CHAPTER 5

DISCUSSION

The results of this study indicated that there were no difference in term of parental characteristics and infant birth weight between EBF and NEBF groups except father's occupation. Most of the fathers were civic service holder and daily paid workers of medium socio-economic status in both groups. There was a slightly higher percentage of fathers with business and farming in non exclusive breast feeding compared to those exclusive breast feeding group. Other occupations such as carpenter, tailor, painter and rikshawala etc. were higher in non exclusive than exclusive breast feeding group.

The mothers in both groups did not have any jobs(100%). They did not have source of income. They were all depended on husbands' and families' income. The background of both exclusive and non exclusive breast fed infants, therefore, were comparable in term of parental education, socio-economic condition except occupation of fathers in this study area.

Birth weight doubling time has long been used as a land mark by which the normal physical growth of infants can

be assessed(5). According to most paediatric text book doubling of birth weight is said to be achieved between 5 and 6 months of age. This result of present study is similar with those reported by Neumann GC et al in his growth study where infants doubled their birth weights at approximately 4 months(7). The original weight were almost doubled at the end of 4 months in both groups but slightly lower in non exclusive breast fed infants.

About 50 infants of EBF and 50 infants of NEBF were matched with in age and sex with breast feeding groups. The matching was done to ensure that the groups would be comparable in parental socio-economic, infants's sex and weight gain in EBF and NEBF infants. In this procedure EBF group was matched to the NEBF group. Thus, the proportion of subjects in each category were kept similar between groups. Furthermore, the result of ANOVA showed that there was no effect on weight gained by sex in both groups.

The results indicated the weight gained of exclusive breast fed infants was significantly different from the NEBF infants who were given breast milk substitutes after birth to 4 months of life. Dewey GK et al found that weight gained during the first 3 months of life, but breast fed infants significantly less weight gained than formula fed infants. It

probably due to the study was done in developed country where mothers had high family income, educational level and hygienic proper feeding practices. They could proper selection of fortified formula milk. But this study was done in developing country, the usage of improper selection of breast milk substitutes like cow's milk, semi solid foods and unhygienic improper feeding practices due to low family income, high illiteracy rate or low literacy rate, unfavorable environmental sanitation and lack of drinking water which prone to increase morbidity such as diarrhoea and ARI as well as growth faltering of infants. Nutritional value of any sort of milks can be decreased due to over dilution or high concentration of milk. So lack of complementation of foods, infants suffers from malnutrition.

In the present study the non exclusive breast fed infants weight gained is less than exclusive breast fed infants. Probably since the mothers of non exclusive breast fed infants used unmodified cow's milk as breast milk substitution. As we know cow's milk which is higher proportion of casein forms a tough curd in the infant's stomach and less digestible compared to breast milk with higher proportion of the soluble whey protein, a softer curd which is more easily digested and absorbed(5). Unsaturated fat, adequate amount of lactose, much less minerals are the

qualities of breast milk compared to saturated fat, higher amount of and minerals in cow's milk(4,5). About 75 % of the iron of breast milk can be absorbed compared to only 4% to 5% from other foods. So the cow's milk breast milk and other substitutes are less digestible, absorbed which contributes to malnutrition which interfere to gain weight of infants(3).

From the present study also showed that the occurrence of upto 3 episodes of diarrhoea were significantly higher in exclusive breast fed infants. A study conducted by Chandra RK et al in Canada and found that the incidence of diarrhoea was lower in exclusive breast fed infants compared to non exclusive breast fed infants(9). Another study conducted in some poor parts of Lima and Peru has shown that the incidence and prevalence of diarrhoea in children under the age of 6 months were lower among the exclusively breast fed than among those who had been given water or tea in addition to breast milk. Formula fed infants who are given no breast milk had the highest rates. The mean episodes of ARI in EBF group was significantly lower compared to NEBF infants($p < 0.05$). It could be cow's milk and mode of unhygienic artificial feeding contribute to the outcomes. The mode of artificial feeding were bottle, teats and spoon. None of mothers boiled the utensils of artificial feeding. They just cleaned and used for next feeding to the babies (was

observed during data collection). This made bottle fed infants prone to diarrhoea due to the result of poor hygiene and inadequate cleaning might increase the chance of gastro-intestinal infection. Human milk also has unique properties not found in cow's milk and help to prevent infection in the infant's bowel(9,10). Furthermore, many different protein, enzymes, and cells contribute to host resistance factors in the human colostrum and milk. Secretory antibodies against the various of viruses enterobacteria and enterotoxin have been detected and are functionally effective in the gut lumen against pathogens(Chandra RK). Antigen-nonspecific resistance factors such as lactoferrin, lysozyme and interferon provide additional anti microbial activity in breast milk. Because the breast is a physiological container which is virtually free from contamination. Breast milk is contrast to artificial feeds where the bottle, teat and water may all be heavily infected with pathogens.

Among the non exclusive breast fed infants there were 92% of mothers gave colostrum and 8% did not given colostrum. The mothers of non exclusive breast fed infants used high rate of colostrum, however the children still have higher diarrhoea and ARI incidence than those exclusive breast fed infant. It probably by cow's milk and other breast milk substitutes as well as unhygienic feeding technique leads to increase

morbidity of diarrhoea and ARI among mixed breast fed infants. Diarrhoea contributes malnutrition and malnutrition weakens the immunological system of the infants' bodies which interfere to normal weight gain.

5.1. LIMITATION:

The consecutive sampling technique was used to select samples in the three wards of Biratnagar, because of limited funds, manpower and transportation. The results of this study, therefore, can be generalized only to the urban area of Morang district of Nepal but it can be modified to benefit other regions which have the same socio-economic characteristics as the study area.

5.2. OBSTACLES AND STRATEGIES TO SOLVE THE PROBLEMS:

It was very difficult to organize for meeting with community leader, local health workers as well as local birth attendance by investigators according to scheduled time period. Because most of the time they were engaged about their own or social business. They were requested individually one week before to attend meeting at the house of community leader sending the letters by helper of health post.

Transportation was a problem, households of subjects enrolled in this study were unfortunately distance apart. This was overcome by expending a good amount of money and hiring local available transport. Language barrier was a problem which had been solved by the help of local health worker who were the observers of this study. The women who mostly used local language were denied to cooperate during data collection and in the procedure for assessing the weight of infants. Furthermore they covered their face with sari and were ashamed to talk with unknown persons. So their husband and other family members helped to answer necessary information about mothers and infants which made easier to health worker.

5.3. EXPECTED BENEFITS:

Mother:

- Reducing the bottle feeding expense
- A skin to skin contact creates subtle psychological feelings of motherhood and it is expected that this feelings will help to develop psycho-social status of children.
- Saving of time for preparing bottle and milk dilution that can be utilized for other business.
- It tends to increase the post natal amenorrhoea.

Baby:

- Infants morbidity and mortality of exclusive breast fed infants are expected to be decreased. Diarrhoea and ARI seemed to decrease in exclusive breast fed infants.
- It is expected that PEM would be overcome and the exclusive breast fed infants can gain normal weight.

5.4. IMPLICATION:

1. In this study exclusive breast fed infants were found to have a positive impact on weight gain as well as decreasing the incidence of diarrhoea and ARI compared to those who are non exclusively breast fed infants, then this result can be used to impose exclusive breast feeding as part of the local health policy

2. This can be use to increase the awareness of health care planners on the danger of poor weight gain and increase of episodes in infectious diseases (diarrhea and ARI) among the non exclusive breast feeding group.

3. It can help to reduce the burden of illness such as infant mortality and morbidity of ARI and diarrhoea among infants in the urban community of Morang District.

4. It can provide knowledge to make mothers more conscious towards the importance of exclusive breast feeding and its advantages.