therefore, findings of this study also revealed that social capital influenced child health promoting behaviours starting with the family unit in which the child grows and the community in which the household is located.

6.2 Recommendations

Based on the findings and conclusions above, the recommendations below were made.

The findings have policy implication for child health in Zambia. Increasing levels of health knowledge among women is important in achieving better child health outcomes, especially complete immunization and nutrition. One way of improving the knowledge levels is through incorporating health knowledge into the primary school curricula so as to reach the majority of children among them young girls who are future mothers and are more likely to be mothers themselves at a younger age.

Owing to the nature of the schools in Zambia; lack of teaching and learning materials and severe shortages of teachers especially in the rural areas, it is difficult for such schools to produce literate girl pupils who later become mothers. Therefore adult literacy programmes should be introduced where mothers can be taught so that they may be enabled to read and understand the children's clinic card. If mothers achieve adequate literacy skills through participation in adult literacy programs, good child health can be sustained. This is in agreement with Blunch (2004) who recommends adult literacy classes for illiterate mothers to enable them understand health literature.

6.3 Implications for future research

Future research ought to consider the following:

- i. there is need to include other members of the family like fathers, older siblings, maids, aunties in future research because apart from the mother, this group of people participate in looking after the child. The input of social capital at the family unit level has a bearing on the overall health of the child;
- ii. there is need to establish what sort of activities take place at the children's clinic so that these can be documented and revised. This will help post-natal mothers maximize their visits to the children's clinic and the benefits will trickle down to the child whose health will improve;
- iii. there is need to establish what the policy says about visits to the monthly children's clinic so that if need be, a law can be passed to compel mothers to take the children's clinic more serious than is the case now.

REFERENCES

Abuya, A. B, Kimani, K., Jand Onsomu, O. E(2003).**Influence of Maternal Education on Child Health in Kenya**Pennsylvania. PennsylvaniaState UniversityCollege of Education Paper. College of Education. pp. 1-26.

Ali, S., Chaudry, T., and Naqvi, Q. (2011). “Effect of Maternal Literacy on Child Health: Myth or Reality.”**Annual Pakistan Institute of Medical Science, 2011**; pp 100-103.

Arntzen, A, Moum, T, Magnus P and Bakketig, L.S (1996). “The Association between maternal education and post-neonatal mortality: trends in Norway, 1968-1991.”**Int J Epidemiol 25**, pp. 578-584.

Barrera, A. (1990). “The role of maternal schooling and its interaction with public health programs in child health production.”**Journal of Development Economics, 32**: pp 69-91.

Bicego, G.T. and Boerma, J.T. (1993).“Maternal education and child survival; a comparative study of survey data from 17 countries.”**Social Science Medicine 1993; 36**: pp 1207-27.

Blunch, N.H. (2004). **Mothers’ Skills and Schooling and Child Health in Ghana**. Seminar paper. George Washington University. Pp.1-41.

Boerma, J.T., Weinstein, K.I and Rutstein S.O.(1990) “Immunization: Levels, trends and differentials.”**DHS Comparative Studies, No.1**.

Borooah, V.(2000). “The Welfare of Children in Central India: Econometric Analysis and Policy Stimulation.”**Taylor and Francis Journals, vol 28(3)**,pp 263-287.

Caldwell, J.C. (1979). “Education as a factor in mortality decline: An examination of Nigeria data.”**Population studies, 33**, 395-413.

Caldwell, J.C. (1994). “How is greater maternal education translated into child health?”**Health Transition Review, 4**, 224 – 229.

Caldwell, P.C. and Caldwell, J.C. (1990). **Gender Implications for Survival in South Asia. Health Transition Working Paper no.7.** Canberra National Center for Epidemiology and Population Health, Australian national university.

Cleland, J.G. and Ginnekin, J.K.V. (1988). "Maternal Education and Child Survival in Developing Countries: The Search for Pathways of Influence." **Social Science and Medicine** **27**: pp 1357-1368.

Cammu, H., Martens, Maele, G.V. and Amy, J.J.(2010). "The higher the education level of the first time mother, the lower the fetal and post neonatal but not the neonatal mortality in Belgium (Flanders)." **European journal of obstetrics and gynaecology and reproductive biology**, **148** (1), pp 13-16.

Freund, P. (1987). "Environment, diseases and health service utilization: a comparative study with Zambia." in R.Akhtar (ed) (1987) **Health and Disease in Tropical Africa: Geographical and Medical Viewpoints**, New York: Harwood Academic Publishers.

Glewwe, P. (1999). "Why Does Mother's Schooling Raise Child Health in Developing Countries? Evidence from Morocco" **The Journal of Human Resources**, **34** (1), pp 124-136.

Glewwe, P. and Jaikishan, D. (1999). "Child Health and Mother's Schooling in Ghana," in Paul Glewwe (ed) (1999) **The Economics of School Quality Investments in Developing Countries: An Empirical Study Ghana**. London: Macmillan.

Govindasamy, P. and Ramesh, B.M. (1997). "Maternal Education and the Utilization of Maternal and Child Health Services in India." **National Family Survey Subject Reports Number 5. December 1997**. pp. 1-26.

Hammad, A.E.B. and Mulholland, C. (1992). "Functional literacy, health, and quality of life in World Literacy 2000." in D. Wagner and L. Puchner (eds) (1992). **Annals of the American Academy Political Science** **520**, March.

Hobcraft, J. (1993). "Women's education, child welfare, and child survival: A review of the evidence." **Health Transition Review** 3: pp159-75.

Hough, L. (2012). **How a mother's literacy skills even at a basic level can translate into healthier kids.** Retrieved August 29, 2011 from <http://www.gse.harvard.edu/news-impact/2012/09/illiteracy>

Kombo, D.K. and Tromp, L.A. (2006). **Proposal and Thesis Writing.** Nairobi: Paulines Publications. Pp 71-164.

Kleinman, J. and Madans, J. (1985). "The effect of maternal smoking, physical stature and educational attainment on the incidence of low birth weight." **Am J Epidemiol**, pp 843-855

Larson, R. and Farber, B. (2006). **Elementary Statistics.** New Jersey: Pearson Education. pp. 149-245.

Leed, D.P. and Ormrod, E.J. (2001). **Practical Research: Planning and Design,** New Jersey: Merrill Prentice Hall.

Levine, R., E. Dexter, P. Velasco, S. Levine, A. Joshi, K. Stuebing, K and Tapia-Uribe, F. (1994). "Maternal literacy and health care in three countries: a preliminary report." **Health Transition Review**, 4 (2) pp186-191.

Mirowsky, J. and Ross, C.E. (2003). "Education and social status and health." Gruyter: New York. Population Reference Bureau (2008). **World Population Data Sheet.**

MOH. (2002). **Child Health promotion week paper/report.**

Mosley, W.H. (1984). "Child survival: research and policy." In W.H. Mosley and L.C. Chen (eds) (1984) child survival: **Supplement to Population and Development Review 10.** New York: Population Council.

Murthi, M., Guio A.C and Dreze J.(1995). “Mortality, Fertility and Gender bias in India: A district-level analysis.” **Population and Development Review** **21**: 745-82.

National Research Council and Institute of Medicine. (2004). **Children’s wealth the nation’swealth: assessing and improving child health**. Washington DC: the National Academic Press.

Neuman, W.L. (2006). **Social Research Methods**. 6th edition. New York: Pearson. Pp 156-491.

Nutbeam, D. (2000).“Health Literacy As A Public Goal: A Challenge for Contemporary Health Education and Communication Strategies into the 21st Century.”**Health Promotion International** **15**, pp. 259-267.

Regan, A. (2011). **The Impact of Maternal Education/Literacy on Child Health in the Developed World**. Article. Cardiff University; School of Medicine Wales.

Safeer, R.S.and Keenan, J. (2005).“Health Literacy: The Gap Between Physicians and patientsPatients.” **Journal of American Academy of Family Physiscians**, pp. 1-8.

Snow, C. and Dickinson, D.K.(1991). “Skills that aren’t basic in a new concept of literacy.”in E.M. Jennings and A,C. Purves (eds) (1991) **Perspectives on Literacy and Schooling**,New York. State University of New York Press.

Stanley, I. and Mei Chung M.P.H. (2007). “Breastfeeding and maternal and infant health outcomes in developed countries.”**Evidence Reports/ Technological Assessments, No.153**.

Stuebing, K.,W. (1997). “Maternal Schooling and comprehension of child health information in urban Zambia: Is literacy a missing link in the maternal schooling-child health relationship **Health Transitional Review** **7**, 1997, pp.149-169.

Vikram, K., Desai, S., and Vanneman, R. (2010). **Maternal Education and Child Mortality:**

Exploring the Pathways of Influence. Paper from University of Maryland, pp. 1-10.

Zarcadoolas, C., Pleasant, A. and Greer, D.(2005).“Understanding Health Literacy: An Expanded Model.”**HealthPromotion International, 20 (2):** pp. 195-203.

Zikmund, W.G. (2000). **Business Research Methods**, Orlando: Harcourt College Publishers. pp.68-72.

APPENDICES

Appendix A: English; Participants' Information Sheet

My names are **ARNOLD MUMENA**. I am a student at the University of Zambia pursuing a Master's degree in Literacy and Learning. This research is a major component for the completion of my study programme. This exercise is, therefore, purely academic.

1. Purpose of the study

The purpose of the study will be to assess maternal health literacy levels among post natal mothers and their effect on Child health promoting behaviours in selected clinics in Lusaka and Mazabuka districts.

2. Procedure

As a mother, you will be required to sit for two literacy tests. The first one is the Rapid Estimate of Adult Literacy in Medicine (REALM). You will be asked to read 66 words most of which are from the Children's clinic card. This is a reading test and will only take 6 minutes. The second literacy test is the Child Health Reading Comprehension Test (CHRCT). There are 10 questions all drawn from Children's clinic card which you may attempt in ten minutes. The last one is a questionnaire which is on Child health promoting behaviours. Again all the ten questions have been generated from the Children's clinic card. There will be a health staff to help you with any difficulties you may encounter during the course of this exercise. Lastly, you will avail your child's clinic card to the health personnel so that the weight of the child can be recorded.

3. Risks

There are no risks involved in this exercise.

4. Benefits

After the exercise, you will know your level of maternal health literacy vis-à-vis the Children's clinic card. You may be able to know which sections of the card pose challenges to you and will therefore be helped by the health personnel to understand them better.

5. Confidentiality

All the data which will be collected as a result of your participation will be treated with the highest confidentiality. You will remain anonymous and untraceable in this research. The data will be locked up in cabinets and will be destroyed after use.

6. Remunerations

You will not be paid for taking part in the study.

7. Compensation for study related injury

There will be no compensation in case of injury as a result of your participation in this study.

8. Voluntary participation

Participation in this study is on voluntary basis. You are free to withdraw from the study at any time without any repercussions. Do not answer any questions you may deem personal or otherwise.

Should you have questions in connection with this study, contact the following:-

1. The Principal Investigator, Mr Arnold Mumena, 22 Katyetye Street, Chilenje South Lusaka. **Tel 0977 982 077, 0977 897 964.**e-mail aamumena2002@yahoo.co.uk
2. ERES Converge 33 Joseph Mwilwa Road Rhodes Park, Lusaka. **Tel 0955 155 633, 0966 765 503.** E-mail eresconverge@yahoo.co.uk

Appendix B: Citonga; Participants' information sheet.

Cipanzi cipa zyosanwe: Zyakuhiba bayobwezako lubazu

Imebo izina lyangu ndime **ARNOLD MUMENA**. Ndisichikolo wa lwiyo lwa ambele acikolo ca university ya mu Zambia. Kwa ino ndiyya lwiiyo lwa kuzhiba zyakubala akwiya mu laka mboubelesgwa. Ndiyanda kuzhiba masimpe amutwe wa makani utegwa; **lwiyo lwa bamatumbu lulakonzya kukulwaizya buumi bwa bana basyonto mu zibadela zyasalwa mu chilikiti ca Lusaka amu dolopo lya mazabuka**. Oku kuyandaula zya masimpe nchibela cimwi ciyomaniniza lwiyo. Abobo oyu mulimo ngwalwiyo kunyina cimbi pe.

Muzezo wa lwiyo

Muzezo wa lwiyo ngwa kusunka bamatumbu mwelwe wa luzhibo lwa kubala kujatikizya buumi ambo bo kulaizya buumi bwa bana basyonto.

Nchomuya kucita kutolako lubazhu

Mbuli ba tumbu moyosunkwa ziidi zyobilo. Musunko wa kusanguna unojisi mabbala makumi cisambomwe a cisambomwe. Aya mabbala ayozwa aci kkadi ca ku cibbadela. Oyu musunko wa kubala welede kumanizigwa mu li ba miniti cisambomwe buyo. Musunko wabili ulijisi mibuzyo ili khumi njomuya kumanizya mu li ba miniti ikhumi. Ayalo mibuzyo eeyi izwa aci kkadi caku cibbadela ca bana. Camamanino tauli musunko. Muyobuzigwa imibuzyo ili khumi yalo iyakuzhila nkukona ku ci kkadi ca bana caku cibbadela. Babelesi ba acibbadela bayomugwasya kuhumbwa buyumuyumu mbo muya kujana nomutola lubazhu mu mulimo ooyu. Camamanino,

muyakupa babelesi ba cibbadela ci kkadi ca mwana kutegwa bakabweze mwelwe wa mbuli mbwalema.

Zilijazyo

Kunyina zilijazyo

Bulumbu buyoanwa

Bulumbu mbomuyakujana mbwakuti muyozhiba mwelwe wa luzhibo wazyabumi wenu amboukede aci kkadi ca mwana wanu. Muyoziba zibela zya ci kkadi zimupa lukatazyo kutegwa babelesi mu makani abumi bakamupe lugwasyo

Maseseke

Kufumbwa ciya kuhibwa ankambo kakutola lubazu kwenu muzya lwiyo oolu, ziyoba zya maseseke amasimpe kapati. Kunyina nomuya kuzibwa. Zyonse nzyotuya kubweza ziyokiilwa akumpwa twakumanizya buyo zya lwiyo oolu.

Kubadelwa

Kunyina nomuya kubadelwa akambo kakutolako lubazhu.

Ikubadelwa ankambo ka kulicisa

Kunyina ikubadelwa ankambo kakuti mwalicisa nomwali kutpola lubazu mu zyalwiyo oolu.

Kutola lubazu kwakulipa

Kutola lubazu mu zyalwiyo oolu nkwakulipa nobamukamwini. Mulangulukidwe kucileka kufumbwa ciindi kakunyina aciyocitika. Kuti kakuli mibuzyo njemuyeyela kuti iguma ku zya buntu bwenu twalomba mutavwili.

Kuti kamujisi mibuzyo iiguma zyalwiyo oolu, mulakonzya kubuzya bantu aba balembedwe awa:-

1. Mr Arnold Mumena, 22 Katyeteye Street, Chilenje South Lusaka. Tel **0977 982 077, 0977 897 964.** aamumena2002@yahoo.co.uk Arnold2008@gmail.com
2. ERES Converge 33 Joseph Mwilwa Road Rhodes Park, Lusaka. Tel **0955 155 633, 0966 765 503.** E-mail eresconverge@yahoo.co.uk

Appendix C : Cinyanja Participants' information sheet

Zoyenera Kudziwa otengako mbali

Mazina anga ndine **ARNOLD MUMENA**. Ndine mwana wa sukulu pa ukulu yocedwa University of Zambia. Mapunzilo anga akufunisisa kuziwa mumene umoyo wa ana angono ukapitilile patsogolo kupyolela mukuziwa ku werenga ndi kulemba kumbali ya azimai. Kuziwa zimenezi kuzatandizila kuti nditsilize maphunzilo anga. Lingo lake ndimapunzilo cabe.

Lingo la maphunzilo

Lingo la maphunzilo ndi kuziwa muyeso wa kuwerenga ndi kulemba kwa azimai ndi mumene ukudza umoyo wa ana angono muzipatala zingono zingono zosankidwa mumaboma a Lusaka ndi Mazabuka.

Ndondomeko

Monga muzimai, muzalemba mayeso awiri. Amodzi mwa mayeso ndi kufunsiwa kuwerenga mau okwana makhumi asanu ndi limodzi ndi mpamvu zisanu ndi limodzi mwamusanga musanga pa mpindi zisanu ndi limodzi. Mau amenewa azacokela pa ci kkadi ca mwana cymene mumapita naco ku cipimo ku cipatala. Cotsatilapo muzapatsidwa mafunso khumi ocokela pa cikkadi ca mwana. Muyenela kutenga mphindi zili khumi kuyanaka mafunsowa. Comalidza ndi mafunso ali khumi azokuza umoyo wa ana angono. Mafunsowa naonso azacoka pa cikkadi ca mwana.

Mpindi nayo izakhala khumi. Pamene mulikutengako mbali, pazankhala omuthandizilani ocoka mu zipatala kumene muzatengelako mbali.

Comaliza ndi kuti inuyo, muzapeleka kkadi la mwana wanu kwa othandizila amu cipatala kuti alembeko kaphimidwe ka mwana.

Zoopsya

Kulibe zoopsya kapena zobvuta pamene muli kuthengako mbali za maphunzilo amenewa.

Phindu

Pambuyo potengako mabali, muzaziwa muyeso wanu muzolembedwa ndi zowerenga ndimumene zithandizira kukhudza umoyo wa mwana wanu. Kenaka muzaziwanso mbali za cikkadi ca mwana wanu cimene cikuphatsani vuto ndi mumene anene agwilako nchito mu zipatala angakhuthandizileni.

Chisinsi

Zimena zizacoka mu maphuzilo awa kamba ka inu kuthengako mbali zizkhala za chisinsi cacikulu. Zimuzaziwika mu njila iriyonse ndipo zolembedwa zanu zizabbisala mu ma talanki okomedwa ndi maloko ndipo zizaocedwa maphunzilo akatha cabe.

Malipilo

Simuzhalipilidwa kamba kothengako mbali mu zamaphunzilo amenewa.

Kulipilidwa kamba kozipweteka pothengako mbali

Ngati mwazipweteka pothengako mbali mu zamaphunzilo awa, simuzalipilidwa.

Kuthengako mbali kozipeleka

Kuthengako mbali mu za maphunzilo amenewa nkozipeleka cabe kopanda kulipilidwa. Mungate kusiya kutengako mbali pa nthawi iliyonse kopanda cilango.

Ngati muli ndi mafunso pa zamaphunzilo awa, mukonza kufunsa kwa:

1. Arnold Mumena 22 Katyetye Street Chilenje South Lusaka foni **0977 982077, 0977 897964** e-mail aamumena2002@yahoo.co.uk7arnold2008@gmail.com
2. ERES CONVERGE 33 Joseph Mwila Road Rhodes Park. Lusaka. foni **0955 155 633**
e-mail eresconverge@yahoo.co.uk

Appendix D

The Informed Consent Form

Dear Respondents,

My full names are **ARNOLD MUMENA**. I am currently a student at the University of Zambia pursuing a Masters degree in Literacy and Learning. This research is a major requirement for me to complete my programme. In one sense, this exercise is therefore purely academic.

(1) Purpose

The researcher wants to assess the levels of maternal health literacy and its effects on child health promoting behaviours among post-natal mothers in selected clinics in Lusaka district and Mazabuka districts. The researcher has keen interest in knowing the strategies which post natal mothers use in managing child health. Furthermore, the researcher wishes to find out the strength of association between maternal health literacy and child promoting behaviours.

Taking part in this study is voluntary. You are free to decline to participate in this exercise.

(2) Voluntary participation

Participation in this study is on voluntary basis. You are free to withdraw from the study at any time without any repercussions. You are also free not to answer any questions you may deem personal or otherwise.

(3) Confidentiality

All data collected from this research will be treated with high confidentiality. Participants are assured that they will remain anonymous and untraceable.

(4) Rights of participants

Rights of participants will be protected and respected. No harm will be suffered by participants as a result of taking part in this study. Participants will be free to seek clarification on anything they feel uncomfortable about during the course of the research.

(5) Declaration of Consent

I have read. I fully understand this document. Therefore, I agree/disagree to participate in this study.

Signature.....Date...../.....2013.

Appendix E

Citonga Informed Consent Form

Kuzumina kutolako lubazu

Imebo izina lyangu ndime **ARNOLD MUMENA**. Ndisichikolo wa lwiyo lwa ambele acikolo ca university ya mu Zambia. Kwa ino ndiyya lwiyo lwa kuzhiba zyakubala akwiya mu laka mboubelesgwa. Ndiyanda kuzhiba masimpe amutwe wa makani utegwa; lwiyo lwa bamatumbu lulakonzya kukulwaizya buumi bwa bana basyonto mu zibadela zyasalwa mu chilikiti ca Lusaka amu dolopo lya mazabuka. Oku kuyandaula zya masimpe nchibela cimwi ciyomaninizya lwiyo. Abobo oyu mulimo ngwalwiyo kunyina cimbi pe.

Muzezo wa lwiyo

Muzezo wa lwiyo ngwa kusunka bamatumbu mwelwe wa luzhibo lwa kubala kujatikizya buumi ambo bo kulaizya buumi bwa bana basyonto. Cimwi nkuyanda kuzhiba nzila zibelesya ba matumbu mukukulwaizya bumi bwa bana basyonto. Camanino nkuyanda kuhiba kuti na kuli ciliko akati ka luhibo lwa ba matumbu lwa kubala na kulemba anzila nzyebabelesya kukulwaizya bumi bwa bana basyonto.

Kutola lubazu kwakulipa

Kutola lubazu mu zyalwiyo oolu nkwakulipa nobukamwini. Mulangulukidwe kucileka kufumbwa ciindi kakunyina aciyocitika. Kuti kakuli mibuzyo njemuyeyela kuti iguma ku zya buntu bwenu twalomba mutavwili.

Kuzumina

Ndabala alimwi ndamvwa. Nkokuti ndazumina/antela ndakaka kutolako lubazu muzyalwiyo olu.

Kusaina/Cigumo.....buzuba.....(ubwezako lubazu).

Appendix F

Cinyanja Informed Consent form

Kuvomera kutengako mbali

Mazina anga ndine **ARNOLD MUMENA**. Ndiphunzila pa University of Zambia. Ndiphunzila maphunzilo a zolembe ndi kuwerenga. Kufufuza kumeneku nkofunikila kuti ndikwanilise zofunikila kusilizitas maphunzilo amenewa. Conde zocita izi ndi za maphunzilo cabe.

Lingo la maphunzilo amenewa

Lingo la maphunzilo ndi kuziwa muyeso wa kuwerenga ndi kulemba kwa azimai ndi mumene ukudza umoyo wa ana angono muzipatala zingono zingono zosankidwa mumaboma a Lusaka ndi Mazabuka. Wophunzila, akufuna kuziwa njila zimene azimai asewenzetsa kukhuza za umoyo wa ana awo. Ndiponso afunanso kudziwa ngati paliko zogwilizana pakati pa kuziwa kuwerenga ndi kulemba kwa azimai ndi kakhudzidwe ka umoyo wa ana.

Kuthengako mbali kozipeleka

Kuthengako mbali mu za maphunzilo amenewa nkozipeleka cabe kopanda kulipilidwa. Mungate kusiya kutengako mbali pa nthawi iliyonse kopanda cilango.

Kunena kuti ndavomera kutengako mbali

Ndawerenga ndipo ndavetsetsa zakambidwa. Conde ndavomera/sindinavomere kutengako mbali mu zamapunzilowa.

Ndasaina/kapena kufaka cikumo.....sikuy ya.....(wotengako mbali)

Appendix G

A Questionnaire administered to Post-natal mothers

Dear Respondents,

My names are **ARNOLD MUMENA**. I am a postgraduate student at the University of Zambia currently pursuing a Master of Education Degree in Literacy and Language Learning. I am conducting a research on the topic; **The effect of Maternal health Literacy on Child health promoting behaviours selected clinics in Lusaka and Mazabuka Districts.**

You are kindly requested to participate in this research by responding to the questions raised in the questionnaire.

All the responses will be taken as strictly classified. This study is purely for academic purposes and not meant to cause you any mental or physical harm. I consequently encourage you to be free when providing your answers.

INSTRUCTIONS

- I. Do not write your name on this questionnaire.
- II. Please answer the questions by putting a tick (✓) in the brackets provided next to the answer of your choice and by writing the answers in the spaces provided.

Section 1: Background information

(1) Mother #.....at.....clinic/hospital.

(2) Age

(3) Ethnic group/tribe.....

- a) 18 - 22 years
- b) 23 –27 years
- c) 28- 32 years
- d) 33-37years
- e) 38- 42years
- f) 43 - 47 years

(4) Education level(5)Age of Child at last birthday

- a) None (no schooling)
- b) Basic G 9
- c) High school Grade 10 – 12
- d) Tertiary (diploma)
- e) Tertiary- Bachelor’s /Master’s / Doctorate./Proff

(6) Child’s Immunization(7) Child’s weight

- a) Immunized (a) Below normal
- b) Not immunized (b) Normal
- (c) Above normal

Section 2: Child Health promoting behaviours

1. What is your understanding of child health?

.....
.....

2. What activities do you perform in order to manage your child's health?

.....
.....

3. What are the benefits of immunization?

.....
.....

4. What are the benefits of good nutrition?

.....
.....

5. What is your understanding of the Weight for age graph on the Children's clinic card?

.....
.....

6. What are the benefits of Vitamin A supplementation?

.....
.....

7. What is the importance of deworming?

.....
.....

8. What are the disadvantages of not having your child vaccinated?

.....
.....
9. Do you understand the information displayed on the Children's clinic card?

.....
.....

10. If your answer to question 9 above is No, how could you be helped to understand the information displayed on the Children's clinic card?

.....
.....

Thank you for completing this Questionnaire. We value your participation in this study.

For any observations or comments you may contact

1. The Principal Investigator, Mr Arnold Mumena, 22 Katyetye Street, Chilenje South
Lusaka. Tel 0977 982 077, 0977 897 964. e-mail aamumena2002@yahoo.co.uk

7arnold2008@gmail.com

2. ERES Converge 33 Joseph Mwilwa Road Rhodes Park, Lusaka. Tel 0955 155 633, 0966
765 503. E-mail eresconverge@yahoo.co.uk

Appendix H

Citonga Questionnaire administered to post-natal mothers

Imibuzyo ya bamatumbu

Nomuyandwa nobasikwingula,

Imebo izina lyangu ndime **ARNOLD MUMENA**. Ndisichikolo wa lwiyo lwa ambele acikolo ca university ya mu Zambia. Kwa ino ndiyya lwiiyo lwa kuzhiba zyakubala akwiya mu laka mboubelesgwa. Ndiyanda kuzhiba masimpe amutwe wa makani utegwa; lwiyo lwa bamatumbu lulakonzya kukulwaizya buumi bwa bana basyonto mu zibadela zyasalwa mu chilikiti ca Lusaka amu dolopo lya mazabuka

Mwalombwa kuti mutoleko lubazu mu mulimo wa ku guntauzya masimpe amutwe wa makani aya kwinda mukuvwila mibuzhyo yapegwa.

Kwinguzi kwanu kuyoba kwamaseseke. Oku ku guntauzya kwa kutolabuyo ambele lwiiyo kwalo. Kunyina cimbi pe. Kunyina momuya kulicisa amubili antela kunyonganizigwa mizezo akambo kakubwezako lubazu abobo mwalombwa kutegwa mujane kwanguluka nomuvwila mibuzyo eeyi.

Kulailila

Mutalembi izhina lyenu awa

Mwalombwa kuvwila mibuzho kwiinda mukukwenyuna akati ka twengwe tobilo antela kwiinda mukulemba kwingula kwanu mu masena apegwa.

Cibela cakusanguna: bube bwa bwamutumbu

(1) Mutumbu wabubale.....wakucibadela citegwa.....

(2)Myaka ya kuzyalwa (3) Musyobo

a) Akati ka khumi a lusele a makumi obile amyaka yobile 18 - 22 years []

b) Akati ka makumi obile ayotatwe a makumi obile a ciloba 23 –27 years []

c) Akati ka makumi obile a lusele amakumi otatwe a yobile 28- 32 years []

d) Akati ka makumi otatwe ayotatwe a makumi otatwe a ciloba33-37years []

e) Akati ka makumi otatwe a lusele a makumi one ayobile 38- 42 years []

f) Akati ka makumi one ayobile ayobile a makumi one a cisambomwe43 – 47years []

(4) Myaka ya kuzyala ya mwana kuzwa kubala kwalino.....

(5) Mwelwe wa lwiyo

a) Kunyina lwiyo []

b) Bbuku lya Fwuka []

c) Bbuka lya ka khumi lyomwe a khumi lyomwe a obile []

d) Kwinda bbuku lya khumi a obile lwiyo lwa zya nchito mu myaka yobile antela yotatwe []

e) Lwiyo lwakusanguna, lwabili antela lwatatu ku cikolo cipati ca university []

(6) Kuyaswa ndonga zikwabilila malwazi abana

a) wakayaswa zyonse []

b) kunyina nakayaswa []

(7) Bulemu bwa mwana

a) buli ansi kapati []

b) mbobwelede kuba []

c) buli atala ambobwelede kuba []

Kukulwaizya bumi bwa mwana

1. Nchinzi nchemuzhi azyabumi bwa bana?

.....
.....

2. Nzintunzi nzyemucita kutegwa imwana wenu akhale abumi bubotu?

.....
.....

3. Mubotu nzi bujanwa mukuyasisa mwana ndonga zikwabilila malwazi?

.....
.....

4. Hena nchinzi nchemuzhi azya busani bubotu bwa bana?

.....
.....

5. Nchinzi nchemuzi akengwe katondezya bulemu bwa mwana a cikkadi ca

mwana cakucibadela?

.....
.....

6. Mbulumbunzi buliko kupa bana Vitamin A yakuyungizya?

.....
.....
7. Akambo kanzi bana ncobeledede kupegwa musamu wakugusya inzoka zyamwida

.....
.....
8. Kuti mwana tanapegwa musamu ukwabilila bulwazi bwa polio inga wabanzi?

.....
.....
9. Zinji zilembedwe a cikkadi cakucibadela ca mwana wenu. Hena mulazimvwisisya kabotu?

.....
.....
10. Kuti bwinguzi bwenu atala awa mbwakuti tamumvwisisisi kabotu inga mwagwasigwa buti kutegwa kamumvwisisiya?

.....
.....
Twamulumba kapati nobatumbu nkambo mwavwila mibuzyo. Kutola lubazu kwanu ncintu cipati. Kuti kamuli azyakwamba antela zyakubuzya zijatikizya lwiyo olu mulakonzya kubuzya bantu aba balembedwe awa:-

1. Mr Arnold Mumena, 22 Katyetye Street, Chilenje South Lusaka. Tel 0977 982 077, 0977 897 964. or e-mail 7Arnold2008@gmail.com/aamumena2002@yahoo.co.uk
2. ERES Converge 33 Joseph Mwilwa Road Rhodes Park, Lusaka. Tel 0955 155 633, 0966 765 503. E-mail eresconverge@yahoo.co.uk

Appendix I

Cinyanja Questionnaire

Mafunso anapatsidwa kwa azimai

Okonedwa oyanka mafunso,

Mazina anga ndine **ARNOLD MUMENA**. Ndine mwana wa sukulu pa ukulu yocedwa University of Zambia. Mapunzilo anga akufunisisa kuziwa mumene umoyo wa ana angono ungapitilile patsogolo kupyolela mukuziwa ku werenga ndi kulemba kumbali ya azimai. Kuziwa zimenezi kuzatandizila kuti nditsilize maphunzilo anga. Lingo lake ndimapunzilo cabe.

Mwapempedwa kutengako mbali mu nchito imenei yofufuza zilipo za kaziwidwe kakuwerenga ndi kulemba ndi mumena kukhuza umoyo wa ana angono, kupyolela mukuyanka mafunsowa.

Kuyanka kwanu kuzakala kwa chisinsi. Kufufuzafufuza komweku nkopeleka cabe maphunzilo.

Kulibe cina. Simuzazipweteka kapena kusokonezeka maganizo cifukwa cotengako mbali. Conde mwapempedwa kukhala omasuka poyanka mafunso.

Zocita

Osalemba zina lanu apa

Mwapempedwa kuyanka mafunso kupitila mukucongako pakati pa tumizele toimilila kapenda kulemba mumalo apatsidwa.

Coyamba: za azimai athu

(1) Muzimai wakawerengelo kolengeza.....wakucipatala cecedwa.....

(2) Zaka zobadwa

(3) Mutundu.....

- a) Pakati pa khumi ndi zisanu ndi zitatu ndi makhumi awiri ndi ziwiri 18 -22 years []
- b) Pakati pa makhumi awiri ndi zitatu ndi makhumi awiri ndi zisanu ndi ziwiri 23 – 27 years []
- c) Pakati pa makhumi awiri zisanu ndi zitatu ndi makhumi atatu ndi ziwiri 28 – 32 years []
- d) Pakati pa zaka makhumi atatu ndi zisanu ndi makhumi atatu ndi zisanu ndi ziwiri 33 – 37 years []
- e) Pakati pa zaka makhumi atatu ndi zisanu ndi zitatu ndi makhumi anai ndi ziwiri 38 -42 years []
- f) Pakati pa zaka makhumi anai ndi ziwiri ndi makhumi anai ndi zisanu ndi chimodzi 43 – 47years []

(4) Maphunziro(5)Zaka zobadwa za mwana kuwerengela

kuonjezerapo kwa tsopano lino.....

- a) Kulibe maphunzilo []
- b) Buku la zaka zisanu ndi zinai []
- c) Buku la khumi limozi ndi khumi limozi ndi ziwiri []
- d) Kupitilila maphunzilo a buku za zaka khumi limodzi ndi ziwiri maphunzilo azinchito a zaka ziwiri kapena zitatu antela yotatwe []
- e) Maphunzilo oyamba , aciwiri, kapena acitatu ku sukulu lopambana la university []

(6) Kulandila katemela

(7) Kanamwina

a) Analandila mokhwanila []

a) Ndi kwapanisi kwambili []

b) Sanalandile []

b) Kuyenekela khukala conco []

c) Ndi kwapamwamba mopitilila []

Kukhuza za umoyo wa ana

1. Mumvetsapo ciani pamau ya umoyo wamwana wakhanda caka cimodzi kufika zaka zisanu

.....

2. Ndingacitepo ciani kuti ndikwanilitse bwino-bwino umoyo wa mwana?

.....

3. Ndi ubwino uti wamene tingapeze ngati mwana alandira katemera kucipatala?

.....

.....

4. Ndi ubwino uti wamene tingapeze popatsa ana zakudya zopatsa thanzi?

.....

.....

.....

5. Timvetsa ciani pakalembedwe ka anamwina ngati tapeleka ana ku anda faifi?

.....

.....

6. Timvetsa ciani ngati mwana apatsidwa katemela ya Vitamini A?

.....

7. Ubwino wakupatsa ana mankwala ansokanda ndi uti?

.....

8. Tingapeze mabvuto oti ngati sitipeleka ana kukatemela ya polio?

.....

.....

9. Tikawelenga ndi kutantauza zolembedwa pa anada faifi khadi ya mwana timvetsa zomwe zalembedwapo?

.....

10. Ngati mwayankha **iai** pa funso la zisanu ndi zinai mungathe kuthandizidwa bwanji kuti mumvetse?

.....

.....

Zikomo kwambili pothandiza kuyankha. Ngati muli ndi zokambapo mumene nchito yokhuza maphunzilowa ikuyendela, uzani antu awa:-

1. Mr Arnold Mumena, 22 Katyetye Street, Chilenje South Lusaka. **Tel 0977 982 077, 0977 897 964, or e- mail 7Arnold2008@gmail.com/aamumena2002@yahoo.co.uk**

1. ERES Converge 33 Joseph Mwilwa Road Rhodes Park, Lusaka. **Tel 0955 155 633, 0966 765 503. e-mail eresconverge@yahoo.co.uk**

Appendix J

The Children's clinic card

Appendix K. The Child Health Reading Comprehension Test

The Child Health Reading Comprehension Test

Post-natal mother #.....clinic/hospital.....Date.....

1. What is the name of the drug used for deworming children every 6 months called?
 - (a) Mebendazole
 - (b) Panadol
 - (c) Aspirin
 - (d) Cotrimoxazole
2. Immunization against Tuberculosis (TB) BCG is given
 - (a) After 1 year
 - (b) 1 week after birth
 - (c) 2 years after birth
 - (d) At birth
3. Which of the following is a child not immunized against?
 - (a) Measles
 - (b) Diphtheria
 - (c) Diarrhoea

- (d) Tetanus
4. Which of the following is given as a supplement to children?
- (a) Vitamin D
- (b) Vitamin A
- (c) Vitamin B
- (d) Vitamin E
5. How long should young children be exclusively breast-fed?
- (a) The first seven months
- (b) The first eight months
- (c) The first six months
- (d) The first five months
6. Mrs Jilowa's child has diarrhoea. She continues breast feeding her child. In addition to this, what other three things is she supposed to do?
- (a) Give ORS, extra fluids and continue to feed the child.
- (b) Give nshima, freezits and fritters.
- (c) Give ORS, fanta and coca cola.
- (d) Give ORS, water and popcorn.
7. A child has a cough with fast breathing, difficulties in breathing and breast-feeding. This child may have
- (a) Diarrhoea
- (b) Pneumonia
- (c) Tetanus
- (d) Measles

8. If you were the Mother to the Child in (7) above, what would you immediately do?
- (a) Go immediately to the nearest health centre.
 - (b) Give the child ORS.
 - (c) Bath the child in cold water.
 - (d) Take the child to the nearest native doctor.
9. The direction of the line showing the child's growth is going down. This is a very dangerous sign because the child may be ill and in need of extra care. The child is 4 years old. As a mother, how would you feed this child?
- (a) 1 main meal and 2 snacks per day
 - (b) 1 main meal and 3 snacks per day
 - (c) 3 main meals and 3 snacks per day
 - (d) 3 main meals and 2 snacks per day
10. It is important to feed a child who is between 4 and five years of age ...
- (a) A balanced diet
 - (b) Eggs and meat only
 - (c) Vegetables and nshima only
 - (d) Beans and porridge only.

Appendix L: The Rapid Estimate of Adult Literacy in Medicine

REALM-RAPID ESTIMATE OF ADULT LITERACY IN MEDICINE (REALM)

Post natal Mother # Clinic/hospital.....

infant	breathing	vitamins
fluids	meningitis	rehydration
polio	illness	complementary
dosage	infection	stool
weight	symptom	variety
positive	behaviour	medication
diphtheria	prescription	breastfed
oedema	hygiene	vaccination

germs	porridge	Beans
meals	calories	formula
disease	extra	hepatitis
age	feeding	delivery
groundnuts	kwashiorkor	diagnosis
exclusively	growing	tuberculosis
dilute	nutrition	Anemia
care	inadequate	malaria
supplementation	positive	marasmus
cough	mebendazole	years
pneumonia	milk	Children

whooping cough	status	test
measles	deworming	Clinic
weight	diarrhoea	Tetanus

List 1

List 2

List 3

Score

List 1 _____

List 2 _____

List 3 _____

Raw Score _____ Reading level.....

Examiner.....Date:.....

Appendix M.Introductory letter from the University of Zambia.....

Appendix N. Clearance from the Ethics Committee.....

**Appendix O.Introductory letter from Ministry of Community Development Mother and
Child Health.....**

Appendix P. Introductory letter from Lusaka District Health Management office.....

Appendix Q. Introductory letter from Mazabuka District Health Management office.....

Appendix R. Budget.....

Activity Budget			
Consolidation of Literature	Items/ Participants	Unit Cost (ZMK)	Total Cost (ZMK)
Designing and development of Research Instruments	Typing and photocopying of research instruments	5,000	5,000
Data collection	Transport and lunch for 5 research assistants in Lusaka and Mazabuka for 10 days	3000	15,000
Orientation of health personnel – data collection tools	5 days	2000	2000
Travel to Mazabuka	Transport and lodging	360	3600
Printing and binding of Research Report	Stationery and photocopying	2000	2000

Main field data collection (1 month)	Allowances for medical personnel	5,000	5,000
Data processing and Report Writing	SPSS Consultancy	1,500	1,500
Purchases	1 printer	2000	2000
	1 laptop	6000	6000
10% Contingency and institutional costs		4,500	4,500
			49, 500

Appendix S. Schedule.....

Task	Dates/Day/s/ Week/s	Months	Personnel
Finalize research proposal for submission	Week 1	April	Personal
Seek permission from relevant authorities	Week 1	April	Personal
Make corrections to the proposal after approval	Week 2	April	Personal
Data collection	Week 3	April	Research team
Data analysis	Week 2	May	Personal
Report writing	Week 3	May	Personal
Corrections of research report	Week 4	May	Personal
Finalization of the report and discussion with the supervisor	Week 3	June	Personal/Supervisor
Submission of complete report	Week 4	June	Personal

