

**EVALUATION OF THE IMPACT OF
EDUCATIONAL INTERVENTION ON
TRADITIONAL BELIEFS, KNOWLEDGE,
ATTITUDE AND PRACTICE ABOUT
CHILDHOOD DIARRHEA AND ITS
MANAGEMENT AMONG MOTHERS IN
MORANG, NEPAL**

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MORANG, NEPAL**

BY

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**Thesis submitted in fulfillment of the
requirements for the degree of
Doctor of Philosophy**

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DEDICATION

I dedicate this work to my beloved parents, wife and daughter. My entire academic achievements together with this piece of work were made possible due to my father's continuous encouragement on my education despite numerous hardships at various stages of his life.

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ABBREVIATIONS

A-Score = Attitude Score

CB-IMCI = Community Based Integrated Management of Childhood Illness

CDD = Control of Diarrheal Disease

DDA = Department of Drug Administration

DoHS = Department of Health Services

DPHO = District Public Health Office

F/U = Follow up

FGD = Focus Group Discussion

HBM = Health Belief Model

HP = Health Post

IDI = In Depth Interview

IQR = Interquartile Range

KAP = Knowledge, Attitude and Practice

K-Score = Knowledge Score

MoHP = Ministry of Health and Population

NDHS = Nepal Demographic and Health Survey

NGO = Non Governmental Organization

ORS = Oral Rehydration Solution

PHC = Primary Health Centre

P-Score = Practice Score

SHP = Sub Health Post

SPSS = Statistical Package for Social Sciences

SSW = Salt Sugar Water

TCA = Thematic Content Analysis

UNICEF = United Nations International Childrens' Emergency Fund

VDC = Village Development Committee

WHO = World Health Organization

**PENILAIAN IMPAK INTERVENSI PENDIDIKAN KE ATAS
KEPERCAYAAN TRADISIONAL, PENGETAHUAN, SIKAP DAN AMALAN
TENTANG DIAREA KANAK-KANAK DAN PENGURUSANNYA DALAM
KALANGAN IBU-IBU DI MORANG, NEPAL**

ABSTRAK

Diarea adalah merupakan masalah global termasuk Nepal and juga penyebab kematian kanak-kanak yang kedua tertinggi serata dunia. Di Nepal, diarea masih menjadi masalah yang biasa dan ia adalah aspek utama negara walaupun usaha kerajaan untuk mengurangkan mortaliti kanak-kanak di bawah umur lima tahun secara signifikan melalui pelaksanaan program Kawalan Penyakit Diarea Kanak-Kanak. Kajian ini telah dijalankan dengan objektif untuk menilai kepercayaan, pengetahuan, tingkahlaku dan praktis ibu-ibu tentang diarea kanak-kanak dan pengurusannya dengan tujuan akhir untuk mengurangkan morbiditi dan mortaliti kanak-kanak berkaitan diarea. Kajian keseluruhannya merupakan satu campuran kaedah kualitatif dan kuantitatif dan ia telah dilaksanakan dalam tiga fasa. Fasa 1 dan 3 berbentuk kualitatif melibatkan Perbincangan Kumpulan Fokus dan Temu ramah Secara Mendalam untuk menentukan kepercayaan ibu-ibu dan halangan tentang diarea dan pengurusannya masing-masing pada peringkat pra dan pos intervensi. Enam belas peserta telah dipilih dengan tujuan tertentu bagi setiap fasa kajian. Kajian fasa 2 adalah berbentuk kuantitatif, dengan intervensi, rabun satu pihak dan kajian kawalan secara rawak melibatkan 632 subjek yang telah dipilih secara rawak. Intervensi telah dijalankan dengan bantuan protokol dengan intervensi yang telah direkabentuk secara khas. Data berkaitan pengetahuan, tingkahlaku, dan praktis berkaitan diarea dan pengurusannya telah dikumpul melalui soal selidik yang

dilakukan oleh penemuramah dan telah diprauji. Terdapat kepercayaan yang berbagai dalam kalangan ibu-ibu mengenai pengkelasan diarea, tanggapan dari segi penyebabnya dan pengurusannya yang mana bertambah baik secara signifikan melalui intervensi pendidikan berterusan. Selain itu, terdapat berbagai halangan terhadap pengamalan aktiviti kesihatan yang disarankan yang juga menghadkan tingkahlaku positif dan aktiviti kesihatan. Kebanyakan kanak-kanak yang mengalami diarea tergolong di dalam lingkungan umur 10-18 bulan dan 37-45 bulan. Kebanyakan ibu-ibu (75%) adalah muda (21-30 tahun), tidak berpendidikan (>60%) dan terlibat dalam aktiviti peladangan sebagai buruh (93-94%). Purata (median) pendapatan isi rumah sebulan adalah US\$73.10 bagi median saiz keluarga seramai 5 orang. Pada tahap awal, nilai median (jurang inter-quartil) pengetahuan, tingkahlaku dan praktis ibu-ibu tentang diarea dan pengurusannya adalah 14 (12-15), 7 (6-8) dan 6 (5-7) masing-masing. Skor pengetahuan dan tingkahlaku ibu-ibu berkaitan diarea dan pengurusannya didapati berkait secara signifikan dengan pendapatan bulanan isi rumah, pendidikan, bangsa dan pekerjaan ibu-ibu. Analisis ukuran berulang impak intervensi berterusan dalam kumpulan ujian didapati pertambahan baik secara signifikan dari segi skor pengetahuan, tingkah laku dan praktis pada setiap temu janji susulan. Intervensi turut juga menyebabkan perubahan yang signifikan dari segi pengetahuan, tingkah laku dan praktis di antara kumpulan ujian dan kawalan pada setiap temu janji susulan. Walaupun ukuran mortaliti dan morbiditi tidak boleh digunakan sebagai replikasi tepat data yang sebenarnya dalam populasi yang dikaji, ia bertujuan untuk mengkorelasi keberkesanan intervensi pendidikan berterusan ke atas morbiditi dan mortaliti kanak-kanak. Intervensi pendidikan berulang terbukti membawa perubahan yang signifikan dalam

kalangan ibu-ibu dari segi kepercayaan tradisional, pengetahuan, tingkahlaku dan praktis tentang diarea dan pengurusannya.

**EVALUATION OF THE IMPACT OF EDUCATIONAL INTERVENTION
ON TRADITIONAL BELIEFS, KNOWLEDGE, ATTITUDE AND
PRACTICE ABOUT CHILDHOOD DIARRHEA AND ITS MANAGEMENT
AMONG MOTHERS IN MORANG, NEPAL**

ABSTRACT

Diarrhea is a global problem including Nepal and it is the second leading cause of child death worldwide. In Nepal, diarrhea is still a common problem and is a national priority despite the government's efforts to reducing mortality for children under five through implementation of a childhood diarrheal diseases control program. The study was conducted with the objective of evaluating mothers' beliefs, knowledge, attitudes and practices about childhood diarrhea and its management with the final intention to reduce childhood diarrhea mortality and morbidity. The entire study was a mixture of qualitative and quantitative methods and it was accomplished in three phases. Phases 1 and 3 were qualitative in nature which involved Focus Group Discussions and In-Depth Interviews for determining pre and post interventional mothers' beliefs and barriers about diarrhea and its management respectively. Sixteen participants were purposively selected for each of the two phases of the studies. The phase 2 study was a quantitative, interventional, single blinded and randomized control trial which was conducted among 632 randomly selected subjects. Interventions were carried out with the help of specially designed intervention protocols. However, data on mothers' knowledge, attitudes and practices of diarrhea and its management were collected through a pre tested interviewer administered survey type questionnaire. There were diverse beliefs among the mothers about classifying diarrhea, their perceived causes and management which were significantly improved through

successive educational interventions. Besides these, there were various barriers toward adopting the recommended health actions which were also narrowed down along with positive attitude and health actions. Most of the children with diarrhea were from two age groups, i.e. 10-18 months and 37-45 months. A majority (75%) of the mothers were from an age group (21-30 years), uneducated (>60%) and were involved in farming as labor (93-94%). There was a median monthly household income of US \$ 73.10 for a median family size of five. At baseline, the median (inter-quartile range) of mothers' knowledge, attitudes and practices about diarrhea and its management were 14 (12-15), 7 (6-8) and 6 (5-7) respectively. Mothers' Knowledge and attitude scores about diarrhea and its management were significantly linked with household monthly income, mothers' education, ethnicities, and occupation. A repeated measures analysis of the impact of successive interventions in test groups found significant improvements in knowledge, attitude and practice scores at each follow up. Similarly, interventions caused significant differences in knowledge, attitude and practices between test and control groups at each follow up. Although measures of morbidity and mortality cannot be the exact replication of the actual data in the study population, it was intended to correlate the effectiveness of successive educational interventions on childhood morbidity and mortality. Repeated educational interventions brought out significant improvements in mothers' traditional beliefs, knowledge, attitudes and practice about diarrhea and its management.

CHAPTER I

GENERAL INTRODUCTION

1.1 Background

Diarrhea is a global problem accountable for about 2 million deaths annually among children under five and is the second leading cause of child deaths worldwide (Saeed, 2007). Diarrhea is one of the top 10 diseases of Nepal responsible for childhood morbidity and mortality (Littlewood & Pokhrel, 1999; MOHP, 2011). Diarrhea is progressively a major public health problem in Nepal as evident from its increasing incidence and fatality. A three year comparison of the monthly trend of diarrhea indicates that new cases of diarrhea are seen more during the months of April, May, June and July. As these four months of the year are the indicative of summer season, it is obvious that diarrhea related childhood morbidity and mortality are high during summer season (DoHS, 2009).

Unlike other diseases, diarrhea is generally not considered as an illness and, thus most of the diarrheal cases are either not managed at all or managed at home in a traditional way (Jintrawet & Harrigan, 2003; Nuruddin, et al., 2009; Mwambete & Joseph, 2010). Seeking healthcare is desired only if the condition becomes 'life threatening' (Mbonye, 2003; Tinuade, et al., 2010). Mothers living in rural areas of Nepal are mostly either not educated at all or have a very low level of education. In general, the higher the maternal education, the more knowledgeable she is about her child's healthcare and the utilization of health facilities (NDHS, 2006). Thus, not only the low level of maternal education and the tendency of prioritizing local/traditional approaches, but also the poverty and lack of awareness might be the

major determinants of child morbidity and mortality in Nepal (WHO/UNICEF, 2004; NDHS, 2006).

According to the WHO, ORS and other suitable fluids including salt sugar water (SSW) solution are the bases of managing diarrheal episodes (WHO, 2005). There is an association between maternal education and the WHO guidelines for managing diarrhea. It has been found that the higher the educational attainment among the mothers, there is a higher percentage using ORS during diarrhea. Conversely, there is a decreasing order of using SSW solution with increases in maternal educational status. At the same time, there are more discrepancies about the correct preparation and use of SSW solution as compared to ORS (Paudel, et al., 2005; Vyas, 2009). Thus, it necessitates more educational interventions to the villagers where mothers are generally not educated or less educated.

Nepal is a multi-cultural, multi-linguistic and multi-religion landlocked small country sandwiched between two huge countries; China in the north and India in the east, west and south. Nepal is rectangular in shape which is elongated from east to west (885 kilometers) and widthwise 193 kilometers from north to south. Agriculture is the main source of livelihood for the majority of the population (NDHS, 2006). In Nepal, the Ministry of Health and Population (MoHP) is the governing authority of the healthcare system. Under the umbrella of MoHP, there are three different departments such as the Department of Drug Administration (DDA), Department of Ayurveda and Department of Health Services (DoHS). The Department of Drug Administration is accountable for regulating and controlling the medicines and related issues within the country. Likewise, the Department of Ayurveda is responsible for the activities related to the traditional ayurvedic therapy (DoHS, 2009).

The Department of Health Services (DoHS) is responsible for delivering preventive, curative and promotive health services throughout the country. The functional framework of the DoHS consists of six divisions including a child health division, five centers and five regional health directorates. Under these regional health directorates, there are 10 zonal hospitals at zone level. Similarly, there are altogether 15 district public health offices, 65 district hospitals and 60 district health offices at district level. Below this hierarchy, there are 214 primary healthcare centers/ health centers (PHC/HC), 679 health posts (HP) and 3,134 sub health posts (SHP) throughout the country. SHPs which are located at Village Development Committee (VDC) level are the first contact point for seeking healthcare for the general population. In the healthcare system, each level above the SHP such as HP, PHC and so on act as a referral point (DoHS, 2009). The diagrammatic representation of the healthcare system of Nepal is depicted in Figure 1.1

1.2 Problem statement

Diarrhea is a common public health concern in Nepal which causes a childhood mortality from 17,000 to 45,000 annually (Adhikari, et al., 2006; Jha, et al., 2006). About 39% of children under five have had diarrhea in Morang district where the study was conducted (Subba, 2005). Dehydration is one of the main consequences of diarrhea and it can be fatal if the child is not properly rehydrated in time. International health related organizations like the World Health Organization (WHO) and United Nations International Children's Emergency Fund (UNICEF) have actually advocated about the role of ORS in diarrhea since its adoption in 1978. Similarly, Ministry of Health and Population (MoHP) Nepal has a special program called Control of Diarrheal Disease (CDD) under Community Based Integrated

Management of Childhood Illness (CB-IMCI) project which is meant to control diarrheal diseases. Diarrhea is still a common problem and is at national priority despite the significant reduction in under five childhood mortality through CDD programs. There can be various contributing factors such as poverty, female illiteracy, poor hygiene practices, inadequate health services and lack of consideration of local cultural beliefs and practices about health and illnesses (Nielsen, et al., 2003; Pokhrel & Viraraghavan, 2004; Sreeramareddy, et al., 2006). The new cases of diarrhea per 1000 among children under five increased from 185 in 2006/07 to 378 in 2007/08, to 488 in 2008/09 at the national level (DoHS, 2009), whereas the figure was 429 in 2007/08, 467 in 2008/09, 527 in 2009/10 in Morang district (DPHO, 2010).

As ORS is the cornerstone for diarrhea and diarrhea related mortality, its use should have been widely disseminated among the community, but this is not the case (Paudel, et al., 2005). The reasons for mothers' lower preference for ORS is due to their negative beliefs about ORS, very poor health promotion and education by pharmacies, public and private healthcare providers and the positive beliefs about traditional practices or traditional healers (leGrand, et al., 1999; Jintrawet & Harrigan, 2003; Paudel, et al., 2005; Quinley & Govindasamy, 2007). Furthermore, there is poor knowledge about the correct preparation and use of ORS among the mothers who use it (Rehan, et al., 2003; Paudel, et al., 2005).

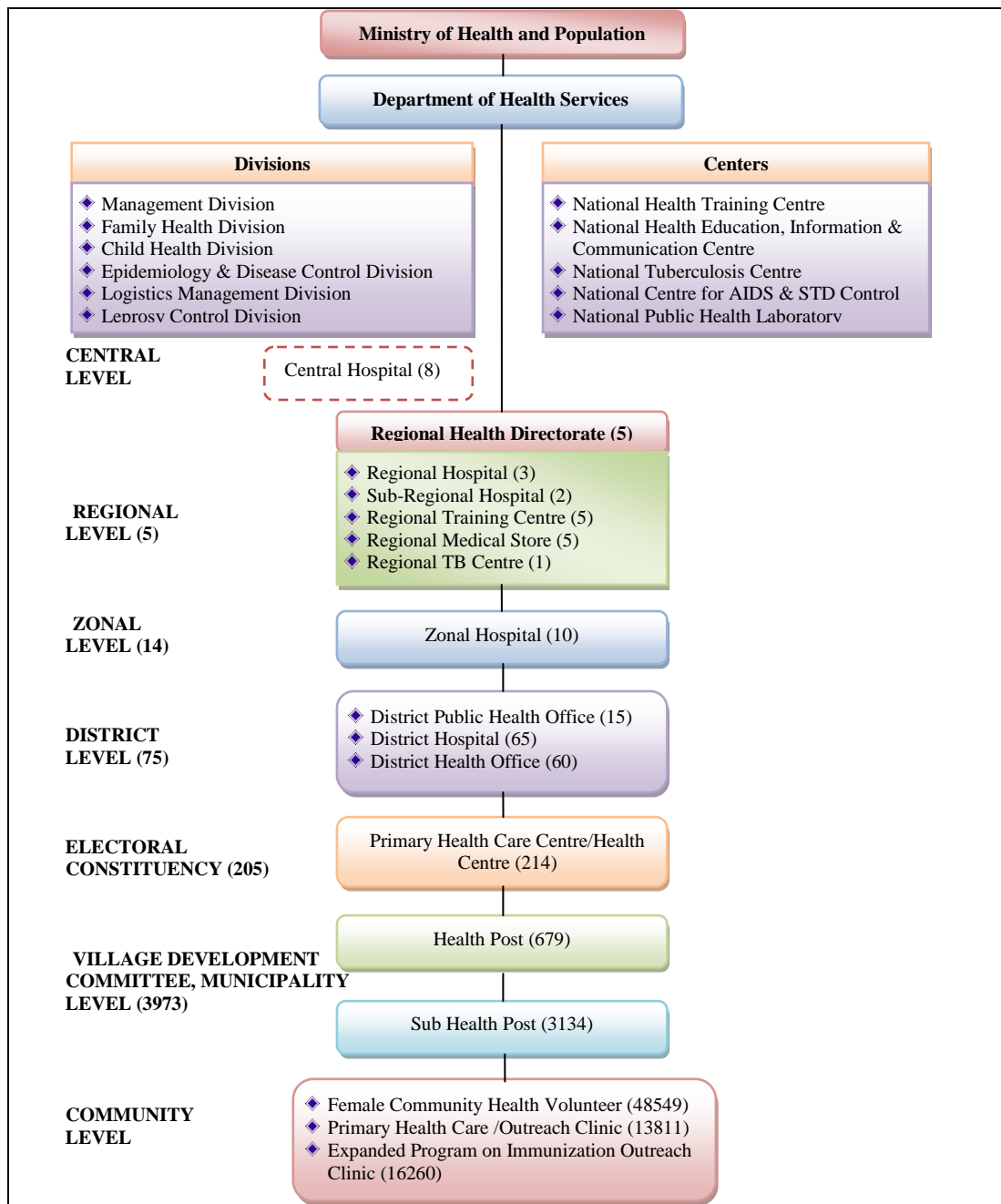


Figure 1.1 Organizational structure of the Department of Health Services, Nepal, (adapted from DoHS, 2009)

1.3 Rationale of the study

The final outcome of the study was to reduce diarrhea related childhood morbidity and mortality through educating mothers. Based on the cultures and traditions, there is diversity in beliefs among mothers about diarrhea and its management. Diarrhea is a highly neglected disease and in fact, it is generally not

considered as a disease. Some mothers believe that diarrhea is beneficial for cleaning the body and even vital for the normal growth and development of children. Due to negligence and varied beliefs, diarrhea has become a major contributing factor for under five child morbidity and mortality. Thus, the topic 'childhood diarrhea' was selected.

About one half of children under five are not taken to any healthcare center and about one third of the children with diarrhea do not receive any treatment at all (NDHS, 2006; Quinley & Govindasamy, 2007). In rural settings, the public are generally not convinced about the quality of care offered by government health institutions which are scarce and poorly facilitated in terms of the equipment and the healthcare providers. Thus, common people are compelled to look for city oriented healthcare which is far from home, too expensive to afford and there is lack of transportation facilities (Edgeworth & Collins, 2006).

This type of extensive interventional study is new and the first in Nepal. The review of literature shows that some diarrhea related studies have been conducted in Nepal which mainly focused on pharmacists and other health professionals (Das, et al., 2005; Khanal, et al., 2009). There is another study conducted in the Sunsari district of Nepal which is concerned with knowledge, attitude and practice of mothers about the management of diarrhea, but the impact of educational intervention was assessed in short time, i.e. after 24 hours (Jha, et al., 2006). As diarrhea is preferably managed at home mainly in rural settings and this kind of extensive interventional study is the first in Nepal, hence the outcomes of the study would significantly improve the home management of diarrhea and reduce childhood morbidity and mortality.

1.4 Overall objectives

The whole study was based on the following objectives:

1.4.1 General objectives

To evaluate mothers' beliefs, knowledge, attitudes and practices about childhood diarrhea and its management.

1.4.2 Specific objectives

1. To determine mothers' beliefs about the locally recognized types of diarrhea, their perceived causes and management approaches.
2. To determine mothers' beliefs about perceived susceptibility and severity of diarrhea, and perceived benefits and barriers about taking recommended health actions.
3. To determine the baseline knowledge, attitude and practice of mothers about diarrhea and its management and to see their relationship with socio-demographic factors.
4. To determine the effect of educational interventions on knowledge, attitude and practice of mothers about diarrhea and its management.
5. To compare the differences in knowledge, attitude and practice of diarrhea management between two intervention groups, i.e. mothers

whose child was suffering from diarrhea at the time of enrollment and mothers whose child had diarrhea in preceding 3-6 months.

6. To analyze the differences in knowledge, attitude and practice about diarrhea management between test and control groups.
7. To determine the incidence of diarrheal morbidity and mortality during the study period.
8. To determine the changes in mothers' beliefs about diarrhea and its management after intervention.

1.5 Significance of the study findings

It is obvious that diarrhea related morbidity and mortality are more common and problematic for the poor people who generally reside in rural and remote areas (Saeed, 2007). In Nepal, a large fraction of people reside in rural and remote areas where there is a lack of education and awareness, inadequate healthcare facilities and a general absence of healthcare providers, poor quality of healthcare, poverty, lack of transportation facilities and dominance of different cultural beliefs and traditional healing practices. In such a circumstance, mothers usually try to manage the diarrhea at home. As the study targeted the mothers who are the immediate care takers, they will be the potential beneficiaries from the study findings. The study is interventional in nature and it is not concerned with financial or infrastructure supports to the mothers. But, it would be helpful in raising health awareness, improving maternal knowledge, attitudes and practices about diarrhea and its management. Ultimately,

the study findings may help to suggest government and health related non-governmental organizations working in the related field to incorporate the study findings while making interventions at a wider level. Diarrhea and its management are under the strong jurisdiction of varied beliefs, barriers and cultural/traditional practices. However, it can significantly be improved through properly designed sustained educational interventions.

CHAPTER II

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 LITERATURE REVIEW

2.1.1 General background

Diarrhea is one of the leading causes of childhood mortality in Nepal (Jha, et al., 2006). The occurrence of diarrhea is more among the children who belong to the family having poor socio-economical condition (Vanderlei & Silva, 2004; Boadi & Kuttunen, 2005; Vu Nguyen, et al., 2006; Ferrer, et al., 2008; Caruso, et al., 2010). Poor hygiene including the habit of disposing stool in unhygienic way is associated with more vulnerability of children with diarrhea (Root, 2001; Bhattacharya, 2003; Heller, et al., 2003; Borooh, 2004; Herbst, et al., 2008). There is a direct correlation between poor food hygiene and the occurrence of diarrhea (Graf, et al., 2008; Takanashi, et al., 2009). Diarrhea in children is not only concerned with the socio-economic status and hygiene related factors, but also with the locality, age and educational status of mothers and even the season. Children of the mothers who are from rural area, young and less educated are more susceptible to diarrhea (El-Gilany & Hammad, 2005; Siziya, et al., 2009). Gender wise, female children are more prone to diarrhea as compared to their male counterpart (El-Azar, et al., 2009).

2.1.2 Mothers' knowledge about childhood diarrhea

Managing diarrhea at home is quite common in rural setting, but the mothers' level of knowledge about its management is very poor despite diarrhea as a pervasive problem (Ogunrinde, et al., 2012). In general, mothers are familiar with poor hygiene including disposal of stool, contaminated water and food items as the major

determinants of diarrhea in children (Rego, et al., 2005; Nguyenac, et al., 2006; Sheth & Dwived, 2006; Herbst, et al., 2008; Abiola, et al., 2010; Mannan & Rahman, 2010). Interventions related to hand washing and improving the quality of water lead to a substantial reduction in diarrheal outbreak (Clasen, et al., 2006; Ejemot, et al., 2008).

2.1.2.1 Mothers' knowledge about danger signs of dehydration

The dehydration due to diarrhea is a major cause of childhood mortality. The risk of dehydration is more pronounced among the children whose mothers are less educated, socio-economically poor and are not aware of ORS (Bachrach & Gardner, 2002; Vu Nguyen, et al., 2006). Mothers' awareness about the danger signs of dehydration is not remarkable (Datta, et al., 2001; Delgado, et al., 2006; Kaatano, et al., 2006).

2.1.2.2 Mothers' knowledge about preparation and use of ORS and SSW solutions

Incorrect preparation and use of ORS solution is a widespread problem among the mothers (Rishi, et al., 2003; Paudel, et al., 2005; Rasania, et al., 2005; Jha, et al., 2006; Kudlova, 2010). Increasing the level of awareness among the mothers about ORS does not necessarily mean that there will be better knowledge about its correct preparation and use (Shah, et al., 2011). Correct preparation and use of ORS solution depend on other factors such as educational status, culture and prior experience (Anidi, et al., 2002; Paudel, et al., 2005; Kudlova, 2010). Surprisingly, some mothers due to lack of knowledge, use fluids other than water for preparing ORS solution (Datta, et al., 2001). Besides ORS solution, there is very poor

knowledge among the mothers about the correct preparation of SSW solution (McLennan, 2002).

Educational interventions lead to a significant improvement in the knowledge about the correct preparation of ORS solution and the management of childhood diarrhea (Mangala, et al., 2001; Winnail, et al., 2001; Haroun, et al., 2010; Pahwa, et al., 2010). But, it is difficult to improve mothers' knowledge about the correct preparation of SSW solution as compared to the ORS solution through intervention (Vyas, 2009). Furthermore, mothers of low socio-economic status are more attentive to the health related educational interventions (Sakisaka, et al., 2010).

2.1.2.3 Mothers' knowledge about foods/fluids during diarrhea

The choice of foods or fluids during diarrhea depends on how the mothers and other family members categorize them and it is under the influence of their beliefs about the individual food or fluid (Ali, et al., 2003). Mothers' knowledge about the beneficial and harmful foods or fluids is poor and variable. Generally foods of cold nature (e.g. curd with rice or turmeric) are considered as beneficial while those of hot nature (e.g. millet and jaggery) as harmful during diarrhea (Singh & Lakshminarayan, 2002).

2.1.3 Mothers' attitude about diarrhea

Attitude plays a pivotal role in adopting a particular health action. Generally, childhood diarrhea is not considered as a disease, but rather it is believed to be helpful in child development (Pylypa, 2009; Nuruddin, et al., 2009). Mothers' perception about the seriousness of diarrhea or other health related conditions is a paramount factor for seeking healthcare. Mothers do not prefer to visit healthcare

centers or ask for healthcare unless they perceive the condition is serious (Adegboyega, et al., 2005). The nature of seeking healthcare is not only under the influence of the perceived seriousness about the illnesses, but also economical condition, ethnicity, mothers' knowledge and educational status (Hong, et al., 2003; Pillai, et al., 2003; El Arifeen, et al., 2008; Huq & Tasnim, 2008). Mothers usually prefer to consult traditional healers or local 'unqualified practitioners (quacks)' as compared to the public healthcare providers for seeking healthcare (Piechulek, et al., 2003; Shah, et al., 2011). Moreover, the preference is also evident in terms of gender. Excitingly, the gender preference is more profound among the educated mothers as compared to the less educated mothers or mothers having no any formal education (Bhan, et al., 2005).

Mothers' attitude about the importance of good hygiene in preventing diarrhea is positively correlated (Takanashi, et al., 2009; Usfar, et al., 2010). Some mothers believe that starvation and restriction of foods have beneficial role in reducing diarrhea (Ahmed, et al., 2009). Despite WHO's promotion for using ORS in diarrhea, there is an explicit pursuance toward the drug therapy both among the caregivers as well as prescribers (Hardcastle, et al., 2000).

2.1.4 Mothers' practices about diarrhea management

There is a common practice of managing diarrhea at home (Strina, et al., 2005). Unlike other diseases, diarrhea is generally not considered as an illness. Thus, most of the diarrheal cases are either not managed at all or managed at home in a traditional fashion (Nuruddin, et al., 2009; Mwambete & Joseph, 2010). Study conducted in an urban slum of Kenya found that the use of herbal preparations is an extremely favored approach for the management of diarrhea (Njoroge & Kibunga,

2007). The demand and choice of healthcare practices depend on economical condition, educational status, and locality of the residence along with the knowledge, attitude and the perceived severity about the illnesses (Ugochukwu, 2002; Ajmal, et al., 2007; Habtom & Ruys, 2007; Webb, et al., 2010; Aremu, et al., 2011). Mothers' practice of managing diarrhea can be improved through sustained health education and consideration of their beliefs about diarrhea and its management (Prohmno, et al., 2006).

2.1.4.1 Mothers' practices about foods and fluids during diarrhea

Mothers have their own beliefs and ways of treating diarrhea at home. There is a practice of reducing and even stopping the fluids during diarrhea (Bani, et al., 2002; McLennan, 2002; Ahmed, et al., 2009; Berisha, et al., 2009). Green banana has been found to have beneficial role in diarrhea. Thus, 'green banana supplemented diet' is used in the management of diarrhea (Rabbani, et al., 2010).

2.1.4.2 Mothers' practices about ORS and SSW solution

Despite universal popularity of ORS solution in preventing dehydration due to diarrhea, its use in practice is distressing (Ahmed, et al., 2009; Berisha, et al., 2009; El-Gilany & Hammad, 2005; Paudel, et al., 2005; Prohmno, et al., 2006; Ogunrinde, et al., 2012). The factors concerned with worrying practice of using ORS are low level of awareness and knowledge, personal perception of not requiring ORS unless very watery diarrhea, refusal by the child, lack of money to purchase, unavailability of ORS packets and the failure to prescribe by the doctors (McLennan, 2002; Morisky, et al., 2002; Forsberg, et al., 2009). The poor practice of using ORS solution is accompanied by its incorrect preparation which is allied with lack of

mothers' prior demonstrative exposure (Ahmed, et al., 2000; Azim, et al., 2005; MacDonald, et al., 2005). Likewise, there is a frequent deficit in preparing SSW solution correctly and completely (Onyema, et al., 2002).

2.1.4.3 Mothers' practices about breast feeding during diarrhea

Though continued breast feeding during diarrhea is important in reducing diarrheal morbidity and mortality in suckling children, its practice is unsatisfactory (Bani, et al., 2002; Mash, et al., 2003; Azim, et al., 2005; Paudel, et al., 2005). There is a variable pattern of exclusive breast feeding among the mothers. Educated mothers are having better practice of breast feeding (Jayant, et al., 2010). Mothers are more curious toward exclusive breastfeeding to their child at early age (1.5 months) of life, but the trend decreases as the child gets older till the age of 6 months (Oommen, et al., 2009). Feeding practices can be improved by increasing the level of public awareness through mass media (Seddiqe & Babak, 2007). In developing countries including Nepal, India, Pakistan and Bangladesh, local government health institutions are unable to fulfill the healthcare needs of majority of the population. Thus, private sectors take this opportunity to serve the people who seek healthcare outside the home (Bustreo, et al., 2003; Shaikh & Haran, 2011).

2.2 CONCEPTUAL FRAMEWORK

2.2.1 Health Belief Model (HBM)

The Health Belief Model (HBM) is a psychological model which is used to describe and predict association between beliefs about a particular condition (e.g. disease) and the recommended health action. The health seeking behavior and compliance with the recommended health action are under the influence of different

components of HBM (Becker, 1974). Personal perception about the risk of getting a particular disease and its severity (e.g. diarrhea) may vary from mother to mother. When mother perceives that her child is not at risk or at a low risk, unhealthy behavior may result. Severity provides a force to take action, but it does not define which action is likely to be taken. Mothers take action in their own way based on their knowledge, beliefs, norms and family or social group pressure. If mother perceives the condition is severe, an immediate action is sought while on contrary, there may be delay or even no action if the condition is perceived as mild or moderate (Becker, 1974; Rosenstock, 1974; Rosenstock, 2005).

The next step of the HBM is the comparison between the perceived benefits and barriers of taking action. If mothers believe that the benefits of taking health actions are superior to the barriers, they will try to adopt it. Action may not take place due to the barriers, even though mothers may believe that the benefits of taking action are effective. There may be both modifiable barriers (e.g. lack of knowledge about a particular disease, lack of prior exposure or experience, difficulty with starting a new behavior, attitude and family pressure) and non modifiable barriers (e.g. availability and accessibility of health services/providers, inconvenience/distance of healthcare facility, out of pocket expenses, location and transportation facilities, culture, education level) which play a negative role about taking the recommended health actions. Only modifiable barriers can be approached through interventions toward taking advised health actions (Rosenstock, et al., 1988; Rosenstock, 2005).

The most basic approach to convey health related messages or to improve health related existing knowledge and practice of mothers is through the application of educational intervention or counseling at individual level. Moreover, there is

variability in the level of readiness among the mothers about the acceptance of change in health behavior. When perceptions of susceptibility and severity are high, a very minor stimulus (cue) may initiate the action (Glanz & Rimer, 2005).

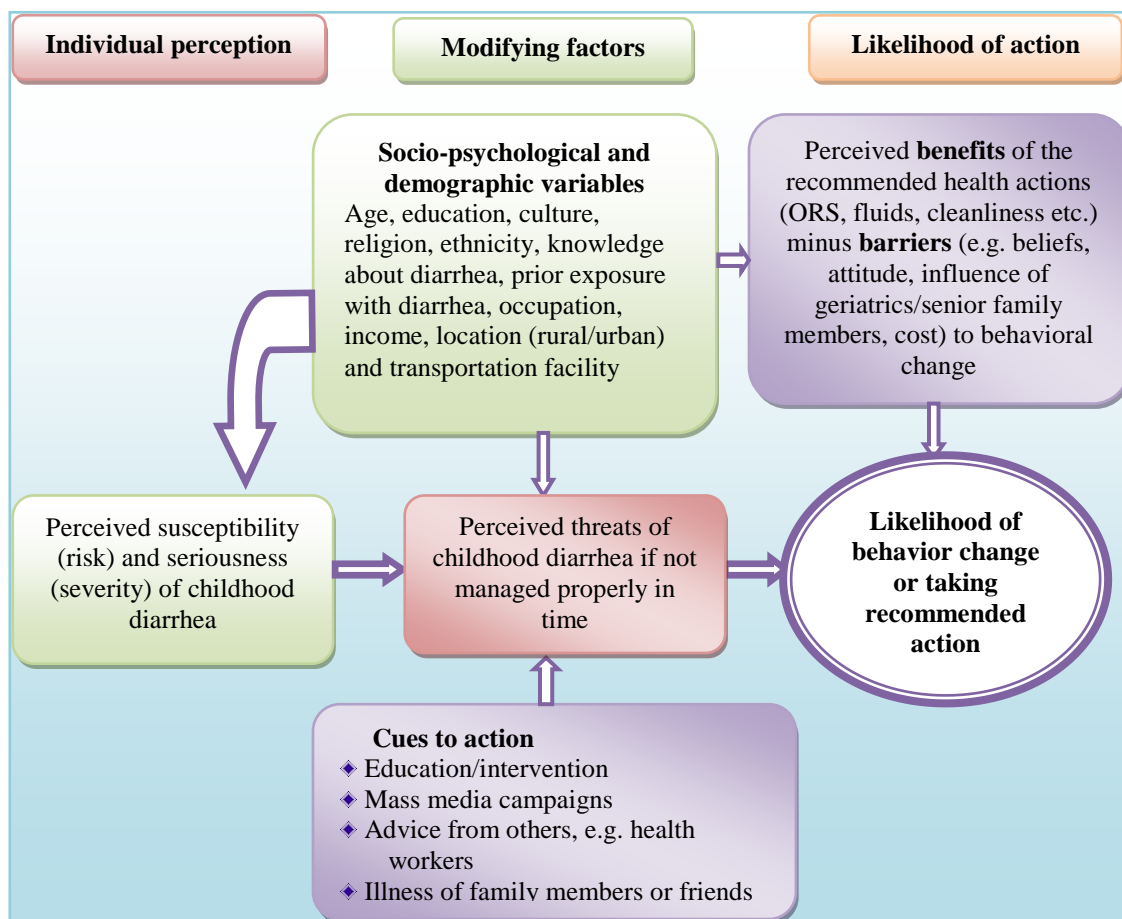


Figure 2.1 Conceptual framework of the Health Belief Model (HBM), (adapted from Stretcher & Rosenstock, 1997; Rosenstock, 2005)

2.2.2 Factors concerned with seeking healthcare

Decision making about seeking a particular health action is a complex process involving several components as shown in Figure 2.2. Though urgency or severity of illnesses acts as a driving force in seeking healthcare, decision for health action may not take place due to poverty, unaffordability and distance of the healthcare facility (Adegboyega, et al., 2005; Mbagaya, et al., 2005; Luong, et al., 2007). Unavailability or inadequate availability of essential medicines at public healthcare centers is a persistent problem in developing countries. Therefore, patients

are compelled to purchase medicines from private outlets which they cannot afford due to excessive price (Babar, et al., 2007; Ansari, et al., 2009).

Mothers' or caregivers' beliefs pattern which is under the influence of culture, religion and education has a very strong persuasive role on the nature of seeking healthcare (Shaikh & Hatcher, 2005). Besides, perceived severity of the illness, financial condition, gender and age of the child, maternal age as well as education also contribute significantly toward seeking healthcare (Pillai, et al., 2003; Thind, 2004; Kosimbe, 2005; Taffa & Chepngeno, 2005; Ndugwa & Zulu, 2008; Amin, et al., 2010; Burton, et al., 2011). There is gender inequality in terms of seeking healthcare (Yount, 2003). Interestingly, gender disparity is more pronounced among urban wealthier families as compared to rural one (Larson, et al., 2006). Financially poor families wish to visit public healthcare centers, whereas wealthier families favor private healthcare institutions as their first choice (Sakisaka, et al., 2010). The preference to the private healthcare centers is due to the belief and attitude of getting better treatment with powerful medication (Sudharsanam & Rotti, 2007). Conversely, less inclination toward public healthcare centers is due to poor quality of care, distance, inconvenient service time and even absence of healthcare providers (Dalal & Dawad, 2009). However, socio-economically poor mothers preferably consult unqualified or traditional practitioners due to cost, accessibility and familiarity (Huq & Tasnim, 2008). Health seeking behavior also depends on disease pattern, age and number of children and even the ethnicity. People of ethnic minority are less likely to seek healthcare (Teerawichitchainan & Phillips, 2008; Nuruddin, et al., 2009; Page, et al., 2011). Health education interventions do not only imparts the knowledge, but it also upgrades multi facet health behavior along with arousing others about health related behaviors (Jahan, 2000).

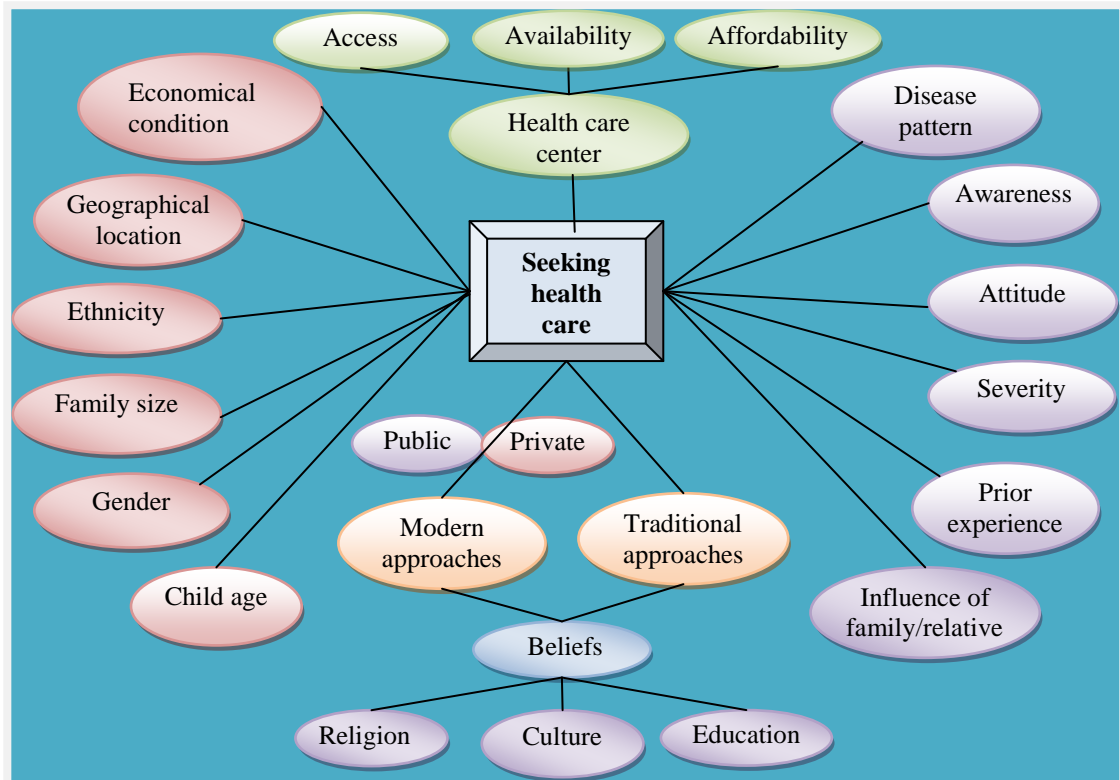


Figure 2.2 Conceptual framework of the factors concerned with seeking healthcare, (adapted from Shawyer, et al., 1996; Shaikh & Hatcher, 2005; USAID, 2009)

2.3 Hypotheses

The following hypotheses were derived from the review of the literatures:

H₁: The occurrence of diarrhea is greater among the children whose parents are poor socio-economically, residing in rural and remote areas and less educated.

H₂: Managing diarrhea at home is more common in rural setting.

H₃: The risk of dehydration is more pronounced among the children whose mothers are less educated, socio-economically poor and not aware of ORS.

H₄: Mothers of low socio-economic status are more attentive to the health related educational interventions.

H₅: The demand and choice of seeking healthcare depend on perceived seriousness of diarrhea, economical condition, ethnicity and educational status, locality of the residence, knowledge and attitude of the mothers about diarrhea.

H₆: The practice of managing diarrhea can be improved through sustained health education and consideration of local beliefs about diarrhea and its management.

2.4 Conclusions

The literature review concludes that diarrhea is a primary cause of mortality in children under five. Diarrhea is more a problem in developing nations mainly to the people or communities, who reside in rural and remote areas, who are poor socio-economically and are uneducated or less educated. Moreover, there is a common tendency among the mothers to perceive diarrhea lightly and to leave it untreated or manage at home mainly in traditional ways. Review of literature has revealed that there are numerous discrepancies among the mothers about diarrhea and its management which are linked with various societal, cultural and physical factors. It has also been underlined that educational interventions can improve knowledge and practices about diarrhea and its management.

On the other hand, there are still gaps in knowledge which require to be filled up. This study has particularly been aimed to narrow down the gaps between diarrhea and its management in the following manner:

1. This study would be able to improve mothers' beliefs which have ambiguously been targeted by the previous studies, and knowledge, attitude and practices through properly designed educational interventions.
2. There can be several types of barriers in adopting the recommended health actions and the nature and types of the barriers may vary from country to country. This study is concerned with determining various beliefs and barriers about diarrhea among the Nepalese mothers of various communities.
3. Various studies have shown that diarrhea related knowledge, attitude and practices can be improved through intervention, but this study clearly wants to add up that what is the pattern of change in mothers' knowledge, attitude and practices in successive interventions conducted at different time intervals, i.e. at baseline, at one month, three months and six months.
4. In general, people are more responsive to the current illnesses while less if the illness/disease was in past. This study wants to find out the impact of successive interventions in two different groups of mothers, i.e. mothers whose child was having diarrhea at the time of interview and the mothers whose child had diarrhea in preceding 3-6 months from the date of interview.
5. Diarrhea related studies have mainly concentrated ORS, but its use in practice is still not up to the mark despite widespread advocacy and promotion by WHO, UNICEF and Governments. In such a circumstance, this study will be helpful in

promoting the use of alternative ORT such as SSW solution through extensive and continued educational interventions.

CHAPTER III

GENERAL METHODOLOGY

The entire study was an amalgam of qualitative and quantitative methods which was accomplished in three phases.

3.1 Phase 1 study: Mothers' beliefs and barriers about childhood diarrhea and its management

This phase of the study was concerned with determining mothers' beliefs and barriers about childhood diarrhea and its management.

3.1.1 Study design

The study was qualitative in nature which focused on determining mothers' beliefs about the perceived types and causes of diarrhea, their prevention and management at home. Qualitative studies give a detailed explanation of the people's experience about a given research issue, i.e. beliefs, behaviors, opinions and emotions. It also helps in recognizing social norms, socioeconomic status, gender roles, ethnicity, and religion. Qualitative studies utilize open-ended questions with probing, thus participants get more freedom to express their views freely rather than being forced to choose from fixed responses as in quantitative methods (Mack, et al., 2005).

The study was based on phenomenological research method, a qualitative approach. Phenomenology (lived experience) is a study of phenomenon or concept in which data about a phenomenon of interest is collected from the participants who are experienced with the phenomenon. The data are then reduced to suitable themes so as to convey an overall essence of the experience. The method used here was

psychological phenomenology which is more focused on descriptions of the experiences of the participants (Moustakas, 1994).

3.1.2 Study duration and location

The study was carried out from January to February 2010. The study was conducted at three different localities of Morang, a district of eastern Nepal: Tankisinuwari, Kanchanbari and Pokhariya. Tankisinuwari is a Village Development Committee (a group of villages) adjacent to Biratnagar city of Morang district while the latter two areas are the part of Biratnagar metropolitan city, Nepal.

3.1.3 Study population

The study population was mothers representing various ethnic classes of Morang district, Nepal. The selection of mothers was executed on the basis of following inclusion and exclusion criteria.

3.1.3.1 Inclusion criteria

The participants were included in the study if they were mothers between the age of 16-40 years, mothers whose child (under the age of 45 months) were having diarrhea at the time of study or had diarrhea in the preceding 3 to 6 months, could understand and speak Nepali well and were willing to participate in the study.

3.1.3.2 Exclusion criteria

The participants were not eligible to be enrolled in the study if they were not meeting the aforementioned inclusion criteria.

3.1.4 Sample size and sampling procedure

There is no universally adopted formula for determining sample size in qualitative research. Although the concept of saturation is the most widely used phenomenon in qualitative studies, there are weaknesses such as lack of explicit explanation about its meaning and its achievement during the study (Bowen, 2008). There can be several factors such as diversity of a study population, nature of the topic, quality of data, scope of the study and the techniques selected which govern the requirement of sample sizes (Morse, 2000; Ritchie, et al., 2003).

Qualitative methods involving two Focus Group Discussions (FGDs) and four In-Depth Interviews (IDIs) were conducted which consisted of a total of 16 participants. The participants of the study belonged to different caste/ethnic groups such as Brahman/Chhetri (e.g. Dahal, Ojha, and Karkee), Adivasi/Janjatis (e.g. Newar, Rajbanshi and Gurung), Terai Dalit (e.g. Mehetar/Halkhor and Musahar/Rishidev) and Terai other castes (e.g. Sharma/Badhai, Sah/Teli and Mandal/Khatwe). The aforementioned four caste/ethnic groups are the broader classification of castes/ethnicities of Terai Nepal (Bennett, et al., 2008). Brahmans, the top caste of Nepal are mainly engaged in government jobs, politics and they are at a ruling position of the nation. Gurungs, the lovers of music have their own language and traditions. Newars, the ethnic group of Kathmandu valley have their own language, social systems and practices. Rajbanshis, the dominant ethnic group of eastern Terai (Morang and Jhapa) districts of Nepal have their own beliefs and local practices and they are mainly involved in farming. Sharmas, one of the casts of Terai are involved in carpentry. Mehetars, a dalit (untouchable) cast of Terai region are involved in their own traditional occupation of cleaning/sweeping.