CHAPTER VIII
CONCLUSION

7.1 INTRODUCTION

Each year, millions of women, newborns, and children die from preventable causes. About 530,000 women die from pregnancy related complications. About 4 million babies die within the first month of life and over 10 million children under the age of 5 die. Moreover, nearly all (99 percent) maternal, newborn, and child deaths occur in low- and middle-income countries (Sines et al., 2006). These risks are present in every society and in every setting. In developed countries they have been largely overcome because every pregnant woman has access to special care during pregnancy and childbirth. Such is not the case in many developing countries where each pregnancy represents a journey into the unknown from which all too many women never return. This situation cannot be allowed to continue. The interventions that make motherhood safe are known and the resources needed are obtainable. The necessary services are neither sophisticated nor very expensive, and reducing maternal mortality is one of the most cost-effective strategies available in the area of public health (Message from the Director-General, World Health Day, 1998).

In the 1990s, a series of global conferences organised by the United Nations identified maternal mortality and morbidity as an urgent public health priority, and mobilised international commitment to address the problem. Governments from around the world pledged to ensure access to a range of high-quality, affordable reproductive health services, including safe motherhood and family planning, particularly to vulnerable and underserved populations.

In 1994 International Conference on Population and Development (ICPD) at Cairo, governments agreed to reduce the number of maternal deaths by half by the year 2000, and further reducing half again by 2015. In 1995, the Fourth World Conference on Women (FWCW) in Beijing gave substantial attention to maternal mortality and
reiterated the commitments made at the ICPD, infant and child mortality rates should be reduced by two-thirds by 2015. Poor care of the mother often means death of the child; even if the mother survives, poor maternal health jeopardizes a newborn's chances of survival. At least 30 to 40 percent of infant deaths i.e., 1.5 to 2.5 million each year, could be avoided with antenatal and delivery care. An estimated 75 percent of perinatal deaths, currently 7.5 million each year in developing countries, could be avoided with improved maternal health, adequate nutrition during pregnancy and appropriate management of deliveries (WHO, 1997).

Despite such kinds of national and international commitments, the ground reality is that a large number of women in developing countries do not have access to maternal and child health services. Many of them cannot get to, or afford, high-quality care due to various factors (demographic, socio-economic, cultural and programmatic factors). Cultural customs and beliefs can also prevent women from understanding the importance of health services, and from seeking them.

Low utilization rates for maternal health services are caused by a range of factors: distance from health services; cost, including the direct fees as well as the cost of transportation, drugs and supplies; multiple demands on women's time; and women's lack of decision-making power within the family. The poor quality of services, including poor treatment by health providers, also makes some women reluctant to use services (AbouZahr, 1997).

The finding of a study in rural China suggested that the use of maternity services improved with increasing rural women’s access to reproductive health services (Short and Zhang, 2004). In a study of 240 maternal deaths in Mexico, Bobadilla et al. (1991) found that inadequate medical and institutional care contributed to 70 percent of the deaths, whereas only 22 percent of deaths could be attributed to behavior patterns of women and their families. Grossman (1990) claimed that “health services themselves often are ‘the problem’ when they are inappropriate, poorly delivered, inaccessible or insensitive to the cultural imperatives of time and place”.

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On the other hand, there is a postulation that people in developing countries, particularly from rural areas are reluctant to utilize the available preventive and curative health services as they are less educated, poor, unaware and moreover, not interested in the practice of modern facilities due to the cultural taboos.

Nepal is also a member country of the UN and has participated in every international conference related to maternal and child health and committed to improving their health. Yet, the level of utilization of maternal and child health services is evidently still very low and maternal and under 5 years mortality rates have remained very high (Chapter I).

In this context, the present study has been envisaged to observe the level of utilization of maternal and child health services and its determinants based on field survey data. This study has attempted to observe the impact of various factors on the level of utilization of maternal and child health services, which are proposed in the conceptual framework (Figure 2.1) in chapter II. It is assumed that factors from both (supply and demand) sides are equally important in determining the level of utilization of maternal and child health in the study areas.

The results of the present study reveal that on average, 55.7 percent of the respondents have received antenatal check-up whereas; the proportion of receiving it is 59.5 percent in Chitwan district and 52.0 percent in Nuwakot district. 64.7 percent and 68.3 percent of the respondents among antenatal receivers from Chitwan and Nuwakot districts respectively have utilized the services available at primary health care centres in the vicinity whereas 26.1 percent (Chitwan district) and 4.8 percent (Nuwakot district) of them have received the same from the private sector.

On an average, 46.2 percent of the respondents in the study area have received TT vaccination during pregnancy (53.5 percent in Chitwan district and 39 percent in Nuwakot district). It is even lower when it comes to the proportion of two doses and more i.e. 29.7 percent in total and in Nuwakot it is only 26.9 percent whereas in Chitwan district it is 31.8 percent. Similarly, on average of 58 percent of the
respondents received iron tablets in the study area whereas in Chitwan district it is 62 percent and in Nuwakot districts it is 54.5 percent.

The quality of antenatal check-up also depends upon the place where it is received since the pattern of service; level of service providers and the availability of physical and drugs facilities differ with the different places in a country like Nepal. On an average, 39.5 percent, 24.3 percent and 38.6 percent of the respondents receive antenatal check-up, TT vaccination and iron folic tablets from sub-health post in the study area, which is the lowest level of service provider unit with none of the laboratory facilities (Figure 1.7).

The proportion of body weight measurement is on average 57.0 percent and it is 65.5 percent in Chitwan district whereas the same is 47.1 percent in Nuwakot district. Similarly, the proportion of blood pressure measurement is on average 72.1 percent and it is 79.8 percent in Chitwan district whereas the same is 70.2 percent in Nuwakot district. Most of these tests and measurement were also performed at least 1.3 times higher in Chitwan district than in Nuwakot district. These services are important for screening the danger sign of pregnant mother and her foetus. For example, all pregnant women should be weighed to observe overweight or underweight which could be danger for both mother and foetus. Similarly, high blood pressure during pregnancy is indicative of hypertension that is also danger for both mother and foetus. Urine test should be performed at every visit to observe diseases such as urinary tract infection or hypertensive disorders of pregnancy and protein due to contamination by vaginal. Blood test in pregnancy is vital to identify the blood group, antibody screening, level of haemoglobin and HIV infection.

Out of 400 births, 83.5 percent (Chitwan district: 79.5 percent and Nuwakot district 87.5 percent) took place at home and only 16.5 percent of births took place in health institution. Out of 16.5 percent, 3.5 percent took place at primary health center. Out of 400 deliveries, health personnel assisted only in 16.5 percent of births (11.3 percent by a doctor and 5.3 percent by other health personnel).
Data of the present study shows that among 112 children from Chitwan district (56.0 percent) and 96 children from Nuwakot district (48.0 percent), out of 200 sample children in each district have received immunization. The immunization level for both districts is revealed lower than that of national level (65.6 percent) derived from Demographic and Health Survey (DHS, 2001). On an average, 52.0 percent of children out of 400 have received immunization in the study area.

It is noticed that the utilization of preventive services available at primary health care centres in the nearby community is higher than the curative services (treatment for fever/cough and diarrhoea) in the study area. For example, in case of child illness from fever/cough, 48.1 percent and 42.3 percent have received the treatment in Chitwan and Nuwakot district respectively. Similarly, in case of child illness from diarrhoea, 52.5 percent and 45.7 percent have received the treatment in Chitwan and Nuwakot district respectively.

7.2 Logistic Regression Analysis

Initially, bivariate analysis has been tried to observe association of utilizations of maternal and child health services with different explanatory variables as depicted in figure 2.1. The results of chi-square test show that the association of utilizations with the selected all explanatory variables is found highly significant, except time taken to reach health centre on foot in Chitwan district, family size for intake of iron folic tablets and for child health in both districts. The association of age of the respondents with utilizations turns to be an inverted U-shaped instead of a positive one as it is assumed. However, chi-square test does not rule out the cause and effect relationship between the explanatory variables and response variables. Thus, drawing a conclusion for the significant factors based on chi-square test could be misleading. Hence, a binary logistic regression has been used to reach a firm conclusion to ascertain the statistically significant factors in determining the utilization of maternal and child health services for the present study.
7.3 Results of Regression

The results of logistic regression reveal that out of thirteen selected explanatory variables in the model, only four variables i.e. knowledge about health centre/MCH, exposure to electronic media, a visit of a health worker, respondents’ education and problem faced in pregnancy are found to be highly strong significant positive factors on the use of maternal health services, followed by ethnicity, which has the strongest positive significant effect in receiving antenatal check-up and iron folic tablets. Income and husbands’ occupation are found to be the strongest positive significant factors on the use of TT vaccination at 1 percent, but it turns out to be significant for intake of iron folic tablets at 5 percent only. While the residence of the respondents is turns out to be the strongest negative significant factor only for the use of antenatal check-up.

Exposures to electronic media and parents’ education have emerged consistently as the strongest significant positive factors for child health services utilization in the study area. Ethnicity and age of the mother have the strongest significant positive impact on diarrhoea treatment and fever/cough treatment, but not in receiving full doses of child immunization. ‘Knowledge about health centre/MCH’ has emerged as the strongest positive significant factor for the treatment of diarrhoea and a strong positive significant factor in receiving full doses of child immunization, while a ‘visit of a health worker’ is also found to have a strong positive significant impact on diarrhoea treatment at 1 percent, and fever/cough treatment at 5 percent. In terms of ‘time taken to reach health centre on foot’, it has emerged to be the strongest significant negative factor in receiving full doses of child immunization.

In case of Chitwan district, ethnicity, exposure to electronic media, and education of the respondents have emerged consistently strongest significant positive factors for the use of maternal health services whereas, a visit of a health worker has also consistent, but weak positive impact for the same. Other variables such as ‘problem faced in pregnancy’ has strongest significant positive impact in receiving antenatal check-up and TT vaccination. Husbands’ occupation has strong positive significant impact in receiving iron folic tablets and TT vaccination. Knowledge about health
centre/MCH and family size are found to be strong significant positive and negative factors in receiving antenatal check-up and iron folic tablets respectively.

While, exposure to electronic media, and parents’ education turn out to be consistently positive and highly significant factors for the use of child health services. Income and a visit of a health worker have emerged as significant positive factors affecting child health utilization at 5 percent, whereas family size is found to be strongest positive significant factor in receiving full doses of child immunization in Chitwan district.

In Nuwakot district, ethnicity, knowledge about health center/MCH, education of the respondents and problems faced during pregnancy have emerged consistently strongest significant positive factors for the use of maternal health services. The effect of ethnicity is highly significant in receiving antenatal check-up, and a strong effect in receiving iron folic tablets and TT vaccination. Knowledge about health center/MCH, and education of the respondents have strong significant positive effect on the use of antenatal check-up and iron folic tablets and the strongest significant positive effect on the use of TT vaccination. Factors such as ‘problem faced in pregnancy’ has a strong positive significant effect for all maternal health services utilizations and exposure to electronic media has the strongest positive significant effect in receiving antenatal check-up and iron folic tablets. The rest of the factors such as ‘time taken to reach health centre on foot’ has a strong negative significant effect on the use of antenatal check-up, and ‘income’ and a ‘visit of a health worker’ have also strong, but positive significant effect on the use of iron folic tablets and TT vaccination respectively.

In terms of child health services, only mothers’ education has emerged consistently as the strongest significant positive factor affecting the use of child health services in Nuwakot district. Whereas, time taken to reach health centre on foot, exposure to electronic media and fathers’ education are found to be consistently significant factors in receiving child health services at 5 percent. The former has negative and the latter two have positive effect on the use of child health services. Ethnicity has the
strongest positive significant effect for diarrhoea treatment and 'full doses of child immunization' and 'family size' have also the same effect for only diarrhoea treatment. Knowledge about health center/MCH and fathers' occupation have strong positive significant effect in receiving full doses of child immunization.

The findings of logistic regression reveal that the supply side (availability and accessibility of health services) has little effect on the use of maternal and child health services in the study area and Chitwan district, but comparatively a strong effect in Nuwakot district. Demand side factors are found to be major determinants in receiving maternal and child health services in the study area. Between two districts, these have emerged as major determinants in Chitwan compared to Nuwakot. However, all of the hypotheses proposed in chapter I are not rejected except hypothesis one. According to hypothesis one, the utilization of maternal and child health services should be higher in Chitwan district as compared to Nuwakot district since its physical feature is plain and smooth. The figures on utilization level of maternal and child health services estimated in chapter V reveal the same and results of the independent t test also reveal that the use of some of maternity care utilization i.e. institutional delivery, measurement of body weight in pregnancy, use of TT vaccination and skilled birth assistance is higher in Chitwan district than Nuwakot district.

The superimposition of maps has also shown that the use of maternal health services is higher against lower proportion of the availability and accessibility of health services in Chitwan district compared to Nuwakot district (Chapter III).

But the result of logistic regression in table 6.3 shows that the utilization of antenatal check-up is lower in Chitwan district by 0.1 times than that of Nuwakot district. While, in the findings of many research studies, the physical barrier to access to the health centre is found as a negative factor for the non-use of maternity care services in the developing countries (Reddy, 1980; Mishra, 2000; Acharya and Cleland, 2000; and Jahn et al., 2000).
Hence, it can be concluded that the availability and accessibility of the government health services must have played a crucial role for the higher use of antenatal check-up in Nuwakot district as compared to Chitwan district. Since the availability and accessibility of the government health services is found higher in Nuwakot district than Chitwan district (Chapter III). Otherwise, socio-economic condition of Nuwakot district is lower than Chitwan district based on both secondary data and field survey data (Chapters III and IV). It is consistent with the response that "long distance" is expressed as the second main reason by the respondents of Chitwan district for not going to the primary health care centre for antenatal check-up (Table 5.5). Besides, the proportion of the respondents who have used the government sources for antenatal check-up is also found lower in Chitwan district as compared to Nuwakot district (Tables 5.2).

7.4 POLICY IMPLICATIONS

The present study is based on field survey data collected from rural areas of Chitwan and Nuwakot districts of the Central Development Region in Nepal. After an in depth analysis of utilization of maternal and child health services based on field survey data, the following policy implications are likely to be followed in improving maternal and child health.

The findings of multivariate analysis indicate that overall, the utilization level of maternal and child health services can be improved if females are provided higher education than that their husbands since it has emerged as the strongest positive significant factor in receiving maternal and child health services. But their husbands are needed to be addressed by a special policy such as male involvement in maternal and child health so that they could be responsible about maternity care and health, particularly about pregnancy, childbirth and postpartum period. Policy should have the target to change the traditional outlook or attitude that exists towards maternity care and health through awareness campaigns. The multivariate analysis in this study
demonstrated that the impact of husbands' education in receiving maternal health services has turned out to be as an insignificant factor unlike the findings of previous studies, but highly positive significant factor for the child health utilization.

The exposure to electronic media is considered as proxy variable of socio-economic development and women's autonomy and empowerment; basically it is taken as an effective medium to disseminate information. It has been taken in this study as a key factor for the dissemination of maternal and child health services and is found to be the strongest positive significant factor for the utilization of maternal and child health services. Hence, utilization level could be raised if a policy aims to disseminate more specific information regarding maternal and child health issues including reproductive health and male involvement in maternal and child health issues. In addition, a long term policy should be adopted to improve the economic conditions of the poorer classes so that mothers from that section are enabled access to electronic media (TV and radio) and be aware of maternal and child health care and would thus utilize the services.

Knowledge about health centre/MCH and a visit of a health worker have also shown the strongest positive significant impact in receiving maternal and child health services. Another previous study on Nepal also revealed the same (Acharya, 2000). The utilization of maternal and child health services, particularly preventive one can be improved if the visit of a health worker at home could be made a weekly and regular affair.

In case of ethnicity, policy should have a directive to encourage dalit and indigenous community through some special IEC programmes so that they can be well informed about the benefit and importance of maternal and child health services in the short run, and, for the long run, they should be targeted with the programmes that uplift their socio-economic status and identity to enjoy equal access to health opportunities as prevalent in higher caste community.
The income of household and fathers' occupation have not emerged as statistically significant for child health services ‘utilization’. Respondents from higher income households and whose husbands’ occupation is non-agriculture are found utilizing more maternal health services as compared to their counter-parts. It also demonstrates that household and fathers are much sensitive and caring to child health compared to maternal health regardless socio-economic conditions. Thus, policy should give priority to some non-health programmes too despite maternal health programs so that income level of poor households can be increased and the opportunity of husbands' involvement in non-agricultural sector can be enlarged and utilization level of health services would increase.

As mentioned above given that distance or physical access to a health centre has emerged as less significant factor affecting in ‘receiving maternal and child health services’, it may not be necessary to create new health centres (at least for the purpose of encouraging maternal and child health services delivery point of view), but rather be better to focus on improving the capability of existing facilities to deliver effective and high quality health care since the number of the respondents have expressed ‘lack of facilities’ as the main reason for not having gone to receive antenatal check-up and ‘lack of medicine’ and doctor/staff for not having taken children to primary health care centres for curative treatment. Lack of curative services adversely affects the utilization of preventive and promotive care. Therefore, there is urgent need to improve the availability and quality of curative care to attract people towards preventive and promotive health care so that utilization level of maternal and child health services could increase.

Finally, this study also concludes that making women aware of benefits of maternity care and child care and risk and danger sign about pregnancy and childbirth through an effective IEC programme would change their concept of pregnancy and childbirth. Consequently utilization level would increase. As the multivariate analysis of this study shows respondents who realized risk or problem in pregnancy have received more maternity care than those who did not realize so.
The three main reasons for not having gone to primary health care centre to receive antenatal check-up are ‘lack of facilities’, ‘remote vicinity’ and ‘negligence of staff’. The emergency obstetric cases can not be treated at sub centre and PHC level as the specialization is not available at these places. When such cases come to PHC, they are simply referred to other hospitals and are not given primary attention and referral services. There needs to further strengthen the referral services which will attract the community in case of emergency as well.

Majority of pregnant women are found to not have gone for antenatal check-up and deliver births at home without skilled birth assistance in the study area though they are aware of the availability of services at primary health care centres. Hence, there is a need of effective and continuous IEC strategy to be developed regarding demand and motivation towards maternal and child health services. Family and the local community participation should be sensitized to the importance of maternal and child health services so that their traditional attitude towards health services of women change and women are encouraged to receive maternity services and the usual excuses expressed by the respondents who do not go to receive antenatal check-up as ‘lack of time’ and ‘not necessary’ are completely minimized.

This study also concludes that determinants of maternal health care services are not same across two districts and for different maternal and child health care indicators. Only respondents’ education and exposure to electronic media have emerged as the strongest significant positive factors in both districts for all indicators of maternal and child health services. The noteworthy point is that the time taken to reach health centre and knowledge about health centre/MCH have emerged as negative and positive strong factors on the use of child health and maternal health services respectively in Nuwakot district, but not in Chitwan district. Similarly, a visit of a health worker and husbands’ occupation have emerged as the strong positive significant factors in Chitwan district and not in Nuwakot district. Hence, the present study suggests that policy implications should be addressed differently across districts to improve maternal and child health services.