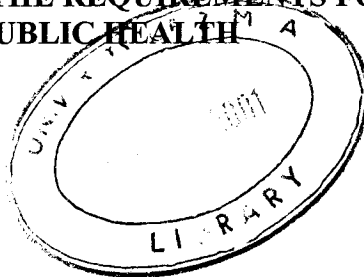


**A DISSERTATION SUBMITTED TO THE UNIVERSITY OF ZAMBIA IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTERS OF PUBLIC HEALTH**



**TITLE: TO DETERMINE THE ADEQUACY OF HEALTH EDUCATION
ON BREASTFEEDING IN ANTENATAL CLINICS.**

BY

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Lusaka. 1999/2000

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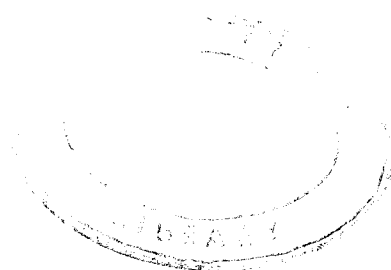


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DECLARATION

I hereby declare that to best of my knowledge the work presented in this study for the Masters in Public Health has not been presented either wholly or in part for any other Masters in Public Health Degree and is not being currently submitted for any other degree.

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STATEMENT

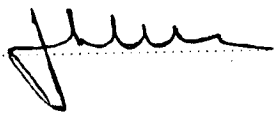
I hereby certify that this study is in all entirely, the fruit of my own independent and laborious investigations. The various sources to which I am indebted are gratefully acknowledged in the text and references.

Signed Robie Paul Shearnas
Student

APPROVAL

This dissertation of ROBINA GUL SHAMAS is approved in partial fulfillment of the requirements for the award of the degree in Master of Public Health by the University of Zambia.

Examiners Signatures


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DEDICATION

This dissertation is dedicated to my parents and my family especially my husband Tasawar Aslam, for their love, support and perseverance during my studies.

ACKNOWLEDGEMENTS

I thank all those to whom I owe so much for their various contributions in preparation of this dissertation. I am deeply indebted to my supervisor Prof. K.S. Baboo for his support and guidance on the project from start to end.

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Finally, I thank my sister Dr. Ambreen Gull Shamas for her sincere support without which I would have left this Masters programme in the very beginning. To my children go my special thanks for bearing with my absence from home.

EXECUTIVE SUMMARY

Knowledge is the foundation for practice. Most nutrition education programmes operate on the premise that nutritional knowledge of mothers can have an impact on the nutritional status of their children. Literature review revealed that most mothers who had access to the nutrition education especially to breastfeeding education showed an improvement in their children's nutritional status due to improved feeding practice. Health education programmes on breastfeeding has been implemented in Zambia since the last one decade using the health workers as the largest source to educate mothers. But the rapidly rising graphs of infant morbidity and mortality due to diseases of infancy preventable with successful breastfeeding suggest that the health education in the antenatal clinics might be inadequate.

This study looked at the adequacy of health education on breastfeeding in the antenatal clinics of the Lusaka Urban District.

A cross-sectional descriptive study was conducted from 1st Feb. to 30th April 2000 to collect necessary data for the study. Information tools were antenatal mothers and antenatal cards. Data was entered into computer using Epi-Info 6 and analysed. A sample of 300 mothers from ten Lusaka Urban District clinics was drawn and data was collected using a structured interview schedule containing both close-ended and open-ended questions. Knowledge that mothers gained after health education in the antenatal clinics was the indicator of success.

The first 30 mothers from each clinic with more than one antenatal visit were included in the study. Questions were asked with the help of a trained research assistant. The main findings were:

70% of the mothers were aged between 20-30 years, 93% were married and 73% were housewives. 50.7% of mothers had primary education. 79% visited the antenatal clinic for five or less than five times and 78% belonged to high density areas.

Adequate health education on breastfeeding was being given to only 15% of mothers as indicated by their adequate knowledge on breastfeeding acquired during antenatal visits.

General information on breastfeeding was the most commonly discussed topic (42% mothers showed adequate knowledge). The least discussed topic was the breast conditions hindering successful breastfeeding (2% mothers had adequate knowledge).

The mothers were getting wrong information on certain aspects of breastfeeding such as duration of exclusive breastfeeding, time to wean and mother to child transmission of HIV. Health education on breastfeeding in the Baby Friendly clinics was also inadequate although the knowledge of mothers on breastfeeding attending Baby Friendly clinics was better than those attending non-Baby Friendly clinics. 22% of mothers from Baby Friendly clinics had adequate knowledge on breastfeeding while the same result was shown by only 8% of mothers attending non-Baby Friendly clinics. There was strong association between the outcome (adequacy of health education on breastfeeding) and attending Baby Friendly clinics. This was proved by P value of 0.018 rejecting the hypothesis of no association between the two variables.

Recommendations have been made according to the findings of the study in order to improve the implementation of health education on B.F in antenatal clinics

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LIST OF ABBREVIATIONS

WHO	World Health Organisation
UNICEF	United Nations International Children Emergency Fund
UN	United Nations
B.F	Breastfeeding
MTCT	Mother to child transmission
HIV	Human immune deficiency virus
B.M.	Breast milk
H.E.	Health education
C.D.C	Centre for disease control
BFHI	Baby Friendly Hospital Initiative

1.0 INTRODUCTION

1.1 BACKGROUND INFORMATION

Breastfeeding is a universally acknowledged method of infant feeding (WHO 1990). It not only saves lives of infants but also improves the quality of life both for the mother and the child. It provides nutritional, immunological, psychological and child spacing benefits (National Food and Nutrition Commission 1998). Breastfeeding saves lives of 6 million infants alone and has the potential to save an additional one or two million infants lives (Huffman S et al 1991).

Breastfeeding is interlinked with both maternal and child survival. Benefits of exclusive breastfeeding to the mothers include lower risk of post-partum haemorrhage, prevention of anaemia because of lactational amenorrhoea, minimised chances of developing pelvic inflammatory diseases, breast and ovarian cancer, reduced fertility and child spacing. In spite of the above facts, the practice of breastfeeding has declined over the past few decades. Since the 1970s' breastfeeding has been a part of the child health programmes of WHO and UNICEF. In the early 1970s' the twenty seventh World Health Assembly noticed that the general decline in this practice in many parts of the world was due to the promotion of manufactured breast milk substitutes and the use of bottle feeding. This decline resulted in child health problems especially in third world countries. These problems included mainly diarrhoeal diseases and malnutrition (Beverly et al 1989). In addition other child health problems also increased due to low immunity resulting from poor nutritional status. UNICEF estimates > one million infants deaths annually because of bottle feeding (National Food and Nutrition Commission 1996)

Breastfeeding has been a part of child health programmes of WHO/UNICEF. It is an element of primary health care for achieving health for all by the year 2000. Looking at the severity of child health problems these organisations took an active role and this resulted in the following.

1. Member states being urged to legislate sale of formula milk.
2. The international code of marketing for breast milk substitutes being adopted in 1980.
3. In 1989, WHO/UNICEF produced a joint statement on protecting, promoting and supporting breastfeeding. The statement outlined 10 steps of successful breastfeeding, out of which steps 3,5 and 10 focused on educating mothers on successful breastfeeding in antenatal clinics, postnatal wards and in the communities.
4. In 1990, the Innocent – Declaration was signed by WHO/UNICEF.
It calls for policies and attainment of a breastfeeding culture enabling women to exclusively breast feed their babies for the first six months and continue it for two years and beyond with appropriate supplementary foods. Women need to be empowered with knowledge and skills of breastfeeding through good educational programmes.
5. Launching of BFHI by WHO/UNICEF to implement the 10 steps of successful breastfeeding.
6. Earth Summit and International Conference of Nutrition in 1992.

Both of the above concentrated on promotion of breastfeeding through different programmes, one of which is health education of mothers and communities on successful breastfeeding.

About 98% mothers in Zambia start breastfeeding (ZDHS 1996) but there are many irregularities in these practices. These include lack of exclusive breastfeeding for first six months, giving of traditional medicinal drinks to a new-born, abrupt weaning due to unplanned pregnancy, stopping of breastfeeding for 24 hours or more if the mother is separated from her child for some time due to certain reasons. Causes of these irregularities include a weak malnourished mother having insufficient breast milk, traditional beliefs and imposed pregnancy resulting in an infant partially breastfed by an unhappy mother. Only 35% of mothers in Zambia exclusively breast feed their babies for the first two months (ZDHS 1996). Water and light porridge is introduced sometimes as early as 2-3 months of age (National Food and Nutrition Commission 1999). Emergence of HIV has worsened the situation. People have developed a wrong concept that the baby of an HIV+ mother will get the virus from the mother in case of being breastfed while reality is different from it. Naturally babies get this infection through breastfeeding but studies have shown that only 30-40% babies of HIV+ mothers are infected, out of which only 8-10% are infected through breast milk and the rest of transmission is during pregnancy and delivery (MOH/CBOH 1997). This means that only 2.5% of total infants get HIV through breastfeeding because over 25% antenatal mothers are sero-positive (CBOH 1997). All this not only hinders successful breastfeeding but also predisposes the children to common preventable diseases like respiratory tract infection, diarrhoeal

diseases and malnutrition. Peter et al (1995) state that very early onset of stunting, 22% at the age of 3-5 months and 42% at the age of 6-11 months indicates inadequate breastfeeding and poor maternal nutrition/health and these are likely to be important contributors to child malnutrition.

Realising the severity of the situation, the Zambian Government came forward and took the following steps.

1. Adoption of the Joint statement of WHO/UNICEF in 1989 and Innocenti Declaration in 1990.
2. Training of staff in lactational management.
3. Implementation of BFHI strategies in Zambia (1993).
4. Editing code of marketing of breast milk substitutes.
5. Draft of National Policy on breastfeeding (1996).

If we go into details of these steps, we will come to know that their main emphasis is on health education. They concentrate on the use of health education to promote breastfeeding. Steps 3, 5 and 10 out of the ten steps of successful breastfeeding focus on the education of mothers on breastfeeding in antenatal clinics, post-natal wards and communities. Directive 3 of the National Policy on breastfeeding is about the same and directive 14 is related to educating mothers on the transmission of HIV through breast milk and its relation to breastfeeding.

Health education is defined by the working group on the Role Delineation Project as “A process based upon the scientific principle which employs planned learning opportunities to enable individuals, acting separately or collectively, to make and act upon informed decisions about things affecting their health” (Simmonds S 1978). Encompassed in this definition are efforts directed towards assisting people to achieve an optimum level of health in order to prevent disease and debilitating conditions from occurring (Initial role delineation for health education 1980). Among the three categories of prevention, health education come under the heading of Primary prevention which means not only living a healthy life style, but equally important is the fact that it represents social ethics by which pressure is exerted on the individual to work towards such a life style (Lauren Robinson et al 1984). Through health education, specialists work to enhance those factors that predispose, enable and re-enforce healthy behaviour. Monitoring and evaluation are essential parts of health education programmes. Evaluation of health education programmes is of two types; Summative and Formative. The first type evaluates whether or not the programme has met its objectives and the evaluator is expected to remain detached from the programme and avoid as far as possible, influencing the observed outcomes. The second type is concerned with programme implementation. It may include feeding information back to programme participants about how a programme can be best developed or adopted to ensure effective implementation. Formative evaluation is concerned with details of implementation of programme; it looks inside the black box, which may be left unopened by summative evaluation. It can provide an account of

alternatives and compare them in terms of how acceptable they are to the participants and how easy to implement. Three types of indicators are used for evaluation of health education programmes; indirect, outcome and intermediate. Outcome indicator is used for summative evaluation while the other two are used for formative evaluation (Keith Tones et al 1991)

INDIRECT INDICATORS	INTERMEDIATE INDICATORS	OUTCOME INDICATORS
Adoption of health education programme on breastfeeding	Change in mothers' knowledge - and beliefs	Reduced incidence of diseases of
Health Workers acceptance of training on Successful breastfeeding	Positive attitude of mothers towards Successful B.F leading to change in practice	infancy due to prevention by Successful
Implementation of health education on breastfeeding for mothers in antenatal clinics		breastfeeding

Health education in Zambia on child health is as old as Zambia is. It started in 1966 because of high morbidity and mortality among infants and young children resulting from preventable childhood diseases. According to the 10 years national Health Plan (1971 – 1982), the main objectives and activities of health education programmes were directed towards training of health personnel, production of education material and evaluation of its impact. Special programmes to train community health nurses were introduced.

Their main emphasis was on infant feeding practices which discouraged bottle feeding and promoted breastfeeding. The same trend in Government policy led to the adoption of the joint statement and Innocenti Declaration of WHO/UNICEF with implementation of Baby Friendly Hospital Initiative (BFHI) in 1993 and formation of a National Health Policy on Breastfeeding (Draft 1996), thus giving health education an important role in the promotion of successful breastfeeding.

Health education on breastfeeding is being done through several media like newspapers, T.V, radio but the most effective and efficient source is the health worker. A study done by Chimumbwe (1999) states that 81% of mothers included in the study received health education on breastfeeding from antenatal clinics. This is the cheapest way to educate mothers on any topic related to mother and child health because to use mass media is very expensive in the present economy of the country. Again the media may not address mothers on an individual basis as it is done in antenatal clinics. The process of health education starts from the first visit the mother makes to an antenatal clinic and continues for as many visits as she makes to the clinic. During this time she is supposed to be empowered with the knowledge and skills of successful breastfeeding practice.

1.2 STATEMENT OF THE PROBLEM

Although health education on breastfeeding has been started since quite some time as stated above with the aim to reduce child morbidity and mortality but we can see that results are different. Only 35% of mothers in Zambia exclusively breastfeeding their babies for the first two months of life. Infant and under five mortality rates are very high (109 and 197/1000 live births respectively).

Diseases that contribute to such high morbidity and mortality in children are preventable. These include measles, malaria, diarrhoeal diseases, malnutrition and respiratory tract infection (CBOH 1997). Among these the last three are mainly preventable with successful breastfeeding. Diarrhoeal diseases and acute respiratory infections contribute to 30% of infant deaths while malnutrition is responsible for 40% of paediatric death in Zambia (National Food and Nutrition Commission 1998). It has been observed that among such children the rate of re-admission is quite high. A study done in UTH paediatrics Lusaka showed that 32% of children being admitted for malnutrition were re-admitted for a 2nd time and 8% for a 3rd time (Simbeye E.J. 1985).

Such high rate of diseases in children not only affects their families but also the economy of the whole country. A study done in America showed that 2.04 billion US Dollar from the Government budget and 3.24 billion U.S Dollar from household expenses would have been saved annually if mothers were breastfeeding their children successfully (Breastfeeding Task Force of Greater Los Angeles 1999). Such data has not been collected in Zambia but it can be seen that these preventable childhood diseases are a big financial burden on an already over-stretched health budget.

This burden would have been less if mothers were sensitised on breastfeeding their children successfully.

Looking at the above given facts, it is not difficult to say that practical results of health education are different from what they should be. There is a big gap between information and practice. Studies done on health education show that if it is done adequately, it shows positive effects. But literature review suggests that health education on breastfeeding in antenatal clinics may be inadequate. This forces us to determine the adequacy of health education on breastfeeding. Not much has been documented on health education regarding breastfeeding in Zambia before suggesting therefore the need to determine the adequacy of health education on breastfeeding. This will be done in this study by assessing the knowledge being given to mothers during their antenatal visits.

1.3 LITERATURE REVIEW

BREAST FEEDING

The importance of breastfeeding in terms of nutrition, immunological protection, economic, biochemical, anti-infection, anti-allergic, contraceptive and emotional bond between mother and child has been extensively documented (Bamisaie A. 1983). The long-term benefits of breastfeeding on the health of the mother are very significant. Breastfeeding for atleast three months can reduce the risk of pre-menopausal breast cancer by one half (U.K. National Case-Control study Group 1993). Breastfeeding for at least two months per child reduces a women's risk of epithelial ovarian cancer by 25% (Rosenbaltt K.A. et al 1993).

In a study in Sweden, it was confirmed that few days of separation between mother and infant during first week of life seems to decrease the duration of breastfeeding (Elander G. 1984). Savage emphasised the significance of early initiation of breastfeeding after delivery due to protective and nutritional value of colostrums. She concluded that early suckling prevents many breastfeeding problems and supports the establishment of lactation.

Lucas and Cole (1990) in Britain concluded that in exclusively formula fed babies, confirmed necrotising enterocolitis was six to ten times more common than in those who were exclusively breastfed and three times more common than those who received formula plus breast milk.

It is shown by multi-varied analysis that it is the frequency of breastfeeding, which accounts for the largest proportion of the variation in the milk output (Hennert et al 1983). Soleiman et al (1995) state that the problem of insufficient milk could be prevented by the enhancement of breastfeeding on demand by a well-positioned baby. Breast milk is a major factor in the prevention and treatment of diarrhoea. It helps to protect against respiratory infections at least in the first few months of life and globally it contributes more to regulation of fertility than all other methods of contraception. Wang and Wu (1993) demonstrated beneficial effect of the breastfeeding on the development and resistance to infection. Of the 145 normal full-term infants studied during first year, those exclusively breastfed differed significantly from those not exclusively breastfed in physical and behavioural development as well as resistance to infection. At four months, the mean weight for exclusively breastfed babies was higher ($P<0.05$).

Cost of infant feeding was found to be much higher in bottle fed babies than in breastfed babies by Bhatnagar et al (1990) in India. Cost was largely attributed to the supplementary food and the cost of feeding bottles and nipples. A study done by John Rhode (1982) in Indonesia established breast milk as the most precious natural resource. Study calculated that in Indonesia mothers produced over one billion liters of milk annually with a conservatively estimated net market value of over US 400 million Dollars. Additional money savings in health and fertility reduction directly attributable to lactation, added a further 120 million U.S. Dollars to the economy. Value of the breast milk exceeded twice the annual budget for health in Indonesia.

However breast milk like other body fluids carries HIV. It is now established that infants breastfed by HIV-infected mothers are at a risk of acquiring HIV infection through breast milk (Bobat R et al 1997). A study done in Malawi showed that an uninfected infant, breastfed by an HIV positive mother for 23 months had at least 10.3% risk of becoming infected (Miotti et al 1999)

It has been currently shown that in utero and intra-partum transmission can be decreased by approximately 50% when a short course of oral anti-viral therapy is used during pregnancy and labour (Guay et al 1999). In breastfeeding populations this will result in a larger number of infants, who though uninfected at birth, become exposed to HIV through breast milk. In United States only 8% of all persons with AIDS are women (Centre for Disease Control USA 1989) and many of them belong to groups with low prevalence of breastfeeding. In contrast, in developing countries like Zambia, roughly half of the identified AIDS cases are women and dependence on breastfeeding is nearly universal. Kathy et al (1990) estimated infant mortality associated with HIV infection to be lower than mortality associated with diseases of infancy that would result if breastfeeding were withheld. This difference is greater in areas with a high base-line level of infant mortality like Zambia. In developing countries WHO, recommends breastfeeding by HIV infected mothers where alternatives are not available. On the other hand CDC (Centre for Disease Control) in America recommends that infected women should be advised against breastfeeding to avoid post-natal transmission to a child who may not be infected (CDC 1985). The Zambian Government has adopted the same policy as given by WHO for developing countries.

HEALTH EDUCATION AND COUNSELLING

Health care that is helpful and useful to the patient must always be based on the individual's particular health needs, states Williams (1982). For this reason, he further advises that finding out what those needs are and planning with the patient the best way of meeting these needs is a necessary beginning and important part of patient care and education.

The objectives of health education can be achieved if clients are made to understand, accept and participate fully in the programmes of health education.

Consumer's education is not a luxury but a necessity if clients are to receive maximum benefits from today's knowledge of disease control according to Leaky and Jones (1992). They give the following constraints cited by the nurses as interfering with health teaching.

1. lack of time, heavy workload and inadequate staffing.
2. lack of knowledge and inadequate preparation to teach.
3. lack of nursing service support.
4. poor communication between members of health team.
5. the client does not request information

All these, according to Leaky and Jones (1992) can be challenged provided the nurses believe in the client's right to be informed.

EVALUATION OF HEALTH EDUCATION ON BREASTFEEDING.

Studies have been carried out to evaluate results of health education in both children and adults. They show a positive attitude of people towards health education but overall there is a scarcity of literature/studies done on health education on breastfeeding inspite of this being a global issue.

In Malawi where health education on child nutrition was being done by lectures and reciting in songs, a study showed poor knowledge of mothers towards child nutrition, which suggested that the health message was not reaching most of the families. Only 25% of mothers gave correct answers to the questions asked on child nutrition (Motive et al 1990).

A study in Kenya stated that detailed education and discussion on breastfeeding and breast milk was not routine practice in the antenatal clinics. 53.06% of all mothers that attended ANC were given health education on breastfeeding (Easami F. et al 1994). In a study carried out in Nairobi, Kenya it was stated that propagators of acquisition of knowledge as a strategy in prevention of malnutrition argue that if mothers are informed on some key factors, they would be able to take decisions, leading to nutrition beneficial to their children which consequently would lead to their better nutritional status (Waihenya et al 1996).

Globally, more than 8 million infants die annually. Calculations indicate that an additional 6 million deaths that would have occurred from infectious diseases alone are prevented by breastfeeding (Huffman S et al 1991).

In one study, an increase in median duration of exclusive breastfeeding was observed among women delivering in hospitals with a pre-natal and post-natal programmes (Tay CCK 1996).

Home visits by trained counsellors increased exclusive breastfeeding rates among women in Mexico (Morrow AL et al 1999).

In Southern Brazilian cities, babies who are breastfed are 14.2 times less likely to die from diarrhoea than those who are not breastfed (Victoria C G et al 1987). Haque (1982) in Saudi Arabia conducted a hospital-based study in Riyadh on 150 Saudi mothers. The result revealed that only 10% of mothers received instructions on infant feeding.

The Pakistan Medical Journal 1995, published the results of a study done on 135 children with malnutrition from the poor urban population of Karachi city. Children were enrolled for rehabilitation by health education and growth monitoring as out-patients. 89% of the children showed satisfactory recovery during a mean follow-up period of 2-3 months. The main stay of this study was simple health messages, adopted to local cultural and feeding practices in the native language.

In Zambia literature was very scarce as far as the health education on breastfeeding in the antenatal clinics is concerned. But studies carried out on different aspects of infant feeding indirectly pointed out inadequacy of the health education on breastfeeding in antenatal clinics.

A study done by Mawle C (1993) revealed that despite the fact that most of the mothers attended antenatal clinics during pregnancy, not every mother received advice on breastfeeding.

In a study done by Miriam C. (1997) 54% mothers felt that health education on the weaning practices was inadequate and health workers were not helpful to them because they were few and busy with their work.

Agnes S.Fundus (1998) concluded in her study done to assess health education being given to mothers of malnourished children in the Paediatric Unit of UTH that health education being given to the mothers of malnourished children was not adequate.

1.4 JUSTIFICATION OF THE STUDY

Results of this study justify it itself . At present infant mortality rate in Zambia is 109/1000 live births. It is one of the highest in the world. One main reason for this very high rate is unsuccessful breastfeeding. Studies have shown that diseases of infancy are the major contributors to this high mortality rate. It is also suggested that these diseases can be prevented with successful breastfeeding. It appears that mothers have not yet understood the important of their milk and its role in growth and development of their children. This lack of understanding could be due to inadequate health education on breastfeeding by different sources including antenatal clinics (as the largest source in use). Therefore there was need to look at the possible inadequacy of the health education on B.F especially in the antenatal clinics.

This study has directed all its investigations towards pin-pointing the short comings of health education on breastfeeding in antenatal clinics. This could prove useful in the evaluation of this programme by Dist. Management. Information obtained can be used as background data for planning and organising strategies on educating mothers on breastfeeding. Proceeding of this study will lead towards improved health education on breastfeeding resulting in improved child health due to the better knowledge of the mothers.

2.0 OBJECTIVES

2.1 GENERAL OBJECTIVES

To determine adequacy of health education on breastfeeding in antenatal clinics by assessing knowledge of mothers on breastfeeding acquired during antenatal visits.

2.2. SPECIFIC OBJECTIVES

- 2.2.1 To determine mothers' knowledge about general information on successful breastfeeding practices acquired during antenatal visits.
- 2.2.2 To assess mother's knowledge on advantages of breastfeeding and disadvantages of artificial feeding gained after health education in antenatal clinics.
- 2.2.3 To look at the knowledge of mothers on conditions of breast hindering successful breastfeeding, given to them during their antenatal visits.
- 2.2.4 To assess mothers knowledge on MTCT, acquired during antenatal visits.
- 2.2.5 To determine mothers knowledge on traditional beliefs hindering successful breastfeeding gained during antenatal visits.
- 2.2.6 To make recommendations to relevant authorities in order to improve the implementation of health education programme on breastfeeding in antenatal clinics.

2.3 DEFINITION OF TERMS

EXCLUSIVE BREASTFEEDING

To feed a baby only with mother's milk.

SUCCESSFUL BREASTFEEDING

To initiate, maintain and promote exclusive breastfeeding for six months and to continue it with supplementary foods for two years and beyond.

WEANING

This is detaching or alienating from an accustomed habit or enjoyment. In infant feeding, it is to detach the baby from the breast slowly and accustom the baby to taking solid food in addition to breast milk.

PRIMARY HEALTH CARE

Essential health care based on practical, scientifically sound and socially acceptable methods, universally accessible to individuals and families in the communities through their full participation at a cost that a community and country can afford to maintain at every stage of their development in the spirit of self determination.

INCHILA

A traditional belief that if a mother had an extra-marital status during pregnancy and she looks at the baby, blood or placenta soon after birth, she will die.

IN UTERO TRANSMISSION

Transmission of HIV from mother to child during pregnancy

INTRA-PARTUM TRANSMISSION

Transmission of HIV from mother to child during delivery

POST-NATAL TRANSMISSION

Transmission of HIV from mother to child after birth of baby.

3.0 METHODOLOGY

3.1 STUDY TYPE

A descriptive cross sectional study design was used to determine adequacy of health education on breastfeeding in antenatal clinics. Both qualitative and quantitative data was collected from 1st February to 30th April. An attempt was made to describe the inadequacy of health education on breastfeeding in the antenatal clinics.

3.2 RESEARCH SETTING

This study was carried out in Lusaka at ten government clinics. Clinics were randomly selected using the lottery method. Four of them Matero Ref, Kalingalinga, Chipata and Kanyama were Baby Friendly clinics, while Kamwala, Lilayi, Bauleni, Civic Centre, Ngombe and Kaunda Square were non-Baby Friendly clinics.

3.3 STUDY POPULATION

Antenatal mothers were interviewed. Mothers who attended the antenatal clinic more than one time were included in the study. Antenatal cards were checked to determine the number of visits. Mothers coming for the first time for antenatal check-up were excluded from the study.

3.4 DATA COLLECTION TECHNIQUE

Data was collected using a structured interview schedule containing both close-ended and open-ended questions. A research assistant was trained to collect data. An interview

schedule was chosen for mothers because it was assumed that some of the mothers might not be able to read and write. It was felt that a face to face interview might improve the response rate. Pre-testing of the tools was done. Proper translation was provided in case of language problem.

3.5 SAMPLE SIZE

Sample size was calculated using formula for cluster sampling taking into consideration the expected variation in data between the clusters.

This calculation was done in three steps

- (1) To calculate D with the help of b and rho
- (2) To calculate C (number of clusters)
- (3) Final calculation of sample size.

STEP 1

D (design effect) is the measure of increase in standard error due to sampling procedure used. It was calculated with the help of b and rho where b is the number of mothers included in the study at each clinic taken as thirty on practical grounds. Rho is the measure of variability among different clusters, was considered to be high and taken as

0.2. Formula used was

$$\begin{aligned} D &= 1 + (b-1) \times \rho \\ &= 1 + (30-1) \times 0.2 \\ &= 6.8 \end{aligned}$$

STEP 2

Number of clusters was calculated using formula

$$C = P (P-1) \times D / s b$$

$$= 0.5 \times 0.5 \times 6.8 / .075 \times .075 \times 30$$

$$= 10.0$$

P (mothers being educated adequately on breastfeeding in antenatal clinics) was taken as 0.5 because there was no idea about P in advance. So it was best to take P as 0.5 as it maximised the standard error and erred on safe side. Standard error was also increased due to effect of D because it measures increase in standard error due to sampling procedure used. (Steve Bennett et al 1991)

STEP 3

Sample size = No. of mothers at each clinics x No. of clinics

$$= 30 \times 10$$

$$= 300$$

3.6 DATA ANALYSIS

Data was sorted, pre-coded for easy computer entry and analysis. Researcher used computer-using EPI-INFO 6 to analyse the data. Analysis consisted mainly of running frequencies and cross tabulations. Statistical tests were done wherever it was necessary.

3.7 ETHICAL CONSIDERATION

Project proposal was presented to the Ethical Committee for ethical consideration. Written permission was also sought from Lusaka Urban Dist. Health Management. Informed consent was obtained from the mothers before interview. Rights of the subjects were protected by not stressing to participate and the nature of study was explained. No names were written on the questionnaire.

3.8 INDICATOR TO MEASURE SUCCESS

If 50% or more mothers show adequate knowledge / prove knowledgeable – Health education is adequate. A knowledgeable mother / mother with adequate knowledge means a respondent who correctly answered ten or more than ten questions from the questionnaire. The criteria of adequate knowledge for individual questions has been given under the heading of those questions wherever necessary.

NOTE. The terms of a knowledgeable mother and a mother with adequate knowledge are synonymous to each other.

3.9 LIMITATIONS OF THE STUDY

Only one question was asked about traditional beliefs hindering successful breastfeeding. It is a limitation of this study because Zambia is a traditional society with lot of traditions affecting breastfeeding and one question about one traditional belief was not enough to determine adequacy of health education on this topic.

Lack of facilities at the Department of Community Medicine created a lot of problems during data analysis and report writing. Only one computer with EPI INFO 6 was available in the computer room of the Department and was mostly being used for other purposes.

4.0 DATA ANALYSIS PRESENTATION AND DISCUSSION OF FINDINGS

4.1 DATA PROCESSING AND ANALYSIS

All data processing and analysis was done using EPI-INFO 6 and a scientific calculator. Raw data was first checked for completeness, internal consistency and then entered into EPI-INFO 6 for analysis.

Statistical tests

In determining the relationship between knowledge of mothers based upon health education and characteristics of mothers and that of clinics, statistical tests were done. This involved the calculations of Chi square or Yates tests. A p value of 0.05 or less than that was considered to be statistically significant and was used to reject the hypothesis of no association between the two variables.

4.2 DATA PRESENTATION AND DISCUSSION

The findings are herewith presented in tabular form, graphs and figures with necessary comments. These were found to be suitable for presenting data because they summarise results in a meaningful way, which enables communication of maximum amount of information in the most efficient way. Different tables and figures show frequency distribution of different factors, knowledge of mothers and association of each of these factors with knowledge of mothers based upon their health education.

DEMOGRAPHIC CHARACTERISTICS OF MOTHERS

A total of 300 mothers were interviewed. The average age of these mothers was 20-24 years. The majority 93% were married. A total of 152 (50%) had primary, 53 (18%) had secondary and 8 (3%) had tertiary education, 72 (24%) were less than primary and 17 (5%) never went to school. Majority of mothers 219 (73.0%) were housewives residing in high-density areas.

TABLE 1

AGE DISTRIBUTION OF MOTHERS

	15 - 19	20 - 24	25 - 30	31 - 35	36 - 40	<15 - >40	Total
No. of mothers	48	117	93	30	9	3	300
% of mothers	16%	39%	31%	10%	3%	1%	100%

70% of the mothers were aged between 20-30 years of age. 16% of mothers were below twenty and 14% were above thirty. This reflects a health trend for women to become pregnant at a suitable age.

This corresponds to the findings in ZDHS (1996) that states the highest level of age-specific fertility rate between maternal age of 20-30.

TABLE 2**MARITAL STATUS OF MOTHERS**

	Married	Single	Widow	Divorced	Total
No. of mothers	279	21	0	0	300
% of mothers	93%	7%	0%	0%	100%

Majority of mothers (93%) were married as compared to (7%) who were single.

Most of the women in Zambia marry. Marriage does affect women's accessibility to health care because the decisions whether to go to a health care facility have now to be made by the husband.

TABLE 3**OCCUPATIONAL STATUS OF MOTHERS**

	Govt. job	Self employed	No job	Private firm	Total
No. of mothers	9	54	225	12	300
% of mothers	3%	18%	75%	4%	100%

Most of the mothers (73.0%) were housewives (Fig. 3). Mothers who are full house wives, stay at home most of the time and one would expect that they have all the time to exclusively breastfeed their babies and can benefit from the knowledge they are getting from antenatal clinic (Chimumbwe 1998).

TABLE 4**DENSITY OF RESIDENTIAL AREA**

	Low density	Medium density	High density	Total
No. of mothers	24	45	231	300
% of mothers	8%	15%	77%	100%

77% of mothers belonged to high-density areas. Mothers in high-density areas share a lot of information. If one gets knowledge from health workers, she shares it with others. They interact and influence each other more than mothers in low or medium density areas do.

TABLE 5**EDUCATIONAL STATUS OF MOTHERS**

	Nil	< Primary	Primary	Secondary	Tertiary	Total
No. of mothers	15	72	150	54	9	300
% of mothers	5%	24%	50%	18%	3%	100%

5% mothers in this study had no education at all. More than half the mothers [152 (50%)] left school after passing primary as compared to 72% (24%) whose educational status was less than primary. This figure is higher than that of 24.6% given in ZDHS 1996 for women of the same age and educational status. That data represents the Lusaka province and this study has been done within Lusaka District. This represents higher level of education in Lusaka District than in other

parts of province. Levels of education of mothers is among the most important socio-economic factors closely related to the situation of women and that of their children across a wide variety of social indicators including health (Baboo K.S).

TABLE 6

SELECTIVE DEMOGRAPHIC CHARACTERISTICS OF THE MOTHERS AND THEIR ASSOCIATION WITH MOTHER'S KNOWLEDGE ON BREASTFEEDING BASED UPON HEALTH EDUCATION

	Adequate Knowledge	Inadequate Knowledge	2 X	P-value
Age 15-19	4	46	0.16	0.68
25-30	11	83		
Married	29	251	0.42	0.51
Single	3	17		
No job	24	195	0.19	0.61
Govt job	1	7		
High density	25	209	1.12	0.25
Low density	1	24		
Less than Primary	3	69	1.41	0.20
Secondary	5	48		

Degree of freedom = 1

Statistical analysis showed that there is no association between knowledge of mothers and their demographic characteristics (Table 1). To see this association, statistical test of chi square was done. All the p values higher than 0.05 strongly accepted the hypothesis of no association between the two variables. This point is contrary to many studies that have stated that the level of education of mothers is very important in conceptualisation of health education. It has a direct effect on child survival and mortality (Robey et al 1992). However, if we look at the title and objectives of the study, it can be seen that the study assessed knowledge of mothers on breastfeeding based upon health education received in antenatal clinics. Actually it was the assessment of health education on breastfeeding in antenatal clinics. Therefore mothers were asked strictly not to reveal any information/knowledge obtained from any other source in order to avoid bias in the results. They were instructed to demonstrate only the knowledge gained after health education in antenatal clinics. This precaution nearly finished the effect of demographic characteristics of mothers on the final results of the study. But the factors that are related to the implementation of H.E (knowledge of health workers, training of nurses) proved much more influential on assessment of knowledge of mothers on breastfeeding because actually the study assessed the efficiency of health workers using mothers as a source of assessment. This is also evident by the better results shown by mothers attending Baby Friendly clinic.

TABLE 7

KNOWLEDGE OF MOTHERS AND BABY FRIENDLY CLINICS

	Adequate Knowledge	Inadequate Knowledge	Total
Mothers attending Baby Friendly clinics	18	102	120
Mothers attending non Baby Friendly clinics	11	169	180
Total	29	271	300

Degree of freedom = 1

2

X = 5.53

P value = 0.018

Hypothesis of no association between knowledge of mothers and attending Baby Friendly clinics is rejected by above given p value indicating need to intensity process of training of health workers in order to improve the health education on B.F. in antenatal clinics. It means that attending these clinics effects the outcome (adequacy of health education on breastfeeding in the antenatal clinics). P value of 0.018 is a clear indication of the strong association between the two variables.

**NO. OF ANTENATAL VISITS AND THEIR ASSOCIATION WITH
KNOWLEDGE OF MOTHERS BASED UPON HEALTH EDUCATION**

Majority of mothers 125 (41.7%) visited antenatal clinic 1/3 times. 114 (38%)
Visited 4-5 times, 45 (15%) for 6 – 8 times, very few 12 (4%) 9 – 11 and only 4
(1.3%) 12 times. Statistical analysis showed that there is no association between
knowledge of mothers and no of antenatal visits.

TABLE 8

NO. OF ANTENATAL VISITS

NO. OF VISITS	FREQUENCY	PERCENTAGE
(1 - 3)	125	41.7%
(4 - 5)	114	38%
(6 - 8)	45	15%
(9 – 11)	12	4%
>12	4	1.3%
TOTAL	300	100%

TABLE 9

No. OF VISITS AND KNOWLEDGE OF MOTHER

	Adequate Knowledge	Inadequate Knowledge	Total
Visits (3-5)	9	105	114
Visits (9-11)	2	9	11
	11	114	224

Degree of freedom = 1

$$\chi^2 = 1.32$$

P value = 0.24

Number of antenatal visits is very important in determining adequacy of health education in antenatal clinics. Most of the mothers attended antenatal clinics five or less than five times (Table 3). This finding is similar to the finding of ZDHS 1996 about antenatal attendance of mothers. This could have proved an obstacle in assessing knowledge of mothers on breastfeeding acquired during antenatal visits because it is supposed to increase with the number of visits. Statistical analysis proved helpful and showed that there is no significant difference in the knowledge of mothers on breastfeeding attending clinics 3 to 5 times and those who attended antenatal clinic for 9 to 11 times (Table 4). P value of 0.24 clearly and strongly accepts the hypothesis of no association between the number of visits and adequacy of knowledge of mothers on breastfeeding gained after attending antenatal clinics.

KNOWLEDGE OF MOTHERS ON GENERAL INFORMATION ABOUT SUCCESSFUL BREASTFEEDING PRACTICE

Knowledge of mothers on general information about successful breastfeeding was assessed with the help of 5 questions concerned with time to start breastfeeding, time to wean, and frequency of breastfeeding per day, time to stop breastfeeding and preparation of nipple for breastfeeding during pregnancy. 130 (33%) mothers

were given health education on time to start breastfeeding and all of them were told to start it soon after birth. 183 (61%) mothers were taught about weaning age of the child. 168 (56%) of these knew 6 months as a proper age for it while 15 (5%) knew 3 months as a suitable age for weaning.

80 (26.7) of mothers were given H.E on frequency of breastfeeding. 76 (25%) knew the baby should be breastfed on demand and 4 (1.31%) knew it as 6 times a day. 169 (56.3%) mothers received health education on time to stop breastfeeding. 109 (36.3%) knew that breastfeeding should be stopped any time after the age of 2 years and 60 (20%) said that they were taught to stop breastfeeding after 18 months of age. 149 (49.7%) mothers were exposed to health education on preparation of nipple during breastfeeding, out of this 145 (48.3%) were told to wash it with warm water.

TABLE 10

HEALTH EDUCATION ON TIME TO START BREASTFEEDING

(a) EXPOSURE TO HEALTH EDUCATION

H.E on time to start breastfeeding	Health education given	Health education not given	Total
No. of mothers	130	170	300
% of mothers	43.3%	56.7%	100%

(b) KNOWLEDGE OF MOTHERS BASED UPON HEALTH EDUCATION

	After one day	After two days	Soon after birth	Total
No. of mothers	0	0	130	130
% of mothers	0%	0%	43.3%	43.3%

130 (43.3%) mothers were given health education on the time to start breastfeeding and all of them were told to start it soon after birth (Table 5). Mothers usually waste colostrum and it becomes a base to start artificial feeding because breast milk comes on the second or third day. It is assumed that the mothers would have been told about importance of colostrum as food for the baby otherwise they can not develop the concept to start breastfeeding soon after birth.

TABLE 11

HEALTH EDUCATION ON TIME TO WEAN

(a) EXPOSURE TO HEALTH EDUCATION

H.E on time to wean	H.E given	H.E not given	Total
No. of mothers	183	117	300
% of mothers	61%	39%	100%

(b) KNOWLEDGE OF MOTHERS

Knowledge based upon H.E	During first month	At the age of 3 months	After the age of 6 months	Total
No. of mothers	0	15	168	183
% of mothers	0%	5%	56%	61%

Quite a good number of mother (61%) were given health education on the weaning age. A mistake although not very common but observed was that (5%) mothers were told the weaning age as 3-6 months or between 4-6 months (Table 6). This seems to be a very big mistake as it is the age of six months that is advised as the weaning age by WHO because of markedly reduced infant

morbidity and mortality among children exclusively breastfed for their first six months. It should be stressed upon by health workers as under normal circumstances breast milk provides all the energy and nutrients needed by the infant for the first six months of life. It is also strictly against the Government policy on breastfeeding education because the policy is to initiate, maintain and promote exclusive breastfeeding for 6 months and to continue it with supplementary food for 2 years and beyond (National Food and Nutrition Commission 1996).

The reason for this is not clear but this suggests that correct knowledge of lactational management on the part of health worker is very important in order to implement Government policy of B.F.

TABLE 12

HEALTH EDUCATION ON FREQUENCY OF BREASTFEEDING

(a) EXPOSURE TO HEALTH EDUCATION

Exposure to H.E	H.E given	H.E not given	Total
No. of mothers	80	220	300
% of mothers	26.7%	73.3%	100%

**(b) KNOWLEDGE OF MOTHERS BASED UPON HEALTH
EDUCATION**

Knowledge based upon H.E	3 times in a day	6 times in a day	On demand	Total
No. of mothers	0	4	76	80
% of mothers	0%	1.3%	25.4%	26.7%

There was no discussion at all with 220 (73.3%) mothers on such an important topic. Wrong information of breastfeeding a newborn six times in a day was being given to a small number of mothers. Again it reflects a lack of knowledge of health workers. 76 (25.4%) mothers knew that a newborn should be breastfed on demand. 25.4% is a very small figure considering the fact that the problem of insufficient milk can be prevented by enhancement of breastfeeding on demand by a well positioned baby (Soleiman et al 1995). In addition insufficient breast milk has been found to be the major reason for introducing feeds to babies before the age of six months.

TABLE 13

HEALTH EDUCATION ON TIME TO STOP BREASTFEEDING

(a) EXPOSURE TO HEALTH EDUCATION

	H.E. given	H.E not given	Total
No. of mothers	169	131	300
% of mothers	56.3%	43.7%	100%

(c) KNOWLEDGE GAINED AFTER HEALTH EDUCATION

Knowledge gained after H.E	One year	Eighteen months	After the age of two years	Total
No. of mothers	0	60	109	169
% of mothers	0%	20.0%	36.3%	56.3%

A common observation from all clinics was that wrong information/education on the right time to stop breastfeeding was being given as 18 months even in the baby friendly clinics (Table 8). These findings are similar to that of another study in which 50% of the respondents felt that the most ideal age for the child to stop breastfeeding was 18 months. Neither literacy rate nor location seemed to have any significant influence on this opinion. It was observed that respondents belonging to same health centre gave same answers. It was assumed that the answers they gave had been according to what they were taught in their respective health centres (Dorothy Banda 1998). In this study 20% mothers were getting this wrong information that breastfeeding should be stopped at the age of 18 months. 20% is a big figure and it needs attention of relevant authorities responsible for training of nurses/health workers on breastfeeding.

TABLE 14**HEALTH EDUCATION ON PREP. OF NIPPLE FOR BREASTFEEDING****(a) EXPOSURE TO HEALTH EDUCATION**

	H.E given	H.E not given	Total
No. of mothers	149	151	300
% of mothers	49.7%	50.3%	100%

(b) KNOWLEDGE GAINED BASED UPON HEALTH EDUCATION

Knowledge based H.E	Apply Vaseline	Pull it	Washing with warm water	Application of cream or lotion	Total
No. of mothers	1	3	145	0	149
% of mothers	0.3%	1%	48.3%	0%	49.7%

About half of the mothers were told to wash the nipple during pregnancy with warm water in order to prepare it for breastfeeding (Table 9). Knowledge they got was correct but inadequate.

On average, general information about successful breastfeeding was given to 49% of mothers. Among these 42% proved knowledgeable after excluding those who were given inappropriate information. Looking at the indicator of success which is 50% or more knowledgeable mothers, the study concludes that health education on above given aspect of breastfeeding is inadequate.

KNOWLEDGE OF MOTHERS ON ADVANTAGES OF BREASTFEEDING AND DISADVANTAGES OF ARTIFICIAL FEEDING

ADVANTAGES OF BREASTFEEDING

137 (45.7%) mothers were given health education on advantages of breastfeeding. Mothers' knowledge was combination of responses. Maximum response was on awareness of breast milk as a protective measure against disease especially diarrhoea that was given by 72 (26.1%) mothers as a single advantage of breast milk and by 123 (43%) mothers in combination with other advantages. 18 (5.9%) mothers knew about two advantages of breast milk including first advantage as prevention of diarrhoea. 31 (11%) mothers had knowledge about three advantages of breast milk including prevention of diarrhoea as one of these.

TABLE 15
HEALTH EDUCATION ON ADVANTAGES OF BREASTFEEDING
(a) EXPOSURE TO HEALTH EDUCATION

	H.E. given	H.E not given	Total
No. of mothers	137	163	300
% of mothers	45.7%	54.3%	100%

(b) KNOWLEDGE OF MOTHERS

Knowledge Mothers	Protection against diarrhoea	Protection against diarrhoea+ Attachment With mother	Protection against diarrhoea + no cost	Protection against disease + perfect food	Protection against diarrhoea + no cost + attachment with mother	Protection against diarrhoea + no cost + attachment with mother + perfect food	Difference combinations and single	Total
No. of mothers	72	8	5	5	31	2	14	137
			18					
% of mothers	26.1%	2.7%	1.6%	1.6%	10.1%	0.7%	4.5%	45.7%
			5.9%					

Nearly half of the mothers (45.7%) got knowledge about advantages of breastfeeding. (Table 10). They expressed their knowledge as combination of responses. 43% knew about its protective effect against diarrhoea either alone or in combination with other advantages of B.F. These findings imply that health workers are concentrating on protective effect of breast milk against diarrhoea. Most probably this is due to their own awareness of high incidence of diarrhoea in bottle fed babies. Age specific diarrhoea prevalence associated with weaning peaks up in the second year of life and diminishes constantly thereafter because mother’s milk protects the nursing child against diarrhoea.

In Zambia the child mortality rate is 197/1000 live births (ZDHS 1996), after excluding 33/1000; the child mortality due to HIV/AIDS (MOH/CBOH 1997), remaining figure is 164/1000, child mortality due to different diseases of infancy. Diarrhoea is the third major killer disease of childhood in Zambia (Nsemukila G 1994) and its prevalence was 185/1000 children in 1995 (MOH 1996). Comparison of the above given data and figure of 43%; the percentage of mothers being educated on preventive role of breast milk against diarrhoea, brings to light a situation that requires much improvement. The concept of breast milk as a perfect food should be conveyed to the mothers very actively because to consider B.M. an imperfect food is one of the reasons of early weaning. Not even a single mother knew that breast milk is protective against respiratory tract infections. During the first six months of life, breastfeeding protects against deaths from respiratory infections. A two to four fold increase in deaths from these infections has been noted in non-breastfed babies. Unfortunately important information is not being given to a single mother.

Not a single mother knew about the contraceptive effect of breast milk while it contributes more to the regulation of fertility than all other methods of contraception put together (Soleiman N. et al 1995). As long as mother breastfeed fully or nearly fully, she is 98% protected against further pregnancy for first six months and 96% for up to 12 months as long as her periods have not returned (Kennedy K.I. 1992). In Zambia, both the Government and NGOs are propagating and spending a lot of money on family planning while the simplest and cheapest way of family planning is being ignored so badly.

This needs immediate attention by relevant authorities.

Knowledge of at least three advantages of breastfeeding including “protection against diarrhoea” as one of the three was used as criteria for adequate knowledge. Using this criteria only 10.8% mothers were found to have adequate knowledge on advantages of breastfeeding as a result of health education in the antenatal clinics clearly indicating inadequacy of the process.

DISADVANTAGES OF ARTIFICIAL FEEDING

48% mothers were given health education on disadvantages of artificial feeding. Increased chances of diarrhoea were known by 59 (20%) mothers as a single disadvantage of artificial feeding and by 127 (42%) mothers in combination with other disadvantages. 46 (15%) mothers knew about two disadvantages of artificial feeding including increased chance of diarrhoea as one of the two. 10 (3%) were aware of three disadvantages of artificial feeding including increased chance of diarrhoea as one of the three. Another ten knew about four disadvantages of artificial feeding including increased chances of diarrhoea as one of the four.

TABLE 16**HEALTH EDUCATION ON DISADVANTAGES OF ARTIFICIAL FEEDING****(a) EXPOSURE TO HEALTH EDUCATION**

	H.E. given	H.E not given	Total
No. of mothers	145	155	300
% of mothers	48%	52%	100%

(b) KNOWLEDGE OF MOTHERS

	Increased Chances of diarrhoea	Increased diarrhoea + increased RTI	Increased diarrhoea +expensive	Increased diarrhoea +may not grow properly	Increased diarrhoea + increased RTI + not grow properly	Increased diarrhoea + increased RTI + not grow properly + expensive	Other Combin-Ations + single resposes	Total
No. of mothers	59	24	22	12	10	10	8	145
% of mothers	20%	8%	7%	4%	3%	3%	2.6%	48%

(48%) of mothers were given H.E on disadvantages of artificial feeding (Table 11). The majority of them (42%) knew that it would give diarrhoea. Again it shows the same trend of health workers. A small number of mothers knew that it increases chances of chest infection for a new born. It is confirmed by different studies that mortality due to chest infections is many times higher in bottle fed babies than in breast fed babies as stated above. When this statement is compared with findings of the study, one can easily realise the need to improve the standard of health education in antenatal clinics.

Cost of artificial feed as its disadvantage was told by very few mothers.

Most of the mothers in our environment who start their babies on formula milk/fresh milk do not realise that it is expensive beyond limits of their pockets so after a short while, when they cannot afford to buy, they introduce water and light porridge as a weaning food as early as 2-3 months of age. This becomes a base for further problems of child health. Health workers should educate mothers on this point with the above given background.

32 mothers (11%) knew that baby might not grow properly. Very early onset of stunting, 22% at the age of 3-5 months and 42% at the age of 6-11 months in Zambia indicates inadequate BF and poor maternal nutrition/health and these are likely to be important contributors to child malnutrition (Peter et al 1995). When we see the very high incidence of infant malnutrition resulting from inadequate BF and a tiny figure of (11%) mother being educated on the role of artificial/formula feeds as a contributing factor for malnutrition, inadequacy of the health education becomes quite clear.

Health education on disadvantages of artificial feeding was given to 48% mothers. Knowledge of at least three disadvantages of artificial feeding including “increased chances of diarrhoea” as one of the three was used as criteria for the adequate knowledge. Using this criteria only 6% mothers were found to have the adequate knowledge on the topic. Looking at the indicator of success; 50% or more knowledgeable mothers, the study concludes inadequacy of the health education on disadvantages of artificial feeding in the antenatal clinics of Lusaka Urban District.

KNOWLEDGE OF MOTHERS ON DIFFERENT CONDITIONS TO BREAST HINDERING SUCCESSFUL BREASTFEEDING (based upon health education)

Knowledge of mothers on different conditions of breast hindering successful breastfeeding was assessed with the help of six questions concerned with identification of crack nipple, management of crack nipple, mastitis, inadequate milk, engorged breast and causes of a baby’s refusal to suck.

CRACK NIPPLE

Health education on crack nipple was given to 25 (8.3%) mothers. All of the mothers knew that nipple is called crack nipple when it becomes dry. Very few 3 (1.0%) knew that it could show cracks also. All of them were aware that it is a painful condition.

TABLE 17**HEALTH EDUCATION ON CRACK NIPPLE****(a) EXPOSURE TO HEALTH EDUCATION**

	H.E given	H.E not given	Total
No. of mothers	25	275	300
% of mothers	8%	92%	100%

(b) KNOWLEDGE OF MOTHERS

	It shows cracks	It becomes dry + painful	Crack + dry + painful	Total
No. of mothers	0	22	3	25
% of mothers	0%	7%	1%	8%

25 (8%) of the mothers were given health education on crack nipple. All of them were told that when nipple becomes dry and painful it is known as crack nipple. Very few 3 (1%) knew that it may show crack also (Table 12). This is a common problem faced by primigravida because of being inexperienced in B.F. Many of them do not know how to take care of nipple, how to attach the baby properly with the breast resulting in crack nipple leading to introduction of artificial feeding because of pain during sucking by the baby.

Mother who knew what the crack nipple means a nipple that shows crack, becomes dry and painful was considered as a knowledgeable mother. Using this criteria only 3 (1%) mothers had adequate knowledge on the topic of crack nipple after getting health education in antenatal clinics.

MANAGEMENT OF CRACK NIPPLE

27 (9.0%) mothers were taught management of crack nipple. 20 (6.7%) were taught to continue breastfeeding. 2 (0.7%) said that a mother should stop breastfeeding in case of crack nipple. None of the mothers knew about application of Vaseline or cream.

TABLE 18

HEALTH EDUCATION ON MANAGEMENT OF CRACK NIPPLE

(a) EXPOSURE TO HEALTH EDUCATION

	H.E given	H.E not given	Total
No. of mothers	27	273	300
% of mothers	9%	91%	100%

(c) KNOWLEDGE OF MOTHERS BASED UPON HEALTH EDUCATION

	Stop B.F	Continue B.F	Apply Cream	Medical Advice	Total
No. of mothers	2	20	0	5	27
% of mothers	0.7%	6.7%	0%	1.7%	9%

27 (9%) mothers were taught management of crack nipple (Table 13). 20 of these said that breastfeeding should be continued by mother with crack nipple. This is a good situation as far as the health education is concerned because most of the mothers stop breastfeeding as a result of different conditions of breast, but not even a single one talked about application of Vaseline/cream on nipple as a tool to manage the situation. This is a big gap in the knowledge of mothers because it is

very difficult for a mother to continue breastfeeding without application of Vaseline on a crack nipple because crack/dryness will not go and it will keep on hurting resulting in discontinuation of breastfeeding. Criteria used for the adequate knowledge was the continuation of breastfeeding and the application of Vaseline in between the feeds. Using this criteria not only a single mother was found to have adequate knowledge on the management of crack nipple.

MANAGEMENT OF ENGORGED BREAST

34 (11.3%) mothers received education on management of engorged breast. 27 (9%) mothers knew about expression of milk and five (1.7%) knew that baby should be attached properly with mother in case of engorged breast in order to manage problem.

TABLE 19

HEALTH EDUCATION ON MANAGEMENT OF ENGORGED BREAST

(A) EXPOSURE TO HEALTH EDUCATION

	H.E given	H.E not given	Total
No. of mothers	34	266	300
% of mothers	11.3%	88.7%	100%

(b) KNOWLEDGE OF MOTHERS

	Express milk	Attach baby properly	Express milk + attach baby properly	Stop breastfeeding	Total
No. of mothers	27	5	1	1	34
% of mothers	9%	1.7%	0.3%	0.3%	11.3%

34 (11.3%) mothers were told about management of engorged breast. Most of them (9%) knew about expression of milk, and 5 (1.7%) were aware of proper attachment of baby with breast as a part of management of engorged breast. While the exactly correct answer; combination of two was known by only one (0.3%) mother. This finding implies that whatever H.E on the above condition is being done mostly is without reasoning. Even those mothers who are exposed to health education on engorged breast are not being told why breast becomes engorged. Mothers are most likely to make use of their knowledge if they understand what is being told to them. It is evident that majority of mothers would incorporate child survival strategies once they are made to understand when they do so, their children will lead relatively healthy life (Dorothy Banda 1998). Mothers who knew that problem of engorged breast can be managed by expressing the breast milk and proper attachment of the baby with the breast were considered to have adequate knowledge. Using this criteria only one mother (0.3%) was found to have adequate knowledge on the topic.

MANAGEMENT OF INADEQUATE BREAST MILK

Health education on management of inadequate breast milk was given to 63 (21%) mothers. Their knowledge consisted of combinations of responses. The largest response was to drink fluid, given by 51 mothers, after that was good diet given by 38 mothers, very few knew that relaxation before feeding can be helpful in order to increase the amount of milk.

Increased fluid intake alone or in combination with “increased diet” and “to relax” was used as criteria of adequate knowledge in order to manage the inadequate breast milk. According to this criteria 17% mothers were considered to have the adequate knowledge on the management of the inadequate breast milk as a result of the health education in the antenatal clinics.

TABLE 20

HEALTH EDUCATION ON MANAGEMENT OF INADEQUATE BREAST MILK

(A) EXPOSURE TO HEALTH EDUCATION

	H.E. given	H.E not given	Total
No. of mothers	63	237	300
% of mothers	21%	79%	100%

(c) KNOWLEDGE OF MOTHERS

	Increased Fluid intake	Increased diet	Fluid+diet both increased	Increased Fluid+increased Diet + relax	Formula milk	Go to doctor	Total
No. of mothers	18	5	27	6	3	2	63
% of mothers	6%	1.7%	9%	2%	1%	0.7%	21%

63 (21%) were getting health education on management of inadequate BM. Major responses, good diet and drinking of lots of fluids were given by majority of mothers (exposed to HE) as a way to increase BM amount. This finding is the same as the finding of a study done in Kenya where majority of women was told to eat and drink (Easami F et al 1994) in order to increase the amount of breast milk. 3 (1%) mothers were told to start formula milk in case of inadequate BM but most probably it was told as a last solution to the problem

Maternal nutrition during lactation can not be overemphasised. Milk is produced from the food mother eats. Therefore good nutrition during pregnancy and lactation are essential factors for good lactational performance (Ackre 1989). Not enough milk has been a major reason for introducing feed to the babies.

Most mothers believe that they do not have adequate breast milk to continue exclusive B.F (Chye et al 1997, Graffy 1992).

MANAGEMENT OF MASTITIS

Health education on management of mastitis (red painful, swollen breasts) was given to 27 (9.0%) mothers. 16 mothers were taught to stop breastfeeding temporarily and to seek medical advice, 7 (2.2%) knew that they need medical attention but at the same time should try to continue breastfeeding. 2 (0.7%) stated only medical advice as management of mastitis. One mother's opinion was in favour of expression of breast milk.

TABLE 21

HEALTH EDUCATION ON MASTITIS

(a) EXPOSURE TO HEALTH EDUCATION

	H.E given	H.E not given	Total
No. of mothers	27	273	300
% of mothers	9%	91%	100%

(b) KNOWLEDGE OF MOTHERS

	Stop B.F Temporarily + medical advice	Try to continue B.F + medical advice	Seek medical Advice	Express milk + medical advice	Try to continue B.F + express milk	Total
No. of mothers	16	7	2	1	1	27
% of mothers	5.4%	2.2%	0.7%	0.3%	0.3%	9%

On mastitis 27 (9%) mothers were exposed to health education (Table 16). Most of them 16 (5.4%) knew to seek medical advice and stop breastfeeding. Only few said that mother should try to continue B.F in case of mastitis. Although apparently the advice to stop breastfeeding in case of mastitis seems to be against the policy of the Govt. to promote breastfeeding. But the fact that increased permeability of mammary gland epithelium, often seen in mastitis increased the chances of HIV transmission (Neville et al 1991), provide support for the information given by health workers although all over coverage is very low.

Criteria for adequate knowledge on the management of the mastitis, was to seek medical advice along with the discontinuation of the breastfeeding temporarily. According to this criteria 16 (5.4%) mothers showed adequate knowledge on the topic as a result of discussions in the clinics.

CAUSES OF REFUSING TO SUCK

30 (10%) mothers were given health education on causes of refusing to suck. Mother gave multiple answers. All of them were aware that a baby could be sick . 7 (2.3%) of them knew that blockage of nostrils can be one of the causes. 4 (1.4%) said that an already fed baby could refuse to suck. Inadequate milk was as a response given by 2 (0.7%) mothers. Combination of any two responses was used as the criteria for the adequate knowledge. Only 13 (4.4%) mothers fulfilled this criteria.

TABLE 22**HEALTH EDUCATION ON CAUSES OF REFUSAL TO SUCK****(a) EXPOSURE TO HEALTH EDUCATION**

	H.E given	H.E not given	Total
No. of mothers	30	270	300
% of mothers	10%	90%	100%

(b) KNOWLEDGE OF MOTHERS

	Block nostrils + sick baby	Already fed + sick baby	Inadequate milk + sick baby	Sick baby	Total
No. of mothers	7	4	2	17	30
% of mothers	2.3%	1.4%	0.7%	5.7%	100%

30 mothers (10%) were given health education on causes of refusing to suck (Table 17). All of the mothers knew that a sick baby can refuse to suck but other reasons were not stressed, as they should be. For example blocked nostrils might be a very common reason for this especially in the rainy season of Zambia where allergic phenomena is also quite common. Similarly “already fed baby” known by only 4 mothers along with “sick baby” might be another common cause because when children are fed already by different types of foods, they refuse to suck because of full stomach. Gradually this becomes reason to stop breastfeeding earlier than it should be.

11% of the mothers were exposed to health education on different conditions of breast hindering successful breastfeeding. Out of this only 2% mothers showed adequate knowledge.

It reflects not only lack of knowledge among health workers but also lack of interest from both the sides. All of the mothers knew at least something about the topic but very few fulfilled the criteria for the adequate knowledge. It seems that either this topic was not discussed nicely or they were not attentive to the discussion. So when questions were asked, answers were not in full. The figure of 2% is very small as compared to indicator for success (page 21). Study concludes that health education on different conditions of breast hindering successful breastfeeding in antenatal clinics is inadequate as indicated by inadequate knowledge of mothers.

KNOWLEDGE OF MOTHERS ON MTCT ACQUIRED DURING ANTENATAL VISITS.

WHO's advice is aimed at women in developing countries and recommends that where alternatives are not safe, breastfeeding should continue to be the feeding method of choice, regardless of mothers' HIV status (WHO) because infant mortality associated with HIV infection acquired through breastfeeding is estimated to be lower than mortality associated with diseases of infancy that would result if BM were withheld (Kathy et al 1990). Difference in these estimates is greater in areas with high based-line level of infant mortality like Zambia. Government of Zambia has also adopted the same policy. Knowledge of mothers on MTCT acquired during antenatal visits was assessed with the help of questions concerned with possibility, way and chances of mother to child

transmission, breastfeeding options by HIV+ mother and reasons to choose a certain feeding options. Findings of the study showed a very poor knowledge of antenatal clinics.

POSSIBILITY OF MTCT

Possibility of MTCT was discussed with 47% mothers and all of them were told that HIV could be transmitted from mother to child.

TABLE 23

HEALTH EDUCATION ON POSSIBILITY OF MTCT

(a) EXPOSURE TO HEALTH EDUCATION

	H.E given	H.E not given	Total
No. of mothers	140	160	300
% of mothers	47%	53%	100%

All of these respondents got knowledge after health education that HIV can be transferred from mother to child. These findings are similar to data given in ZDHS 1996 which show that overall in the whole country 52.8% women and in Lusaka province 44.4% women are aware that HIV can be transmitted from mother to child. 25% antenatal mothers in Zambia are HIV+. Most of them do not know their HIV status because many of them are unable to afford the blood test for HIV. While the remaining are at risk of becoming HIV+ any time. So the discussion about possibility of HIV transmission should be made to each and every pregnant woman coming to antenatal clinic, not to only 47% of them.

WAYS OF MTCT

TABLE 24

HEALTH EDUCATION ON WAYS OF MTCT

(a) EXPOSURE TO HEALTH EDUCATION

	H.E given	H.E not given	Total
No. of mothers	117	183	300
% of mothers	39%	61%	100%

(b) KNOWLEDGE OF MOTHER

	B.F + Pregnancy + delivery	B.F + delivery	B.F + Preg- nancy	Only B.F	Delivery	Pregnancy	Delivery + preg- nancy	Total
No. of mothers	33	30	12	15	10	12	5	117
% of mothers	11%	10%	4%	5.1%	3%	4%	1.7%	39%

183 (61%) did not have any exposure to health education on ways of MTCT against 117 (39%) who had. Among those who were getting health education, less than one third only 33 (11%) were knowledgeable about all three ways of MTCT (Table 19). More than $\frac{3}{4}$ of the total 90 out of 117 knew about breastfeeding as a source of MTCT either as a single way or in combination with other ways (delivery and pregnancy). This shows stress of health workers on breastfeeding as a way of transmission of HIV from mother to child most probably because of policies of government. Very few mothers knew conditions of breast like crack nipple, mastitis that can cause mother to child transmission of HIV.

CHANCES OF MTCT

Health education upon chances of MTCT was given to 43 (19.3%) mothers. 23 mothers (77%) stated that chances of mother to child transmission are 100% - 18 mothers (6%) knew that chances of MTCT are 50% .

TABLE 25

HEALTH EDUCATION ON CHANCES OF MTCT

(a) EXPOSURE TO HEALTH EDUCATION

	H.E given	H.E not given	Total
No. of mothers	43	257	300
% of mothers	14.3%	85.7%	100%

(b) KNOWLEDGE OF MOTHERS

	100%	50%	10%	Total
No. of mothers	23	20	0	43
% of mothers	7.7%	6.7%	0%	14.3%

A very common misconception in our society about an HIV+ mother is that her baby will also be HIV+. While the situation is different, actually MTCT varies between 13% in Europe to 42% in Africa (The working group on mother to child transmission of HIV). Mothers need a lot of information, education on this topic especially when we want to educate them on breastfeeding options by HIV+ mothers. Because whole discussion of informed choice of feeding option by

HIV+ mothers has been based upon the fact that mother to child transmission is not 100%.

When asked on chances MTCT (Table 19), it was found that 85.7% mothers did not receive any health education about the chances MTCT. Only 14.3% mothers received the education on chances of mother to child transmission of HIV. Among these only 7.7% had correct knowledge of 50% chances of MTCT. Lay man language was used in constructing the question and instead of giving exact percentage, 50% or half chances was used as the correct answer. Findings showed that among the women getting health education on this topic more than half were getting wrong knowledge of 100% chances of MTCT. This again proves inability of health workers to educate and convince the mothers about impact of HIV on child through breastfeeding, most probably due to lack of knowledge/belief among health workers themselves as proved by informal discussion with health workers by the researcher later on. This is further confirmed in Table 20 where 238 (79%) mothers out of 300 were not given any information on feeding options by an HIV+ mother.

BREASTFEEDING OPTIONS BY AN HIV+ MOTHER

Association of HIV and breastfeeding was discussed only with 62 (20.7%) mothers. 48 (16%) out of 62 were told that a baby of an HIV+ mother should not be breastfed because of risk of transmission. Remaining 14 (4.7%) mothers said that breastfeeding is the better feeding option by an HIV+ mother. Among these one (0.3%) knew that the exclusive breastfeeding actually protects against MTCT. 4 (1.4%) said that baby should be breastfed because he is already infected. 7 (2.3%) mothers said that an HIV+ mother should breastfeed her baby for only 3 months in order to prevent further transmission.

TABLE 26

HEALTH EDUCATION ON BREASTFEEDING OPTION BY HIV+ MOTHER

(a) EXPOSURE TO HEALTH EDUCATION

	H.E given	H.E not given	Total
No. of mothers	62	238	300
% of mothers	20.7%	79.3%	100%

(b) KNOWLEDGE OF MOTHERS

	Breastfeeding	Artificial feeding	Total
No. of mothers	14	48	62
% of mothers	4.7%	16%	100%

Out of 62 (20.7%), who got the health education, $\frac{3}{4}$ (16%) was told not to breastfeed baby by HIV+ mothers because of risk of post-natal transmission (Table 22). Although artificial feeding is an option but it is unaffordable because majority of mothers belong to low socio-economic class. Various studies have shown artificial feeding as expensive, unaffordable and dangerous for health of child.

TABLE 27
HEALTH EDUCATION ON REASONS OF ARTIFICIAL FEEDING
BY HIV+ MOTHER

(a) EXPOSURE TO HEALTH EDUCATION

	H.E given	H.E not given	Total
No. of mothers	50	250	300
% of mothers	16.7%	83.3%	100%

(b) KNOWLEDGE OF MOTHERS

	Mother can afford artificial feed	Forgotten	Mother can maintain hygiene of feed	Baby can get HIV through Breastfeeding	Total
No. of mothers	0	1	0	49	50
% of mothers	0%	0.3%	0%	16.4%	16.7%

TABLE 28**HEALTH EDUCATION ON REASONS OF BREASTFEEDING
BY HIV+ MOTHER****(a) EXPOSURE TO HEALTH EDUCATION**

	H.E. given	H.E not given	Total
No. of mothers	12	287	300
% of mothers	4%	96%	100%

(b) KNOWLEDGE OF MOTHERS

	Exclusive B.F carries significantly lower risk of MTCT	Very small chances of MTCT through breast milk	Baby on artificial feed is more likely to die due to diseases of infancy than due to HIV transmission in B.M.	Baby is already infected	Mother should B.F the baby for only 3 months in order to prevent further transmission	Total
No. of mothers	1	0	0	4	7	12
% of mothers	0.3%	0%	0%	1.4%	2.3%	4%

Only very few mothers 14 (4.7%) knew that HIV+ mother should continue breastfeeding but reasons for it was not clear to them (Table 21). Table 22 and 23 show that majority of the mothers have not been exposed to the health education which advocates either continuation or discontinuation of breastfeeding by HIV+ mothers. Findings were showing that H.E on this topic concentrates around the point that chances of MTCT through BM are very small as compared to the other modes of transmission. Some clients from a Baby Friendly clinic were told that

breastfeeding should be discontinued after 3 months to reduce risk of transmission. Only one mother at a Baby Friendly centre knew that the exclusive breastfeeding carries a significantly lower risk of MTCT. Early weaning has been proposed as one strategy to reduce transmission through breast milk. A pooled analysis of four published studies obtained a risk estimate of 3.2/100 child year (Leroy et al 1998). Given the limitations of existing data, the potential reduction in HIV transmission, achievable with the early weaning is difficult to anticipate accurately. Even then this knowledge is a life saving measure which needs to be impressed upon the women specifically when there is no cure nor a vaccination for prevention of HIV. In a poverty stricken country mothers have got no option but to continue breastfeeding their children instead of starving them to death for the fear of transmitting infection to the child. These findings tell that there is some activity shown by health workers to help mothers in making decisions about breastfeeding options by HIV+ mothers. But still it needs a lot of attention and hard work from both the policy makers and the health workers in order to improve the standard of health education in antenatal clinics.

On an average 20% mothers were getting education on different aspects of MTCT in the antenatal clinics while percentage of knowledgeable mothers was only 12%, much lower because of the wrong health education on different aspects of MTCT like chances of mother to child transmission and feeding options by an HIV+ mothers. As indicator of success is 50% or more knowledgeable mothers,

study concludes inadequacy of health education on mother to child transmission in antenatal clinics.

KNOWLEDGE OF MOTHERS ON TRADITIONAL BELIEFS

HINDERING SUCCESSFUL BREASTFEEDING

13 (4.3%) were given health education on traditional belief of inchela. All of them knew that nothing would happen if a mother who had an extra-marital status during pregnancy, sees her baby immediately after deliver.

TABLE 29

HEALTH EDUCATION ON TRADITIONAL BELIEF OF INCHELA

(a) EXPOSURE TO HEALTH EDUCATION

	H.E given	H.E not given	Total
No. of mothers	13	287	300
% of mothers	4.3%	95.7%	100%

(b) KNOWLEDGE OF MOTHERS

	Mother will die	Baby will die	Nothing will happen	Total
No. of mothers	0	0	13	13
% of mothers	0%	0%	4.3%	4.3%

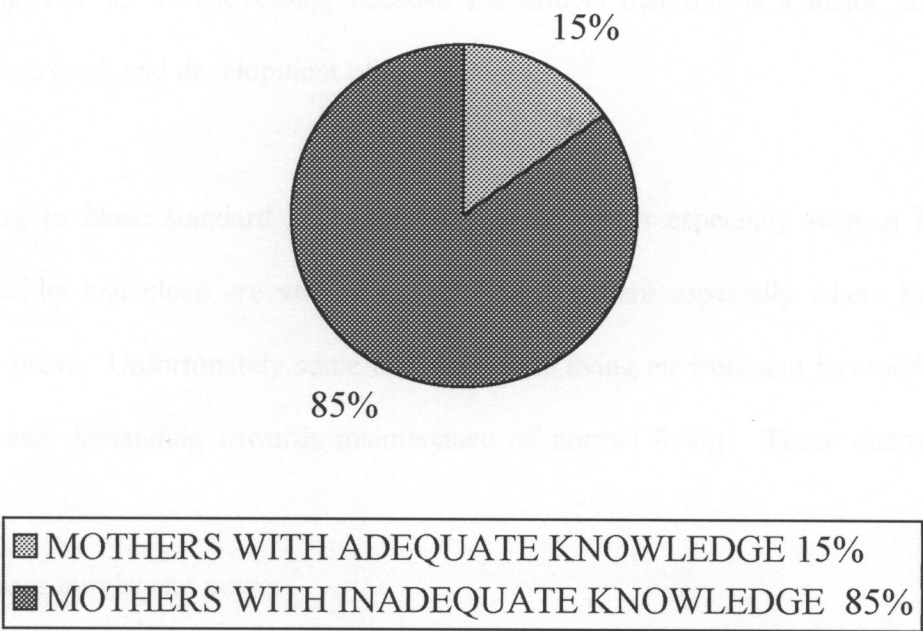
One question was included in the questionnaire about traditional beliefs hindering successful breastfeeding. 4.3% mothers were told that the traditional belief of Inchila is not correct. In a traditional society like Zambia, one question was not enough to determine the adequacy of health education on these beliefs.

This study has demonstrated the inadequacy of health education on breastfeeding in the antenatal clinics (Fig 6). But we can see a positive trend in Baby Friendly clinics (Table 2) where the number of knowledgeable mothers is nearly three times more than those attending non Baby Friendly clinics. We hope this trend will continue finally resulting in the knowledgeable mothers resulting in not only improved mother and child health but also the economy of the whole country.

FINAL RESULT

5.1 CONCLUSION

**KNOWLEDGE OF MOTHERS ON BREASTFEEDING
GAINED AFTER HEALTH EDUCATION IN ANTENATAL
CLINICS**



Above given results shows inadequate health education breastfeeding in antenatal clinics as indicated by only 15% mothers with adequate knowledge on different aspects of successful breastfeeding gained after health education.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

Breastfeeding is a pride of any woman who becomes pregnant. After conception the fullness of the breast is the first change which she observes. It prepares her psychologically for breastfeeding, because she knows that this is a major contributing factor for growth and development of her child.

According to basic standard of living, all human beings especially women know that living healthy and clean are very vital for family welfare especially where her child is going to grow. Unfortunately some changes in the living environment has made life very difficult and demanding towards maintenance of normal living. These changes are as follows:

1. poor purchasing power
2. large family size
3. outbreak of communicable diseases
4. ignorance

Health education programmes on mother and child health worked very well till about the mid seventies. These had a big impact on reduction of infant and maternal mortalities. Even though these rates were gradually increasing but health authorities thought that these can be still be brought down from 96 to 65/1000 live births for infant mortality and from 550/100,000 to 360/100,000 live births (1988) for maternal mortality by the year 2000.

Unfortunately this did not happen. On the contrary both these figures are rising at a phenomenal rate as has been mentioned earlier. This is attributed to HIV infection and inability of health workers to provide adequate and enough health education to bring down the problem. There has been a lot of controversy on HIV infection and its transmission in breastfeeding.

The present study was looking at the adequacy of health education among antenatal mothers in various urban health clinics in Lusaka. As observed from pages 25, 27, 28, 93% of participants were married and 52% had at least primary school education. Majority came from high-density areas reflecting on low socio-economic status and large families. 48% of the mothers attending antenatal clinic had inadequate knowledge about general information on breastfeeding. Only 93.3% mothers knew that breastfeeding should be started soon after birth (Table 5) while 56% had knowledge that baby should be weaned at the age of 6 months (Table 6). Out of 300 only 76 (25.4%) mothers were told that baby should be breastfed on demand (Table 7). Mothers should be able to apply their common sense that if a child cries either he is hungry or he is wet or he has tummy ache. A small number of mother 109 (36.3%) were given health education that minimum duration of breastfeeding should be 2 years (Table 8).

Advantages of breastfeeding were discussed with 45.7% mothers (Table 10) which is a very small figure as compared to huge advantages of breastfeeding. Nearly half of the participants 48% had some idea about disadvantages of artificial feeding as a result of health education in the clinic (Table 11). When we look at the big contribution of

artificial feeding towards infant mortality, inadequacy of health education on disadvantages of artificial feeding becomes quite clear.

This study also looked at the management of various conditions of the breast hindering successful breastfeeding. These conditions included mastitis, cracked nipple, engorged breast and inadequate breast milk. Most of these problems do not need medical attention and can be solved easily at home if mothers are provided with necessary guidance and information. But the findings of the study shows that conditions of the breast hindering successful breastfeeding was the least discussed topic in antenatal clinics. 11% mothers received health education on these conditions of the breast. Out of this only 2% showed adequate knowledge on the topic reflecting on inadequate health education in the antenatal clinics.

There are some other factors which continue to hinder continuity of the normal breastfeeding in the majority of the Zambian mothers. These factors are low nutritional status of mothers, poverty and large family size.

The study would have been incomplete if it did not look at the impact of MTCT during breastfeeding. This is a very hot topic, very controversial and confusing. There does not appear to be a standard policy on MTCT during breastfeeding. Despite scarce resources and limited time the study made an attempt to look at this issue. Health education on this topic was very poor, shown by poor knowledge of mothers. More than 50% of the participants were not given any information about possibility of mother to child

transmission of HIV, way of MTCT were told to only 117 (39%) mothers, 43 (14.3%) mothers had some idea that chances of HIV transmission from mother to child are not 100% (55,56, 57). Knowledge of mothers on breastfeeding options by HIV+ mothers (based upon health education in antenatal clinic) was very poor. Answers were very discriminate. This is because even health workers did not possess convincing knowledge on breastfeeding options by HIV+ mothers. Only one mother was told during her antenatal visit that exclusive breastfeeding for the first 6 months of life minimises the chances of MTCT (Table 23). 49 (16.4%) were told that HIV+ mothers should not breastfeed their baby due to risk of MTCT. Apparently it seems to be a wrong information but practically it does not make much difference as in poverty-stricken communities there is no option for mothers but to feed their children otherwise they would die of starvation. But at the same time it plays a very devastating role in strengthening the already present stigma associated with HIV transmission through breastfeeding.

Final conclusion of the study showed that overall only 15% mothers received adequate and 85% mothers received inadequate health education on breastfeeding in antenatal clinics of Lusaka District. There was no association between demographic characteristics of mothers and inadequate health education on B.F. Number of knowledgeable mothers who attended Baby Friendly clinics were three times more than those who attended non-Baby Friendly clinics. This is most probably due to better trained nurses in Baby-Friendly clinics.

The association between knowledge of mothers and Baby-Friendly clinics was also proved by statistical analysis (p value 0.018). As a whole H.E. in Baby Friendly clinics was also not adequate, indicating the need to improve training process of nurses. This was also felt by finding of wrong information being given to mothers on different aspects of breastfeeding like age to wean, age to stop breastfeeding and MTCT.

The better results shown by Baby Friendly clinics is a good sign but the process still needs a lot of improvement as more than 80% of mothers lack important knowledge about exclusive breastfeeding, MTCT, breastfeeding options by and HIV+ mother and its possible impact on growth and development of their children.

5.2 RECOMMENDATIONS

It is very clear from the study that there are many areas where health education on breastfeeding was found to be inadequate. Providers of antenatal services are not providing enough information to mothers in order to change their attitude and life style. Baby Friendly clinics are existing and are giving some amount of education to mothers but it is also inadequate, not successful in bringing down the highly increasing rate of infant and child mortality. It brings forward need for another study to explore reasons for inadequate health education on breastfeeding in Baby Friendly clinics.

At one time it was thought that successful breastfeeding and low parity among mothers with adequate spacing would be the answer to high infant and maternal mortality.

While attempts to implement these were going on, increased poverty level resulting in poor nutritional status among people who are continuously exposed to the attack of malaria, TB, RTI, diarrhoea spearheaded by HIV infection formed a vicious circle, government and health providers have failed to break. This situation is pathetic and dangerous if something is not done past achievements will also be lost. This will put more pressure on already depleting economy of the country.

Under such circumstances one wonders what would be appropriate recommendations to address these problems. Suggestions will be incomplete because the study has only looked at the health education of breastfeeding in antenatal clinics. It should not be forgotten that those mothers who do not come to the antenatal clinics, were not part of the study. It is also felt that if HE needs to be successful, it needs to start at grass root level where family norms begin. There is need to start the process of education on maternal and child health at primary school level. Children needs to be sensitised about what they are likely to face at a later stage in their lives. It is the belief of this study that knowledge of earlier stages eases out the problems of later stages. Change is very difficult when concepts are already established. Ignorance leads to the carelessness and indiscriminate behaviour. On the other hand a good educational background establishes better understanding of life with positive decisions. In such situations interventions becomes easier and quicker.

One of the major recommendations of the study is to organise antenatal clinics like a forum where all the women could be encouraged to participate on programmes of reproductive health. Looking at data that 79.8% mothers attended ANC for 5 or less than five times, following recommendations are given in order to improve the antenatal attendance of mothers. Neighbour health committees should take an active role in educating mothers to ensure its full utilisation. Health centre staff should plan and implement community health education to promote the utilisation of the service. District health management should consider more community based health providers i.e. CHW to assist in creating awareness in community about ANC. District health management should also encourage inter-sectorial collaboration to involve other sectors in creating awareness about ANC such as Education Department and Department of Community Development. These departments can play an important role in it as mentioned earlier. Objectives of this forum should be very straightforward and their understanding should be clear and interesting. Mothers should be key players rather than health workers.

Mothers should be given opportunity to speak and participate fully in order to learn more and more. Important topics like pregnancy, breastfeeding, care of newborn should be chosen. Attempts should be made to ensure safety of mothers in order to practice successful breastfeeding. Concepts of exclusive and successful breastfeeding should be made very clear to every mother. This aim can be achieved by strengthening the attitude and training of ANC and MCH staff. Their approach towards their clients should be very sincere and not a routine work, as they are paid to do it.

Their training should be able to make them realise that existence of health community will guarantee good productivity and ensure them good conditions of service. It is a two-way channel – community and health workers are complementary to each other. Success of such activity depends upon the return of clients to the clinic not due to sickness but to show that she is doing this right and what else could be done to do better.

Lactational management should be a part of nurses training syllabus. Refresher courses should be arranged continuously and regularly. The health education on breastfeeding should be able to make mothers realise that a small mistake in this respect could result in loss of life. Mother should be able to realise value of successful breastfeeding resulting in a health baby leading to minimal health demands and costs at individual and national level. A sick baby due to inappropriate feeding practices would require funding which on many occasions would not be possible due to shortage of resources.

In present times no health education on breastfeeding is complete without any mention of HIV. Today it is the most important public health problem of all sex, age groups and communities. So far the disease has not been conquered. It has very devastating effect on pregnancy and its outcome. There is yet no clear policy on HIV and breastfeeding. Caregivers are not knowledgeable enough to give correct and adequate knowledge to mothers. This is an ethical matter. It is important that health authorities should try their best to train health workers so that they can disseminate right information to all mothers. Media and workshops should be used to sensitise the population.

Implementation of these recommendations will show sincerity of health authorities for themselves and their country fellows.

5.3 RECOMMENDED INTERIM POLICY ON BREASTFEEDING AND MTCT

While the Government is still deciding to formulate its policy on breastfeeding and HIV infection, individual authorities should go flat out in implementing measures to reduce HIV infection in communities. School teachers, truck drivers, sex workers, industrial workers and soldiers who are at risk should also be addressed.

Voluntary HIV testing should be encouraged to identify the disease in its early stage. Nevirapine and AZT if given during pregnancy, prevent transmission of HIV from mother to child. It is also suggested that exclusive breastfeeding for three months followed by abrupt weaning brings down the MTCT to the minimal. If further studies prove these facts, it should become breastfeeding policy in Zambia for each and every woman irrespective of her HIV status.

Work to prevent MTCT will never be complete if it is not started from the level of the primary prevention. If breastfeeding needs to be successful, people should continue emphasising on their attempts to say:

Stay away from STD

Use condom when necessary

Stick to one partner

Get yourself tested whenever it is necessary

Progress should be made without any attached stigma

5.4 FINAL CONCLUSION

The author and the supervisor have carried out an in-depth study to look at the issue of health education on breastfeeding and knowledge acquired by the mothers at antenatal clinics around the City of Lusaka. Attempts have been made to carry out right analysis and put in correct information. Apologies are in order for any omission or shortcoming. These limitations were not within the grasp of the researcher.

This study has clearly demonstrated the inadequacy of health education on breastfeeding for those mothers who attend antenatal clinics. Knowledge on MTCT seems to be the poorest. If breastfeeding needs to be successful, the study suggests mothers should acquire all necessary information to ensure not only their children's health but also their own safety. They should be able to continue breastfeeding without any apprehension or prejudice. For this entire community should give them full support using each and every possible means including antenatal clinics.

Serial No.

QUESTIONNAIRE
UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE
DEPARTMENT OF COMMUNITY MEDICINE

Questionnaire for study – To determine adequacy of Health Education of breast feeding
In antenatal clinic

Instructions

1. Read every question carefully
2. Tick/encircle the right answer
3. If a question is not clear, ask for explanation from the person who gave you the questionnaire.
4. Every question is to be answered in two parts – part A will tell whether question/topic has been discussed in antenatal clinic or not and if it has been discussed. Part B will tell what knowledge you got from discussion. If answer to part A is **no** then there is no need to proceed to part B. Respondents can tick or encircle more than one option.

SECTION A

1. Serial No.
2. Age
 1. (15 – 19)
 2. (20 – 24)
 3. (25 – 30)
 4. (31 – 35)
 5. (36 – 40)
 6. (40+)
3. No. of Antenatal Visits
 1. 1 – 3
 2. 3 – 5
 3. 6 – 8

4. 9 – 11
 5. 12+
4. Marital Status
 1. Married
 2. Single
 3. Divorced
 4. Widow
5. Occupation
 1. Govt. job
 2. Self employed
 3. No job
 4. Private firm
6. Residence
 1. Low density
 2. Medium density
 3. High density
7. Educational Status
 1. Primary
 2. Secondary
 3. Tertiary
 4. Less than primary
 5. Nil

Serial No.

SECTION B

1. Time to start breast feeding after birth (How long after birth breastfeeding should be started?)

Ans. (a) Has above given topic been discussed with you in antenatal clinic

1. Yes 2. No

(b) If answer to (a) is yes tick/encircle according to the knowledge you got about it.

1. After one day
2. After two days
3. Soon after birth

2. Time to start any other food along with breast milk

Ans. (a) Has above given topic been discussed with you in antenatal clinic.

1. Yes 2. No

(b) If answer to (a) is yes tick/encircle according to the knowledge you got about it

1. During first month
2. At the age of 3 months
3. At the age of 6 months

3. Frequency of breast feeding. (How many times in a day, a baby should be breast fed)

Ans. (a) Has the above given topic/question been discussed with you at Antenatal clinic

1. Yes 2. No

(b) If answer to (a) is yes tick/encircle according to the knowledge.

1. 3 times in a day
2. 6 times in a day
3. On demand

4. Time to stop breast feeding

Ans. (a) Has the above given topic/question been discussed with you at Antenatal clinic

1. Yes (2) No

(b) If answer to (a) is yes tick/encircle according to the knowledge

1. One year
2. Eighteen months
3. After the age of two years

5. Preparation of nipple for breast feeding during pregnancy

Ans. (a) Has the above topic/question been discussed with you at Antenatal clinic

1. Yes 2. No

(b) If answer to (a) is yes, tick/encircle according to knowledge you got about it

1. By applying Vaseline on it
2. By pulling it
3. By washing with warm water
4. By applying any cream/lotion on it
5. Any other

6. Advantages of breast feeding

Ans. (a) Has the above topic/question been discussed with you at Antenatal clinic

1. Yes 2. No

(b) If answer to (a) is yes, tick or encircle according to knowledge you got about it

1. Protection against disease especially diarrhoea
2. Attachment with mother
3. No cost at all
4. Protects against witchcraft
5. Perfect food
6. Any other

7.

Ans.

- 1.

(b)

- 1.

8.

Ans.

- 1.

(b)

- 1.

9.

Ans.

- 1.

(b)

- 1.

2.

3.

4.

5. Any other

10. Management of engorged breast (hard , heavy and a bit painful breast)

Ans (a) Has the above topic /question been discussed at antenatal clinic?

1. Yes

2. No

(b) If answer to a is yes , tick/encircle according to knowledge you got about it

1. Express milk

2. Stop breast feeding

3. apply any cream / lotion on it

4. Attach the baby properly with breast

5. Any other

11. Management of inadequate breast milk

Ans . (a) Has the above topic / question been discussed with you at antenatal clinic

1. Yes

2. No

(b) If the answer to a is yes , tick/encircle according to knowledge you got about it

1. Drink lots of fluids

2. Start formula milk for baby

3. Relax – not to take tension

4. Take good diet

5. Go to doctor

6. any other

12. Management of Mastitis (red, painful, swollen breast)

Ans. (a) Has the above topic/question been discussed with you at Antenatal clinic

1. Yes

2. No

(b) If answer to (a) is yes, tick/encircle according to knowledge you got about it.

1. Stop breast feeding temporarily
2. Try to continue breast feeding
3. Express milk to feed the baby
4. Seek medical advice
5. Any other

13. Causes of refusal of baby to suck

Ans. (a) Has the above topic/question been discussed with you at antenatal Clinic

1. Yes
2. No

(b) If answer to (a) is yes, tick/encircle according to knowledge you got about it

1. It is effect of witchcraft
2. Nostrils are blocked
3. Milk is not enough
4. Baby has already been fed on something else
5. Baby is sick
6. Any other

14. Possibility of transfer of HIV from mother to child

Ans. (a) Has the above topic/question been discussed with you at Antenatal clinic

1. Yes
2. No

(b) If answer to (a) is yes, tick/encircle according to knowledge you got about it

1. Yes
2. No

15. Ways of transmission of HIV from mother to child

Ans. (a) Has the above topic/question been discussed with you at antenatal Clinic

1. Yes
2. No

(b) If answer to (a) is yes, tick/encircle according to knowledge you got about it

1. By breastfeeding
2. During pregnancy
3. During delivery
4. Any other

16. Chances of transmission of HIV from mother to child.

Ans. (a) Has the above topic/question been discussed with you at Antenatal clinic

- | | |
|--------|-------|
| 1. Yes | 2. No |
|--------|-------|

(b) If answer to (a) is yes, tick/encircle according to knowledge you got at antenatal clinic

1. 100%
2. 50%
3. 10% or below

17. If a mother is HIV positive, should she breast feed or not

Ans. (a) Has the above topic/question been discussed with you At antenatal clinic

- | | |
|--------|-------|
| 1. Yes | 2. No |
|--------|-------|

(b) If answer to (a) is yes, tick/encircle according to knowledge you got about it

- | | | |
|--------|-------|--------------|
| 1. Yes | 2. No | 3. Any other |
|--------|-------|--------------|

18. If answer to question 17 is yes. What can be the reason

Ans. (a) Has the above topic/question been discussed with you at Antenatal clinic

- | | |
|--------|-------|
| 1. Yes | 2. No |
|--------|-------|

(b) If answer to (a) is yes, give answer according to knowledge you got about it.

- 1.
- 2.

- 3.
- 4.
- 5.
- 6.

19. If answer to question 17 is No, what can be the reason

Ans. (a) Has the above topic/question been discussed with you at Antenatal clinic

- | | |
|--------|-------|
| 1. Yes | 2. No |
|--------|-------|

(b) If answer to (a) is yes, tick/encircle according to knowledge you got about it

- 1.
- 2.
- 3.
- 4.
- 5.

20. If a mother has an extra marital status and she looks at baby after birth what will happen.

Ans. (a) Has the above topic/question been discussed with you at Antenatal clinic

- | | |
|--------|-------|
| 1. Yes | 2. No |
|--------|-------|

(b) If answer to (a) is yes, tick/encircle according to knowledge you got about it.

1. Mother will die
2. Baby will die
3. Nothing will happen

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TEN STEPS OF SUCCESSFUL BREASTFEEDING

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in the skills necessary to implement this policy.
3. Inform all the mothers about the benefits and management of breastfeeding.
4. Help mothers to initiate breastfeeding within half an hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation even if they are separated from their babies.
6. No food or drinks should be given to newborn other than breast milk unless medically indicated.
7. Practise rooming in --- allow mothers and infants to stay together (24 hours a day).
8. Encourage breastfeeding on demand.
9. Give no artificial teats to the new born.
10. Foster the establishment of breastfeeding groups and refer mothers to them on discharge to them.

NATIONAL POLICY ON BREASTFEEDING (DRAFT)

POLICY DIRECTIVES

1. All health institutions should have a written breastfeeding policy which is routinely communicated to all health staff.
2. All health staff should acquire knowledge and skills necessary to implement the health facility policy.
3. All pregnant should receive information and skills required for successful breastfeeding during antenatal care.
4. Breastfeeding should be initiated within thirty minutes of normal deliver.
5. Prelacteal foods (glucose, infant formula, water) should not be given to newborn babies.
6. All babies should be exclusively breastfed for the first six months of life.
7. Premature babies should receive breast milk from their own mothers.
8. Babies should sleep with their own mothers in the same bed in hospital.
9. Babies should be breastfed on demand.
10. Health workers should show mothers to position and attach their babies to the breast.
11. All mothers should be taught the technique of expressing and storing breast milk.
12. Mothers and babies should not be separated from each other even when they are ill.
13. Mothers with multiple births and caesarian babies should be encouraged to breastfeed.
14. Parents with HIV/AIDS should receive special counselling on breastfeeding.
15. Post-natal and children clinic visits should assess breastfeeding practices.
16. Community support should be provided for continued and sustainable breastfeeding
17. All work places should facilitate women continued breastfeeding.
18. All health pre and post service curriculum should include lactational training.
19. All manufacturers and distributors should comply with the code of marketing of breast milk substitutes in Zambia.
20. The Government shall monitor the implementation of the policy.

CRITERIA OF LUSAKA CITY COUNCIL FOR DENSITY OF RESIDENTIAL AREAS

HIGH DENSITY AREAS

REFERS TO THE MOST HIGHLY POPULATED COMPOUNDS OF LOW COST HOUSING AND LIMITED PUBLIC FACILITIES. HIGH DENSITY AREAS ARE MOST PRONE TO THE EPIDEMICS AND ENVIRONMENTAL DEGRADATION EXAMPLE CHILENJE, CHAWAMA, MISISI.

MEDIUM DENSITY AREAS

REFERS TO THE SETTLEMENTS OF MODERATE INFRASTRUCTURE AND PUBLIC FACILITIES. PROPERTY VALUES ARE OF MODERATE LEVEL.

EXAMPLE THORN PARK, MADRAS

LOW DENSITY AREAS

REFERS TO THE HIGH COST AREAS WITH HIGH QUALITY INFRASTRUCTURE AND PUBLIC FACILITIES. PROPERTY VALUES ARE USUALLY MUCH HIGHER AS COMPARED TO THE FIRST TWO.

EXAMPLE WOODLANDS, KABULONGA

Dr. Robina Gul Shamas
Dept of Community Medicine
University Teaching Hospital
LUSAKA

14th January, 2000

The Director
District Health Management Team, Lusaka

u.f..s. Head of Dept. Community Medicine

Dear Sir/Madam,

SUB: PERMISSION TO CARRY OUT A RESEARCH IN LUSAKA
URBAN CLINICS

I am a student of MPH (Masters in Public Health). I am going to do a study to determine adequacy of health education on breast feeding in antenatal clinics as a part of my maters. Data will be collected by interviewing mothers in antenatal clinics of Lusaka Urban.

I will be very thankful if grant me permission to do so.

Yours sincerely

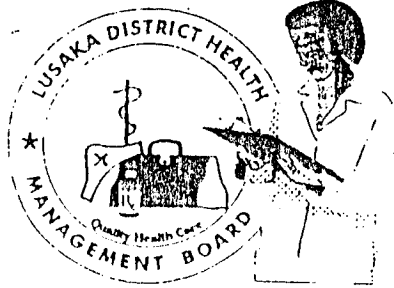
o Dr. Robina Gul Shamas
STUDENT, MPH

P. O. Box 50827

Lusaka

Tel: 235554

Fax: 236429



In reply please quote

No.....

MINISTRY OF HEALTH

LUSAKA DISTRICT HEALTH MANAGEMENT BOARD

28th December, 1999.

Dr. Robina Gul Shamas
Department of Community Medicine
University Teaching Hospital
LUSAKA.

Dear Doctor,

**RE: AUTHORITY TO CARRY OUT A RESEARCH IN LUSAKA
URBAN CLINICS.**

Be informed that permission has been granted for you to carry out a research in the Urban Health Clinics on Health Education on Breast-feeding.

However, this is on condition that you avail this office a copy of your findings.

Yours faithfully,

DR. MAKUNGU KABASO
AG. MANAGER PLANNING DEVELOPMENT
for District Director of Health



THE UNIVERSITY OF ZAMBIA

Research Ethics Committee

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Telex: UNZALU ZA 44370

Fax: + 260-1-250753

Dean's Office
P.O. Box 50110
Lusaka, Zambia

Your Ref:

Our Ref:

24th April 2001

Dr Robina Shamas
C/O Department of Community Medicine
UNZA School of Medicine LUSAKA

The following research proposal has been approved by both the Research Ethics Committee and Research and Graduate Studies Committee.

Title of research proposal: **"To determine adequacy of health education on breastfeeding in antenatal clinics".**

The committee will render continued support throughout the preparation of the thesis.

Yours sincerely

Signed:.....

PROF K S BABOO MBBS M MED FRSH DABTM
CHAIRPERSON, RESEARCH ETHICS COMMITTEE