
Insights on Family Health Issues in Nepal



**Family Health Division
Department of Health Services
Ministry of Health
His Majesty's Government of Nepal**



**Demographic and Health Surveys
Macro International Inc.**

**INSIGHTS ON FAMILY HEALTH
ISSUES IN NEPAL**

Macro International Inc.
Calverton, Maryland, USA

July 1997

This report summarizes the findings of the further analysis for the 1996 Nepal Family Health Survey (NFHS). The further analysis project was conducted under the aegis of the Family Health Division, Department of Health Services, Ministry of Health, Nepal. The project was funded by the U.S. Agency for International Development (USAID) through its mission in Nepal. Macro International Inc. provided technical assistance.

The 1996 NFHS is part of the worldwide Demographic and Health Surveys (DHS) project. Additional information about the 1996 NFHS further analysis project can be obtained from the Family Health Division, Department of Health Services, Ministry of Health, P.O. Box 2936, Teku, Kathmandu, Nepal (Telephone: 213541 or 212051; Fax: 223142). Additional information about the DHS project may be obtained from Macro International Inc., 11785 Beltsville Dr., Suite 300, Calverton, MD 20705, USA (Telephone: 301-572-0200; Fax: 301-572-0999; Email: reports@macroint.com; Internet: <http://www.macroint.com/dhs/>).

Recommended citation:

Ministry of Health [Nepal] and Macro International Inc. 1997. *Insights on Family Health Issues in Nepal*. Kathmandu, Nepal and Calverton, Maryland: Ministry of Health [Nepal] and Macro International Inc.

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PREFACE

The 1996 Nepal Family Health Survey (NFHS) is the fifth in a series of demographic surveys. The survey collected detailed information on fertility, contraceptive knowledge and use, and maternal and child health care which is invaluable for family health policy monitoring and development. The papers in this volume use data from the 1996 NFHS to provide in-depth insights into some of the family health issues relevant in Nepal. The papers focus on three main areas; unmet need for family planning, maternal and child health service utilization including its role in early infant survival, and the association between media exposure and reproductive attitudes and behaviour.

The papers represent the results of a 4-week further analysis workshop held in Kathmandu from April 14 to May 8, 1997. The primary objectives of the workshop were to conduct five, policy-relevant analyses of family health issues in Nepal, and to provide experience and training in using the NFHS to researchers in order to promote future use of the data to inform policy decisions.

Sixteen researchers from various institutions in Nepal attended the workshop. All 16 researchers received 3 days of general training in data processing and analysis of the NFHS. The workshop was then divided into two parts; 10 researchers attended the full 4 weeks of the workshop and focused on writing the papers published in this volume, while the remaining 6 researchers attended 2 weeks of intensive training on data processing issues. As part of this training, each of the six participants was assigned to one of the five research papers and produced the tables required for that paper. Throughout the workshop, emphasis was placed on clear, effective presentation of results, and well-designed tabulations.

The workshop was conducted under the aegis of the Family Health Division of the Ministry of Health and was funded by USAID/Nepal. Local logistical support was provided by New ERA and technical assistance was provided by Macro International Inc. through the international Demographic and Health Survey (DHS) programme funded by USAID/Washington. This technical assistance reflects the DHS programme's mandate to promote the utilization of DHS data for policy development and evaluation and to contribute to substantive knowledge in family planning and health.

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ACKNOWLEDGMENTS

This volume would not have been possible without the dedicated efforts of many people and institutions. Our appreciation goes to Dr. Kalyan Raj Pandey, former Director General, Department of Health Services, and Dr. Badri Lal Shrestha, current Director General, Department of Health Services for their keen support in the successful completion of the project.

We would like to express our gratitude to Mr. Ajit Pradhan, Family Health Division, Ministry of Health for his special assistance in facilitating coordination between the Ministry of Health and Macro International Inc.

We would also like to extend our gratitude to Dr. Shyam Thapa, Senior Scientist, Family Health International, and advisor to the Ministry of Health and the Ministry of Population and Environment for his tireless assistance and advice in setting up the further analysis project.

Special thanks are due to New ERA for their excellent job in providing local logistical support for the workshop. Our deep appreciation goes to Mr. Bharat Ban, acting director, New ERA and Project Director of the NFHS for his continuous efforts to ensure the success of the project. Mr. Munishwor Shrestha did an outstanding job coordinating the logistical arrangements. His dedicated efforts and efficiency ensured that everything went smoothly.

Our thanks go to the heads of the various organizations and Government Divisions who granted permission for the participants to attend the workshop. Their cooperation and support were vital to the success of the workshop.

Our sincere appreciation goes to the USAID mission in Nepal for their recognition of the importance of promoting and facilitating continued use of the NFHS data. In particular, we would like to thank Ms. Molly Gingerich, Chief, Office of Health and Family Planning, and Ms. Pancha Kumari Manandhar for their enthusiasm and support throughout the NFHS further analysis activities.

Several staff at Macro International Inc. were involved in the NFHS further analysis project. We would like to thank Dr. Ann Blanc, Mr. Trevor Croft, Dr. Pav Govindasamy, and Mr. Nicholas Hill for their energy and enthusiasm throughout the workshop. In addition, Dr. Cindy Stanton and Dr. Kate Stewart provided technical support in developing tabulation plans and reviewing papers. Their comments and assistance were invaluable to the completion of this volume. Editorial and production assistance were provided by Trina Yannicos, Mary Lane, Celia Siebenmann, and Cathy Sansone.

Last, but by no means least, we would like to extend our deep appreciation to all the workshop participants and authors. Their enthusiasm and sense of humour ensured that the workshop was not only successful but fun too. It was a great pleasure to work with them and their professionalism in completing work on time ensured the timely publication of this volume.

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EXECUTIVE SUMMARY

Paper One

In order to achieve the government's target of 4.0 children per woman by the year 2000, the contraceptive prevalence rate has been targeted to increase from its current level of 29 percent to 38 percent by the year 2002. Given that the total contraceptive demand in 1996 was 60 percent, this target can be reached simply by fulfilling the demand for family planning that currently exists. Currently one of three women in Nepal has an unmet need for family planning. This paper discusses various potential points of intervention that could enhance and increase women's access to family planning information and services and suggests some policy options relevant to meet women's contraceptive needs in the future.

Women who are pregnant, or have had a recent birth may visit a health facility or come into contact with health staff for safe motherhood services. This could be a potential point of contact to disseminate family planning information and services for women with an unmet need. The current institutional setup does not allow women visiting a health facility for maternal and child health (MCH) services to also obtain family planning services. One policy option to reach these women would therefore be through an integrated MCH and family planning programme. Unfortunately, the majority of women in Nepal do not seek safe motherhood services at a health facility. Thus, involving the participation of traditional birth attendants in the dissemination of family planning services should also be viewed as a viable option by programmers to cater for women's unmet demand for family planning. Another potential point of contact between women with unmet need and health facilities is when they bring their children in to be immunized. Since contact with a health facility/worker for immunization is more widespread than for safe motherhood services, integrating family planning services with immunization services has greater potential to reach women with unmet need in Nepal.

An important reason for the low utilization of health services with unmet need is lack of accessibility. Improving outreach services would be an important step in reaching more women. Additional improvement in the quality of services in health facilities, through the availability of trained staff, greater choice of family planning methods, and the provision of counselling and follow-up services are also crucial in drawing more women towards utilizing family planning services in health facilities.

One out of two women with unmet need have not been exposed to family planning messages in the mass media, and less than one-third are exposed to family planning messages through the three specific radio programmes. Given the extremely low levels of exposure to mass media, and especially the television and print media, emphasis should also be on focus group discussions and inter-personal diffusion of family planning messages through friends and relatives. Inter-spousal communication is poor in Nepal, and IEC programmes should be designed in such a way as to stimulate husband-wife communication and remove women's misconceptions about their husbands' attitude about family planning use and family size.

Paper Two

This paper presents findings from the 1996 Nepal Family Health Survey (NFHS) related to utilization of antenatal care (ANC), delivery care, and immunization services. Bivariate and multivariate analyses are presented for a number of outcomes and potential determinants. Outcomes analyzed include: 1) three levels of antenatal care; 2) pregnancy duration at first visit; 3) receipt of tetanus toxoid, iron and iron/folic acid tablets during pregnancy; 4) distance to site of ANC; 5) trained attendant at delivery; 6) place of delivery; 7) receipt of childhood measles vaccination; 8) complete vaccination among children age 12-23 months; and 9) receipt of any childhood vaccination, all for children born in the 3 years prior to the survey. Determinants examined include ecological zone, geographic region, urban/rural residence, maternal education, maternal age at birth, birth order, previous pregnancy interval, and outcome of the previous pregnancy.

Overall levels of service coverage are quite low for ANC (39 percent for at least one visit), delivery by a trained attendant (10 percent), institutional births (7 percent), and immunization (43 percent completely immunized among children age 12-23 months). On the other hand, missed opportunities for tetanus toxoid among women receiving antenatal care are low (7 percent). Missed opportunities for receiving iron (78 percent) and iron and folic acid tablets (84 percent), however, are significant problems.

Similar patterns are seen across all outcomes for most determinants. In general, higher levels of service utilization are seen for births to women in the following categories: women in the Hills and *Terai*; women in the Eastern, Central, and Western regions; women living in urban areas; women having secondary or higher levels of education; women in the youngest age group; and women with lower parity. Many variables remain significant in the multivariate analysis, with different variables losing significance depending on the outcome. Use of delivery care is higher among women who use antenatal care and immunization levels are higher among children of women who used antenatal care during pregnancy.

Paper Three

This paper examines the early and late neonatal mortality differentials according to selected socioeconomic, biological and health-related factors using the 1996 Nepal Family Health Survey (NFHS) data. The overall result of this paper suggests that the effects of the socioeconomic and biological factors on early and late neonatal mortality are in the expected direction. Despite low utilization of health care services such as antenatal care, postnatal care, delivery attended by trained personnel, and tetanus toxoid immunization of mothers, the effects of these services in reducing the level of neonatal mortality are significant. The size of the child at the time of birth, long labour, and excessive bleeding, all based on the perception of the respondents, are used as a proxy for the birth weight of the child, prolonged labour, and haemorrhage, respectively to examine, as far as possible, some of the endogenous causes of neonatal mortality. These variables have an influence on early and late neonatal mortality. This study clearly reveals that attendance of births by traditional birth attendants is important in improving early infant survival prospects in Nepal. The findings of this study lead to the conclusion that the existing health care services for safe motherhood need to be expanded, strengthened, and emphasized further to improve the overall health condition of mothers and their newborns. This in turn can significantly contribute to reducing childhood mortality in general, and the early and late neonatal mortality in particular, where the major proportion of childhood deaths are clustered.

Paper Four

In addition to comprehensive information on demographic and social characteristics, the 1996 Nepal Family Health Survey collected data on general exposure to mass media (radio, television, print media) and exposure to specific family planning radio programmes. This report examines the association between media exposure and reproductive behaviour as reflected by family planning knowledge, use of family planning methods, intention to use a family planning method in the future, desire for more children, ideal number of children, preferred sex composition of the family, and discussion of family planning matters with others. The differentials in these variables by media exposure are examined separately for women in urban and rural areas.

The general conclusion of the study is that there is a strong, persistent, positive association between exposure to family planning programmes in the media and reproductive behaviour. Exposure to mass media in general and particularly exposure to the specific family planning radio programmes is directly related to greater knowledge of modern methods of contraception and of sources for methods, higher intention to use a method, increased desire to stop childbearing, fewer children in the ideal family size, reduced preference for sons, and increased discussion of family planning matters with others. These associations are frequently stronger in rural than urban areas.

Women who are exposed to the media are more likely to have heard of each contraceptive method than women who are not exposed to the media. For example, two-thirds of unexposed women in urban areas had heard of the condom as opposed to 96 percent among urban women exposed to the family planning radio programmes. However, almost all urban women know of female sterilization irrespective of exposure to the media. Similar differences in knowledge of family planning methods are observed among rural women. Current use of contraceptives is low but the more women are exposed to media, the more likely they are to use a method. This observation is more consistent among rural women than urban women. Exposure to media seems to motivate nonusers to use a method in the future, particularly in rural areas; among rural nonusers the percentage who intend to use a method in the next 12 months increases from 25 percent among nonexposed women to 37 percent among women exposed to specific family planning radio programmes. Among urban women, the corresponding increase is from 35 to 40 percent.

The more living children a woman has, the more likely she is to want to stop childbearing. At a given family size, intention to stop childbearing is stronger among women who are exposed to the media and to the specific family planning radio programmes than among nonexposed women, particularly in rural areas. Among rural women with two living children, about half of nonexposed women want to stop childbearing as opposed to about three-fourths among those exposed to the specific radio programmes. Among urban women with two living children, more than 83 percent want to stop childbearing regardless of media exposure.

Among women who stated two children as their ideal family size, preference for sons gradually erodes as they are exposed to the media and to the specific family planning radio programmes in both rural and urban areas. For urban women in this group, the proportion who want two girls or who have no sex preference increases from 12 percent among unexposed women to 27 percent among those exposed to the family planning programmes, while the corresponding increase is from 9 percent to 16 percent among rural women.

This analysis cannot establish conclusively whether there is a causal relationship between exposure to the family planning radio programmes and the observed changes in reproductive behaviour because of the limitations discussed in the paper. However, the fact that the association between media exposure and each aspect of the reproductive behaviour examined here is so consistent and strong supports the notion that exposure to media directly influences the attitude and behaviour of Nepalese women. This conclusion supports the recent emphasis placed on IEC programmes and provides persuasive evidence that these activities should be maintained and expanded.

Paper Five

This paper examines the reasons for nonuse and attitudes towards family planning among women with unmet need in Nepal. Approximately 1.2 million Nepalese women currently have an unmet need for family planning. Among those with an unmet need to limit, 54 percent have already had one or more unwanted births while among those with an unmet need to space, 46 percent have had a mistimed birth. The results of the analysis suggest that women may perceive family planning only as a way to limit births and do not readily think of family planning for spacing. It is likely that this misconception is linked to the predominance of sterilization in Nepal. A significant number of women with unmet need also cite fear of side effects as the main reason they are not currently using or do not intend to use family planning in the future. Almost a third of women with unmet need believe that their husbands do not approve of family planning compared to fewer than 10 percent among current users. Further, only a minority of women with unmet need who visited a health facility in the last 12 months discussed family planning during the visit. Intensifying IEC programmes through mass media and other appropriate means of communication with an emphasis on the use of family planning for spacing and on the involvement of men, increasing accessibility and availability of a wide range of contraceptive methods, especially temporary methods, improving the quality of care and taking advantage of opportunities to provide information and services to women with unmet need are suggested areas of intervention that should be considered while formulating future policies and programmes of the government.

PROGRAMME OPTIONS TO MEET UNMET NEED

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Introduction

The concept of unmet need for family planning was developed from the early Knowledge, Attitude and Practice (KAP) studies conducted in the 1960s and 1970s (Robey et al., 1996; 1994). Since then, numerous studies on KAP have shown that there exists a gap between women's desire for limiting or spacing children and the use of contraception. The term KAP-gap has been gradually replaced by the term "unmet need." Many different definitions of unmet need have evolved due to the ongoing debate on how best to define it. Whatever the definition, there is little doubt that a considerable level of unmet need for family planning exists in many developing countries including Nepal.

The concept of unmet need was first defined by Westoff (1988), although his definition is still being debated and many people have suggested ways to refine it (Bongaarts, 1991; Yinger et al., 1997). According to Westoff, married women or women living in a consensual union who are fecund and sexually active and are currently not using contraception but either desire no more children or want to postpone their next birth for at least 2 years are defined as having an unmet need for family planning (Westoff, 1988). Women who desire no more children have an unmet need for limiting while women who want to postpone their next birth for 2 years or more are considered to have an unmet need for spacing. Pregnant or amenorrhoeic women whose last pregnancy was mistimed or unwanted and who became pregnant because they were not using contraception are also defined as having unmet need. Westoff's definition has been widely applied in all the countries where the Demographic and Health Surveys (DHS) have been conducted. In the Nepal Family Health Survey (NFHS) 1996, Westoff's definition has been applied with minor modifications. The NFHS interviewed ever-married women age 15-49 and thus the measurement of unmet need, within the context of Nepal, excludes women who are not currently married or who are living in a consensual union.

Based on the findings of the DHS and other comparable surveys in 45 countries, it has been estimated that about 100 million women in developing countries, or about one in five married women of reproductive age, has an unmet need for family planning, with the highest number in Asia (about 62 million), excluding China. About 970,000 women in Nepal were estimated to have an unmet need in 1991 (Robey et al., 1996), while about 1.2 million Nepalese women are currently estimated to have an unmet need (Aryal and Dangi, 1997).

Among the eight Asian countries where the DHS has been conducted, unmet need ranges from a low of 11 percent in Thailand to a high of 32 percent in Pakistan. Comparing data derived from the 1991 NFHS, Nepal has the second highest level of total unmet need at 27 percent—12 percent for spacing and 15 percent for limiting. The same study also estimated the total contraceptive demand, which is the sum of unmet need and current contraceptive use, at 51 percent (14 percent for spacing and 37 percent for limiting). As compared to 1991, the level of unmet need has increased in Nepal from 28 percent in 1991 to 31 percent in 1996. The 1996 NFHS also revealed that the total demand for contraception is 60 percent, of which 48 percent is currently being satisfied. Therefore, if all unmet need among women were eliminated, contraceptive prevalence would increase to 60 percent, which could have a significant effect in reducing the level of fertility.

The purpose of this paper is to examine some policy options relevant to unmet need in closer detail to inform subsequent policy development. Hopefully, the findings of this study will be useful for policy-makers and programme managers and encourage an improvement in the existing family planning programme. This paper examines the levels and trends of unmet need in Nepal, utilization of health facilities by women with unmet need, media exposure to family planning messages among women with unmet need, and women's opinion about their husbands' attitude toward family planning and family size.

Programme Relevance of Unmet Need

Assessing the level of unmet need and knowing its causes are extremely important for policy formulation and programme implementation. Measurement of the level of unmet need helps to estimate the proportion of couples who need to be served by the existing family planning programme. Analysis of unmet need also identifies the groups most likely to be interested in using contraception. The total potential demand, which includes both maintaining continuity of contraceptive services to current users and catering to the need of potential users, indicates the market for family planning.

His Majesty's Government of Nepal (HMG/N) is aiming for a reduction in the total fertility rate from its current level of 4.6 to 4.0 by the year 2000 (National Planning Commission, 1993). In order to achieve this goal, the government has estimated an increase in contraceptive prevalence from its current level of 29 percent to 38 percent by the year 2002. Given that the total contraceptive demand in 1996 is 60 percent, the target prevalence rate can be reached simply by fulfilling the demand that already exists in Nepal.

Data and Measurement Issues

This paper analyzes data from the 1976 Nepal Fertility Survey (NFS), the 1991 Nepal Fertility, Family Planning and Health Survey (1991 NFHS), and the 1996 Nepal Family Health Survey (1996 NFHS). All three surveys were designed to provide national as well as regional and sub-regional estimates for the country. The 1976 NFS, which was conducted as part of the World Fertility Survey, interviewed 5,940 ever-married women, while the 1991 NFHS, which was the largest survey of its kind to date in Nepal, interviewed 25,384 ever-married women and provided estimates of some important indicators at the district level. The 1996 NFHS was conducted as part of the global DHS programme and interviewed 8,429 ever-married women.

The 1996 and the 1991 NFHS collected information from currently married women on their current use of contraception, and the status of their desire for another child. Women who wanted another child were asked how long they would like to wait for their next child. Women who were pregnant or amenorrhoeic at the time of the survey were further asked whether their current pregnancy (for those who were pregnant) or last birth (for those who were amenorrhoeic) was mistimed or unwanted. Both these surveys also collected information on women's fecundity at the time of the survey. This information is used to identify whether a woman has an unmet need for family planning. However, because the 1976 NFS did not collect information on whether a woman is postpartum amenorrhoeic or abstaining, the estimated unmet need for family planning cannot be compared with that obtained for either the 1991 NFHS or the 1996 NFHS.¹

¹Unmet need was calculated differently in the 1991 NFHS compared with the 1996 NFHS. In 1996, women who said that they could not get pregnant or that they were menopausal were considered infecund. This criteria was absent in 1991. Fecund, nonpregnant, nonamenorrhoeic women who were undecided about when to have another child or unsure whether to have another child were considered not to be in need of family planning in 1991 but in need for spacing in 1996. Fecund, nonpregnant, nonamenorrhoeic women who identified themselves to be infecund were considered in need of limiting in 1991, but treated as infecund in 1996. Nonpregnant, nonamenorrhoeic women who said they would be happy if they became pregnant or that it would not matter, were treated as not in need of family planning in 1996. Pregnant or amenorrhoeic women whose current or last pregnancy was not wanted, were considered in need for limiting in 1991, but in 1996, if women responded to a different question, that they wanted another child they were treated as in need for spacing. Women were defined as infecund in 1991 if they were currently married for the first time, and have been married for more than 5 years, but had not had a birth in the 5 years preceding the survey, and had never used contraception. In 1996, the requirement for their current marriage to be their first marriage was dropped. Note that women who had not menstruated in the 6 months prior to the survey and were not currently pregnant or amenorrhoeic, were defined as infecund in both surveys.

Bearing in mind the definitional differences between the 1991 and the 1996 NFHS, women with unmet need are examined according to health service delivery variables, such as contact with health services, recent fertility, media exposure, and the role of husbands, to explore programme options relevant to meet the unmet demand for family planning.

Levels and Trends in Unmet Need

Current Level of Unmet Need for family planning

Table 1 shows the percentage of currently married women with unmet need, met need, and total demand for family planning services by selected background characteristics. Overall about one in every three currently married women has an unmet need for family planning services (14 percent for spacing and 17 percent for limiting). The percentage of currently married women using contraception for spacing and limiting is 3 percent and 26 percent, respectively. Six of 10 currently married women have a need (met and unmet) for family planning services (17 percent for spacing and 43 percent for limiting) and less than one out of two women's need for contraceptive services is currently being satisfied.

The unmet need for spacing is higher among women less than age 25, while the unmet need for limiting is higher among women 25 years and older. The level of unmet need is higher among rural women than urban women. There is virtually no variation in unmet need for spacing, but there is some variation in the unmet need for limiting across ecological regions. Furthermore, the unmet need for spacing (12-19 percent) and limiting (15-21 percent) does not vary much across development regions. Nevertheless, the Far-western region stands out because it has a relatively high level of unmet need (34 percent), but has the lowest level of use (21 percent) resulting in the lowest level of demand satisfied (38 percent). Larger variations are observed in the unmet need for spacing (10-23 percent) and limiting (14-23 percent) across sub-regions.

Unmet need is lower among more educated women (with at least a School Leaving Certificate (SLC)) than among less educated women. Variations in the unmet need for limiting are more pronounced (7-18 percent) than for spacing (13-21 percent) across educational groups. The unmet need for spacing is lower (13 percent) than the unmet need for limiting (18 percent) among illiterate women and the reverse is true among literate women.

Total unmet need does not vary much across women by parity; however, unmet need for spacing decreases with an increase in the number of living children, whereas unmet need for limiting increases with an increase in the number of living children. Met need also increases with an increase in the number of living children.

Trend in the unmet need for family planning

The proportion of currently married women with unmet need for family planning increased from 24 percent in 1976 to 29 percent in 1991, and to 33 percent in 1996, as estimated by the KAP-gap measure (Figure 1).² This clearly indicates that the proportion of women who do not want any more children but are not using contraception is increasing in Nepal. The increase in the KAP-gap is mainly due to the growing awareness

²The KAP-gap is defined as the percentage of currently married women who stated that they did not want any more children and are currently not using any contraception. This measure does not take into account women who want to wait for some time before having another child, currently amenorrhoeic women who are not exposed to the risk of pregnancy and women who are not exposed to the risk of pregnancy because they are infecund.

Table 1 Percentage of currently married women with unmet need for family planning, met need for family planning, and the total demand for family planning services, by selected background characteristics, Nepal 1996

| Background characteristic | Unmet need for family planning ¹ | | | Met need for family planning (currently using) ² | | | Total demand for family planning | | | Percentage of demand satisfied | Number of women |
|----------------------------------|---|--------------|-------------|---|--------------|-------------|----------------------------------|--------------|-------------|--------------------------------|-----------------|
| | For spacing | For limiting | Total | For spacing | For limiting | Total | For spacing | For limiting | Total | | |
| Age | | | | | | | | | | | |
| 15-19 | 38.9 | 1.6 | 40.5 | 5.3 | 1.3 | 6.5 | 44.1 | 2.9 | 47.0 | 13.9 | 965 |
| 20-24 | 28.8 | 9.0 | 37.8 | 5.5 | 10.2 | 15.8 | 34.3 | 19.2 | 53.6 | 29.4 | 1,602 |
| 25-29 | 12.9 | 21.6 | 34.6 | 2.8 | 27.9 | 30.7 | 15.7 | 49.5 | 65.2 | 47.0 | 1,560 |
| 30-34 | 5.3 | 27.0 | 32.3 | 1.7 | 37.4 | 39.0 | 6.9 | 64.4 | 71.3 | 54.7 | 1,292 |
| 35-39 | 2.3 | 26.8 | 29.1 | 0.2 | 42.5 | 42.7 | 2.5 | 69.3 | 71.8 | 59.5 | 1,042 |
| 40-44 | 0.8 | 21.4 | 22.2 | 0.2 | 40.5 | 40.7 | 1.0 | 61.9 | 62.9 | 64.6 | 828 |
| 45-49 | 0.1 | 9.1 | 9.2 | 0.0 | 27.9 | 27.9 | 0.1 | 37.0 | 37.1 | 75.3 | 695 |
| Residence | | | | | | | | | | | |
| Urban | 7.4 | 14.3 | 21.7 | 6.5 | 43.5 | 50.1 | 14.0 | 57.8 | 71.8 | 69.8 | 668 |
| Rural | 14.9 | 17.4 | 32.3 | 2.2 | 24.3 | 26.5 | 17.1 | 41.6 | 58.8 | 45.1 | 7,314 |
| Ecological region | | | | | | | | | | | |
| Mountain | 13.9 | 20.3 | 34.2 | 2.2 | 15.6 | 17.8 | 16.1 | 36.0 | 52.0 | 34.2 | 538 |
| Hill | 14.3 | 18.7 | 33.1 | 3.0 | 26.6 | 29.6 | 17.3 | 45.3 | 62.6 | 47.2 | 3,363 |
| Terai | 14.2 | 15.4 | 29.6 | 2.3 | 26.7 | 29.0 | 16.6 | 42.0 | 58.6 | 49.5 | 4,082 |
| Development region | | | | | | | | | | | |
| Eastern | 12.2 | 17.1 | 29.3 | 3.2 | 27.7 | 30.8 | 15.3 | 44.8 | 60.1 | 51.3 | 1,829 |
| Central | 14.9 | 15.4 | 30.4 | 2.7 | 28.3 | 31.0 | 17.6 | 43.7 | 61.3 | 50.5 | 2,677 |
| Western | 13.8 | 20.6 | 34.4 | 1.7 | 24.8 | 26.5 | 15.5 | 45.4 | 60.9 | 43.5 | 1,561 |
| Mid-western | 13.5 | 17.8 | 31.4 | 3.3 | 23.6 | 26.9 | 16.8 | 41.4 | 58.2 | 46.1 | 1,146 |
| Far-western | 18.8 | 14.9 | 33.7 | 1.8 | 19.0 | 20.8 | 20.6 | 33.9 | 54.5 | 38.1 | 769 |
| Sub-region | | | | | | | | | | | |
| Eastern Mountain | 13.1 | 22.1 | 35.2 | 4.8 | 21.4 | 26.2 | 17.9 | 43.4 | 61.4 | 42.7 | 120 |
| Central Mountain | 16.0 | 22.4 | 38.3 | 1.5 | 19.6 | 21.2 | 17.5 | 42.0 | 59.5 | 35.6 | 183 |
| Western Mountain | 12.7 | 17.9 | 30.6 | 1.3 | 9.6 | 10.9 | 14.0 | 27.5 | 41.5 | 26.3 | 236 |
| Eastern Hill | 15.8 | 18.7 | 34.5 | 2.9 | 22.2 | 25.1 | 18.7 | 40.9 | 59.5 | 42.1 | 538 |
| Central Hill | 10.4 | 14.9 | 25.3 | 5.4 | 37.8 | 43.2 | 15.7 | 52.7 | 68.4 | 63.1 | 993 |
| Western Hill | 14.2 | 23.0 | 37.2 | 1.6 | 26.5 | 28.0 | 15.8 | 49.4 | 65.2 | 43.0 | 952 |
| Mid-western Hill | 15.2 | 21.0 | 36.2 | 2.1 | 17.2 | 19.2 | 17.3 | 38.1 | 55.4 | 34.7 | 567 |
| Far-western Hill | 23.0 | 14.0 | 37.0 | 1.7 | 15.7 | 17.4 | 24.7 | 29.8 | 54.5 | 32.0 | 313 |
| Eastern Terai | 10.4 | 15.8 | 26.3 | 3.1 | 30.8 | 33.9 | 13.5 | 46.7 | 60.2 | 56.4 | 1,171 |
| Central Terai | 17.8 | 14.9 | 32.7 | 1.1 | 23.1 | 24.1 | 18.9 | 38.0 | 56.9 | 42.4 | 1,502 |
| Western Terai | 13.1 | 17.0 | 30.1 | 1.9 | 22.1 | 24.0 | 15.0 | 39.1 | 54.1 | 44.4 | 609 |
| Mid-western Terai | 11.9 | 13.6 | 25.5 | 5.3 | 35.1 | 40.3 | 17.2 | 48.7 | 65.8 | 61.2 | 476 |
| Far-western Terai | 17.0 | 15.2 | 32.2 | 2.1 | 24.7 | 26.9 | 19.1 | 40.0 | 59.0 | 45.5 | 324 |
| Education | | | | | | | | | | | |
| No education | 12.7 | 18.4 | 31.1 | 1.7 | 24.7 | 26.4 | 14.4 | 43.1 | 57.5 | 45.9 | 6,347 |
| Primary | 21.1 | 15.0 | 36.2 | 3.7 | 27.2 | 30.8 | 24.8 | 42.2 | 67.0 | 46.0 | 896 |
| Some secondary | 21.2 | 9.6 | 30.9 | 7.4 | 32.3 | 39.6 | 28.6 | 41.9 | 70.5 | 56.2 | 513 |
| SLC and above | 14.3 | 6.9 | 21.2 | 12.4 | 39.6 | 52.0 | 26.8 | 46.5 | 73.2 | 71.1 | 227 |
| Literacy | | | | | | | | | | | |
| Illiterate | 13.1 | 18.2 | 31.3 | 1.7 | 24.1 | 25.7 | 14.8 | 42.3 | 57.1 | 45.1 | 6,288 |
| Literate | 18.4 | 13.0 | 31.5 | 6.1 | 32.6 | 38.7 | 24.6 | 45.6 | 70.1 | 55.1 | 1,694 |
| Number of living children | | | | | | | | | | | |
| 0 | 22.9 | 0.2 | 23.1 | 2.8 | 0.6 | 3.4 | 25.7 | 0.8 | 26.5 | 12.8 | 1,030 |
| 1 | 32.0 | 3.4 | 35.4 | 7.5 | 4.2 | 11.7 | 39.5 | 7.6 | 47.1 | 24.9 | 1,253 |
| 2 | 18.2 | 13.8 | 32.1 | 3.4 | 27.2 | 30.6 | 21.7 | 41.0 | 62.7 | 48.8 | 1,516 |
| 3 | 9.2 | 20.1 | 29.3 | 1.5 | 38.1 | 39.6 | 10.7 | 58.2 | 68.9 | 57.4 | 1,525 |
| 4+ | 3.2 | 30.3 | 33.5 | 0.4 | 38.2 | 38.5 | 3.6 | 68.4 | 72.0 | 53.5 | 2,659 |
| Total | 14.3 | 17.1 | 31.4 | 2.6 | 25.9 | 28.5 | 16.9 | 43.0 | 59.9 | 47.6 | 7,982 |

SLC = School Leaving Certificate

¹ Unmet need for *spacing* includes pregnant women whose pregnancy was mistimed, amenorrhoeic women whose last birth was mistimed, and women who are neither pregnant nor amenorrhoeic and who are not using any method of family planning but say they want to wait two or more years for their next birth. Also included in unmet need for spacing are women who are unsure whether they want another child or who want another child but are unsure when to have the birth. Unmet need for *limiting* refers to pregnant women whose pregnancy was unwanted, amenorrhoeic women whose last child was unwanted, and women who are neither pregnant nor amenorrhoeic and who are not using any method of family planning but want no more children. Excluded from the unmet need category are menopausal or infertile women.

² Using for *spacing* is defined as women who are using some method of family planning and say they want to have another child or are undecided whether to have another. Using for *limiting* is defined as women who are using and who want no more children. Note that the

among women of the importance of having a small family and the inability of the service delivery system to meet the family planning needs of women who do not want any more children. In spite of the addition of new service sites and workers and new methods of contraception, barriers to services remain. The increase in the KAP-gap during this period could also be attributed to cultural, attitudinal, economic and other attitudinal barriers such as a strong son preference, the economic value of children, cost of contraception (monetary and emotional), economic dependence of women, the lower level of literacy among women, and spousal and family domination of women.

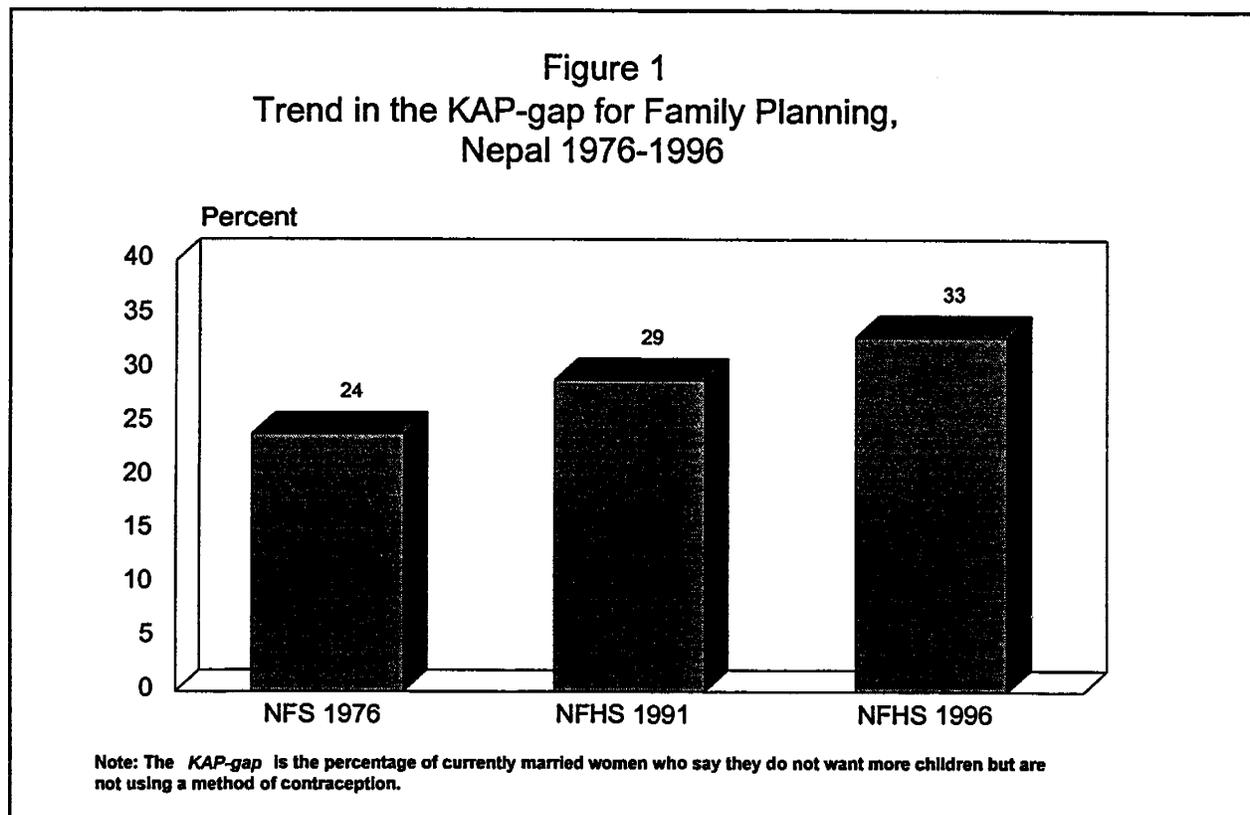


Table 2 presents the trend in unmet need and total demand for family planning for 1991 and 1996 using Westoff's refined definition to account for women who want to space their births but are currently not using contraception (Westoff, 1988). This measure also excludes currently pregnant, amenorrhoeic, infecund, or sexually inactive women who are not at risk of childbearing and therefore are not in need of family planning, and includes pregnant or amenorrhoeic women whose current pregnancy or last child was not wanted. As mentioned earlier, the 1991 NFHS main report (Ministry of Health, 1993) uses a slightly different definition to estimate the unmet need than was used in the 1996 NFHS (Pradhan et al., 1997). In order to make the estimates of the unmet need for the two periods comparable, a re-analysis of the 1991 NFHS data is done using the 1996 NFHS definition.

The unmet need for spacing has declined from 16 percent in 1991 to 14 percent in 1996 while at the same time the met need for spacing, although it has more than doubled, has remained at a very low level. The total demand for spacing has remained at around 17 percent but the percent of demand for satisfied spacing has more than doubled from 7 percent in 1991 to 15 percent in 1996. The unmet need for limiting has risen from 15 percent in 1991 to 17 percent in 1996, while the met need for limiting rose from 22 to 26 percent during the same period. However, although the total demand for limiting has increased from 36 to 43 percent, the percentage

of women whose demand for limiting is satisfied has not changed at all, remaining at 60 percent. Overall, the total unmet need for family planning between 1991 and 1996 has barely increased (less than 1 percent), while the total met need has increased from 23 to 29 percent during the 5-year period. The percent of total demand satisfied has increased from 42 percent in 1991 to 48 percent in 1996. These trends indicate that although the family planning programme has been able to provide services to more women in the 5-year period between 1991 and 1996, the percentage of demand that is satisfied has not kept pace with the increase in the level of unmet need, suggesting that there is much room for improvement in the effectiveness and efficiency of delivery of family planning services in Nepal.

Table 2 Percentage of currently married women with unmet need for family planning, met need for family planning, total demand for family planning, and percentage of demand that is satisfied, Nepal 1991 and 1996

| Survey | Unmet need for family planning | | | Met need for family planning | | | Total demand for family planning | | | Percentage of demand satisfied |
|-----------|--------------------------------|--------------|-------|------------------------------|--------------|-------|----------------------------------|--------------|-------|--------------------------------|
| | For spacing | For limiting | Total | For spacing | For limiting | Total | For spacing | For limiting | Total | |
| 1991 NFHS | 15.9 | 14.8 | 30.7 | 1.2 | 21.6 | 22.7 | 17.1 | 36.3 | 53.5 | 42.4 |
| 1996 NFHS | 14.3 | 17.1 | 31.4 | 2.6 | 25.9 | 28.5 | 16.9 | 43.0 | 59.9 | 47.6 |

Note: In 1996, nonpregnant and nonamenorrhoeic women who were unsure about their fertility preference but who said they would be happy/would not matter if they became pregnant in the next few weeks are classified as "not in need." If they say they would be unhappy (or don't know) if they become pregnant in the next few weeks, they are classified as having an "unmet need for spacing." In 1991, the question on attitude toward becoming pregnant in the next few weeks was not asked, so all women who were unsure about their fertility preference are classified as having an "unmet need for spacing." This affects about 1 percent of cases in 1996.

There is little change in the unmet need for family planning by population sub-groups between 1991 and 1996 (Table 3). The noticeable increase in the unmet need for family planning in the Mountain region could be due to the difficulty in obtaining services mainly because of the difficult terrain. Between 1991 and 1996, the unmet need for family planning among women with secondary education declined. Educated women are more likely to know about sources and have easier access to family planning services. On the other hand, during the same period the level of unmet need for family planning among women with primary education increased, perhaps because the demand increased due to their exposure to family planning information, but at the same time they may not have had access to family planning services.

Between 1991 and 1996, the total demand satisfied increased across all background characteristics. The level of demand satisfied is much higher in urban areas compared to rural areas. The overall level of unmet need did not change markedly between 1991 and 1996: the total satisfied demand increased by 5 percentage points in rural areas compared to only 2 percentage points in urban areas. Although the level of total satisfied demand is highest in the *Terai* areas, the greatest increase in demand satisfied has been noted in the Hill region. The increase in demand satisfied is striking in the Mid-western area.

Between 1991 and 1996, the total demand satisfied for women with primary education remained almost the same while there was an increase of more than 5 percentage points in the total demand satisfied among women with no education and women with some secondary education.

Table 3 Percentage of currently married women with unmet need for family planning and the percentage of total demand for family planning that is satisfied by selected background characteristics, Nepal 1991 and 1996

| Background Characteristics | Total unmet need | | Percentage of total demand satisfied | |
|----------------------------|------------------|-------------|--------------------------------------|-------------|
| | 1991 NFHS | 1996 NFHS | 1991 NFHS | 1996 NFHS |
| Residence | | | | |
| Urban | 22.0 | 21.7 | 67.4 | 69.8 |
| Rural | 31.3 | 32.3 | 40.2 | 45.1 |
| Ecological region | | | | |
| Mountain | 30.8 | 34.2 | 33.1 | 34.2 |
| Hill | 33.1 | 33.1 | 39.7 | 47.2 |
| Terai | 28.6 | 29.6 | 46.3 | 49.5 |
| Development region | | | | |
| Eastern | 29.8 | 29.3 | 46.0 | 51.3 |
| Central | 28.2 | 30.4 | 48.5 | 50.5 |
| Western | 35.5 | 34.4 | 37.9 | 43.5 |
| Mid-western | 30.8 | 31.4 | 34.8 | 46.1 |
| Far-western | 31.4 | 33.7 | 30.9 | 38.1 |
| Education | | | | |
| None | 30.4 | 31.1 | 40.9 | 45.9 |
| Primary | 33.3 | 36.2 | 45.7 | 46.0 |
| Secondary | 32.5 | 27.9 | 54.9 | 60.9 |
| Total | 30.7 | 31.4 | 42.4 | 47.6 |

Family Planning Target and Achievement

Table 4 shows the family planning targets and achievements during the various planning periods in Nepal, starting from the Third Five-year Plan until the current Eighth Five-year Plan. There was a steady increase in the targeted number of family planning acceptors, between the Third and Eighth-plan period, with the exception of the Fifth Plan. While the target set for acceptors of permanent methods during the Third Plan was more than 100 percent achieved, only 38 percent of the target set for acceptors of temporary methods was achieved. In contrast, by the end of the Fourth-plan period, the number of acceptors overshot the target by almost 17 percent with 94 percent first-time users of temporary methods and 6 percent first-time users of permanent methods.

The total number of acceptors targeted in the Fifth-plan period declined by more than half to 132,000 over the Fourth-plan period. Although the number of new acceptors targeted for the Fifth Plan was low compared to the earlier plan period, an additional target of 60,000 effective acceptors (those who are continuously contracepting for 12 months) was also set (Joshi, 1995). During this plan period, the number of acceptors overshot the target by more than six times.

In the Sixth Plan, there was no method-specific target; however, in comparison to the Fifth Plan, the total acceptor target was increased by almost seven-fold in the Sixth Plan to a total of 900,000 acceptors. The acceptor method mix achieved in the Sixth Plan was 83 percent temporary and 17 percent permanent methods. There was a more than three-fold increase in the total number of acceptors targeted for the Seventh Plan. Furthermore, there was an increased emphasis on permanent methods during this period.

Table 4 Number of new family planning acceptors targeted and achieved by five-year plans, Nepal 1965 and 1996

| Five-year Plan | Temporary | | | Permanent | | | Total | | |
|--------------------------|-----------|-------------|---------|-----------|-------------|---------|-----------|-------------|---------|
| | Target | Achievement | Percent | Target | Achievement | Percent | Target | Achievement | Percent |
| Third plan | 95,278 | 36,256 | 38 | 8,125 | 8,232 | 101 | 103,403 | 44,488 | 43 |
| Fourth plan | NT | 340,037 | - | NT | 23,400 | - | 312,000 | 363,437 | 116 |
| Fifth plan | 120,000 | 720,155 | 600 | 12,000 | 81,425 | 679 | 132,000 | 801,580 | 607 |
| Sixth plan | NT | 1,139,139 | - | NT | 231,262 | - | 900,000 | 1,370,401 | 152 |
| Seventh plan | 2,345,000 | 1,452,588 | 62 | 580,000 | 221,169 | 38 | 2,925,000 | 1,673,757 | 57 |
| Eighth plan ¹ | 884,200 | 831,390 | 94 | 355,400 | 225,052 | 63 | 1,239,600 | 1,056,442 | 85 |

NT = No method-specific target

Note: The Eighth Plan target was set for current users of family planning and therefore, the new acceptor targets for the Eighth Plan should be read as the expected number of new acceptors that is required to be recruited to achieve a current user target for that period assuming certain method mix and continuation rates.

Source: Joshi (1995)

In the Eighth Five-year Plan, the family planning target at the national and district level was set in terms of “current users” rather than “new acceptors.” The contraceptive prevalence rate required to achieve the targeted number of users (1,171,600) by the end of the Eighth Five-year Plan was 30 percent. The 1996 NFHS revealed a contraceptive prevalence rate of 29 percent among currently married nonpregnant women. The 1996 NFHS further revealed a change in the method mix. Seven out of 10 women were using permanent methods and 1 out of 3 was using temporary methods in 1996, whereas, 81 percent of women were using permanent methods and 19 percent were using temporary methods in 1991. The Eighth Five-year Plan emphasized the need to cater to the unmet need for spacing as well as limiting. This is evident from the fact that the Eighth Plan aimed to achieve a current user method mix of 70 percent permanent and 30 percent temporary method users.

In each of the Third and Seventh-plan periods, the percentage increase in the achievement of temporary method acceptors declined sharply. On the contrary, the percentage increase in permanent method acceptors remained high (more than 184 percent) between the Third and Sixth-plan periods and declined during the Seventh-plan period. The decline was mainly due to the confusion created by changes in the organizational structure of the family planning programme. In 1987, family planning services were run as a vertical programme in the 52 districts of the country and as an integrated programme in the rest of the 23 districts. The vertical family planning programme had its own separate office and staff from the centre down to the periphery. Toward the end of the Seventh Plan, provider incentives for medical doctors and other personnel providing sterilization services were abolished, particularly in the 15 districts in which the hospital capability was upgraded (additional physical facilities, equipment, and training) to provide a full range of family planning services on a regular and routine basis. The lack of financial incentives to the providers of permanent methods was felt as a demotivating factor in the smooth provision of sterilization services. Furthermore, in 1993 the Department of Health Services was reorganized and a large number of development staff positions were abolished.

The 1991 NFHS provided information on the unmet need for spacing and limiting for family planning and this led planners and policy-makers to suggest a method mix which caters to the need of couples. It was believed that a method mix composed of 65 percent permanent method users and 35 percent temporary method users would be required in order to cater to the unmet need for spacing and limiting, and achieve a total fertility rate of 4.0 by the year 2000.

Recent Fertility Among Women with Unmet Need

One option to reach women with unmet need is to reach them through postpartum family planning services integrated with safe motherhood and child health services. Table 5 shows the percent distribution of women with unmet need who could have some contact with medical institutions according to the time since their last birth. Data from the 1996 NFHS show that 9 percent of women with unmet need have never had a birth. One in four women had a birth within 12 months of the survey, about one in three had a birth within 12-23 months, 17 percent had a birth within 24-35 months, and less than one in five had a birth more than 36 months before the survey. These figures imply that Nepal's family planning programme could potentially reach 9 out of 10 women if they come into contact with a health worker/facility to obtain various services for themselves and/or their children. This is particularly the case with women who have had a birth within 12 months of the survey who are in need of postnatal checkups and immunization services. As expected, a very negligible percentage (less than 1 percent) of women with unmet need for limiting had no births at the time of the survey. On the other hand, one in every five women with unmet need for spacing has never had a birth, indicating that a sizable percentage of women in Nepal want to plan their first birth.

Table 5 Percent distribution of women with unmet need according to time since last birth, Nepal 1996

| Time since last birth | Unmet need for | | Total |
|-----------------------|----------------|----------|-------|
| | Spacing | Limiting | |
| Never had a birth | 20.1 | 0.2 | 9.2 |
| Less than 12 months | 29.9 | 20.3 | 24.7 |
| 12-23 months | 33.9 | 26.9 | 30.1 |
| 24-35 months | 12.0 | 21.7 | 17.2 |
| 36 or more months | 4.2 | 30.9 | 18.8 |
| Total | 100.0 | 100.0 | 100.0 |
| Number of women | 1,138 | 1,366 | 2,504 |

Utilization of Health Services and Unmet Need

Contact with Health Services Associated with Recent Births

The second issue in evaluating the potential of safe motherhood services to reach women with unmet need is whether or not women who have had a recent birth received any services for antenatal, delivery, postpartum care, or immunization of their children. Table 6 provides the percentage of currently married women with unmet need who had a birth in the past 3 years by type of care received (antenatal, delivery, or postpartum) for the most recent birth, and the percentage of these mothers whose most recent child had received immunizations by some background characteristics.

Overall, 23 percent of women with unmet need received antenatal care from a doctor/nurse and 15 percent received antenatal care from other health professionals. Less than 1 percent of women with unmet need for family planning had received antenatal care from traditional birth attendants. Three of five women had no contact with health professionals: the majority did not receive antenatal care and a small minority received care from non-health professionals.

Eight percent of women with unmet need had their most recent delivery attended by a doctor/nurse, 1 percent by other health professionals, and 21 percent by a traditional birth attendant. Traditional birth attendants, especially if they are trained to provide family planning services, are a good potential contact for women with unmet need.

From a practical point of view, providing family planning services at the time of delivery may be very difficult. A more appropriate time for counselling could be during postpartum check-ups. Table 6 shows that 8 percent of women received postpartum services from doctors/nurses, and 4 percent from other health professionals. One out of four women with unmet need received postpartum services from a traditional birth attendant. A large majority (64 percent) of women with unmet need either did not receive postpartum care at all or received it from non-health professionals. This indicates that traditional birth attendants to a larger extent, and doctors/nurses and other health professionals to a lesser extent can be instrumental in reaching one-third of women with unmet need while receiving postpartum care. Postpartum care is highly concentrated in the *Terai* region and in urban areas with less than 15 percent of women in the Mountain or Hill regions receiving postpartum care. Doctors/nurses would be more effective in reaching women with an unmet need for family planning in urban areas while traditional birth attendants have a greater potential to disseminate family planning information and services during postpartum care in the *Terai*.

Yet another potential point of contact between mothers and health facilities or health workers during which family planning information and services could be disseminated is at the time their children are immunized. The youngest child of more than two-thirds of recent mothers with an unmet need had received at least one vaccination (Table 6).

Visit to a Health Facility

Utilization of family planning services generally reduces unmet need because couples who intend to limit the number of children or space their births can obtain family planning services from health services to fulfill their need. An in-depth study of unmet need based on data from the 1996 NFHS by Aryal and Dangi (1997) demonstrates that contact with health services, that is, visits by family planning workers and visits to health facilities, is positively related to the use of family planning. Therefore, contact with health services can potentially reduce unmet need because family planning workers and health facilities can be effective in promoting family planning use and services. However, data from the 1996 NFHS indicate that only 36 percent of currently married nonusers visited a health facility during the past 12 months. There may be several reasons for a woman not to visit a health facility. Stash (1995) has shown that in the Chitwan District of Nepal, in spite of greater accessibility to family planning services than in several other parts of Nepal, many women did not visit a health facility because the quality of services at clinics was poor. Another major problem is the lack of trained medical staff at health facilities located in rural areas (Anonymous, 1995; Justice, 1984). Similarly, distance to a health facility could be another reason for not visiting a health facility. For example, half of currently married women who know a source for a modern contraceptive method have to travel for 2 hours or more for family planning services in Nepal (Ministry of Health, 1993). Therefore, an improvement in the quality of family planning services and greater accessibility could increase utilization among these women and perhaps reduce unmet need.

Table 7 shows the percent of currently married women with unmet need who visited a health facility by whether or not they discussed family planning during their visit, by selected background characteristics. The data indicate that a large percentage of women with unmet need do not utilize health facilities and among those who do, a very small minority discuss family planning. Overall, 60 percent of women with unmet need did not visit a health facility, indicating either a high underutilization or perhaps a lack of access to these services. Two in every five women with unmet need had visited a health facility but, only 8 percent had discussed family planning. A higher percentage of women with unmet need for limiting (10 percent) than spacing (5 percent) discussed family planning at a health facility.

Table 6 Percentage of currently married women with unmet need who had a birth in the past 3 years, who received antenatal care and delivery care for their most recent birth, who received a postpartum check-up within 24 hours of their most recent birth, and whose most recent child has received at least one immunization by selected background characteristics, Nepal 1996

| Background characteristics | Antenatal Care | | | | Delivery Care | | | | Postpartum Care | | | | Child received at least one immunization | | Number of women |
|----------------------------|----------------|---------------------|-----------|-------------|---------------|---------------------|-------------|-------------|-----------------|---------------------|-------------|-------------|--|-------------|-----------------|
| | Doctor/nurse | Health professional | TBA | Other | Doctor/nurse | Health professional | TBA | Other | Doctor/nurse | Health professional | TBA | Other | No | Yes | |
| Unmet need for: | | | | | | | | | | | | | | | |
| Spacing | 28.1 | 16.9 | .3 | 54.6 | 9.1 | 1.0 | 25.1 | 64.7 | 9.2 | 5.1 | 26.5 | 59.2 | 29.0 | 71.0 | 861 |
| Limiting | 17.9 | 13.8 | .7 | 67.7 | 5.9 | 1.0 | 17.9 | 75.2 | 6.6 | 2.6 | 22.2 | 68.6 | 34.1 | 65.9 | 941 |
| Residence | | | | | | | | | | | | | | | |
| Urban | 66.1 | .8 | .0 | 33.1 | 42.2 | .0 | 10.9 | 46.9 | 34.7 | 2.2 | 7.2 | 55.9 | 17.3 | 82.7 | 90 |
| Rural | 20.5 | 16.0 | .5 | 62.9 | 5.6 | 1.0 | 21.9 | 71.4 | 6.4 | 3.9 | 25.2 | 64.5 | 32.4 | 67.6 | 1,712 |
| Ecological region | | | | | | | | | | | | | | | |
| Mountain | 16.8 | 8.0 | .0 | 75.2 | 2.2 | .0 | 14.7 | 83.1 | 1.4 | .0 | 7.0 | 91.6 | 40.1 | 59.9 | 131 |
| Hill | 21.8 | 12.0 | .0 | 66.2 | 7.8 | 1.1 | 8.6 | 82.5 | 7.4 | .7 | 5.5 | 86.4 | 31.9 | 68.1 | 796 |
| Terai | 24.6 | 19.3 | 1.1 | 55.0 | 8.0 | 1.0 | 33.9 | 57.1 | 9.1 | 7.2 | 43.9 | 39.7 | 30.2 | 69.8 | 877 |
| Development region | | | | | | | | | | | | | | | |
| Eastern | 24.6 | 20.2 | .4 | 54.8 | 9.4 | .7 | 22.1 | 67.8 | 9.7 | 3.2 | 17.5 | 69.6 | 25.3 | 74.7 | 367 |
| Central | 21.1 | 16.7 | 1.0 | 61.2 | 8.3 | 1.5 | 26.9 | 63.3 | 7.9 | 6.8 | 38.6 | 46.7 | 30.4 | 69.6 | 597 |
| Western | 28.7 | 14.6 | .0 | 56.8 | 9.0 | 1.6 | 13.6 | 75.9 | 11.2 | 2.3 | 20.6 | 66.0 | 32.3 | 67.7 | 398 |
| Mid-western | 13.8 | 13.6 | .7 | 71.9 | 3.2 | .0 | 26.4 | 70.4 | 2.9 | 2.7 | 16.6 | 77.8 | 37.5 | 62.5 | 260 |
| Far-western | 24.9 | 4.4 | .0 | 70.7 | 3.8 | .0 | 11.2 | 85.0 | 3.8 | .0 | 9.7 | 86.5 | 39.3 | 60.7 | 181 |
| Total | 22.8 | 15.3 | .5 | 61.4 | 7.5 | 1.0 | 21.3 | 70.2 | 7.8 | 3.8 | 24.3 | 64.1 | 31.7 | 68.3 | 1,803 |

TBA = Traditional Birth Attendant

Table 7 Percentage of currently married women with unmet need who have visited a health facility in the past 12 months and discussed family planning, by selected background characteristics, Nepal 1996

| Background characteristics | Did not visit health facility | Visited health facility | Visited health facility and discussed family planning | Total | Number of women |
|----------------------------|-------------------------------|-------------------------|---|--------------|-----------------|
| Unmet need for: | | | | | |
| Spacing | 58.5 | 36.6 | 4.9 | 100.0 | 1,138 |
| Limiting | 61.3 | 28.4 | 10.2 | 100.0 | 1,366 |
| Age | | | | | |
| 15-29 | 57.8 | 35.4 | 6.9 | 100.0 | 1,536 |
| 30-49 | 63.7 | 27.0 | 9.3 | 100.0 | 968 |
| Residence | | | | | |
| Urban | 43.8 | 42.4 | 13.7 | 100.0 | 145 |
| Rural | 61.0 | 31.5 | 7.4 | 100.0 | 2,359 |
| Ecological region | | | | | |
| Mountain | 58.6 | 31.5 | 9.9 | 100.0 | 184 |
| Hill | 58.4 | 33.0 | 8.6 | 100.0 | 1,112 |
| Terai | 61.8 | 31.4 | 6.7 | 100.0 | 1,208 |
| Development region | | | | | |
| Eastern | 59.3 | 31.6 | 9.0 | 100.0 | 535 |
| Central | 62.9 | 31.8 | 5.4 | 100.0 | 812 |
| Western | 55.5 | 34.9 | 9.6 | 100.0 | 537 |
| Mid-western | 60.9 | 30.3 | 8.8 | 100.0 | 360 |
| Far-western | 60.9 | 31.1 | 7.9 | 100.0 | 259 |
| Sub-regions | | | | | |
| Eastern Mountain | 62.7 | 27.5 | 9.8 | 100.0 | 42 |
| Central Mountain | 53.6 | 36.8 | 9.6 | 100.0 | 70 |
| Western Mountain | 61.0 | 28.8 | 10.2 | 100.0 | 72 |
| Eastern Hill | 64.9 | 26.2 | 8.9 | 100.0 | 186 |
| Central Hill | 53.6 | 39.1 | 7.4 | 100.0 | 251 |
| Western Hill | 51.7 | 36.9 | 11.4 | 100.0 | 354 |
| Mid-western Hill | 59.6 | 33.0 | 7.4 | 100.0 | 205 |
| Far-western Hill | 76.5 | 19.0 | 4.6 | 100.0 | 116 |
| Eastern Terai | 55.5 | 35.5 | 9.0 | 100.0 | 308 |
| Central Terai | 68.9 | 27.3 | 3.7 | 100.0 | 492 |
| Western Terai | 62.9 | 31.1 | 6.0 | 100.0 | 183 |
| Terai Mid-western | 60.2 | 28.9 | 10.9 | 100.0 | 121 |
| Terai Far-western | 47.1 | 42.4 | 10.5 | 100.0 | 104 |
| Education | | | | | |
| No education | 63.5 | 29.3 | 7.1 | 100.0 | 1,974 |
| Primary or less | 51.8 | 39.0 | 9.3 | 100.0 | 324 |
| Secondary and above | 39.7 | 48.1 | 12.2 | 100.0 | 206 |
| Total | 60.1 | 32.1 | 7.8 | 100.0 | 2,504 |

Women's contact with health facilities and discussion of family planning during health visits varies little by age. Urban women with unmet need are more likely to visit a health facility (56 percent) and also discuss family planning in a health facility (14 percent) than rural women. This is because in most urban areas, government hospitals are found within a reasonable distance. Some urban areas also have family planning and health services through private hospitals. Hospitals offer a wide range of contraceptive services and the quality of services is generally better than in other health facilities. In addition, access to health facilities in urban areas is much better than in rural areas. Regardless of place of residence, there exists a great amount of missed opportunity to discuss family planning at the health facilities because only one-fourth of urban women and one-fifth of rural women with unmet need who visited a health facility had discussed family planning.

There was no significant difference in recent contact with health services and discussion of family planning by ecological region and development region. Women with unmet need from the Central development region are least likely to have discussed family planning in a health facility (5 percent).

Table 7 also shows that although visit to a health facility is much higher among women with unmet need who had some secondary education (60 percent) as compared with women who had no education (36 percent), the discussion of family planning at the health facility remains the same regardless of the level of education (about one-fourth). This may be due to the fact that younger women, who are likely to be more educated, are generally more reluctant to discuss family planning.

Media Exposure and Unmet Need

Lack of information has been regarded as one of the most important barriers to contraceptive use. If women are more aware of the availability of contraceptives, know a source, are aware of how to use a method and its potential side-effects, and where to obtain follow-up services if necessary, they are less likely to have unmet need (Robey et al., 1996). Mass media (radio, television and newspaper) can play an important role in disseminating information about family planning. Media exposure has a positive relationship with family planning use. For example, a recent study demonstrated that family planning use was far higher among family planning programme listeners than among non-listeners (New ERA, 1993). Using 1996 NFHS data, Niroula and Ban (1997) found that women who are exposed to the media or family planning radio programmes are more likely to use contraception as compared to women who are not.

In a country like Nepal, however, the radio is the most important media to effectively deliver various messages including family planning messages. This is because accessibility to other electronic media, such as television, is very limited, and the print media cannot be utilized by the vast majority of people because of the high illiteracy rate. Data from the 1996 NFHS show that more than one-third (37 percent) of households in Nepal own a radio while only 7 percent of households own a television (Pradhan et al., 1997). Nevertheless, both the electronic media and the print media can have a very important role for specific target groups. For example, the electronic media can be instrumental for all people regardless of education, while the print media can convey family planning messages specifically to literate people.

Table 8 shows the exposure of women with unmet need to these three different media. Thirty-five percent of women listen to the radio every day compared to 7 percent who watch television at least once a week and 4 percent who read the newspaper at least once a week. There is no significant difference in media exposure between those with unmet need for limiting and those with unmet need for spacing. Exposure to the radio is slightly lower among older women (30 years and more) than younger women (less than 30 years old). There is little difference in exposure to the television and newspapers by age group although younger women are somewhat more likely to read the newspaper than older women.

Table 8 Percentage of currently married women with unmet need for family planning who listen to the radio daily, watch television at least once a week, and read a newspaper or magazine at least once a week, by selected background characteristics, Nepal 1996

| Background characteristics | Listens to radio everyday | | Watches TV at least once a week | | Reads newspaper at least once a week | | Number of women |
|----------------------------|---------------------------|-------------|---------------------------------|------------|--------------------------------------|------------|-----------------|
| | No | Yes | No | Yes | No | Yes | |
| Unmet need | | | | | | | |
| Spacing | 63.8 | 36.2 | 93.2 | 6.8 | 94.1 | 5.9 | 1,138 |
| Limiting | 66.3 | 33.7 | 92.4 | 7.6 | 97.5 | 2.5 | 1,366 |
| Age | | | | | | | |
| 15-29 | 62.4 | 37.6 | 92.3 | 7.7 | 94.5 | 5.5 | 1,536 |
| 30-49 | 69.5 | 30.5 | 93.5 | 6.5 | 98.2 | 1.8 | 968 |
| Residence | | | | | | | |
| Urban | 50.4 | 49.6 | 49.4 | 50.6 | 80.0 | 20.0 | 145 |
| Rural | 66.1 | 33.9 | 95.4 | 4.6 | 96.9 | 3.1 | 2,359 |
| Ecological region | | | | | | | |
| Mountain | 73.5 | 26.5 | 99.0 | 1.0 | 98.6 | 1.4 | 184 |
| Hill | 56.3 | 43.7 | 94.2 | 5.8 | 95.6 | 4.4 | 1,112 |
| Terai | 72.1 | 27.9 | 90.5 | 9.5 | 95.9 | 4.1 | 1,208 |
| Development region | | | | | | | |
| Eastern | 52.4 | 47.6 | 91.0 | 9.0 | 93.2 | 6.8 | 535 |
| Central | 72.0 | 28.0 | 87.9 | 12.1 | 95.7 | 4.3 | 812 |
| Western | 63.2 | 36.8 | 95.3 | 4.7 | 96.6 | 3.4 | 537 |
| Mid-western | 70.9 | 29.1 | 98.0 | 2.0 | 97.3 | 2.7 | 360 |
| Far-western | 66.2 | 33.8 | 99.2 | 0.8 | 99.3 | 0.7 | 259 |
| Sub-region | | | | | | | |
| Eastern Mountain | 52.0 | 48.0 | 97.1 | 2.9 | 95.1 | 4.9 | 42 |
| Central Mountain | 78.4 | 21.6 | 99.2 | .8 | 99.2 | 0.8 | 70 |
| Western Mountain | 81.4 | 18.6 | 100.0 | 0.0 | 100.0 | 0.0 | 72 |
| Eastern Hill | 40.5 | 59.5 | 96.4 | 3.6 | 93.5 | 6.5 | 186 |
| Central Hill | 55.0 | 45.0 | 81.1 | 18.9 | 92.3 | 7.7 | 251 |
| Western Hill | 54.0 | 46.0 | 97.4 | 2.6 | 96.8 | 3.2 | 354 |
| Mid-western Hill | 72.4 | 27.6 | 99.5 | 0.5 | 97.2 | 2.8 | 205 |
| Far-western Hill | 62.7 | 37.3 | 100.0 | 0.0 | 100.0 | 0.0 | 116 |
| Eastern Terai | 59.7 | 40.3 | 86.8 | 13.2 | 92.8 | 7.2 | 308 |
| Central Terai | 79.7 | 20.3 | 89.7 | 10.3 | 96.9 | 3.1 | 492 |
| Western Terai | 81.1 | 18.9 | 91.2 | 8.8 | 96.2 | 3.8 | 183 |
| Mid-western Terai | 64.9 | 35.1 | 95.0 | 5.0 | 96.9 | 3.1 | 121 |
| Far-western Terai | 65.1 | 34.9 | 97.9 | 2.1 | 98.1 | 1.9 | 104 |
| Education | | | | | | | |
| No education | 71.6 | 28.4 | 96.4 | 3.6 | 99.8 | 0.2 | 1,974 |
| Primary | 48.8 | 51.2 | 86.3 | 13.7 | 92.1 | 7.9 | 324 |
| Secondary+ | 29.8 | 70.2 | 68.4 | 31.6 | 64.7 | 35.3 | 206 |
| Total | 65.2 | 34.8 | 92.8 | 7.2 | 96.0 | 4.0 | 2,504 |

A larger percentage of rural women than urban women are not exposed to any media. This may be due to differences in access to the media as well as to educational differences between urban and rural women. Two-thirds of rural women and half of urban women with unmet need do not listen to a radio daily while more than 95 percent of rural women do not watch television and do not read a newspaper at least once a week.

Differences in exposure to the media by ecological region indicate that nearly three-fourths of women with unmet need from the Mountain and *Terai* regions and 56 percent of women with unmet need from the Hill region do not listen to the radio daily. Nine in every 10 *Terai* women and almost all Mountain women with unmet need have no exposure to the television. Again, this could be due to differences in access to television. About 96 percent of women in all ecological regions do not read a newspaper at least once a week. Women are more likely to listen to the radio in the Eastern region and less likely in the Central and Mid-western regions than in the other development regions. Almost all women with unmet need in the Mid- and Far-western regions do not watch television compared to 88 percent of women in the Central development region. Similarly, more than 9 in every 10 women with unmet need in all development regions do not read a newspaper at least once a week with the highest percentage in the Far-western region.

Women's education is positively related to media exposure. Women who are more educated are usually from the urban areas where they have greater access to media. As shown in Table 8 and Figure 2, 7 in every 10 women with some secondary education listen to the radio, compared to about 1 in 4 women with no education. One out of two women with some primary education listen to the radio daily. Watching television also differs by women's education. One of three women with some secondary education watch television at least once a week compared with less than 5 percent of women with no education. A similar pattern is also observed for exposure to the newspaper.

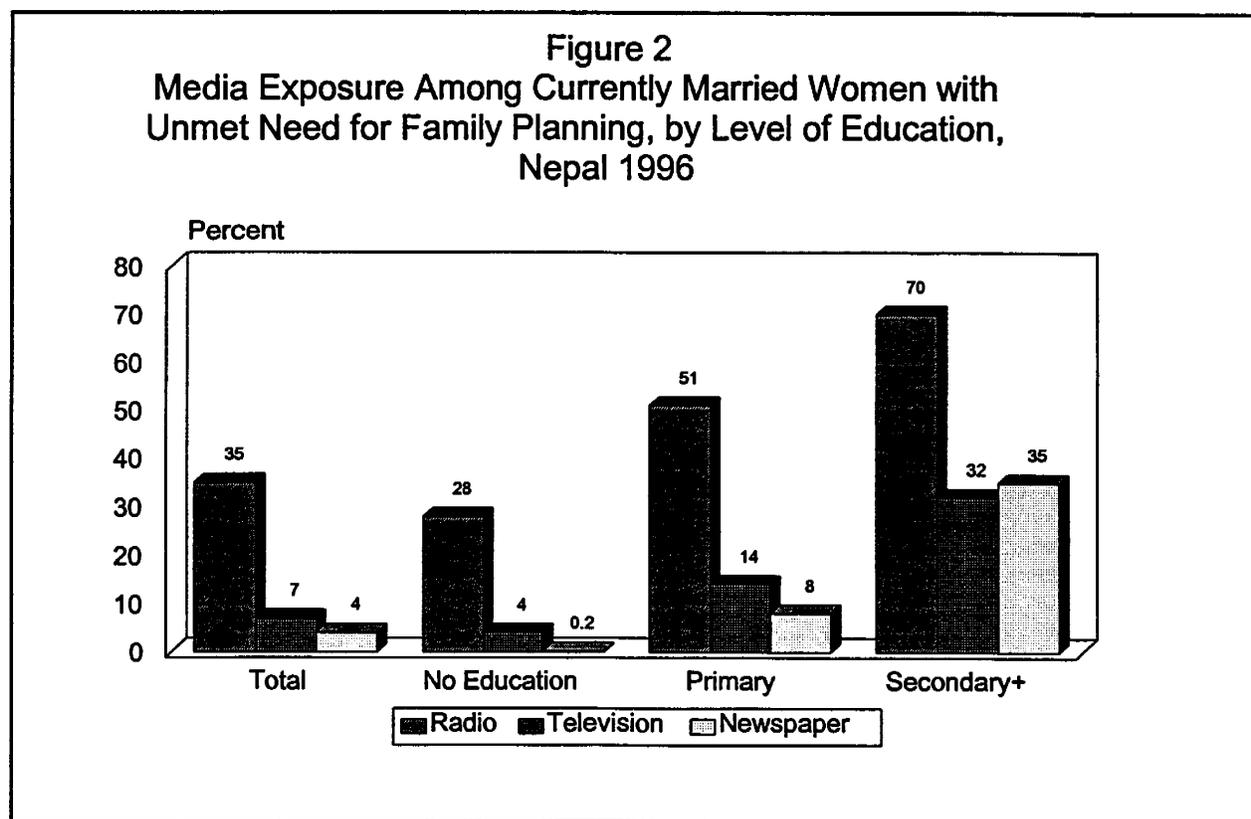


Table 9 presents the distribution of currently married women with unmet need for family planning by whether they have heard about family planning on the radio, television or in the print media in the past few months and whether they have heard one of three specific radio programmes about family planning (*Jan Swastha Karyakram*, *Ghanti Heri Haad Nilaun* and *Shriman Shrimatie Pariwarbare Kurakani Gareko Chhoto Radio Natak*). The latter two programmes were started shortly before the 1996 NFHS survey and,

Table 9 Percentage of currently married women with unmet need for family planning who have heard about family planning on the radio, television, or print in the past few months, and the percentage who have heard specific radio programmes, by selected background characteristics, Nepal 1996

| Background characteristics | Heard about family planning | | Heard at least one radio programme | | Number of women |
|----------------------------|-----------------------------|-------------|------------------------------------|-------------|-----------------|
| | No | Yes | No | Yes | |
| Unmet need | | | | | |
| Spacing | 43.8 | 56.2 | 64.6 | 35.4 | 1,138 |
| Limiting | 47.2 | 52.8 | 70.3 | 29.7 | 1,366 |
| Age | | | | | |
| 15-29 | 43.1 | 56.9 | 64.2 | 35.8 | 1,536 |
| 30-49 | 49.7 | 50.3 | 73.4 | 26.6 | 968 |
| Residence | | | | | |
| Urban | 19.0 | 81.0 | 47.8 | 52.2 | 145 |
| Rural | 47.3 | 52.7 | 69.0 | 31.0 | 2,359 |
| Ecological region | | | | | |
| Mountain | 43.9 | 56.1 | 65.9 | 34.1 | 184 |
| Hill | 33.1 | 66.9 | 56.2 | 43.8 | 1,112 |
| Terai | 57.5 | 42.5 | 78.7 | 21.3 | 1,208 |
| Development region | | | | | |
| Eastern | 42.2 | 57.8 | 62.8 | 37.2 | 535 |
| Central | 58.2 | 41.8 | 78.0 | 22.0 | 812 |
| Western | 39.9 | 60.1 | 64.5 | 35.5 | 537 |
| Mid-western | 37.5 | 62.5 | 58.6 | 41.4 | 360 |
| Far-western | 36.7 | 63.3 | 65.5 | 34.5 | 259 |
| Sub-region | | | | | |
| Eastern Mountain | 36.3 | 63.7 | 60.8 | 39.2 | 42 |
| Central Mountain | 52.8 | 47.2 | 69.6 | 30.4 | 70 |
| Western Mountain | 39.8 | 60.2 | 65.3 | 34.7 | 72 |
| Eastern Hill | 35.7 | 64.3 | 55.4 | 44.6 | 186 |
| Central Hill | 32.4 | 67.6 | 57.2 | 42.8 | 251 |
| Western Hill | 27.7 | 72.3 | 54.4 | 45.6 | 354 |
| Mid-western Hill | 36.5 | 63.5 | 54.8 | 45.2 | 205 |
| Far-western Hill | 40.5 | 59.5 | 62.7 | 37.3 | 116 |
| Eastern Terai | 47.0 | 53.0 | 67.5 | 32.5 | 308 |
| Central Terai | 72.1 | 27.9 | 89.7 | 10.3 | 492 |
| Western Terai | 63.4 | 36.6 | 83.8 | 16.2 | 183 |
| Mid-western Terai | 36.7 | 63.3 | 62.8 | 37.2 | 121 |
| Far-western Terai | 33.3 | 66.7 | 69.0 | 31.0 | 104 |
| Education | | | | | |
| No education | 53.2 | 46.8 | 74.6 | 25.4 | 1,974 |
| Primary | 23.7 | 76.3 | 49.9 | 50.1 | 324 |
| Secondary+ | 8.5 | 91.5 | 30.1 | 69.9 | 206 |
| Total | 45.7 | 54.3 | 67.7 | 32.3 | 2,504 |

hence, exposure to them is low. As depicted in Table 9, more than half (54 percent) of women with unmet need have heard about family planning in the media and nearly one-third have heard one or more of the specific radio programmes. The data show that there is still a considerable percentage of women with unmet need who have not been exposed to family planning messages in the media.

Exposure to family planning messages is slightly higher among women with unmet need for spacing than among women with unmet need for limiting. Similarly, younger women (who are more likely to have unmet need for spacing) as compared to older women (who are more likely to have unmet need for limiting) are more likely to be exposed to family planning messages in the media.

Urban women are more likely to have received family planning messages from one or more of the three media (81 percent) and they are also more likely to have heard the specific radio programmes (52 percent) as compared to their rural counterparts. This is expected since these women have greater access to media and, being more literate, they are better able to grasp information from the print media.

The highest percentage of women with unmet need who have heard family planning messages from the media are those from the Hill region (two-thirds); the exposure to specific radio programmes is also highest among this group (44 percent). Women with unmet

need from the *Terai* are the ones who are least exposed to the media as well as to the specific radio programmes on family planning. This could be because Nepali is not easily understood by women living in the *Terai*. This finding is supported by evidence from a past study in which women living in the *Terai* demanded that messages also be broadcast in local dialects (New ERA, 1993).

Women with unmet need from the Central development region and especially in the Central *Terai* and Central Mountain sub-regions are least likely to have heard about family planning in the media and they are also least likely to be exposed to specific radio programmes. One possible reason could be that women residing in the Central development region are less likely to listen to the radio (which tends to broadcast more family planning messages) than watch television.

Table 9 also shows that exposure to family planning messages from any media as well as exposure to specific radio programmes is highly correlated with women's education. The exposure to these messages is higher among educated women than among women with no education. Nine in every 10 women who have some secondary education have heard family planning messages in the media. This is expected since access to media is higher among educated than uneducated women. Women with some primary education are twice as likely to have heard specific family planning messages on the radio than women with no education.

Husbands' Attitude and Unmet Need

Inter-spousal communication is an important factor in determining contraceptive use. The 1996 NFHS revealed that among currently married, non-sterilized women who know a contraceptive method, about 45 percent had discussed family planning at least once with their husbands in the year preceding the survey (Pradhan et al., 1997). Another study conducted by New ERA (New ERA, 1993) showed that inter-spousal communication on family planning is low in Nepal— only 25 percent of couples discussed family planning in the previous year. In Nepal, Shrestha et al., (1988) found that among the various reasons for nonuse of contraception among women who want to either space or limit their births, a major reason was opposition from their husbands. Similarly, Aryal and Dangi (1997), noted that about 6 percent of women with unmet need were not using contraception due to their husbands' opposition. However, data from the 1996 NFHS revealed that only about 4 percent of currently married women who were not using a contraceptive method and who did not intend to use in the future reported husbands' opposition as the main reason (Pradhan et al., 1997).

Table 10 presents the percentage of currently married women with unmet need for family planning who have discussed family planning with their husbands in the past 12 months, who think that their husbands are opposed to family planning and who report that their husbands want more children than they do, by selected characteristics. Women's communication with their husbands is very low with only one-fourth having talked to their husbands about family planning. Seventeen percent of women with unmet need think that their husbands are opposed to family planning and about one-fifth believe that their husbands want more children than they do. About 13 percent of women having unmet need for family planning were neither aware of their husbands' attitude towards family planning nor aware of their desired family size.

Discussion with husbands about family planning as well as women's knowledge about their husbands' attitude toward family planning and their family size was lower among spacers than limiters. It may be that women who want to space births are younger than those who want to limit births, and therefore, may be more reluctant to discuss these things with their husbands. It may also be the case that most women in Nepal think about family planning mostly in terms of limiting births and, therefore, do not discuss the subject with their husbands until they are ready to stop childbearing.

It is interesting to note that among women who did not cite their own or their husband's opposition as the main reason that they are not using contraception, a significant proportion (13 percent) said that their husband opposes family planning and 18 percent believe that their husband wants more children than they do (data not shown). This suggests that husband's opposition may be a secondary reason for nonuse among some women with unmet need.

The percentage of women with unmet need who had discussed family planning with their husbands or who think that their husbands are opposed to family planning is nearly the same in both urban and rural areas. However, rural women with unmet need are more likely to think that their husbands desire more children than urban women (21 percent compared to 13 percent). Women in the Mountain region are more likely to have discussed family planning with their husbands than women in the Hill and *Terai* regions (one of three compared with one of four) and are also more likely to state that their husbands are opposed to family planning (18 percent compared to 15 and 11 percent in the Hill and *Terai*, respectively). Women in the Hills are more likely to believe that their husbands want more children than they do compared to women in the Mountain and *Terai*. The percentage of women with unmet need who had discussed family planning with their husbands and who think that their husbands want more children than they do is almost equal in the Hill

Table 10 Percentage of currently married women with unmet need for family planning who have not discussed family planning (FP) with their husband in the past 12 months, the percentage who think that their husband is opposed to family planning, and the percentage who think that their husband wants more children than they do, by selected background characteristics, Nepal 1996

| Background characteristics | Discussed FP with husband | | Husband opposed to FP | | | Husband wants more children | | | Number of women |
|----------------------------|---------------------------|-------------|-----------------------|-------------|-----------------|-----------------------------|-------------|-----------------|-----------------|
| | No | Yes | No | Yes | DK ¹ | No | Yes | DK ¹ | |
| Unmet need | | | | | | | | | |
| Spacing | 79.4 | 20.6 | 71.6 | 12.0 | 16.5 | 71.6 | 12.4 | 16.0 | 1,138 |
| Limiting | 71.0 | 29.0 | 69.1 | 20.5 | 10.4 | 62.2 | 28.1 | 9.7 | 1,366 |
| Age | | | | | | | | | |
| 15-29 | 78.1 | 21.9 | 30.4 | 62.6 | 6.9 | 40.9 | 49.0 | 10.2 | 198 |
| 30-49 | 75.2 | 24.8 | 73.0 | 12.8 | 14.3 | 68.4 | 18.3 | 13.3 | 2,216 |
| Residence | | | | | | | | | |
| Urban | 76.1 | 23.9 | 75.8 | 15.7 | 8.5 | 79.9 | 13.4 | 6.7 | 145 |
| Rural | 74.8 | 25.2 | 69.9 | 16.7 | 13.4 | 65.6 | 21.4 | 12.9 | 2,359 |
| Ecological region | | | | | | | | | |
| Mountain | 65.9 | 34.1 | 69.9 | 12.5 | 17.6 | 63.0 | 24.2 | 12.7 | 184 |
| Hill | 75.4 | 24.6 | 72.3 | 12.6 | 15.1 | 64.4 | 20.8 | 14.8 | 1,112 |
| Terai | 75.7 | 24.3 | 68.4 | 20.9 | 10.7 | 68.9 | 20.6 | 10.5 | 1,208 |
| Development region | | | | | | | | | |
| Eastern | 77.3 | 22.7 | 73.2 | 11.5 | 15.3 | 67.5 | 19.0 | 13.5 | 535 |
| Central | 74.6 | 25.4 | 64.6 | 21.2 | 14.2 | 63.7 | 22.0 | 14.4 | 812 |
| Western | 82.1 | 17.9 | 70.0 | 20.1 | 9.9 | 65.6 | 25.7 | 8.7 | 537 |
| Mid-western | 57.2 | 42.8 | 76.4 | 11.3 | 12.3 | 66.4 | 21.3 | 12.3 | 360 |
| Far-western | 79.8 | 20.2 | 73.5 | 12.9 | 13.7 | 74.8 | 11.7 | 13.5 | 259 |
| Sub-region | | | | | | | | | |
| Eastern Mountain | 61.8 | 38.2 | 71.6 | 11.8 | 16.7 | 55.9 | 28.4 | 15.7 | 42 |
| Central Mountain | 74.4 | 25.6 | 62.4 | 13.6 | 24.0 | 62.4 | 24.0 | 13.6 | 70 |
| Western Mountain | 60.2 | 39.8 | 76.3 | 11.9 | 11.9 | 67.8 | 22.0 | 10.2 | 72 |
| Eastern Hill | 77.4 | 22.6 | 69.0 | 9.5 | 21.4 | 58.3 | 21.4 | 20.2 | 186 |
| Central Hill | 73.7 | 26.3 | 73.8 | 11.8 | 14.3 | 65.2 | 18.9 | 15.8 | 251 |
| Western Hill | 85.9 | 14.1 | 72.7 | 15.3 | 12.0 | 62.9 | 27.4 | 9.7 | 354 |
| Mid-western Hill | 50.9 | 49.1 | 73.9 | 11.4 | 14.7 | 71.9 | 7.2 | 20.9 | 116 |
| Far-western Hill | 86.9 | 13.1 | 69.9 | 13.1 | 17.0 | 71.9 | 7.2 | 20.9 | 116 |
| Eastern Terai | 79.3 | 20.7 | 76.0 | 12.7 | 11.3 | 74.7 | 16.2 | 9.2 | 308 |
| Central Terai | 75.2 | 24.8 | 60.2 | 27.0 | 12.7 | 63.1 | 23.2 | 13.7 | 492 |
| Western Terai | 74.7 | 25.3 | 64.9 | 29.4 | 5.7 | 70.8 | 22.5 | 6.7 | 183 |
| Mid-western Terai | 69.4 | 30.6 | 81.3 | 10.7 | 8.1 | 65.9 | 25.6 | 8.5 | 121 |
| Far-western Terai | 76.7 | 23.3 | 75.6 | 13.4 | 11.0 | 79.1 | 12.4 | 8.5 | 104 |
| Education | | | | | | | | | |
| No education | 76.0 | 24.0 | 66.9 | 19.2 | 13.8 | 63.6 | 22.9 | 13.5 | 1,974 |
| Primary | 69.2 | 30.8 | 81.6 | 7.6 | 10.8 | 75.4 | 15.4 | 9.2 | 324 |
| Secondary+ | 73.1 | 26.9 | 84.2 | 5.4 | 10.4 | 79.4 | 11.5 | 9.1 | 206 |
| Total | 74.8 | 25.2 | 70.2 | 16.6 | 13.2 | 66.5 | 21.0 | 12.6 | 2,504 |

¹ Don't know

and *Terai* regions (about one-fourth and one-fifth, respectively) and is lower among women in the Mountain region (about one-third and one-fourth, respectively). About one-fifth of *Terai* women and 13 percent of Mountain and Hill women think that their husbands are opposed to family planning.

Differences by development regions indicate that a much higher proportion of women with unmet need from the Mid-western region had discussed family planning issues with their husbands (43 percent) than women in other development regions. In the remaining four development regions, between 18 and 25 percent of women reported they had discussed family planning with their husbands. Women in the Mid-western region are least likely to think that their husbands are opposed to family planning while women in the Far-western region are least likely to believe that their husbands want more children than they do.

Women's education affects family planning discussion, women's opinion about their husbands' attitude toward family planning, and husband's desire for more children. As compared to women with no education, women with some primary education are more likely to discuss family planning with their husbands but discussion decreases slightly among women with some secondary education as compared to women with some primary education. For example, one-fourth of women with no education had discussed family planning compared with 31 percent among women with some primary education and 27 percent among women with some secondary education. Women with no education are much more likely to believe that their husbands are opposed to family planning and want more children than they do as compared to women with some secondary education. For example, the percentage of women with no education who believed that their husbands are against family planning is four times higher than among women with some secondary education and the percentage of women with no education who believe that their husbands want more children than they do is double that of women who had attained some secondary education.

Programme Implications

Integrate Family Planning Services into Safe Motherhood Services

In Nepal although, theoretically, family planning and MCH programmes are integrated within the existing health institutions (hospital, primary health centre, and health post), antenatal, postnatal, immunization, and family planning services are provided on separate designated days. This setup does not provide an opportunity for women visiting a health institution for MCH services to also obtain family planning services. This is especially regrettable since women are more likely to visit health institutions for MCH rather than family planning services. Integrating family planning services into safe motherhood services should therefore be viewed as a viable option for programmers to cater to women's unmet need for family planning. This approach will only be successful if a large proportion of women with unmet need have had a birth recently, and if these women had some contact with health services in connection with that birth.

The majority of women with unmet need did not receive antenatal care. In terms of policy implications, this means it is not possible to reach the majority of women with unmet need through antenatal services, unless use of antenatal services increases substantially. In the existing situation, if family planning services are provided by doctors, nurses, and other health professionals who provide antenatal services, about 27 percent of women with unmet need for family planning could be potentially reached when they visit health services for antenatal services. Such an approach implemented through doctors and nurses would be more successful in urban areas, in the *Terai*, and in the Eastern development region, where utilization of antenatal services is higher than in other areas. The unmet need among women who have never had a birth is more difficult to satisfy through the integrated postpartum/MCH/family planning service delivery system.

As the majority of births in Nepal are attended by friends and relatives, the potential of an integrated family planning and delivery services programme to reach women during delivery is limited. Nevertheless, an integrated programme has greater potential to reach women with unmet need in urban areas than rural areas. Furthermore, traditional birth attendants in the *Terai* region could potentially be effective in reaching about one-third of women with an unmet need for family planning around the time of delivery.

Integrated Immunization and Family Planning Services

Another potential point of contact between women with an unmet need for family planning and health services is at the time their child is immunized. At present, immunization services are provided mainly by Village Health Workers, who are employed for 4 days each month for immunization services alone. Immunization services are also provided through static facilities on designated days and during these days family planning services are not provided. Therefore, a large majority of women with an unmet need could have access to family planning services if they are integrated with immunization services. A family planning service jointly organized during immunization could potentially reach a large proportion of women with an unmet need for family planning. Since contact with a health facility/worker for immunization is more widespread (compared to antenatal, delivery, and postpartum care) this means of disseminating family planning information and services has greater potential to reach women with unmet need in Nepal.

Improve Quality of Services and Stimulate Family Planning Discussion

Utilization of health services among women with unmet need is very poor. Future improvement in the utilization of health services in rural areas is expected because HMG/Nepal has targeted the setting up of sub-health posts in each Village Development Committee by the end of the Eighth Five-year Plan, that is, by July 1997 (Ministry of Health, 1991). This should improve the accessibility of health facilities. It is also hoped that outreach services will serve those women who do not visit a health facility. Nevertheless, additional improvements in the quality of services are also necessary in order to reach these women, such as the availability of qualified medical staff, greater choice of family planning methods particularly more reliable, longer-acting and reversible methods, and the provision of counselling and follow-up services. In addition, women who visit seem to be reluctant to discuss family planning. Therefore, instead of waiting for women to ask about family planning, health workers should make greater efforts to disseminate information and discuss family planning with women who visit a health facility.

Encourage Inter-personal Communication through Radio

Given the extremely low levels of exposure to television and newspapers among women with unmet need, these types of media are presently not effective channels for providing family planning information to women, especially those in rural areas. Overall, about one-third of women listen to the radio daily, (although radio exposure varies significantly by region); therefore, this channel will reach the largest percentage of women. Nevertheless, two-thirds of women with unmet need will not be reached directly through radio programmes. It is possible that radio programmes can reach some women indirectly through interpersonal diffusion of information, because friends/neighbours are the second main source of family planning information in Nepal (New ERA, 1993).

Continue Broadcasting Family Planning Messages in Local Dialects

Most of the family planning messages being broadcast are in the Nepali language which is not easily understood by some women from the *Terai*, especially Central *Terai* women. Since there are many dialects in Nepal, the official language, Nepali, may not be understood by all women. Although in the past the national coordinating body for health and family planning and the IEC programme in Nepal (which is run by the National Health Education Information and Communication Centre (NHEICC)) used to broadcast family planning messages in some major dialects, broadcasting was discontinued because of various problems. The NHEICC is planning to resume the broadcast of family planning programmes in other major local dialects to reach more women. It is essential that continuity of this broadcasting be maintained.

Emphasize Husband-wife Communication

In view of the low rate of spousal communication in Nepal, it has been suggested that IEC programmes should be designed in such a way as to stimulate husband-wife communication (Rimon and Lediard, 1993). Husband's disapproval may also restrict women's use of contraception. It has been found that in many developing countries women do not use contraception because of opposition from their husbands (Robey et al., 1996). Even though a relatively high percentage of women believe that their husbands oppose the use of family planning and want more children than they do, nonuse of contraception due to husband's opposition is not often reported. This information suggests that from the policy point of view, programmes need to emphasize inter-spousal communication on various matters such as family size and contraceptive use. It is also important that husbands should take more initiative in discussing the above issues. This emphasizes the need to encourage more spousal communication about family planning to dispel women's misconceptions about their husband's attitude towards family planning. The focus should be greater on women with unmet need for spacing and those who are uneducated because they are less likely to discuss family planning with their husbands.

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PATTERNS AND DETERMINANTS OF HEALTH CARE UTILIZATION

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Introduction

In a developing country like Nepal, the health status of the population in general is at a low level because of the low level of socioeconomic development as well as the low level of literacy in the population. The problem is further compounded by the limited scope and effectiveness of services provided by the health institutions at the peripheral level. Despite His Majesty's Government's strong commitment to providing primary health services to all by the year 2000, about 6 percent of Nepalese women still live more than 4 hours away from the nearest health institution (1996 Nepal Family Health Survey unpublished figures).

Due to the relatively low status of women in Nepalese society, a low priority is usually given to their health within the family. Because of shyness and other sociocultural reasons, most rural women are reluctant to avail themselves of health services; this becomes clearly evident in the case of gynaecological or obstetric problems where women from developing countries have been known to endure a culture of silence (Khattab, 1992). Similar observations have also been made for Nepal (Thapa, 1996). The problem is further exacerbated due to the unavailability of female staff, especially auxiliary nurse midwives (ANM) at the peripheral health institutions, to care for obstetric as well as gynaecological problems.

The objectives of this paper are to analyze utilisation of safe motherhood services as well as immunization services by mothers for themselves as well as for their children. Specifically, this report will focus on the following areas: use of antenatal care (including tetanus toxoid (TT) immunization and iron/folic acid distribution); delivery assistance; and child immunization.

Background

Service Delivery Mechanisms

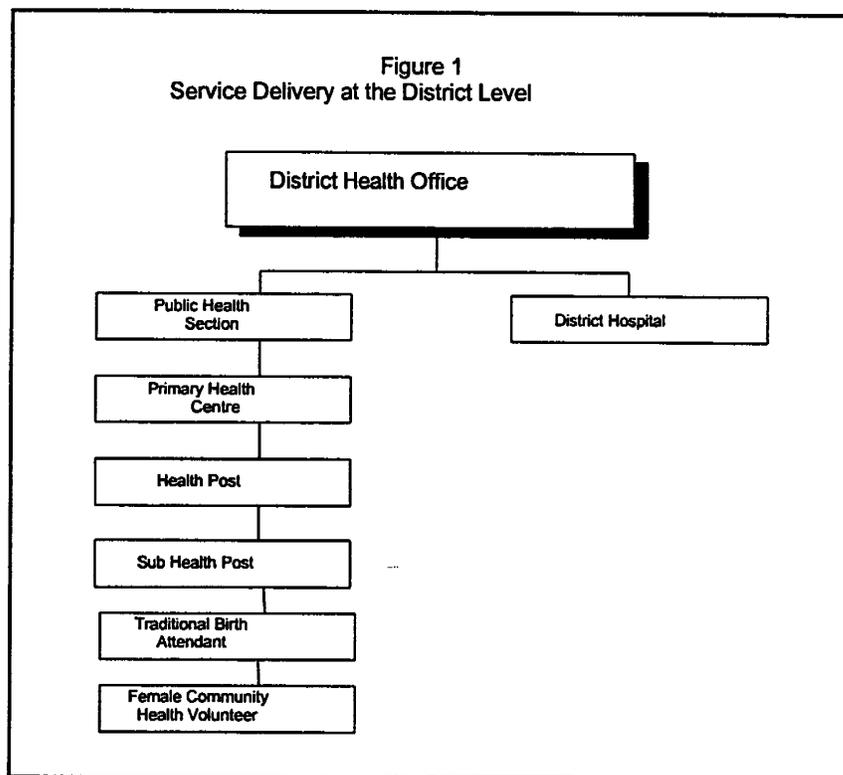
In Nepal, the public sector is the major source of health services, supplemented by the activities of different Non-Governmental Organizations (NGOs), International Non-Governmental Organizations (INGOs), community-based volunteers, and private medical practitioners.

Before discussing the service delivery mechanisms at the peripheral level, a brief discussion of the service delivery mechanism of the Department of Health Services at the district level is in order. From an administrative point of view, Nepal is divided into 5 development regions, 75 districts, 59 urban municipalities, and about 3,900 village development committees (VDCs). The average size of a VDC in terms of population is about 4,500. The government's policy clearly states that a VDC will have at least one health institution such as a hospital, primary health care centre, health post, or sub-health post.

Figure 1 provides the organogram for the Ministry of Health at the district level. Each district health office has two wings: one is for curative health services which deal with the hospital, and the other is for preventive health services, which include public health measures, as well as basic health care services provided by peripheral health institutions like primary health care centres, health posts and sub-health posts.³

³ In 14 districts the curative and public health sections are totally separate and the district health officer in charge is the Public Health Officer rather than a physician.

Figure 1
Service Delivery at the District Level



At the VDC level there is a sub-health post (to be opened in all the VDCs by the end of the eighth plan, i.e., July 1997). A sub-health post is staffed by an auxiliary health worker (AHW), a village health worker (VHW), a maternal child health worker (MCHW), and a runner. These staff members provide basic health care services (including antenatal, delivery, and child health services) at the sub-health-post level, and manage outreach clinics and immunization service points in different wards of the VDC on specific days of the month. At a higher level of hierarchy, health services are provided by health posts which are usually staffed by a health-post-in-charge (either a health assistant or a senior AHW), ANMs, AHWs, VHWs, and runners. Health posts also serve as a referral centre for sub-health posts. On the average, there are about 10 health posts per district.

Primary health care centres (PHC) serve as referral centres for health posts. A PHC is usually headed by a medical doctor with AHWs, ANMs, VHWs, and runners. Ultimately, every electoral constituency will either have a PHC or a hospital. Finally, hospitals serve as referral centres for all peripheral health institutions.

At the end of 1995, when the fieldwork for the 1996 NFHS started, there were 82 hospitals, 78 primary health care centres/health centres, 773 health posts, and 1,990 sub-health posts (Ministry of Health, 1995). By the end of June 1997, each and every village development committee will have at least one health institution.

ANC and delivery care at the sub-health post level are provided by MCHWs, while ANMs provide these services at the health post level. However, the situation regarding staffing of ANM positions at the peripheral level has not improved much since 1984 when a large number of ANM positions were vacant at the peripheral level (Justice, 1984). For this reason, their services are less accessible to women at the health post level. Immunization services are provided at all health institutions as well as at the VDC/ward level through VHWs.

Government health policy and programmes

Safe motherhood. Safe motherhood, which aims at reducing maternal mortality and morbidity in Nepal, is regarded as an integral component of primary health services. The target of the safe motherhood programme is to reduce maternal mortality to 400 per 100,000 live births by the year 2000. This goal is to be achieved by making family planning and maternal health services more accessible and by increasing the number and quality of service outlets (Ministry of Health, 1993). An ultimate objective of the safe motherhood programme is to have all pregnant women visit an antenatal clinic at least once a month during the first 7 months of pregnancy, twice a month during the next 2 months, and once a week thereafter. However, because of the low level of service coverage at present, the safe motherhood programme currently recommends that at least three visits be made for antenatal checkups during pregnancy.

Prevalence of anaemia among women of reproductive age has been estimated to be between 70 and 80 percent (Ministry of Health, 1993). In order to reduce this high prevalence of anaemia among women, the Nutrition Programme recommends distributing iron tablets during ANC to all pregnant women beginning in the second trimester. Moreover, it also recommends distribution of folic acid tablets in the second trimester to promote fetal growth, thereby countering the problem of low birth weight, as well as to reduce maternal morbidity.

Delivery service is an integral part of the safe motherhood programme in Nepal. The goal of the programme is to improve the health of mothers and children through the following activities: physical examinations, detection and timely referral of complicated cases to the appropriate place, aseptic delivery techniques, and use of safe home delivery kits.

Immunization. His Majesty's Government is committed to providing immunization services to all children. Therefore, the expanded programme on immunization (EPI) remains a priority among programmes as well as serving as the centrepiece for the initiative of health for all by the year 2000. The overall goal of the immunization programme in Nepal is to reduce the morbidity and mortality associated with vaccine preventable diseases. This objective includes the elimination of neonatal tetanus and poliomyelitis by the year 2000 and the reduction of measles cases by 90 percent. This objective is to be achieved by increasing the coverage of immunization through the following activities (Ministry of Health, 1997):

- Increased immunization services through outreach services as well as from fixed sites such as hospitals, primary health centres, health posts, and sub-health posts
- Increased public awareness about immunization through community mobilization
- Innovative strategies to increase coverage (such as reducing missed opportunities, minimizing dropout rates etc.)
- Supplemental immunization activities (e.g., national immunization day for polio eradication and "mop-up" operations against measles, neonatal tetanus and polio in high risk districts).

The EPI programme expects to provide complete immunization coverage by the first year of life for children. The immunization schedule followed by the EPI programme is presented in Table 1. To eliminate neonatal tetanus, the EPI programme has a target of achieving vaccine coverage with the second dose of tetanus toxoid (TT2) in at least 80 percent of all women of childbearing age.

Table 1 Immunization schedule followed by EPI Programme, Nepal 1996

| Vaccine | Age to receive dose | Interval between doses |
|---------|---------------------------------------|--|
| BCG | At birth or first contact | - |
| OPV/DPT | 6 weeks 10 weeks 14 weeks | 4 weeks |
| MEASLES | 9 months | - |
| TT | All women of childbearing age (15-44) | TT1= at first contact TT2= 4 weeks after TT1 TT3= 6 months after TT2 TT4= 1 year after TT3 or during next pregnancy TT5= 1 year after TT4 or during next pregnancy |

Source: Ministry of Health (1997).

Problems and constraints in the delivery of services

Delivering health care services in Nepal entails a number of different problems. The rugged terrain, lack of trained personnel, as well as the limited resources available make health services inaccessible to a large population in the Hills and Mountains, despite recent government efforts to establish at least one health institution in each VDC. Limited awareness among the rural population about safe motherhood issues has resulted in low coverage of ANC and delivery services as well as low continuity of ANC services. For cultural reasons, most pregnant women would prefer to go to a female service provider; therefore, the problem is further compounded by insufficient female staff, especially ANMs and MCHWs, at the peripheral level.

Similar explanations also account for the low coverage of immunization in Nepal. For example, most rural mothers are still not aware of the importance of immunization for themselves as well as for their children. As is the case for ANC services, even if they are aware of immunization services, they may not know when and where they are being offered.

Coverage of maternal and child health services

Data from the Government's Health Management Information System (HMIS) show that for the fiscal year 1994/95 the coverage of ANC services for Nepal was 16 percent of pregnant women (Department of Health Services, 1996). According to the 1996 NFHS, the proportion of women reporting use of modern ANC services at least once for pregnancies in the past 3 years is 39 percent (Pradhan et al., 1997). Usually one finds that the service statistics data overestimate coverage compared to survey data. However, in this case the opposite is true. This can be explained by the fact that HMIS uses an estimated number of pregnancies to calculate the coverage rates and any under/over estimation will have an effect on the estimated coverage rates, and by the fact that HMIS does not include data from hospitals which are one of the major sources of ANC services in Nepal.

HMIS data show that the estimated percentage of births assisted by medically trained persons is 3 percent compared with a figure of 10 percent from the 1996 NFHS. Once again, the HMIS data do not include the services provided by hospitals and the private sector.

Coverage of at least two doses of TT obtained from the 1996 NFHS is 33 percent versus the figure of only 10 percent for the fiscal year 1994/95 from the HMIS. One explanation for this difference is that the TT coverage figure in the 1996 NFHS relates to ever-married women who have had a live birth during the past 3 years, while the HMIS figures are based on all women of reproductive age. Coverage of TT vaccinations (at least one dose) for live births in the 3 years prior to the 1996 NFHS is 46 percent. Data from the 1995 Nepal Multiple Indicator Surveillance (1995 NMIS) estimate coverage at 36 percent of mothers receiving at least one shot of TT during their last pregnancy (NPCS and UNICEF, 1996) while a 1995 study by the Valley Research Group provides a TT coverage rate of about 58 percent for women who gave birth during the preceding 5 years (Valley Research Group, 1995).

Table 2 summarizes child immunization coverage results from various data sources. Unlike the data on safe motherhood programmes, results on coverage of immunization from the HMIS are high compared with those obtained from the 1996 NFHS. For example, from the HMIS the percentage of children vaccinated by 12 months of age for BCG, DPT3, polio 3 and measles are 85, 77, 78, and 78, respectively. Comparable data from the 1996 NFHS are respectively 73, 51, 48, and 45 percent. This suggests that either the service statistics have overestimated immunization coverage or the 1996 NFHS may have underestimated the coverage. This difference, besides the possibility of exaggerated reporting in the HMIS, could also be due to underestimation of the base population in the HMIS or age misreporting. The latter is more common in service statistics than in survey data, because extra care is usually given in collecting data on age in surveys. For example, immunization coverage reported in the HMIS is for children under 1 year of age. If the immunization shots were given to children more than 1 year of age, they would be reflected in the numerator but not in the denominator. Moreover, the denominator is based on the estimated number of children under 1 year of age and if this estimate is lower than the actual number then the coverage rate will be inflated.

Table 2 Immunization coverage estimated from selected studies in Nepal 1994-1996

| Vaccination | Source, year, and base population | | | | |
|-------------------|-----------------------------------|------------------------------|------------------------------|---|-------------------------------|
| | HMIS 1994/1995 0-12 months | NFHS 1996 12-23 months | VRG 1995 under 5 years | NMIS 1995 12-36 months ¹ | NLSS 1996 Under 5 years |
| BCG | 85 | 73 | 71 | 69 | - |
| Polio3 | 78 | 48 | 53 | 54 | - |
| DPT3 | 77 | 51 | 53 | 54 | - |
| Measles | 78 | 45 | 60 | 59 | - |
| Full Immunization | - | 36 | 49 | 45 | 36 |

¹ Base population is 0-36 months for BCG vaccination.

Sources: HMIS: Department of Health Services (1996); NFHS: Pradhan et al. (1997); VRG: Valley Research Group (1995); NMIS: NPCS and UNICEF (1996); NLSS: Central Bureau of Statistics (1996).
 HMIS: Health Management Information System;
 NFHS: Nepal Family Health Survey;
 VRG: Valley Research Group; Surveillance;
 NMIS: Nepal Multiple Indicator Survey;
 NLSS: Nepal Living Standards Survey.

Another health survey carried out in 1995 (Valley Research Group, 1995) provided immunization figures which are closer to the 1996 NFHS than the HMIS. For example, vaccination coverage from the Valley Research Group (VRG) survey for BCG, and the third dose of DPT/polio and measles are respectively 71, 53, 53, and 60 percent among children under 5 years. Data from the 1995 NMIS also support the NFHS figures rather than the HMIS figures. For example, among children age 12-36 months, the percentage fully immunized is 45 percent, while 54 percent receive a third dose of DPT and Polio (NPCS and UNICEF, 1996). This survey

found that mothers were able to produce immunization cards for about 18 percent of their children compared with 22 percent in the 1996 NFHS. Similarly, data from the 1996 Nepal Living Standards Survey (NLSS) show that 38 percent of male children under 5 years of age were fully immunized versus 34 percent of female children with an overall coverage rate of around 36 percent (Central Bureau of Statistics, 1996).

Source and quality of data

Data for this study are obtained from the nationally representative 1996 NFHS. A total of 8,429 ever-married women age 15-49 were interviewed in 8,082 selected households. For details of eligibility criteria, sample design, and implementation, readers should refer to Pradhan et al. (1997).

In the 1996 NFHS, women were asked to provide information on their utilization of ANC services, delivery services, and whether their children had received specific vaccinations. For ANC and delivery care, women were asked about health services they received for each pregnancy that ended in a live birth during the 3 years preceding the survey. Questions asked were in the following areas: use of antenatal services, use of delivery services, persons providing these services, timing of ANC services, time taken to reach ANC services, and selected services provided during ANC.

Interviewers were also instructed to record immunizations for living children under 3 years of age directly from immunization cards whenever possible. However, mothers were only able to provide immunization cards for 22 percent of their children. That is, over three-fourths of the reports on whether or not a child was immunized were based on the mother's recall. To make it easier for them to recall, mothers were asked about each immunization separately. Thus, the quality of data analyzed here depends on how well women recall these events. Since the period of recall is relatively short and because of the absence of any evidence to the contrary, it is assumed that the quality of data analyzed here is reasonably good. This assumption is further supported by the data from the 1996 NLSS, the 1995 NMIS, and the 1995 VRG survey presented in Table 2 which all provide estimates of immunization coverage consistent with 1996 NFHS figures.

Before discussing the results, a short explanation is offered about the use of different definitions of antenatal care. Basic ANC refers to pregnant women who received care at least once during pregnancy from medically trained personnel, i.e., doctors, ANMs, VHWs, MCHWs, and other paramedical staff. The second definition of ANC restricts the definition to those who received at least three ANC visits with the first visit occurring in the first 6 months of pregnancy. The rationale for the restriction to at least three ANC visits comes from the Safe Motherhood Policy which recommends three visits (Ministry of Health, 1996). The third definition of ANC is yet more restrictive and includes only those women who in addition to meeting the criteria for the second definition also received at least one shot of TT and received iron and folic acid tablets. The third definition can be regarded as the "best" ANC package available in Nepal and is consistent with the recommendations of the Safe Motherhood Policy.

Results

Characteristics of recipients of ANC care

Table 3 examines ANC coverage by ecological zone, development region, place of residence, and educational level of the mother. Overall, among births in the 3 years prior to the survey the service utilization rate for basic ANC services is about 39 percent in Nepal. This decreases when looking at the service utilization rate for the more restrictive definitions of ANC. For example, the service utilization rate based on Definition 2 is only 18 percent which further decreases to only 4 percent for Definition 3. In other words, only a very limited proportion of women are receiving the best ANC package in Nepal.

The basic ANC service utilization rate is highest in the *Terai* region (44 percent), followed by the Hills (36 percent). The availability of transport and communication facilities also follow a similar pattern indicating that

part of these differentials may be due to differential accessibility of services across the ecological zones. Similarly, service utilization rates for development regions also follow the socioeconomic development patterns in the country. Eastern, Central and Western development regions are socioeconomically better off than the Mid-western and Far-western development regions. While the utilization rates of any ANC services in the Eastern, Central and Western development regions are more than 40 percent, this figure is less than 30 percent for the Mid-western and Far-western development regions.

Table 3 Percentage of live births in the 3 years before the survey for which the mother received various types of antenatal care by selected socioeconomic characteristics of the mother, Nepal 1996

| Background characteristics | ANC Def. 1 | ANC Def. 2 | ANC Def. 3 | Number of live births |
|----------------------------|------------|------------|------------|-----------------------|
| Ecological region | | | | |
| Mountain | 24.4 | 8.3 | 2.8 | 337 |
| Hill | 36.4 | 18.3 | 4.6 | 1,862 |
| Terai | 44.2 | 19.1 | 3.2 | 2,176 |
| Education | | | | |
| No education | 32.5 | 12.4 | 2.0 | 3,470 |
| Primary or less | 53.2 | 27.8 | 6.4 | 510 |
| Secondary+ | 82.2 | 54.1 | 16.0 | 394 |
| Development region | | | | |
| Eastern | 41.2 | 16.4 | 3.1 | 924 |
| Central | 42.8 | 21.9 | 4.8 | 1,434 |
| Western | 45.5 | 20.8 | 4.7 | 881 |
| Mid-western | 29.2 | 13.5 | 1.7 | 695 |
| Far-western | 28.4 | 9.3 | 2.5 | 441 |
| Residence | | | | |
| Urban | 67.0 | 45.7 | 12.9 | 278 |
| Rural | 37.5 | 16.0 | 3.1 | 4,097 |
| Total | 39.4 | 17.9 | 3.7 | 4,375 |

ANC Definition 1: At least one visit with a medically trained person (see text for further details).

ANC Definition 2: At least three visits with the first visit during the first 6 months of pregnancy.

ANC definition 3: Definition 2 plus at least one dose of TT and received iron/folic acid tablets.

Urban rural differentials in the utilization of ANC services are more pronounced than other regional differences. For example, nearly two-thirds of urban women have used ANC services, while, this figure is only 38 percent among rural women. Similarly, urban women are more than four times more likely to use the best ANC service package as compared to rural women where only 3 percent are receiving the best services.

The fact that ANC utilization is positively related to mother's education can be clearly discerned from Table 3. While the proportion of mothers utilizing ANC services is only 33 percent among women with no formal schooling, it increases to a high of 82 percent among women with secondary or higher education. Schuler et al. (1985) have shown that in Nepal, accessibility to service providers and quality family planning services in institutions depend on the socioeconomic status of the clients. Thus, higher level of use of services by educated women could be reflective of relatively easier accessibility to both physical facilities as well as to service providers. Moreover, educated women may also be more aware of the services they need and the type of services available in health institutions.

These differential patterns are also observed in the other two definitions of ANC, although in relative terms the differentials for Definitions 2 and 3 tend to be greater than for basic ANC. For example, women with

secondary or higher education are about 2.5 times more likely to use basic ANC services than those with no education, but they are 8 times more likely to receive the best ANC package. Note, however, that only 16 percent of educated women receive the “best” ANC package.

Mothers who are younger are more than twice as likely to use ANC services compared with older women indicating a negative association between age of the mother and use of ANC services (Table 4). For example, among women who are 15-19 years of age, the utilization rate for basic ANC services is nearly 50 percent while the corresponding figure for women age 35-49 is only 22 percent. When looking at the corresponding figures for ANC Definition 2 and Definition 3, the gap between younger and older women increases further. For example, for both definitions, younger women are more than three times as likely to use the services as older women.

Table 4 Percentage of live births in the 3 years before the survey for which the mother received various types of antenatal care by selected demographic characteristics of the mother, Nepal 1996

| Background characteristics | ANC Def. 1 | ANC Def. 2 | ANC Def. 3 | Number of live births |
|------------------------------------|------------|------------|------------|-----------------------|
| Mother's age at birth | | | | |
| <20 | 49.7 | 24.6 | 5.1 | 817 |
| 20-34 | 39.0 | 17.6 | 3.7 | 3,136 |
| 35+ | 22.0 | 7.2 | 1.3 | 422 |
| Birth order | | | | |
| 1 | 51.5 | 26.2 | 6.1 | 1,004 |
| 2-3 | 42.8 | 20.6 | 4.3 | 1,684 |
| 4-6 | 32.1 | 11.8 | 2.1 | 1,250 |
| 7+ | 19.3 | 6.3 | .6 | 437 |
| Previous pregnancy interval | | | | |
| No previous pregnancy | 50.9 | 25.3 | 6.1 | 929 |
| <12 months | 36.4 | 18.8 | 3.1 | 557 |
| 12-17 months | 37.1 | 15.4 | 3.0 | 719 |
| 18-23 months | 35.3 | 14.6 | 2.9 | 613 |
| 24+ months | 36.2 | 15.6 | 3.2 | 1,557 |
| Previous pregnancy outcome | | | | |
| No previous pregnancy | 50.9 | 25.3 | 6.1 | 929 |
| Early loss/ miscarriage | 43.3 | 22.4 | 5.1 | 178 |
| Stillbirth | 50.2 | 24.8 | 4.4 | 78 |
| Early neonatal death | 40.3 | 20.1 | 2.2 | 130 |
| Survived at least 7 days | 35.3 | 15.2 | 3.0 | 3,061 |
| Total | 39.4 | 17.9 | 3.7 | 4,375 |

ANC Definition 1: At least one visit with a medically trained person (see text for further details).

ANC Definition 2: At least three visits with the first visit during the first 6 months of pregnancy.

ANC definition 3: Definition 2 plus at least one dose of TT and received iron/folic acid tablets.

In a similar manner, the proportion of mothers utilizing ANC services is negatively associated with birth order—that is, the lower the birth order, the higher the utilization of services. For example, nearly 52 percent of first-birth mothers utilize ANC services at least once when they are pregnant. This figure gradually decreases to 19 percent when the birth order is seven or more. This negative relationship between use of ANC services and age and birth order could be due to the following reasons: low parity women are mostly younger women, younger women are more likely to be educated than older women, or older, higher parity women may be confident that they do not need ANC services after they have had a few births.

Differentials in the use of ANC services are not very pronounced by the preceding pregnancy interval. Women who had a previous live birth that survived at least 7 days are less likely to use ANC services compared to other women. Those mothers whose preceding pregnancy resulted in a stillbirth or who had no previous pregnancy are the most likely to have made at least one ANC visit.

Table 5 presents the stage of pregnancy at the time of the first antenatal visit according to background characteristics and number of ANC visits. About 24 percent of women receive ANC services during the first 6 months of pregnancy with a further 15 percent of mothers receiving services after 6 months. Differentials in the timing of the first ANC visit show exactly the same patterns observed in the utilization of ANC services discussed earlier. Urban, younger, low parity and educated women come for ANC earlier than their counterparts. Those women who make more visits also start earlier.

Table 5 Percent distribution of live births in the 3 years preceding the survey by the stage of pregnancy at the time of the first antenatal care visit and by selected characteristics of the mother, Nepal 1996

| Background characteristics | Number of months pregnant at time of first ANC visit | | | | | Number of births |
|------------------------------|--|-------------|-------------|------------|------------|------------------|
| | No antenatal care | < 6 months | 6-7 months | 8+ months | DK/missing | |
| Ecological region | | | | | | |
| Mountain | 75.6 | 13.3 | 7.5 | 3.5 | 0.2 | 337 |
| Hill | 63.6 | 22.6 | 9.7 | 3.7 | 0.5 | 1,862 |
| Terai | 55.8 | 26.0 | 14.4 | 3.0 | 0.7 | 2,176 |
| Development region | | | | | | |
| Eastern | 58.8 | 24.4 | 10.2 | 5.1 | 1.5 | 924 |
| Central | 57.2 | 25.1 | 15.5 | 1.9 | 0.4 | 1,434 |
| Western | 54.5 | 28.0 | 14.2 | 2.6 | 0.6 | 881 |
| Mid-western | 70.8 | 18.9 | 6.8 | 3.3 | 0.1 | 695 |
| Far-western | 71.6 | 15.4 | 7.2 | 5.7 | 0.0 | 441 |
| Residence | | | | | | |
| Urban | 33.0 | 47.1 | 15.9 | 3.9 | 0.0 | 278 |
| Rural | 62.5 | 22.0 | 11.6 | 3.3 | 0.6 | 4,097 |
| Education | | | | | | |
| No education | 67.5 | 18.5 | 10.4 | 2.9 | 0.7 | 3,470 |
| Primary or less | 46.8 | 31.4 | 16.9 | 4.5 | 0.4 | 510 |
| Secondary+ | 17.8 | 57.7 | 18.7 | 5.8 | 0.0 | 394 |
| Mother's age at birth | | | | | | |
| <20 | 50.3 | 28.8 | 17.5 | 3.1 | 0.3 | 817 |
| 20-34 | 61.0 | 23.6 | 11.2 | 3.6 | 0.7 | 3,136 |
| 35-49 | 78.0 | 13.4 | 6.0 | 2.0 | 0.6 | 422 |
| Birth order | | | | | | |
| 1 | 48.5 | 32.2 | 14.6 | 4.5 | 0.2 | 1,004 |
| 2-3 | 57.2 | 25.5 | 13.6 | 3.1 | 0.6 | 1,684 |
| 4-6 | 67.9 | 17.7 | 10.2 | 3.1 | 1.0 | 1,250 |
| 7+ | 80.7 | 13.1 | 3.8 | 2.0 | 0.4 | 437 |
| No. of ANC visits | | | | | | |
| None | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2,435 |
| 1 | 9.3 | 32.7 | 33.6 | 22.9 | 1.5 | 470 |
| 2 | 7.3 | 50.0 | 36.4 | 5.2 | 1.1 | 457 |
| 3 | 5.4 | 64.7 | 27.6 | 1.7 | 0.5 | 506 |
| 4+ | 2.2 | 81.9 | 14.6 | 1.4 | 0.0 | 386 |
| DK/missing | 86.4 | 4.7 | 0.0 | 0.0 | 8.9 | 121 |
| Total | 60.6 | 23.6 | 11.9 | 3.3 | 0.6 | 4,375 |

Missed opportunities in antenatal care

Data on mothers who had made at least one ANC visit by receipt of TT shots, iron and iron/folic acid tablets are summarized in Table 6 by ecological region, development region, place of residence, and education of the respondents. It is heartening to note that overall about 93 percent of the mothers get a TT shot if they visit ANC service outlets. The corresponding figures for iron tablets as well as combined iron and folic acid tablets are very low at 22 percent and 16 percent, respectively. Because TT shots can be given to all women who attend ANC services at health institutions during their first visit, coverage of TT can be further increased to 100 percent among women attending ANC services. As stated earlier, the policy of the Department of Health is to provide iron and folic acid tablets only from the second trimester. However, there is some indication that in fact these tablets are also distributed to mothers even in the first trimester (1996 NFHS unpublished data). If the programme starts distributing these tablets at the first ANC visit, then the coverage could be increased substantially from a low of 16 percent for the combined folic acid/iron tablets to nearly 100 percent of women who receive any ANC. In this respect, the missed opportunity for TT shots is about 10 percent, while it is 84 percent for the folic acid/iron tablets.

Table 6 Percentage of births in the 3 years before the survey whose mothers received at least one tetanus toxoid injection, iron tablets, and iron and folic acid tablets among all births whose mother had at least one antenatal visit by selected background characteristics, Nepal 1996

| Background characteristics | Received tetanus toxoid | Received iron tablets | Received iron and folic acid tablets | Number of births with ANC |
|----------------------------|-------------------------|-----------------------|--------------------------------------|---------------------------|
| Ecological region | | | | |
| Mountain | 90.7 | 25.0 | 17.6 | 82 |
| Hill | 93.4 | 26.5 | 21.0 | 678 |
| Terai | 93.1 | 17.8 | 12.4 | 963 |
| Education | | | | |
| No education | 92.4 | 17.7 | 12.4 | 127 |
| Primary or less | 92.9 | 26.5 | 20.4 | 271 |
| Secondary+ | 95.8 | 30.9 | 24.8 | 324 |
| Development region | | | | |
| Eastern | 93.1 | 17.8 | 13.3 | 381 |
| Central | 94.4 | 21.9 | 17.8 | 614 |
| Western | 95.5 | 25.6 | 19.5 | 400 |
| Mid-western | 91.7 | 10.0 | 10.0 | 203 |
| Far-western | 81.8 | 37.5 | 14.6 | 125 |
| Residence | | | | |
| Urban | 91.8 | 35.8 | 26.7 | 186 |
| Rural | 93.3 | 19.9 | 14.7 | 537 |
| Total | 93.1 | 21.6 | 16.0 | 723 |

More than 90 percent of women who have attended ANC services at least once receive TT shots in all ecological regions. In general, there are no large regional, urban/rural, or educational differentials in the provision of TT shots to women who come for ANC services except for the Far-western region where TT shots were given to only 82 percent of women.

Unlike TT shots, there are some differentials in the distribution of iron tablets. More women attending ANC services in the Hill and Mountain regions receive iron tablets (25 and 27 percent, respectively) than women in the Terai (18 percent). Maternal education is positively associated with distribution of iron tablets with 31 percent of mothers with secondary or higher level of education receiving iron tablets compared to 18 percent of mothers with no education.

Again, more women in the Hill (21 percent) and Mountain regions (18 percent) receive combined iron/folic acid tablets than women in the Terai (12 percent). Among the development regions, the Central and Western development regions have slightly higher proportions of women reporting that they received the combined folic acid/iron tablets than in the rest of the regions. The combination tablets for iron and folic acid were introduced recently when the survey was carried out which may explain the difference between the proportion receiving only iron tablets compared to those receiving combination tablets.

Time to arrive at site of antenatal care

An important aspect of utilization of health care services is the accessibility of these facilities. Unfortunately, no data were collected in the 1996 NFHS on the accessibility of services but data were collected on time to antenatal care provider from women who attended ANC at least once. The percent distributions of time to ANC care by different socioeconomic characteristics are presented in Table 7. The average time to ANC services for Nepalese women who have received ANC care at least once is 51 minutes. The differentials suggested by this table are very similar to those seen in Table 3 for ANC utilization. Women in the Terai region reported the shortest average time to ANC services (40 minutes), followed by women in the Hill (61 minutes) and Mountain regions (86 minutes). The average time to ANC services is shorter in the Eastern and Central development regions (about 45 minutes each) while it is higher in the rest of the development regions (about 56 minutes).

The average time to ANC services is highest for women who have at least some primary education (56 minutes) and lowest for those in the no education category at about 48 minutes. Women with secondary or higher education are the most likely to travel for more than 1 hour to receive antenatal care, despite the fact that they are also more likely to live in urban areas where travel times are shorter on average. Women with secondary or higher education (who are more likely to use ANC than other women) may be prepared to travel further to get ANC services. On the other hand, there may be differences by education in the accuracy of reporting of the time taken to reach services.

Characteristics of the recipients of delivery care

Table 8 presents the characteristics of the recipients of delivery care. Overall, only 10 percent of births in the 3 years prior to the survey received delivery care from medically trained personnel. While about 11 percent of women in the Hill and Terai regions receive delivery care from medically trained personnel, this figure is much lower for Mountain women (3 percent). Again, when looking at the differentials by development region, it is observed that the proportion receiving delivery care from medically trained personnel is close to the national figure in the Eastern, Central, and Western development regions, while the figures for Mid-western and Far-western regions are only 5 percent. The fact that education of the mother is key to receiving delivery services from medically trained personnel can easily be seen from Table 8. As the educational level of the mother increases, the proportion of births receiving delivery care from medically trained personnel also increases.

The percentage of live births delivered in health facilities is low in Nepal (Table 8); only 8 percent of the births are delivered in such facilities. While 9 percent of live births are delivered in health facilities in the Hill region, the corresponding figure for the Mountain region is 2 percent. The percentage of births delivered at a health facility is highest in the Central development region, while it is lowest in the Mid-western development region. Again, the more women are educated, the more likely they are to deliver their babies at a medical facility. For example, while the figure for delivery at a medical facility is 37 percent among births to women with a secondary or higher level of education, the corresponding figure for births to women with no education is only about 4 percent.

Table 7 Percent distribution of births in the 3 years before the survey in which the mother sought antenatal care by duration of time required to arrive at the facility for antenatal care, and average time to arrive, by selected characteristics, Nepal 1996

| Background characteristics | Received antenatal care | Time to ANC provider | | | | Total | Mean time in minutes |
|----------------------------|-------------------------|----------------------|--------------|---------------|-------------|--------------|----------------------|
| | | Seen at home | < 30 minutes | 30-60 minutes | > 1 hour | | |
| Ecological region | | | | | | | |
| Mountain | 24.4 | 6.7 | 26.8 | 24.1 | 42.4 | 100.0 | 86.1 |
| Hill | 36.4 | 2.4 | 31.8 | 39.7 | 26.0 | 100.0 | 61.0 |
| Terai | 44.2 | 2.8 | 50.6 | 31.7 | 15.0 | 100.0 | 40.3 |
| Development region | | | | | | | |
| Eastern | 41.2 | 3.0 | 47.8 | 32.8 | 16.4 | 100.0 | 45.9 |
| Central | 42.8 | 3.3 | 44.0 | 33.6 | 19.1 | 100.0 | 45.5 |
| Western | 45.5 | 2.3 | 38.2 | 33.1 | 26.4 | 100.0 | 56.6 |
| Mid-western | 29.2 | 2.4 | 40.9 | 34.1 | 22.7 | 100.0 | 59.0 |
| Far-western | 28.4 | 2.3 | 29.8 | 49.1 | 18.8 | 100.0 | 55.8 |
| Education | | | | | | | |
| No education | 32.5 | 2.9 | 45.6 | 32.6 | 18.9 | 100.0 | 48.0 |
| Primary or less | 53.2 | 3.2 | 30.8 | 44.0 | 22.0 | 100.0 | 56.3 |
| Secondary+ | 82.2 | 2.2 | 39.3 | 33.0 | 25.5 | 100.0 | 54.3 |
| Residence | | | | | | | |
| Urban | 67.0 | 0.4 | 40.0 | 50.2 | 9.5 | 100.0 | 37.2 |
| Rural | 37.5 | 3.1 | 42.4 | 32.6 | 22.0 | 100.0 | 52.2 |
| Number of visits | | | | | | | |
| 3+ visits | 100.0 | 1.6 | 42.2 | 37.1 | 19.2 | 100.0 | 47.7 |
| 1-2 visits | 100.0 | 3.9 | 42.0 | 32.0 | 22.1 | 100.0 | 53.4 |
| DK | 100.0 | 21.4 | 42.1 | 20.7 | 15.9 | 100.0 | 43.4 |
| Total | 39.4 | 2.8 | 42.1 | 34.5 | 20.6 | 100.0 | 50.5 |

DK = Don't know

Again, as in the case of ANC services, more younger women and low parity mothers receive delivery care compared to older and high parity women (Table 9). Women whose previous pregnancy intervals were short are more likely to receive delivery care than those with longer birth intervals. More women who did not have a previous pregnancy receive delivery care services from medically trained personnel than other categories of previous birth intervals. If this is considered together with the figures for first birth order, one can infer that proportionately more women with no previous pregnancies or pregnancies which did not result in a live birth receive delivery care services from medically trained persons.

Three possible mechanisms may lead to a woman being assisted by a medically trained attendant at birth—patient or family preference/choice, referral during pregnancy, and complications during delivery. In Nepal, where availability of and access to delivery care are very limited, it may be that birth-related complications are a major reason for use of delivery care among those attended by a trained attendant. These results are also consistent with the practice of referring women with a past history of a difficult or high-risk delivery for medical delivery care for subsequent births.

Table 8 Percentage of live births in the 3 years before the survey in which the mother received delivery assistance from trained medical personnel and delivered in a medical facility by selected characteristics of the mother, Nepal 1996

| Background characteristics | Delivered | | Number of live births |
|----------------------------|------------------------|-----------------------|-----------------------|
| | Received delivery care | in a medical facility | |
| Ecological region | | | |
| Mountain | 2.9 | 2.0 | 337 |
| Hill | 11.0 | 9.0 | 1,862 |
| Terai | 10.4 | 7.2 | 2,176 |
| Development region | | | |
| Eastern | 11.4 | 7.2 | 924 |
| Central | 13.4 | 11.3 | 1,434 |
| Western | 10.1 | 7.4 | 881 |
| Mid-western | 4.7 | 2.7 | 695 |
| Far-western | 5.2 | 3.9 | 441 |
| Education | | | |
| No education | 5.4 | 3.8 | 3,470 |
| Primary or less | 15.7 | 10.7 | 510 |
| Secondary+ | 43.5 | 36.5 | 394 |
| Residence | | | |
| Urban | 46.5 | 43.8 | 278 |
| Rural | 7.6 | 5.1 | 4,097 |
| Total | 10.1 | 7.6 | 4,375 |

Table 9 Percentage of live births in the 3 years before the survey in which the mother received assistance from medically trained personnel by selected demographic characteristics of the mother, Nepal 1996

| Demographic characteristics | Medical delivery care | | Number of live births |
|------------------------------------|-----------------------|---------------|-----------------------|
| | No care | Delivery care | |
| Mother's age at birth | | | |
| <20 | 86.4 | 13.6 | 817 |
| 20-34 | 90.4 | 9.6 | 3,136 |
| 35+ | 93.4 | 6.6 | 422 |
| Birth order | | | |
| 1 | 80.3 | 19.7 | 1,004 |
| 2-3 | 90.7 | 9.3 | 1,684 |
| 4-6 | 94.6 | 5.4 | 1,250 |
| 7+ | 95.7 | 4.3 | 437 |
| Previous pregnancy interval | | | |
| No previous pregnancy | 79.8 | 20.2 | 929 |
| <12 months | 88.7 | 11.3 | 557 |
| 12-17 months | 94.7 | 5.3 | 719 |
| 18-23 months | 94.7 | 5.3 | 613 |
| 24+ months | 92.3 | 7.7 | 1,557 |
| Previous pregnancy outcome | | | |
| No previous pregnancy | 79.8 | 20.2 | 929 |
| Early loss/miscarriage | 84.1 | 15.9 | 178 |
| Stillbirth | 89.9 | 10.1 | 78 |
| Early neonatal death | 86.7 | 13.3 | 130 |
| Survived at least 7 days | 93.5 | 6.5 | 3,061 |
| Total | 89.9 | 10.1 | 4,375 |

Childhood immunization

Immunization services are one of the important factors in the reduction of infant and childhood mortality. This section of the report deals with immunization coverage among children 12 to 23 months of age. As indicated in Table 10, the proportion of children age 12 to 23 months who are fully immunized is 43 percent. The Hill region clearly stands out with 51 percent of the children fully immunized while this figure is only 37 percent among Terai and Mountain children. Like ANC and delivery care services, education of the mother plays an important role in getting children immunized. For example, three in four children of mothers with secondary or higher level of education are fully immunized. Women who receive ANC services are more likely to have their children fully immunized than women who do not receive any ANC services. This could be due to selectivity, in that these women are more likely to use health services in general, or it could also be a result of the influence of the ANC service provider on women by encouraging them to immunize their children. Similar differentials can also be seen for children receiving measles vaccination, and for those receiving at least one vaccination.

Table 10 Percentage of children age 12-23 months who received various combinations of immunizations at any time before the survey by selected socioeconomic characteristics of the mother, Nepal 1996

| Background characteristics | Received measles vaccination | | Received all vaccinations | | Received any vaccinations | | Number of living children |
|--------------------------------|------------------------------|-------------|---------------------------|-------------|---------------------------|-------------|---------------------------|
| | No | Yes | None/some | All | None | 1 or more | |
| Ecological region | | | | | | | |
| Mountain | 50.1 | 49.9 | 63.1 | 36.9 | 28.6 | 71.4 | 111 |
| Hill | 37.4 | 62.6 | 48.7 | 51.3 | 20.0 | 80.0 | 619 |
| Terai | 48.0 | 52.0 | 63.1 | 36.9 | 19.0 | 81.0 | 649 |
| Development region | | | | | | | |
| Eastern | 36.7 | 63.3 | 54.8 | 45.2 | 15.6 | 84.4 | 294 |
| Central | 45.2 | 54.8 | 56.8 | 43.2 | 17.4 | 82.6 | 452 |
| Western | 43.2 | 56.8 | 49.0 | 51.0 | 16.9 | 83.1 | 267 |
| Mid-western | 44.2 | 55.8 | 61.0 | 39.0 | 26.4 | 73.6 | 218 |
| Far-western | 50.9 | 49.1 | 67.5 | 32.5 | 34.7 | 65.3 | 147 |
| Education | | | | | | | |
| No education | 48.0 | 52.0 | 61.9 | 38.1 | 23.8 | 76.2 | 1,111 |
| Primary or less | 35.0 | 65.0 | 44.0 | 56.0 | 9.0 | 91.0 | 141 |
| Secondary+ | 12.9 | 87.1 | 25.1 | 74.9 | 1.0 | 99.0 | 127 |
| Residence | | | | | | | |
| Urban | 22.8 | 77.2 | 28.9 | 71.1 | 11.6 | 88.4 | 84 |
| Rural | 44.8 | 55.2 | 58.5 | 41.5 | 20.8 | 79.2 | 1,295 |
| Received antenatal care | | | | | | | |
| No | 53.6 | 46.4 | 66.3 | 33.7 | 29.2 | 70.8 | 832 |
| Yes | 28.0 | 72.0 | 42.0 | 58.0 | 6.5 | 93.5 | 548 |
| Total | 43.4 | 56.6 | 56.7 | 43.3 | 20.2 | 79.8 | 1,379 |

Male children, children with a lower birth order, and children of younger women are more likely to receive full immunization services than others (Table 11). While 47 percent of male children are fully immunized only 40 percent of female children are. This reflects gender bias in the provision of health services due to strong preference for male children in Nepalese society (Karki, 1988). Although the numbers are small, children who were preceded by a stillbirth or an early neonatal death as well as first births have higher coverage of immunization than other children.

Table 11 Percentage of children aged 12-23 months who received various combinations of immunizations at any time before the survey by selected demographic characteristics of the mother, Nepal 1996

| Demographic characteristics | Received measles vaccination | | Received all vaccinations | | Received any vaccinations | | Number of living children |
|------------------------------------|------------------------------|-------------|---------------------------|-------------|---------------------------|-------------|---------------------------|
| | No | Yes | None/some | All | None | 1 or more | |
| Sex of child | | | | | | | |
| Male | 41.0 | 59.0 | 53.3 | 46.7 | 21.6 | 78.4 | 705 |
| Female | 46.0 | 54.0 | 60.1 | 39.9 | 18.8 | 81.2 | 675 |
| Mother's age at birth | | | | | | | |
| <20 | 39.3 | 60.7 | 56.9 | 43.1 | 16.7 | 83.3 | 243 |
| 20-34 | 43.2 | 56.8 | 55.9 | 44.1 | 20.0 | 80.0 | 992 |
| 35+ | 51.6 | 48.4 | 61.4 | 38.6 | 27.2 | 72.8 | 144 |
| Birth order | | | | | | | |
| 1 | 35.6 | 64.4 | 51.0 | 49.0 | 17.8 | 82.2 | 313 |
| 2-3 | 39.6 | 60.4 | 54.0 | 46.0 | 13.8 | 86.2 | 532 |
| 4-6 | 49.6 | 50.4 | 61.5 | 38.5 | 25.2 | 74.8 | 385 |
| 7+ | 57.6 | 42.4 | 65.7 | 34.3 | 35.2 | 64.8 | 149 |
| Previous pregnancy interval | | | | | | | |
| No previous pregnancy | 35.6 | 64.4 | 50.8 | 49.2 | 18.5 | 81.5 | 285 |
| <12 months | 41.2 | 58.8 | 59.5 | 40.5 | 14.0 | 86.0 | 181 |
| 12-17 months | 44.4 | 55.6 | 55.1 | 44.9 | 24.1 | 75.9 | 202 |
| 18-23 months | 39.9 | 60.1 | 54.0 | 46.0 | 21.0 | 79.0 | 191 |
| 24+ months | 49.4 | 50.6 | 60.5 | 39.5 | 21.4 | 78.6 | 521 |
| Previous pregnancy outcome | | | | | | | |
| No previous pregnancy | 35.6 | 64.4 | 50.8 | 49.2 | 18.5 | 81.5 | 285 |
| Early loss/miscarriage | 49.3 | 50.7 | 62.2 | 37.8 | 16.1 | 83.9 | 62 |
| Stillbirth | (24.8) | (75.2) | (49.2) | (50.8) | (24.8) | (75.2) | 16 |
| Early neonatal death | (38.3) | (61.7) | (50.9) | (49.1) | (12.2) | (87.8) | 41 |
| Survived at least 7 days | 45.9 | 54.1 | 58.4 | 41.6 | 21.2 | 78.8 | 975 |
| Total | 43.4 | 56.6 | 56.7 | 43.3 | 20.2 | 79.8 | 1,379 |

Note: Figures in parentheses are based on fewer than 50 cases.

Relationship between use of different services

So far the analysis has examined use of each preventive health service separately. In this section, the relationship between the use of different services is examined—particularly whether users of one service are more likely to use other services.

Table 12 cross tabulates whether mothers receive delivery assistance and whether the child received full immunizations and measles vaccinations by utilisation of ANC services during the same pregnancy. It can be seen from this table that if women have used ANC services during pregnancy, then they are more likely to receive delivery services and immunizations for the child. For example, those who have received ANC services during the pregnancy are six times more likely to receive delivery services than women who did not receive any ANC services. The proportion of children immunized with the measles vaccine is 51 percent among those whose mother received ANC services, while it is only 32 percent among those whose mother did not receive any ANC services. The proportion of children receiving the full regime of vaccinations among those whose mother received ANC services is 41 percent compared with 23 percent for those whose mothers did not receive any ANC services. Once again, this indicates that women who are exposed to health facilities for ANC services are more likely to get other health services for themselves as well as immunization services for their children.

Table 12 Percentage of live births in the 3 years before the survey for which the mother sought delivery assistance or childhood immunizations by previous maternal health service utilization during the same pregnancy, Nepal 1996

| Previous service utilization | Received medical delivery care | | Received measles vaccinations | | Received all vaccinations | | Number of live births |
|---------------------------------------|--------------------------------|------|-------------------------------|------|---------------------------|------|-----------------------|
| | No | Yes | No | Yes | No | Yes | |
| Received antenatal care | | | | | | | |
| No | 96.6 | 3.4 | 68.1 | 31.9 | 77.0 | 23.0 | 2,652 |
| Yes | 79.7 | 20.3 | 48.9 | 51.1 | 58.8 | 41.2 | 1,723 |
| Received medical delivery care | | | | | | | |
| No | NA | NA | 62.2 | 37.8 | 71.8 | 28.2 | 3,934 |
| Yes | NA | NA | 45.4 | 54.6 | 52.8 | 47.2 | 441 |

NA = Not applicable

Mothers who received medical delivery services during the birth are more likely to get their child immunized compared with women who did not receive medical delivery care. For example, the proportion of children immunized among those whose mother received medical delivery care is 54 percent for measles and 47 percent for full immunization. The corresponding figures for children whose mother did not receive any medical delivery care are 38 and 28 percent, respectively.

Multivariate Analysis

To observe what happens to these bivariate relationships, after controlling for different socioeconomic variables, logistic regression models were fitted for utilization of ANC, delivery and immunization services. These results have been summarized in Table 13. Once all the variables are controlled for, the variables found to have a statistically significant effect on the utilization of ANC services are ecological region, education, birth order, development region, and urban/rural residence. The differentials reflected in the odds ratio are consistent with the bivariate relationships previously discussed. For example, among women who have received a secondary or higher level of education, the odds of using ANC services are 7 times the odds for women with no formal schooling. The odds of utilizing ANC services among Hill women are only 65 percent of the odds for *Terai* women while this figure is only 52 percent for Mountain women. Women from the Central development region have higher odds of using ANC services compared with women from the Mid-western and Far-western development regions. Similarly, if a woman lives in an urban area, her odds of utilizing ANC services are 2.1 times higher than women living in rural areas. The effect of age and previous pregnancy interval on the utilization of ANC services is not statistically significant once other variables are controlled for.

Variables that have a statistically significant effect on the utilization of medically supervised delivery services are previous pregnancy interval, ecological region, mother's age, education, development region, urban/rural residence, and whether or not ANC services were used. Women utilizing ANC services are four times as likely to get medically supervised delivery services as women who did not use ANC services. Similarly, women in urban areas are five times more likely to use delivery services compared to their rural counterparts.

Variables that have a statistically significant effect on full vaccination for children age 12-23 months are ecological region, education, development region, urban/rural residence, use of ANC services, and gender. Among urban women the odds of getting their children fully immunized are 1.9 times higher than among rural

Table 13 Odds ratios from logistic regression of utilization of ANC, delivery services, and childhood immunization, Nepal 1996

| Background characteristics | Odds ratios | | |
|------------------------------------|-------------|-------------------|--------------|
| | ANC | Delivery services | Immunization |
| Previous pregnancy interval | | | |
| No previous pregnancy | 0.66 | 2.26* | 0.96 |
| Less than 12 months | 0.82 | 1.53* | 1.03 |
| 12-17 months | 0.96 | 0.65* | 1.10 |
| 18-23 months | 0.91 | 0.68 | 1.17 |
| 24 or more months | 1.00 | 1.00 | 1.00 |
| Ecological region | | | |
| Mountain | 0.52** | 0.43* | 1.05 |
| Hill | 0.65** | 1.04 | 1.54** |
| Terai | 1.00 | 1.00 | 1.00 |
| Mother's age | | | |
| less than 20 | 1.08 | 0.62** | 0.82 |
| 25-34 | 1.00 | 1.00 | 1.00 |
| 35+ | 0.89 | 2.05** | 1.25 |
| Education | | | |
| None | 1.00 | 1.00 | 1.00 |
| Primary or less | 1.98** | 2.32** | 1.33** |
| Secondary+ | 6.96** | 4.94** | 1.41** |
| Birth order | | | |
| 1 | 1.57 | 1.08 | 1.16 |
| 2-3 | 1.00 | 1.00 | 1.00 |
| 4-6 | 0.75** | 0.84 | 0.92 |
| 7 or more | 0.45** | 0.73 | 0.97 |
| Development region | | | |
| Eastern | 0.92 | 0.81 | 1.08 |
| Central | 1.00 | 1.00 | 1.00 |
| Western | 1.14 | 0.66** | 1.17 |
| Mid-western | 0.67** | 0.42** | 1.04 |
| Far-western | 0.66** | 0.56** | 0.70** |
| Residence | | | |
| Urban | 2.13** | 5.39** | 1.93** |
| Rural | 1.00 | 1.00 | 1.00 |
| ANC services | | | |
| Yes | - | 3.95** | 2.07** |
| No | - | 1.00 | 1.00 |
| Delivery Services | | | |
| Yes | - | - | 1.22 |
| No | - | - | 1.00 |
| Sex of child | | | |
| Male | - | - | 1.19* |
| Female | - | - | 1.00 |

* (p<0.05); ** (p<0.01)

women. Full immunization coverage is higher in the Hill region than among *Terai* women and the odds of full immunization in the Far-western region are 70 percent of those in the Central development region. The same pattern of differentials is observed in the bivariate analysis. However, although Hill women are using ANC less than *Terai* women, more Hill women are getting their children fully immunized compared with *Terai* women.

Once again, mother's education clearly stands out as one of the main determinants of childhood immunization. The higher the level of mother's education the higher the coverage of full immunization for their children. For example, for women with secondary or higher education, the odds of getting their children fully immunized are 1.4 times higher than for women with no formal schooling.

Discussion and Conclusions

The coverage for "basic" ANC services in Nepal is about 39 percent while coverage of the "best" ANC package is only 4 percent. The data also show that 40 percent of mothers who receive ANC services begin after the second trimester. This may indicate a lack of awareness among Nepalese women regarding the importance of early and frequent ANC. In addition, it may suggest limited service access and availability. Although the Department of Health has been mobilizing trained traditional birth attendants (TBA) to provide information on the importance of early ANC it seems that these efforts have not been very effective. As a supplement to this policy, female community health volunteers (FCHV) who are being mobilized to increase use of immunization services could also provide information on ANC.

It is heartening to note that proportionately more women of lower

parity are availing themselves of ANC services. It has been observed that if women receive ANC services for their first birth, they are more likely to receive ANC services in subsequent pregnancies (Adekunle et al., 1990). High-risk pregnancies include first as well as high parity pregnancies (seven or more). Data show that the programme is able to encompass only a small proportion of high order births. In this context it will also be helpful to target high order pregnancies. Development and ecological region differences, observed in the utilization of ANC services, may reflect the amount of time to get to ANC services. It is hoped that expansion of health services to more peripheral areas in the near future will help to fill this gap.

Higher utilization rates among better educated women suggest that women in higher socioeconomic groups are availing themselves of ANC services or the programme is reaching mostly these people. Again in this respect, His Majesty's Government's policy of establishing at least one health institution in each and every VDC of the country will be helpful in reaching the under-served. Another aspect of this issue is that educated women may have better quality contact with ANC service providers than the less educated ones (Schuler et al., 1985).

Even though only 4 percent of pregnancies are getting the "best" ANC services, one can argue that improving the coverage of this "best" ANC package should not be so difficult in Nepal. If the programme is geared to providing TT shots during the first ANC visit and distributing necessary supplementation pills at the same time, then coverage for this "best" ANC package could easily be increased to 18 percent (i.e., the percentage who currently receive antenatal care at least three times with the first visit during the first 6 months of pregnancy).

The coverage of medically supervised delivery services in Nepal is only 10 percent and most of these services are being used by women in urban areas and women with higher levels of education. In other words, coverage among rural women is very low. The low coverage rates for delivery assistance by trained personnel and health institution deliveries could be due to the lack of female service providers at health institutions. Previous research indicates that this can be a factor in underutilization of delivery services (Baker, 1994). In addition, low coverage rates are also probably due to limited service access.

The current plans are to increase the number of trained TBAs from 14,000 to 22,000 (Department of Health Services, 1996) and to add to their training the identification of high risk pregnancies. Hopefully, this will increase the number of women referred for delivery in health institutions. Attendance at deliveries by trained personnel should also increase as a result of current efforts to provide at least one health institution in each VDC.

Full childhood vaccination coverage in Nepal is only 43 percent and drop out rates are quite high. Although no data were collected on barriers to immunization, it is likely that both limited availability of services and lack of knowledge of the importance of having children vaccinated play a role. Although the FCHVs are providing information on the dates and times these services are available at different VDCs, in the future they should also emphasize the importance of immunization.

Immunization coverage is higher in the Hills than in the Mountain region, most likely because of better access and greater availability of services in this region. Regional differences in immunization are also probably reflective of whether mothers are aware of the importance of these services. This is supported by large differences in the coverage of full immunization among women with different levels of education, a variable that remains important even when other variables are controlled for.

Because no data were available on access to services, it was not possible to control for access in this analysis. This is a serious limitation of this analysis as access is likely to be a major factor affecting utilization of services in Nepal. Thus it is suggested that data on access to these services be collected in future surveys so that the utilization of services can be analysed in a more complete manner.

In summary, health services for ANC, delivery care, and immunization are under-utilized among Nepalese women. Low coverage of these services is probably the result of not knowing the importance as well as where and when these services are available, and limited access to these services. In this respect, female community health volunteers and TBAs can play a major role in providing this information while the planned increase in the number of health institutions will no doubt increase the accessibility of these services.

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**HEALTH CARE FACTORS RELATED TO
EARLY INFANT SURVIVAL IN NEPAL**

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Introduction

Various health measures developed and adopted by the western world after World War II to achieve longer life have contributed to increased life expectancy at birth. In addition, sanitation and hygiene practice together with changes in behavioural norms, practices, values, and beliefs of people as a consequence of social development and increased knowledge have further contributed to these increases. Nepal is no exception to this worldwide pattern. The infant mortality rate of 156 per 1,000 live births estimated for 1969 declined to 79 per 1,000 live births in 1994 (Pradhan et al., 1997). Despite this considerable improvement in the mortality rate of infants in Nepal, the 1996 NFHS indicates that the Nepalese demographic situation is still marked by high death rates (Pradhan et al., 1997). Realizing this phenomenon, the Government of Nepal has set out to reduce the infant mortality rate to 50 per 1,000 live births by the year 2000.

Improving child survival in a society is not an easy task because it depends on various factors such as the socioeconomic situation, health care practices, attitudes, and behaviour. Bringing about changes in the beliefs, practices, and attitudes of people through dissemination of information on pros and cons of their existing practice is an enormous undertaking. This leads to the emergence of studies on child survival in different societies, as well as at different times, in relation to a variety of explanatory socioeconomic, demographic, biological, and health-related factors so that vulnerable groups can be identified for policy consideration. Besides, such studies help to identify the key determinants of childhood mortality. Available data in Nepal reveal that most early age deaths are clustered in the first month of life. If death at this point of life could be reduced, it would contribute significantly to reducing overall infant mortality in Nepal. However, studies of mortality to children in the first week and between the first and fourth week of life in Nepal are lacking. This study examines the relationship of selected socioeconomic, biological, and health care utilization characteristics of mothers with survival chances of infants under 1 month segmented into early and late neonatal periods.

Background

The Government of Nepal has recognized that the well-being of the people and development of the country can only come about by improving its people's health status, sociocultural and economic conditions (National Planning Commission (NPC), 1986: 36-41; UNICEF, 1987: 156). In this context, various programmes to enhance the health status, in general, and child survival, in particular, have been formulated and are being carried out (His Majesty's Government of Nepal (HMG), 1987; NPC, 1992: 79-82).

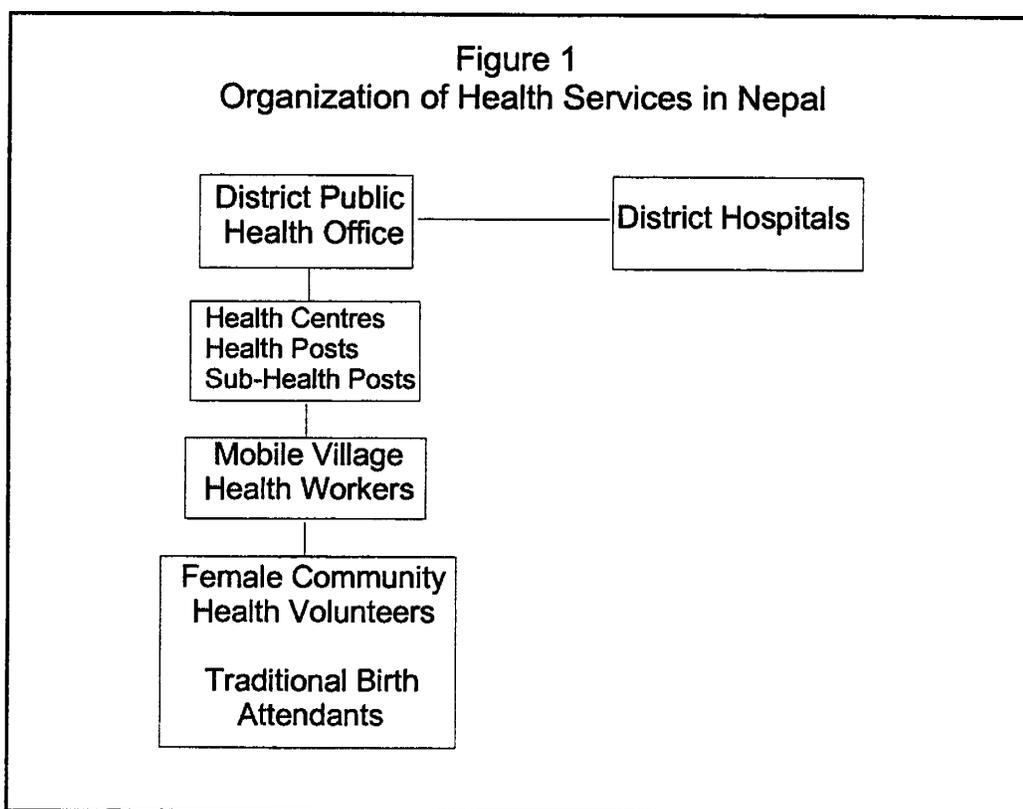
Nepal embarked upon implementing a modern health system at the end of the nineteenth century when Bir Hospital was established in Kathmandu. However, by 1955 there were only 34 hospitals with a total of 623 beds, 24 dispensaries and 63 *ayurvedic* dispensaries in the whole country (Pandey, 1980: 108). About 50 percent of all services provided by these institutions were concentrated in the Kathmandu Valley (Shah, 1987: 32). Before 1955, the majority of the people in Nepal were served by traditional healers and traditional birth attendants (Pant and Acharya, 1988: 144) and to some extent through *ayurvedic*, *Unani*⁴ and indigenous systems (which use herbal treatment) (Pandey, 1980: 108). The government involvement in the planned development of the modern health care system in Nepal dates back to 1955/56 when health programmes were incorporated in the First Development Plan of the country (Pant and Acharya, 1988: 144; Shah, 1987: 32; Pandey, 1980: 108).

According to the 1996 NFHS, the neonatal mortality rate in Nepal has declined from 72 deaths per 1,000 live births in the period 10 to 14 years before the survey to 50 in the period 0 to 4 years before the survey. The perinatal mortality rate for the 10 years before the survey (which includes stillbirths and early neonatal deaths) was 57 deaths per 1,000 stillbirths and live births (Pradhan et al., 1997). With the exception of neonatal tetanus, neonatal mortality is typically associated with endogenous causes of death, i.e. delivery complications,

⁴*Ayurvedic* system of medicine evolved among Hindus about 2,000 years ago, the pharmacopoeia of which is based on roots, herbs, and plants. *Unani* system is similar to *ayurvedic* and is used by Muhammadans.

prematurity, low birth weight, or congenital problems, rather than environmental factors. For example, according to a recent hospital-based study, low birth weight, birth asphyxia, neonatal jaundice, respiratory distress, infections, congenital anomalies, and hypothermia are the major causes of neonatal morbidity and mortality (Manandhar and Costella, 1996). Geetha et al (1995) also note perinatal asphyxia, low birth weight and infections as major causes of perinatal death in Nepal. Consequently, it is widely believed that prevention of neonatal deaths requires specialized medical intervention. Nevertheless, some basic preventive maternal and child health services such as antenatal care, delivery services, care for the newborn, and postpartum follow-up can significantly reduce neonatal mortality.

Although the history of modern health services in Nepal dates back to the 1960s, antenatal care service (ANC), delivery care, and postpartum services have only a few decades of history. In the past, health services, including delivery services, were provided mainly by traditional faith healers (*dhami, jhakris*) (Archard, 1983; Streefland, 1985), and traditional birth attendants (Niraula, 1994).



At present, as shown in Figure 1, health posts, sub-health posts, and mobile health workers such as village health workers (VHWs), community health volunteers (CHVs) and traditional birth attendants (TBAs) provide ANC, delivery care, and postpartum services. Table 1 describes the antenatal care, delivery care, and postpartum care provided, along with the potential service providers.

Despite the provision of medically trained birth attendants, many rural women feel more comfortable with the delivery services provided by TBAs. This is mainly due to the fact that TBAs are local people, are easily available, and provide delivery services at home. The TBA training programme was introduced in 1974 (HMG, 1994). The main aim of the national TBA programme is to improve the quality and utilization of community level TBA services and ultimately reduce the incidence of maternal and infant mortality and morbidity to half its present level by the year 2000. Since the beginning of this programme, more than 11,500 TBAs have been trained in Nepal with the joint cooperation of HMG, donors and nongovernment organizations (NGOs)

(HMG, 1994). Of these trained TBAs, 49 percent are located in the *Terai* region, 44 percent in the Hill region and the remaining 7 percent in the Mountain region. The Eighth Five-year Plan specified that an additional 12,000 TBAs were to be trained to reach the national target of 22,000 trained TBAs (HMG, 1994). However, this target has not yet been fulfilled. The objective is to provide a TBA within a 2-hour walk of all women of reproductive age.

Table 1 Specific health care services provided by type of service

| Programme | Type of service | Service providers |
|-----------------|---|------------------------|
| Antenatal Care | Physical examination and laboratory services (where possible) | Hospitals/Health posts |
| | Health education on nutrition, breastfeeding, family planning, and reproductive health at all levels | TBA/CHV/VHW |
| | Tetanus Toxoid immunization, Iron Tablets, Folic Acid, and malaria prophylaxis where necessary. | VHW/Health post |
| | Referral for delivery care. | CHV |
| Delivery Care | Physical Examination | Health posts |
| | Detection and timely referral of complicated cases to appropriate place, aseptic delivery technique, and use of Safe Home Delivery Kits | TBA/VHW(partially) |
| Postpartum Care | Physical examination of mothers and newborns for risk detection | Health posts/TBA |
| | Family planning counselling and contraceptive services, breastfeeding promotion, and health and nutrition education | TBA/CHV/VHW |
| | Immunization of the newborn | Health Post/VHW |

Source: HMG, 1996.

TBAs are given 10 days of initial training, a 4-day refresher course, and 2 days of supervised meetings semi-annually. The training is conducted at the health post by trained Auxiliary Nurse Midwives (ANMs). TBA training focuses on safe motherhood and basic maternity care including postpartum follow-up, maternal and infant nutrition, breastfeeding, family planning counselling and condom distribution, immunization, STD/AIDS, prevention of communicable diarrhoeal disease (CDD) and oral rehydration, and acute respiratory infection (ARI).

Although many neonatal deaths in Nepal can be prevented by low technology and primary health care initiatives, some require advanced medical intervention. The safe motherhood policy of HMG of Nepal has emphasized the provision of essential care for pregnant women to ensure safe delivery, including postnatal care and treatment of complications of mother and newborn, from the time of pregnancy diagnosis through delivery and the postnatal period (MOH, 1996). This includes transport and obstetric service. However these facilities are not yet available in most districts. Intensive care services such as special care baby units (SCBU) also are lacking in Nepal. Recently, Ministry of Health (MOH) has introduced this service in the maternity hospitals, mostly situated in Kathmandu.

It is likely to be some time before the health services in Nepal are capable of preventing neonatal deaths through use of intensive care facilities. However the use of ANC (40 percent), delivery care (8 percent) and postpartum care (37 percent) is still low (Pradhan et al., 1997). Therefore, considerable progress could be made through the PHC intervention.

Materials and Methods

The 1996 NFHS is a nationally representative cross-sectional sample survey that collected background information from 8,429 ever-married women, aged 15 to 49 years, along with information on their fertility and contraceptive and health care utilization behaviour. A detailed pregnancy history was also collected. The main objective of this study is to analyse the factors associated with early and late neonatal mortality in Nepal using selected socioeconomic characteristics (place of residence, development regions, ecological regions and mothers' level of education) of the ever-married women along with selected biological and health care utilization characteristics as independent variables. The outcome variable is neonatal mortality, which is divided into deaths during the early neonatal period (0-6 days) and late neonatal period (7-28 days). Both the early neonatal mortality rate (ENMR) and late neonatal mortality rate (LNMR) are defined as the unconditional probability of dying in the respective age interval, i.e. $ENMR = (\text{deaths during 0-6 days} / \text{number of live births}) * 1,000$ and $LNMR = (\text{deaths during 7-27 days} / \text{number of live births}) * 1,000$.

The analysis includes all children born 0 to 9 years before the survey and examines the relationship between the selected independent variables and neonatal mortality. However, the analysis includes only those children who were born 0 to 2 years before the survey where health care utilization characteristics of the mother are introduced. This is because the health care seeking behaviour of the mothers is collected only with reference to births occurring during the 3 years before the survey.

The place of residence variable used in this study is dichotomised into rural and urban categories. The development region variable is based on the five administrative divisions of the country and the ecological region variable is categorized into Mountain, Hills and *Terai* (plain areas in the south of the country). Mothers' education is considered to be one of the important socioeconomic factors in the study of child survival. However, the mechanism through which mothers' education exerts its influence to improve child survival prospects differs across societies. For example, the influence of mothers' education may be due to the knowledge and power gained by mothers through their education (Caldwell, 1979; 1981; Caldwell and McDonald, 1981; Caldwell et al., 1983; Ware, 1984). At the same time, some studies question whether mothers' education exerts an influence on child survival in its own right, and rather advocate it as a proxy for socioeconomic status (Behm, 1983, Pant, 1991). However, some previous studies (Gubhaju, 1991; Pant, 1995) have found very small effects of mother's education on infant and child mortality in Nepal. Mother's education is categorized here into none, primary (at least some primary level of education) and secondary (at least some secondary).

The biological variables used to examine early and late neonatal mortality are the sex of the child, single versus multiple birth, mothers' age at childbirth, birth order of the child, length of preceding pregnancy interval, and the outcome of the preceding pregnancy. The length of the interval between the termination of the preceding pregnancy and index child's conception forms the length of the preceding pregnancy interval. The outcome of the preceding pregnancy is defined as miscarriage, stillbirth, death in the early neonatal period, and survived at least 7 days. First pregnancies are placed in a separate category for both these variables. These two variables are considered to be important determinants of early neonatal survival. For example, the outcome of the preceding pregnancy may influence survival through two distinct mechanisms. First, it is well established that women who experience one perinatal loss are at increased risk of a subsequent loss. Second, the experience of a pregnancy or child loss may encourage the mother to conceive again to replace the previous loss. This leads to a short pregnancy interval, which is among the well established risk factors for early child mortality (Hobcraft et al., 1985).

This study examines the early and late neonatal mortality differentials according to the use of ANC and delivery services from trained medical personnel; use of postpartum services from health personnel (service within 24 hours of births from trained medical personnel or traditional birth attendants); immunization of mothers against tetanus at the time of pregnancy; number of visits for antenatal care categorized into none, 1-2 and 3 plus visits; stage of pregnancy at the time of first antenatal care visit, size of child at birth, length of labour and excessive bleeding at the time of delivery.

One limitation of the 1996 NFHS is that it did not collect information on birth weight, signs and symptoms of haemorrhage, pregnancy complications, and other biomedical factors that are considered to be important

underlying causes of neonatal mortality. However, the size of the birth reported by mothers in the survey can be used as a proxy for birth weight. Similarly, long labour reported by the mother (defined as more than 12 hours) is intended as a proxy for prolonged labour, while excessive bleeding (perceived by the respondents as life threatening) is intended as a proxy for haemorrhage.

Data quality

As omission and displacement of live births might distort the analysis, it is necessary to examine the general quality of data used. In this respect, basic indicators of quality of reporting of births and deaths of children are discussed. Missing information on the dates of birth of children is a common problem in surveys in countries such as Nepal where female literacy is low. However, in the 1996 NFHS the month and year of birth is reported for 99.9 percent of children who were alive at the time of survey. Reporting of month and year of birth is equally good for dead children (about 99.6 percent have complete date of birth) (data not shown). One of the reasons for such complete reporting may be the extensive efforts of interviewers to obtain a date of birth even if the respondent could not readily provide that information. In the 1996 NFHS, interviewers were instructed that the answer code 'don't know' was not acceptable to the question 'In what month and year was (named child) born?'

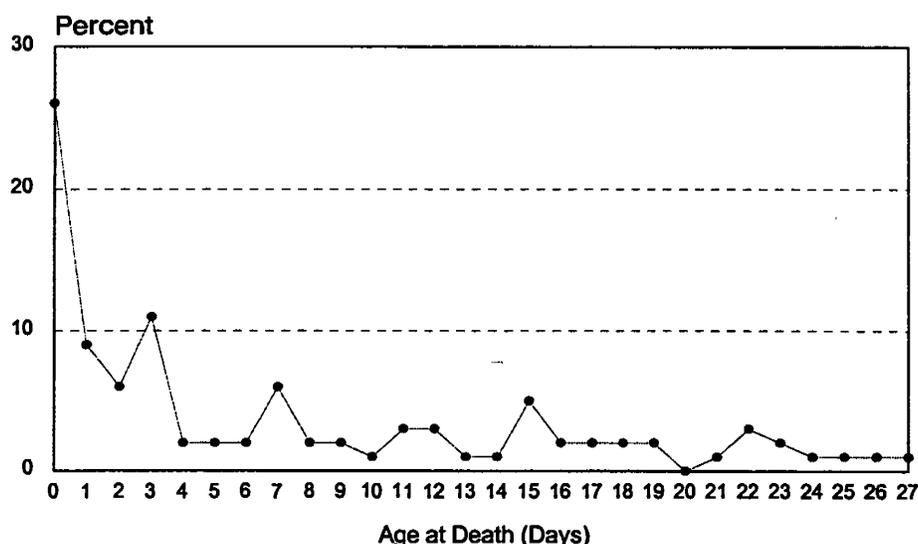
Another possible problem in the surveys could be the coverage of live births. Old and uneducated women may tend to omit some live births which occurred many years before the date of interview due to lapses of memory. One way of checking the extent of such omission is to calculate the average number of children ever born by the current age of women. The NFHS data do not seem to have a significant problem in the coverage of live births. The average parity, as expected, increases monotonically with the age of the respondent (Pradhan, et al., 1997: Table 3.7).

The sex ratio at birth can be used to detect sex selective omission of live births. Previous surveys in Nepal have established a sex ratio at birth of 105 males per 100 females (Goldman et al., 1979, Thapa and Retherford, 1982, HMG, 1987a). According to the NFHS, the sex ratio at birth for children born during the Nepalese years 2043 to 2047 and 2048 to 2052 is approximately 105 males per 100 females (Pradhan et. al., 1997: Table C4). This indicates that the 1996 NFHS data for the period 0 to 9 years before the survey do not seem to have suffered from sex selective omission of births.

Another common reporting problem is heaping of age at death at some preferred ages. The age at death of children measured in days for children born 0 to 2 years before the survey (Figure 2) shows that heaping has occurred to some extent on the 3rd, 7th and 15th days. However, the extent of heaping in the NFHS does not seem to be problematic. The percentages of deaths in days eight and nine are relatively low. Most likely, some deaths from these days are pushed back to the seventh day. However, rounding up of ages at death from 5-6 days to 7 days might have occurred. This could result in some underestimation of early neonatal mortality and overstatement of late neonatal mortality. As a check of the extent of over and underestimation of early and late neonatal mortality, half of the excess deaths from the seventh day (four deaths) were redistributed to the early neonatal period and new estimates of ENMR and LNMR were obtained. The new estimates are approximately the same as the original estimates (The ENMR increases from 25.1 to 26.1 per 1,000 while the LNMR decreases from 16.5 to 15.5 per 1000). Therefore, there is no evidence of a strong effect of the displacement of death on the level of early and late neonatal mortality.

There are no model mortality patterns for the neonatal period that can be used to assess omission among early neonatal deaths. A review of data from several developing countries indicates that, at levels of neonatal mortality of 20 per 1,000 or higher, approximately 70 percent of neonatal deaths typically occur within the first 6 days of life (Boerma, 1988). Since approximately 60 percent of total neonatal deaths in the 3 years before the survey occurred in the early neonatal period, there is an indication of possible underreporting of early neonatal deaths in the 1996 NFHS. However, the extent of misreporting does not seem to be very severe.

Figure 2
Percent Distribution of Neonatal Deaths Among Children Born
0-2 Years Before the Survey, by Age at Death in Days,
NFHS 1996



Results

Differentials in early and late neonatal mortality

The subsequent sections of this paper examine the risk of dying among infants during the early neonatal and late neonatal period of life according to the socioeconomic, biological, and health care characteristics of mothers in Nepal. Most of the analysis in this study is descriptive. The use of 95 percent confidence intervals enables us to identify significant differences to substantiate findings from the bivariate analyses. Socioeconomic differentials in early and late neonatal mortality are shown in Table 2 followed by biological and health care utilization differentials in Tables 3 and 4, respectively.

The risk of death to infants during their first week of life and between the first and fourth weeks of life according to the place of residence and mother's educational characteristics show expected results. It is apparent in the table that infants of mothers residing in rural areas experience a 33 percent higher risk of dying during their first week of life compared with those in urban areas. This relative risk increases to 41 percent for the late neonatal period although the overall mortality rate for the late neonatal period compared with the early neonatal period decreases from 37 to 20 per 1,000 live births. The differentials in early neonatal and late neonatal mortality by place of residence reflect the differences in living styles and access to various facilities and services among these two groups of mothers. However, the 95 percent confidence intervals for the risk ratios show that the excess risk in rural areas is not statistically significant. So, there is insufficient evidence to draw strong conclusions on urban-rural differentials. The relatively wide confidence intervals reflect the fact that the number of cases in urban areas is relatively small.

Table 2 Early and late neonatal mortality rates, risk ratios and 95 percent confidence intervals for the period 0-9 years before the survey by socioeconomic characteristics of the mother and child, Nepal 1996

| Characteristic | Early neonatal mortality rate | Risk ratio | 95% confidence interval | | Late neonatal mortality rate | Risk ratio | 95% confidence interval | | Number of births |
|---------------------------|-------------------------------|------------|-------------------------|-------------|------------------------------|------------|-------------------------|-------------|------------------|
| | | | Lower bound | Upper bound | | | Lower bound | Upper bound | |
| Residence | | | | | | | | | |
| Urban | 28.4 | 1.00 | - | - | 14.7 | 1.00 | - | - | 950 |
| Rural | 37.7 | 1.33 | 0.95 | 1.71 | 20.7 | 1.41 | 0.87 | 1.94 | 13,309 |
| Development region | | | | | | | | | |
| Eastern | 39.6 | 1.26 | 0.99 | 1.53 | 17.2 | 0.83 | 0.46 | 1.20 | 3,135 |
| Central | 34.5 | 1.10 | 0.84 | 1.36 | 21.0 | 1.01 | 0.68 | 1.33 | 4,582 |
| Western | 31.3 | 1.00 | - | - | 20.8 | 1.00 | - | - | 2,745 |
| Mid-western | 41.8 | 1.33 | 1.05 | 1.62 | 21.1 | 1.02 | 0.64 | 1.39 | 2,322 |
| Far-western | 43.4 | 1.39 | 1.07 | 1.70 | 23.1 | 1.11 | 0.69 | 1.53 | 1,474 |
| Ecological region | | | | | | | | | |
| Mountain | 45.5 | 1.61 | 1.27 | 1.92 | 25.5 | 1.16 | 0.76 | 1.56 | 1,100 |
| Hill | 28.2 | 1.00 | - | - | 22.0 | 1.00 | - | - | 6,097 |
| Terai | 43.5 | 1.54 | 1.31 | 1.72 | 18.1 | 0.82 | 0.59 | 1.06 | 7,061 |
| Education | | | | | | | | | |
| None | 37.4 | 1.14 | 0.78 | 1.49 | 22.0 | 2.68 | 1.98 | 3.38 | 11,884 |
| Primary | 37.0 | 1.13 | 0.69 | 1.56 | 14.2 | 1.73 | 0.91 | 2.55 | 1,404 |
| Secondary | 32.9 | 1.00 | - | - | 8.2 | 1.00 | - | - | 972 |
| Total | 37.1 | - | - | - | 20.3 | - | - | - | 14,259 |

The risk of dying during the first week of life among children born in the Far-western development region is 39 percent higher than among children born in the Western development region. This is followed by the Mid-western region (33 percent higher), the Eastern region (26 percent higher) and the Central development regions (10 percent higher). The risk ratios corresponding to the Mid-western and Far-western development regions are statistically significant. For the late neonatal period, there are virtually no differences in the risk of death between the five development regions. None of these risk ratios is significantly different than one.

The risk of death to infants during their first week of life is substantially higher in the Mountain and the Terai regions than in the Hill region. This relationship changes for the late neonatal period where the lowest risk of death is observed for those born in the Terai region followed by Hills and Mountains. However, the difference in the risk of death is statistically significant only for the early neonatal period. The probability of dying for those who survived their first week of life decreases in the late neonatal period in all three ecological regions.

A negative association is observed between the risk of dying and mother's education, irrespective of whether the risk of death is measured for the early or late neonatal period. However, this difference is statistically significant only for the late neonatal period for those born to mothers with no education compared with those born to mothers with secondary and higher education. The wide range in the confidence interval reflects the small number of births in categories other than the no education category of mother's education.

The risk of death for infants during the late neonatal period compared to the early neonatal period is substantially lower for all categories of the selected independent biological characteristics. The analysis reveals that the risk of death to infants during the early neonatal period is significantly higher for male children, twins, children born to mothers less than 20 years of age and more than 35 years of age, and first and seven plus order births (Table 3).

This pattern changes for some of these variables in the late neonatal period. For example, the association between the mother's age at childbirth and late neonatal mortality is negative and the association between the birth order of the child and late neonatal mortality is erratic.

The lower risk of death to female children during early infancy can be attributed to the biological advantage of females over males during this period of life. Similarly, the elevated risk of death among those born to mothers less than 20 years of age may be attributed to the physical immaturity of young mothers. In addition, most of the births to teenage mothers are likely to be first order births, which are identified as a vulnerable group in the analysis in terms of their risk of death.

Table 3 Early and late neonatal mortality rates, risk ratios, and 95 percent confidence intervals for the period 0-9 years before the survey by biological characteristics of the mother and child, Nepal 1996

| Characteristic | Early neonatal mortality rate | Risk ratio | 95% confidence interval | | Late neonatal mortality rate | Risk ratio | 95% confidence interval | | Number of live births |
|---------------------------------------|-------------------------------|------------|-------------------------|-------------|------------------------------|------------|-------------------------|-------------|-----------------------|
| | | | Lower bound | Upper bound | | | Lower bound | Upper bound | |
| Sex of child | | | | | | | | | |
| Male | 44.5 | 1.51 | 1.34 | 1.68 | 20.6 | 1.03 | 0.80 | 1.26 | 7,280 |
| Female | 29.5 | 1.00 | - | - | 20.1 | 1.00 | - | - | 6,980 |
| Multiple birth | | | | | | | | | |
| Single | 32.8 | 1.00 | - | - | 19.6 | 1.00 | - | - | 14,058 |
| Twin/Triplet | (338.30) | (10.32) | 10.10 | 10.53 | (74.6) | (3.81) | 3.31 | 4.32 | 201 |
| Age of mother | | | | | | | | | |
| <20 | 53.2 | 1.69 | 1.50 | 1.88 | 30.2 | 1.67 | 1.42 | 1.93 | 2,817 |
| 20-34 | 31.5 | 1.00 | - | - | 18.0 | 1.00 | - | - | 10,047 |
| 35-49 | 45.1 | 1.43 | 1.17 | 1.70 | 17.2 | 0.95 | 0.53 | 1.38 | 1,396 |
| Birth order | | | | | | | | | |
| First | 45.4 | 1.37 | 1.16 | 1.58 | 26.3 | 1.68 | 1.38 | 1.97 | 3,236 |
| 2-3 | 33.2 | 1.00 | - | - | 15.7 | 1.00 | - | - | 5,427 |
| 4-6 | 31.6 | 0.95 | 0.73 | 1.18 | 23.4 | 1.49 | 1.20 | 1.78 | 4,110 |
| 7 or more | 49.1 | 1.48 | 1.21 | 1.74 | 16.1 | 1.03 | 0.58 | 1.48 | 1,488 |
| Preceding pregnancy interval | | | | | | | | | |
| First pregnancy | 49.4 | 0.87 | 0.64 | 1.11 | 25.4 | 0.72 | 0.41 | 1.03 | 3,034 |
| <12 months | 56.5 | 1.00 | - | - | 35.2 | 1.00 | - | - | 2,159 |
| 12-17 months | 35.9 | 0.64 | 0.37 | 0.90 | 20.3 | 0.58 | 0.23 | 0.93 | 2,507 |
| 18-23 months | 25.9 | 0.46 | 0.14 | 0.78 | 16.9 | 0.48 | 0.08 | 0.88 | 2,007 |
| 24+ months | 25.3 | 0.45 | 0.20 | 0.70 | 11.6 | 0.33 | 0.00 | 0.68 | 4,553 |
| Outcome of preceding pregnancy | | | | | | | | | |
| First pregnancy | 49.4 | 1.69 | 1.49 | 1.88 | 25.4 | 1.37 | 1.11 | 1.64 | 3,034 |
| Miscarriage | 26.3 | 0.90 | 0.37 | 1.43 | 15.0 | 0.81 | 0.11 | 1.52 | 532 |
| Stillbirth | 56.3 | 1.92 | 1.36 | 2.48 | 23.5 | 1.27 | 0.39 | 2.15 | 213 |
| Early neonatal death | 132.3 | 4.51 | 4.25 | 4.77 | 32.5 | 1.76 | 1.24 | 2.28 | 461 |
| Survived | 29.3 | 1.00 | - | - | 18.5 | 1.00 | - | - | 10,021 |
| Total | 37.1 | - | - | - | 20.3 | - | - | - | 14,259 |

Note: Figures in parentheses are based on fewer than 250 births.

Table 4 Early and late neonatal mortality rates, risk ratios and 95 percent confidence intervals for births born 0-2 years before the survey by health care behaviour and other health related factors, Nepal 1996

| Care seeking behaviour | Early neonatal mortality rate | Risk ratio | 95% confidence interval | | Late neonatal mortality rate | Risk ratio | 95% confidence interval | | Number of live births |
|--|-------------------------------|------------|-------------------------|-------------|------------------------------|------------|-------------------------|-------------|-----------------------|
| | | | Lower bound | Upper bound | | | Lower lower | Upper bound | |
| Antenatal care | | | | | | | | | |
| No | 28.7 | 1.45 | 1.05 | 1.85 | 20.4 | 1.95 | 1.42 | 2.48 | 2,652 |
| Yes | 19.7 | 1.00 | - | - | 10.4 | 1.00 | - | - | 1,723 |
| Delivery care | | | | | | | | | |
| No | 24.7 | 0.84 | 0.27 | 1.41 | 17.3 | 1.91 | 0.90 | 2.91 | 3,934 |
| Yes | 29.5 | 1.00 | - | - | 9.1 | 1.00 | - | - | 441 |
| Tetanus toxoid | | | | | | | | | |
| No | 26.7 | 1.14 | 0.77 | 1.52 | 21.6 | 2.07 | 1.57 | 2.58 | 2,361 |
| Yes | 23.3 | 1.00 | - | - | 10.4 | 1.00 | - | - | 2,014 |
| Postpartum care | | | | | | | | | |
| No | 24.9 | 0.97 | 0.59 | 1.35 | 20.5 | 2.19 | 1.62 | 2.75 | 2,776 |
| Yes | 25.6 | 1.00 | - | - | 9.4 | 1.00 | - | - | 1,599 |
| No. of ANC visits | | | | | | | | | |
| 3+ | 16.4 | 1.00 | - | - | 5.8 | 1.00 | - | - | 856 |
| 1-2 | 21.2 | 1.29 | 0.60 | 1.99 | 15.3 | 2.62 | 1.59 | 3.65 | 850 |
| 0 | 28.7 | 1.75 | 1.19 | 2.32 | 20.4 | 3.49 | 2.89 | 4.09 | 2,652 |
| Stage of pregnancy at 1st ANC visit | | | | | | | | | |
| No visits | 28.7 | 1.23 | 0.78 | 1.68 | 20.4 | 1.61 | 1.01 | 2.22 | 2,652 |
| < 6 months | 23.3 | 1.00 | - | - | 12.6 | 1.00 | - | - | 1,031 |
| 6-7 months | 9.6 | 0.41 | 0.00 | 1.37 | 5.8 | 0.46 | 0.00 | 1.71 | 521 |
| 8+ months | 34.5 | 1.48 | 0.53 | 2.43 | 13.8 | 1.09 | 0.00 | 2.57 | 145 |
| Size at birth | | | | | | | | | |
| Very large | (61.1) | (2.85) | 2.20 | 3.50 | (22.2) | (1.22) | 0.20 | 2.25 | 180 |
| > than average | 24.8 | 1.16 | 0.69 | 1.62 | 16.5 | 0.91 | 0.36 | 1.45 | 1,212 |
| Average | 21.4 | 1.00 | - | - | 18.2 | 1.00 | - | - | 1,867 |
| < than average | 22.5 | 1.05 | 0.52 | 1.58 | 11.2 | 0.62 | 0.00 | 1.32 | 890 |
| Very small | (36.0) | (1.68) | 0.94 | 2.43 | (18.0) | (0.99) | 0.00 | 2.02 | 222 |
| Total | 25.1 | - | - | - | 16.5 | - | - | - | 4,375 |

Note: Figures in parentheses are based on fewer than 250 births.

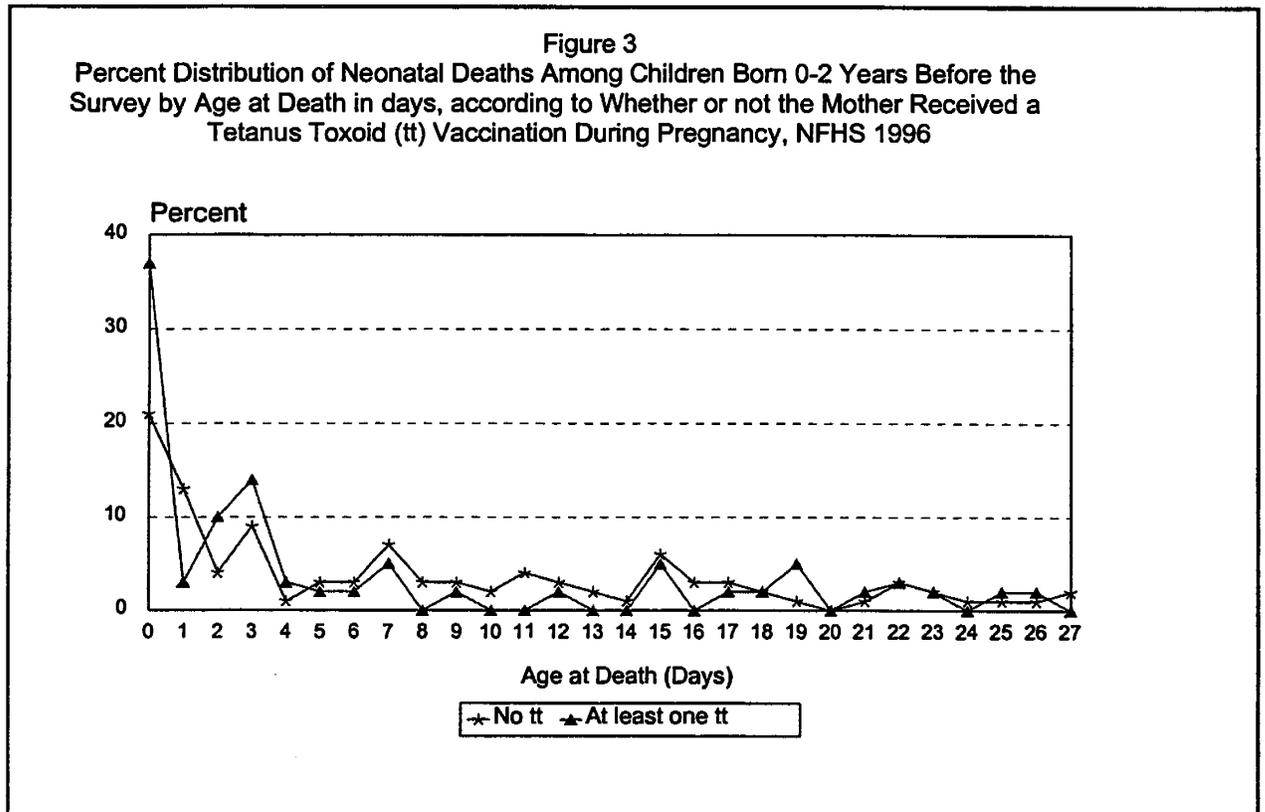
In Nepal a substantial proportion of women have three to four live births by 20 to 24 years of age suggesting rapid childbearing among some women (Pant, 1995; 1997; Pradhan et al., 1997). The influence of the preceding pregnancy interval on the risk of dying of the index child during the early and late neonatal periods found in the 1996 NFHS data is consistent with the patterns noted in other parts of the world. As expected, the risk of death to infants, both in the early neonatal period and in the late neonatal period, decreases with the increase in the length of the interval. The effect is significant in the early and late neonatal periods. This result provides additional evidence for the effects of maternal depletion syndrome (Boerma and Bicego, 1992: 244-245; Winikoff, 1983: 239; Cleland and Sathar, 1984: 403; DeSweemer, 1984: 50; Hobcraft et al., 1985; Palloni and Millman, 1986: 216; Pebley and Stupp, 1987: 43; Potter, 1988: 447; Pebley and Elo, 1989: 404) due to conception and childbirth within a short period after the termination of the preceding pregnancy. The strength of association is quite similar for both early and late neonatal periods.

It is clear from Table 3 that women whose previous pregnancy resulted in a stillbirth or early neonatal death are more likely to lose the subsequent child in the early neonatal period. In both the early and late neonatal periods the risk of losing a child among woman who experienced an early neonatal death is far greater than among those who experienced a stillbirth. However, this excess risk, as for most other socioeconomic and biological variables examined, declines for the late neonatal period compared to the early neonatal period. A miscarriage preceding the index birth does not appear to affect the risk of early or late neonatal death.

The analysis in this section focuses on the relationship between health care utilization and the probability of dying during the early neonatal and late neonatal periods. This part of the analyses uses information on children who were born during the 3 years before the survey because health care utilization data were only collected for these births.

In general, the influence of health care on early neonatal mortality shows expected patterns. The magnitude of the risk ratios of health care utilization variables on late neonatal mortality increases compared to the early neonatal period. Health-related factors that significantly increase the risk of early neonatal mortality are no antenatal care, and very large size of the baby at birth.

The analysis shows lower risk of early neonatal death among infants of mothers who used antenatal care compared to those who did not use this service. Infants of mothers who did not use antenatal care are 1.45 times more likely to die during the early neonatal period than infants of women who used this service. This relative risk increases to 1.95 for the late neonatal period. Similarly, infants of mothers who received at least one tetanus toxoid injection during their pregnancy are exposed to a lower risk of dying during the early neonatal period compared to infants of mothers who did not receive this injection. This pattern persists into the late neonatal period with much stronger effects as expected given that neonatal tetanus deaths tend to occur between the ages of 7 and 14 days (also see Figure 3). Surprisingly, delivery care and postpartum health care do not appear to have an importance influence on early neonatal mortality. However, the influence of postpartum health care on late neonatal mortality is in the expected direction and is statistically significant.



Examination of the effects of the frequency of antenatal visits on early neonatal and late neonatal mortality suggests a negative relationship between these two variables. The risk of death declines as the number of visits increases, irrespective of whether it is for the early neonatal period or the late neonatal periods. However, the effect is stronger and is statistically significant in the late neonatal period. The effect of the stage of pregnancy at first ANC visit is rather erratic and is not statistically significant due to small sample sizes.

The size of the child at his or her birth is a subjective variable because it is based on the respondent's judgement. This variable, however, shows that very large and very small babies are exposed to an elevated risk of early neonatal death. The effect is much stronger for large than small babies, perhaps reflecting deaths associated with prolonged labour or other forms of birth trauma. In these data, very large babies are also at increased risk of late neonatal death. Overall, this examination of the relationship between health care utilization and early and late neonatal mortality suggests that use of antenatal and delivery services affects neonatal survival but the effects are much stronger for late neonatal mortality. Unfortunately, most of the estimates of early and late neonatal mortality rates by health care utilization characteristics are based on a small number of cases, so generalization of the result should be made with caution.

Differentials in assistance at Delivery

According to the 1996 NFHS, about 92 percent of live births in the 3 years preceding the survey were delivered at home (Pradhan et al., 1997). Births delivered at home are mainly assisted by traditional birth attendants, friends, and relatives. However some women, especially, those living in urban areas or those living close to health facilities, may seek assistance from medically trained personnel even when delivery takes place at home. The primary objective of health care services during pregnancy and delivery is to reduce the health risk of mothers and children. Particularly, one of the main objectives of ANC, delivery care and postpartum services is to reduce deaths of babies in the neonatal period. It is widely accepted that socioeconomic and biological characteristics of mothers are major determinants of utilization of available health services (Watson and Kemper, 1995). However, access to and quality of services also play an important role in utilization in rural areas of Nepal (Acharya, 1997). First, this analysis of delivery care and neonatal mortality will identify the types of delivery services used by different subgroups of women. Second, the effect of the use of delivery service on early neonatal mortality will be evaluated.

Table 5 provides the percent distribution of live births in the 3 years preceding the 1996 NFHS by type of assistance during delivery by socioeconomic characteristics of mothers. At the national level, about 10 percent of births were assisted by medically trained attendants, about 23 percent by TBAs, 56 percent by friends and relatives, and the remaining 11 percent were not assisted at all.

The rural urban differentials in the use of delivery assistance are as anticipated. Almost half of the live births in the 3 years preceding the survey in urban areas were assisted by medically trained attendants, while only about 8 percent of births in rural areas were assisted by medically trained attendants. The percentage of births assisted by TBAs, friends and relatives, and no one is much higher in rural areas where mothers may be less motivated to use modern delivery care and services are less accessible.

TBAs seem to be more popular in the *Terai* region followed by the Mountain and the Hill regions. A lower percentage of births are attended by TBAs and higher percentage of births are not attended by any one in the Hill region of Nepal compared to the Terai and Mountain regions. Further, very low use of modern medical facilities in the Mountain region may be attributed to the lack of access to modern services in this region because of its harsh topography.

Table 5 Percent distribution of live births in the 3 years preceding the survey by type of assistance during delivery, according to socioeconomic characteristics, Nepal 1996

| Characteristic | Type of assistance | | | | Missing | Total | Number |
|---------------------------|-----------------------------|-----------------------|--------------------------|--------|---------|-------|--------|
| | Medically trained attendant | Trad. birth attendant | Friend/relative or other | No one | | | |
| Residence | | | | | | | |
| Urban | 46.5 | 12.1 | 37.3 | 4.1 | 0.0 | 100.0 | 278 |
| Rural | 7.6 | 23.2 | 57.7 | 11.3 | 0.1 | 100.0 | 4,097 |
| Ecological region | | | | | | | |
| Mountain | 2.9 | 13.9 | 74.6 | 8.6 | 0.0 | 100.0 | 337 |
| Hill | 11.0 | 8.9 | 62.9 | 17.0 | 0.2 | 100.0 | 1,862 |
| Terai | 10.4 | 35.6 | 48.1 | 5.9 | 0.0 | 100.0 | 2,176 |
| Development region | | | | | | | |
| Eastern | 11.4 | 24.8 | 55.7 | 8.1 | 0.0 | 100.0 | 924 |
| Central | 13.4 | 27.0 | 52.5 | 7.1 | 0.0 | 100.0 | 1,434 |
| Western | 10.1 | 13.6 | 64.7 | 11.2 | 0.4 | 100.0 | 881 |
| Mid-western | 4.7 | 28.5 | 47.9 | 18.7 | 0.1 | 100.0 | 695 |
| Far-western | 5.2 | 11.4 | 67.4 | 15.8 | 0.1 | 100.0 | 441 |
| Education | | | | | | | |
| None | 5.4 | 24.0 | 58.5 | 11.9 | 0.1 | 100.0 | 3,470 |
| Primary | 15.7 | 19.9 | 55.9 | 8.3 | 0.1 | 100.0 | 510 |
| Secondary | 43.5 | 13.3 | 38.5 | 4.7 | 0.0 | 100.0 | 394 |
| Total | 10.1 | 22.5 | 56.4 | 10.9 | 0.1 | 100.0 | 4,375 |

About one in ten live births in the Central, Eastern, and Western regions are assisted by medically trained attendants, while the percentage of births who receive modern delivery care is much lower in the Mid-western and Far-western regions. Assistance by TBAs during delivery is more or less at the same level in the Eastern, the Central, and the Mid-western regions but is somewhat lower in the other two regions. The percentage of births assisted by friends and relatives ranges from 48 percent in the Mid-western region to 67 percent in the Far-western region. In general, regions that have lower assistance from medically trained attendants have a higher percentage of live births not assisted by any person.

Mother's education is generally believed to create demand for modern health care (Kaufmann and Cleland, 1994). Although the effect of education might be masked or exaggerated by other factors such as access to and quality of services, and socioeconomic factors, the 1996 NFHS data clearly show a very strong association between the level of education of mothers and the type of assistance during delivery. Educated mothers are more likely to seek medical assistance during delivery. For instance, 1 out of 20 live births to uneducated mothers were assisted by medically trained personnel whereas more than 8 out of 20 live births to mothers who had secondary or higher education had such assistance. Mother's education has a negative association with the use of TBAs and friend's and relative's assistance during delivery. Similarly, the percentage of live births unassisted by any one decreases as education of mother increases.

Biological characteristics such as mother's age at birth, birth order, pregnancy loss experience, previous pregnancy interval, and indicators of abnormal pregnancies are directly associated with higher risk to mothers and children during delivery. It is anticipated that women with short pregnancy intervals, frequent child loss experience, and delivery complications such as a large child, long labour, or excessive bleeding during delivery seek some type of assistance during delivery.

Mother's age at the birth of the child is associated with the type of assistance received during delivery. A higher percentage of young women use the assistance of medically trained attendants and TBAs (Table 6). Older women are more likely to deliver without any assistance. Similarly, assistance of medically trained attendants and TBAs decreases as birth order of the child increases.

Mothers of live births whose previous pregnancy interval is less than 12 months may be more likely to suffer from poor health and may be more likely to seek care during delivery compared to those whose previous pregnancy interval is longer. The 1996 NFHS data supports this expectation. The percentage of live births assisted by medically trained attendants is higher among those conceived within 12 months of the preceding pregnancy than among those conceived later. On the other hand, the percentage of live births assisted by TBAs is lower among this group. Assistance by friends and relatives is not affected by the length of the previous pregnancy interval (Table 6).

About 14 percent of live births who were reported to be very large at the time of birth were assisted by medically trained personnel. This percentage decreases as the size of birth decreases. Women who have regular ANC checkups may have some idea of the size of the baby before delivery. However, this depends on the available facilities in the health institutions. One possibility is that women who know the size of the baby in advance are more likely to seek medical assistance during delivery. Another possible explanation is that mothers of very large babies may be more likely to experience problems with deliveries and then seek care. In general, mothers who know the size of the baby in advance may think that only large babies may need medical assistance during delivery. But very small babies also are exposed to higher risk of neonatal death. Assistance of TBAs and friends/family during delivery does not show any clear association with the size of the babies.

Another important reason for seeking assistance during delivery might be the length of labour and extent of bleeding during delivery. Women living close to health facilities have the opportunity to seek assistance from medically trained attendants if they have long labour and excessive bleeding. As anticipated, a higher percentage of live births whose mothers reported a long labour were assisted by medically trained attendants and TBAs compared to live births whose length of labour was reported to be normal. Conversely, births with normal labour are more likely to be assisted by friends and relatives or no one.

Mothers who reported excessive bleeding during delivery are less likely to seek assistance by medically trained attendants or TBAs during delivery than other mothers. However, the difference in percentages in these groups is very small. Perhaps some women are not able to distinguish between excessive bleeding and normal bleeding at the time of delivery and may report normal bleeding as excessive.

Women who are already exposed to health services are more likely to seek assistance during delivery (Regmi and Manandhar, 1997). One indicator of exposure to health service use is ANC visits during pregnancy. Moreover, the timing of the first ANC visit may be taken as a proxy of the degree of motivation for service use. However, besides motivation, timing of the first ANC visit might depend on other factors such as pregnancy complications. The gross association between assistance by a medically trained attendant and the timing of the first ANC visit is as expected: the earlier the visit the higher the chance of delivery assistance by medical personnel (Table 7). Moreover, live births whose pregnancy received no ANC visit at all are less likely to be assisted by medically trained personnel and TBAs compared to their counterparts.

Further breakdown of the health care utilization characteristics suggests that women who had received at least one dose of tetanus toxoid injection are more likely to be assisted by medically trained attendants and TBAs compared to those who had no tetanus injection. Further, live births who received postpartum care were more likely to have been delivered by medically trained personnel and TBAs. On the other hand, live births who did not receive postpartum care were more likely to have been attended by friends and relatives or to have had no assistance at all.

Table 6 Percent distribution of live births in the 3 years preceding the survey by type of assistance during delivery, according to biological characteristics, Nepal 1996

| Characteristic | Type of assistance | | | | | Total | Number |
|--------------------------------------|-----------------------------|-----------------------|--------------------------|-------------|------------|--------------|--------------|
| | Medically trained attendant | Trad. birth attendant | Friend/relative or other | No one | Missing | | |
| Age of mother | | | | | | | |
| <20 | 13.6 | 29.2 | 52.4 | 4.6 | 0.1 | 100.0 | 817 |
| 20-34 | 9.6 | 21.4 | 57.6 | 11.3 | 0.0 | 100.0 | 3,136 |
| 35+ | 6.6 | 17.8 | 55.5 | 19.4 | 0.8 | 100.0 | 422 |
| Birth order | | | | | | | |
| 1 | 19.7 | 24.0 | 52.3 | 3.8 | 0.2 | 100.0 | 1,004 |
| 2-3 | 9.3 | 23.5 | 57.9 | 9.3 | 0.0 | 100.0 | 1,684 |
| 4-6 | 5.4 | 21.7 | 57.8 | 15.0 | 0.1 | 100.0 | 1,250 |
| 7+ | 4.3 | 18.0 | 56.1 | 21.0 | 0.5 | 100.0 | 437 |
| Preceding pregnancy interval | | | | | | | |
| No previous pregnancy | 20.2 | 23.8 | 51.9 | 4.0 | 0.2 | 100.0 | 929 |
| <12 months | 11.3 | 18.1 | 59.6 | 11.0 | 0.0 | 100.0 | 557 |
| 12-17 months | 5.3 | 21.8 | 59.7 | 13.1 | 0.0 | 100.0 | 719 |
| 18-23 months | 5.3 | 25.5 | 53.5 | 15.7 | 0.0 | 100.0 | 613 |
| 24+ months | 7.7 | 22.6 | 57.6 | 11.9 | 0.2 | 100.0 | 1,557 |
| Outcome of previous pregnancy | | | | | | | |
| No previous pregnancy | 20.2 | 23.8 | 51.9 | 4.0 | 0.2 | 100.0 | 929 |
| Early loss/miscarriage | 15.9 | 21.0 | 51.6 | 11.5 | 0.0 | 100.0 | 178 |
| Stillbirth | 10.1 | 31.7 | 53.5 | 4.7 | 0.0 | 100.0 | 78 |
| Early neonatal death | 13.3 | 22.0 | 51.4 | 13.3 | 0.0 | 100.0 | 130 |
| Survived at least 7 days | 6.5 | 22.0 | 58.4 | 13.0 | 0.1 | 100.0 | 3,061 |
| Size at birth | | | | | | | |
| Very large | 14.3 | 23.1 | 53.0 | 9.6 | 0.0 | 100.0 | 179 |
| Larger than average | 11.7 | 20.8 | 57.4 | 10.1 | 0.0 | 100.0 | 1,212 |
| Average | 10.9 | 24.6 | 54.1 | 10.4 | 0.1 | 100.0 | 1,867 |
| Smaller than average | 6.0 | 20.2 | 60.4 | 13.1 | 0.3 | 100.0 | 889 |
| Very small | 7.4 | 23.9 | 57.9 | 10.8 | 0.0 | 100.0 | 223 |
| Don't know | 0.0 | 0.0 | 59.5 | 0.0 | 40.5 | 100.0 | 4 |
| Long labour | | | | | | | |
| No | 7.5 | 21.5 | 58.6 | 12.3 | 0.1 | 100.0 | 2,520 |
| Yes | 13.6 | 23.9 | 53.5 | 8.8 | 0.2 | 100.0 | 1,855 |
| Excessive bleeding | | | | | | | |
| No | 10.5 | 23.0 | 55.7 | 10.7 | 0.1 | 100.0 | 3,081 |
| Yes | 9.2 | 21.4 | 58.1 | 11.3 | 0.1 | 100.0 | 1,294 |
| Total | 10.1 | 22.5 | 56.4 | 10.9 | 0.1 | 100.0 | 4,375 |

As discussed earlier, the TBA programme was initiated to provide safe delivery services at home. Its ultimate aim is to reduce the death of children in the early days of life. Therefore, assistance of medically trained attendants and TBAs during delivery should have a strong association with the survival chances of births in the early neonatal period. In this perspective, it is useful to understand the association between the type of assistance during delivery and the survival chances in the early neonatal period. Such an analysis is particularly useful in assessing whether the use of TBAs rather than friends and relatives increases the survival chances of babies in the early neonatal period.

Table 8 provides the early neonatal mortality rate, risk ratios, and the 95 percent confidence intervals of the estimated risk ratios by type of delivery assistance. It is expected that births assisted by medically trained attendants will have lower early neonatal mortality compared to the births assisted by TBAs and friends and relatives. However, in rural Nepal, women with pregnancy complications are more likely to seek medical assistance during delivery. Because of this selection, early neonatal mortality may not be lower among the births assisted by medically trained attendants. As shown in Table 8, early neonatal mortality is higher among the live births assisted by medically trained attendants during delivery than among births assisted by TBAs and almost equal to the early neonatal mortality of friends- and relatives-assisted births. However, births assisted by TBAs have a much lower risk of dying in the early neonatal period compared to those assisted by friends and relatives. In other words, early neonatal mortality for TBA assisted births is 45 percent lower than of those assisted by friends and relatives. Although the effect is moderate, the risk ratio for TBA assisted births is not statistically significant in part due to the small sample sizes.

Table 7 Percent distribution of live births in the 3 years preceding the survey by type of assistance during delivery, according to health care behaviour, Nepal 1996

| Characteristic | Type of assistance | | | | | Total | Number |
|--|-----------------------------|-----------------------|--------------------------|-------------|------------|--------------|--------------|
| | Medically trained attendant | Trad. birth attendant | Friend/relative or other | No one | Missing | | |
| Antenatal care | | | | | | | |
| No antenatal care | 3.4 | 20.1 | 62.5 | 13.8 | 0.2 | 100.0 | 2,652 |
| Antenatal care | 20.3 | 26.3 | 47.0 | 6.3 | 0.1 | 100.0 | 1,723 |
| Stage of pregnancy at 1st ANC visit | | | | | | | |
| No ANC visits | 3.4 | 20.1 | 62.5 | 13.8 | 0.2 | 100.0 | 2,652 |
| <6 months | 24.3 | 26.0 | 43.5 | 6.2 | 0.0 | 100.0 | 1,032 |
| 6-7 months | 15.9 | 27.9 | 49.5 | 6.6 | 0.2 | 100.0 | 520 |
| 8+ months | 10.5 | 19.6 | 63.1 | 6.8 | 0.0 | 100.0 | 145 |
| Don't know | 5.8 | 44.0 | 45.7 | 4.5 | 0.0 | 100.0 | 26 |
| Tetanus toxoid | | | | | | | |
| No | 3.8 | 19.5 | 62.5 | 14.1 | 0.2 | 100.0 | 2,360 |
| Yes | 17.5 | 26.1 | 49.3 | 7.1 | 0.0 | 100.0 | 2,015 |
| Postpartum care | | | | | | | |
| No | 2.5 | 9.0 | 73.0 | 15.2 | 0.2 | 100.0 | 2,776 |
| Yes | 23.2 | 46.0 | 27.6 | 3.2 | 0.0 | 100.0 | 1,599 |
| Total | 10.1 | 22.5 | 56.4 | 10.9 | 0.1 | 100.0 | 4,375 |

Table 8 Early neonatal mortality rates, risk ratios and 95 percent confidence intervals for births born 0 to 2 years before the survey by person assisting at delivery, Nepal 1996

| Delivery assistance | Early neonatal mortality rate | Risk ratio | 95% confidence interval | | Number of live births |
|-------------------------|-------------------------------|------------|-------------------------|-------------|-----------------------|
| | | | Lower bound | Upper bound | |
| Medically trained | 29.5 | 1.00 | 0.42 | 1.58 | 441 |
| TBA | 16.2 | 0.55 | 0.01 | 1.09 | 985 |
| Friend, relative, other | 29.6 | 1.00 | - | - | 2,469 |
| No one | 16.7 | 0.56 | 0.00 | 1.29 | 480 |
| Total | 25.1 | - | - | - | 4,375 |

Discussion

Most of the socioeconomic and demographic factors examined in this study demonstrate the expected relationship with both early and late neonatal mortality in Nepal. For example, children born in the rural areas compared to those in the urban areas experience an elevated risk of dying during the early and late neonatal periods. The relatively higher rate of early neonatal mortality found in the Mountain and *Terai* ecological regions compared to those in the Hills may be associated with differentials in the level of health care service delivery and its utilization, particularly antenatal care, delivery care, and postpartum care. The same reasons could produce the significantly higher rate of early neonatal mortality in the Far and Mid-western development regions compared to those in the Western, Central, and the Eastern development regions. For example, postnatal and delivery care in both the Mid and Far-western development regions are very low compared to the other three development regions. Additionally, the coverage of antenatal care service in the Mid-western development region is less than half the national average (HMG, 1996: 61-65). The Mid-western development region is characterized also by low coverage of tetanus toxoid injection compared to the other four development regions (NPCS and UNICEF, 1996).

The effect of mother's education on early neonatal mortality was expected to be statistically significant since better educated women are more likely to use safe motherhood services such as antenatal care, medical delivery care, and the tetanus toxoid injections (Regmi and Manandhar, 1997). However, educated mothers are also likely to be younger and of lower parity which may offset the effects of increased use of health services to some extent. As the child grows its exposure to the outer environment also increases so the knowledge of the mother enhanced through education is likely to play an increasingly important role in improving the survival chances of her children. This partly explains the stronger and significant variation in the late neonatal mortality rates according to the mother's education. As expected, higher early and late neonatal mortality risks are observed among first birth and those of order seven or higher, those born to a younger mother, and those born within a short interval after the end of the preceding pregnancy.

The effects of the health care utilization variables on early infant survival are very important for policy and show some interesting results. Antenatal care has a significant effect in reducing both early and late neonatal mortality. In the case of late neonatal mortality, tetanus toxoid immunization received during antenatal care visits is most likely responsible for this effect. Since the utilization of antenatal services is low in Nepal, there is considerable potential to reduce early and late neonatal mortality through increased antenatal care and immunization against tetanus. The population attributable risk⁵ associated with antenatal care and with tetanus toxoid indicates that up to 37 percent of the late neonatal mortality could be eliminated if those who have not used the antenatal care or tetanus toxoid injections were also given these services (Table 9). This clearly indicates the importance of the safe motherhood health care delivery services and its level of utilization in reducing early and late neonatal mortality rates. Furthermore, the substantially increased risk of early and late neonatal mortality associated with adverse previous pregnancy outcomes underscores the importance of collecting a simple medical history during antenatal care visits. Encouraging women with a history of a perinatal loss to book for delivery is a no-cost intervention which could improve birth outcome. These effects, however are dependent on the casual association between the variables which can be clarified further through multivariate analysis. In addition, information on biomedical factors, which are likely to be the important influential factors in determining the level of neonatal mortality, is not available in the survey. Therefore, the multivariate analysis is postponed for the future.

⁵ The population attributable risk (AR) is calculated as: $AR = (p(rr-1))/(1+p(rr-1))$ where p = prevalence of risk factor in the entire population and rr = relative risk. It is defined as the proportionate excess risk of death that is associated with exposure to a risk factor. It incorporates both the level of excess risk associated with a risk factor and the prevalence of the risk factor in the population (Kahn and Sempos, 1989).

Table 9 Population attributable risk for early and late neonatal mortality by selected health service utilization factors, Nepal 1996

| Variables | Early neonatal mortality | Late neonatal mortality |
|----------------------------------|--------------------------|-------------------------|
| Antenatal care | 0.21 | 0.37 |
| Tetanus toxoid injection | 0.07 | 0.37 |
| TBA versus friends and relatives | 0.37 | NA |

Note: NA indicates attributable risk for this group not calculated.

This analysis shows large urban rural difference in the use of assistance of medically trained attendants and TBAs during delivery. However, it is anticipated that access to health services, particularly, health posts, MCH workers, and TBAs may be an important factor associated with lower utilization of delivery care services in the rural areas of Nepal. The differentials in the utilization of delivery services in ecological and development

regions also indicate the role of access to services on the use of modern assistance during delivery. The Mountain region and the Mid-western and Far-western development regions are relatively worse off in terms of access to health services and therefore utilization of medically trained assistance and TBAs is expected to be lower in these regions. As discussed earlier, delivery services are based at health posts. Although TBAs provide delivery service at home, the number of trained TBAs in the country is not sufficient to cover the whole population. According to the Department of Health Services, only 11,500 TBAs are trained against the 22,000 targeted by 1996. Moreover, the actual number of actively working TBAs is not known. Although, the Government of Nepal is adding more sub-health posts every year to reach the target of one sub-health post in each VDC, these sub-health posts are not able to function fully due to the lack of staff and physical facilities such as buildings. In rural areas of Nepal, people perceive the quality of health post buildings as an indicator of quality of services (Acharya, 1997). In this perspective, health programmes should focus on improving the supply of trained TBAs and maintaining the quality of services provided from TBAs and health posts so that utilization of skilled or semiskilled delivery services can be increased.

The effect of the use of modern delivery care on early neonatal mortality does not seem to be very strong probably due to the strong selection effects previously discussed. However, births assisted by TBAs have a lower early neonatal mortality rate compared to births assisted by friends and relatives. The attributable risk of 37 percent for friends and relative assisted births (taking TBA as reference category) indicates that if births assisted by friends and relatives were assisted by TBAs 37 percent of early neonatal deaths could potentially be prevented. This finding is encouraging from the policy point of view. TBAs are easily available semi-skilled personnel in the villages. Therefore, further strengthening and expansion of the TBA programme would be beneficial in reducing the neonatal death rate in Nepal.

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MEDIA EXPOSURE AND REPRODUCTIVE BEHAVIOUR

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Introduction

Proponents of the "Ideational Hypothesis" assert that modern ideas about life play a major role in influencing reproductive attitudes and behaviour in developing countries (Cleland and Wilson, 1987). They argue that these ideas can penetrate and operate without a change in economic structure, without an increase in per capita income and even without changes in the status of women. Mass media sources such as radio, television, and newspapers are potential carriers for communicating such ideas. Research findings also indicate that deliberate or specific media messages about the advantages of family planning and small family norms as well as general media exposure can increase contraceptive use and influence reproductive performances (Bankole, 1994; Bertrand et al., 1982; Piotrow et al., 1994; Westoff and Bankole, 1997; Westoff and Rodríguez, 1995).

The importance of Information, Education, and Communication (IEC) activities in family planning programmes is widely recognized today. Without IEC, family planning programmes cannot reach the community, family, or individual. As expressed by Piotrow et al., *"In population and family planning programmes where millions of people need to understand, approve and actually use family planning, IEC is a critical element. More than in most areas of development, family planning largely depends on individual actions taken in private with little or no supervision. Without good information and reinforcement that makes individuals want to use family planning for their own good, people will not practice family planning regularly, consistently or effectively. Family planning programmes ultimately depend on reaching and influencing the entire population - a massive, on going communication challenge. In everyday terms, this means making family planning a household word, a community norm, and an informed individual (or family) choice."* (Piotrow et al., 1994, p.8).

In Nepal IEC activities have been carried out for the past three decades, but the effectiveness of IEC in changing family planning behaviour has not been assessed. Media exposure itself may depend on various social/economic factors, a major one being literacy/education: A literate/educated person is more capable of broadening his or her knowledge through mass media than an illiterate one. With increasing levels of literacy and continued institutional efforts to broadcast family planning messages through electronic and print media, media exposure may have contributed to the change in the reproductive behaviour of Nepalese women indicated by increased knowledge and use of contraceptives over time. Findings of past surveys in Nepal show that the percentage of currently married women who know at least one modern method of contraception increased from 21 percent in 1976 to 56 percent in 1986, 93 percent in 1991, and 98 percent in 1996. Similarly, ever use of a modern method increased from 4 percent in 1976 to 35 percent in 1996. Contraceptive prevalence among married nonpregnant women, however, seems to have increased at a slower pace, rising from 3 percent in 1976 to 15 percent in 1986, 24 percent in 1991, and 29 percent in 1996 (Pradhan et al., 1997). Increasing adoption of family planning methods most probably contributed to recent fertility decline in Nepal (Pradhan et al., 1997).

Information collected in the 1996 NFHS provide a unique opportunity to assess the extent to which media exposure is associated with respondents' knowledge of contraceptive methods and sources of contraceptives, approval and adoption of family planning practices, and fertility preferences. The objective of this analysis is to investigate whether a relationship exists between media exposure and reproductive behaviour and attitudes. It is expected that this report will be useful to a wide variety of people, such as population planners and policymakers, legislators, demographers, and administrators in analysing, formulating, and implementing population, reproductive health, and family planning IEC policy and strategy.

Background

IEC Policy Development

Between 1941 and 1971, the population of Nepal doubled from 6.3 million to about 12 million (MOH, 2034 BS). Such rapid population growth threatened the already slow development progress of Nepal. In response to this situation HMG/Nepal adopted a population policy in its Fifth Five-year Plan. The policy aims were: reduce the Crude Birth Rate (CBR) through basic developments and reforms in social, economic, cultural and educational aspects as well as through family planning and maternal child health programmes; regulate external migration; regulate internal migration from Hill to *Terai*; systematically achieve optimum distribution of population; and provision of basic facilities to be established in selected centres for urbanization (CBS 1995, p.484).

In line with this policy, a Long Term Health Plan was developed in 1976. In this document the population policy and priorities were defined as “to control unnecessary population growth in order to support the all-round development of the country and to strengthen and expand the family planning/maternal child health (FP/MCH) services throughout the country.” Further, a high-level National Commission on Population was established in 1978 (MOH, 1996) under the chairmanship of the Prime Minister to carry out the population and FP/MCH related policy through governmental and nongovernmental organizations. In late 1990 the National Commission on Population was amalgamated with the National Planning Commission as a division. However, in 1995, His Majesty’s Government/Nepal (HMG) again revived its commitment to the population sector by creating a separate Ministry of Population and Environment.

The Ministry of Health (MOH) in its National Health Policy of 1991 stated that “one of the main reasons for the low health standard of the people is the lack of awareness of health matters. Therefore, health education will be provided in an effective manner from the central level to rural areas. For this, political workers, teachers, students, social organizations, women and volunteers will be mobilized extensively up to the ward level” (NHEICC, 1994/95, p.3). Later, the Eighth Five-year Plan (1992-1997) of HMG/Nepal explicitly emphasized the importance of a strategy that contributes to “demand generation” in population and family planning programmes (NPC, 2049 BS). The 1994 International Conference on Population and Development (ICPD) in Cairo and the Beijing Declaration on Women further broadened government efforts from just FP/MCH to reproductive health and women’s empowerment.

Guided by the ICPD and the Beijing Declaration on Women, an official document, The National Reproductive Health/Family Planning (RH/FP), IEC Strategy (1997-2001), has been developed by the National Health Education, Information, and Communication Centre (NHEICC). This is the first national policy on IEC and is now in action. The main objective is to focus IEC interventions on married couples with unmet need by ensuring the development of positive attitudes and understanding about RH/FP among family members, spouses, young couples, and adolescents. The objective emphasizes empowerment in decisionmaking to delay age at marriage, delay first pregnancy, space births; and to promote safe sex and safe motherhood, gender equality, female literacy, and equal health status of women. It further stresses increasing demand for contraceptives through informed choice, research based communication, and by strengthening a coordinated, institutional framework toward achievements of these objectives (MOH, 1996).

Institutional Development

The historical development of IEC in Nepal goes back to 1960, when the health education section was established officially with the objective of creating awareness and supporting services on health-related matters including family planning (Ban, 2039 BS., p.107). In 1959, the Family Planning Association of Nepal (FPAN), a nongovernment organization, initiated family planning activities in the country. Subsequently, HMG/Nepal established the Nepal Family Planning and Maternal Child Health Project in 1967 and IEC activities were instrumental in creating awareness about family planning and support services.

During the 1970s and 1980s, IEC programmes in the MOH underwent several restructuring cycles. In this process, the NHEICC was established in 1993, with the mandate to give high priority to IEC in the health sector. To meet the increasing demand for IEC, both from service management and other sectors, MOH expanded infrastructure down to the district level by creating an IEC unit in each District Health Office. This unit is responsible for local IEC activities, utilizing various media according to district needs. To accomplish IEC activities, local languages also are being used so that people can understand the messages clearly thereby increasing their effectiveness. Further, at the grassroots level (Village Development Committee and Ward), IEC activities are being carried out by Health Posts/ Sub-Health Posts through Out Reach Clinics.

Summary of IEC Activities

In view of low literacy rates, difficult terrain, and cost effectiveness, radio has been regarded as the only feasible medium to provide prompt and accurate information that will reach even the far remote areas of Nepal. In the past, continuous efforts have been made by the IEC unit to develop and communicate messages on family planning through various media channels to increase knowledge and awareness about family planning (e.g. posters, wall charts, flip charts, radio programmes, television programmes, and mobile video programmes). As previously discussed, the knowledge of Nepalese women on family planning methods and sources has increased considerably; thus attempts have been made to restructure the content of messages to motivate potential users to use family planning methods. In this context the MOH/NHEICC in collaboration with other agencies (United Nations Fund for Population Activities (UNFPA), United States Agency for International Development (USAID), John Hopkins University/Population Communication Service (JHU/PCS)) have launched a massive IEC programme through the radio on reproductive health, family planning, and general health issues.

Since the establishment of the FP/MCH project three decades ago, 15-minute family planning radio programmes have been aired twice a week. The programmes focused on creating awareness about modern family planning methods and their importance, with particular focus on the disadvantages of large families and on sterilization for limiting births. In addition, *Janaswasthya radio karyakram* was aired once a week by the health education section of the Department of Health Services. This programme covered general health issues. When the MOH adopted an integrated health system in 1993, these three programmes were merged into a single programme known as *Janaswasthya Karyakrama*. This radio programme is aired three times a week; two of the programmes are related to family planning and the third is related to general health issues. One of these family planning programmes, *Ghanti heri haad nilaun*, takes the form of a soap opera-style radio serial.

The two radio family planning programmes cover use and benefits of modern methods of contraceptives, delayed age at marriage, husband-wife communication, participation of males in the well-planned family, gender equality, female education, and the relationship between population, environment, and development. In the serial *Ghanti heri haad nilaun*, women's empowerment and reproductive rights, safe motherhood, and HIV/AIDS are also covered. Attempts have been made to develop these programmes on the basis of research findings. *Ghanti heri haad nilaun* is an example of a programme developed in this way.

In addition to the programmes broadcast under *Janaswasthya Karyakrama*, short radio jingles and spots are aired for married couples at different times (*Shriman Shrimatie Pariwarbare Kurakani Gareko Chhoto Radio Natak*). These radio programmes are intended to motivate the audience to practice family planning methods for spacing and limiting births. The products developed for IEC activities at both central and local levels are also borrowed and used by several nongovernmental organizations (NGOs) and the private sectors to promote RH/FP activities. Other IEC activities such as satisfied client group discussions, local folk events, and motivational and advocacy workshops designed to reach specific groups (e.g. District and village development committees (VDC) level political and social workers) are also carried out.

Nepal is a multilingual, ethnically diverse country with more than 60 caste/ethnic groups listed in the 1991 census (Niroula, 1995). The 1991 census recorded 32 different groups with their own mother tongue. More than half of the people of Nepal speak Nepali as their mother tongue, 12 percent speak Maithli, 7 percent speak

Bhojpuri, and 5 percent Tharu and Tamang, respectively. Each of the other languages is spoken by less than 5 percent of the population. In addition, the female literacy rate is low (25 percent) while the literacy rate among rural women is even lower (CBS, 1995). In such a linguistically diverse country with such a low level of literacy, the ability of the population to understand a message delivered in the media is an area of concern. Under the expectation that most Nepalese understand Nepali (the official language), programmes in the media are usually delivered in the Nepali language. However, some radio jingles and spots have been aired in other national languages.

Data

Data for the analysis are obtained from the 1996 NFHS. The survey was conducted from January through June 1996. Information was collected from a nationally representative sample of 8,429 ever-married women of reproductive age (15 to 49 years) of which 7,983 were currently married. The survey enquired about various topics including reproductive experience and preferences, family planning (knowledge and use), use of maternity and child health services, and background characteristics including media exposure. For full details of the survey, see Pradhan et al., 1997.

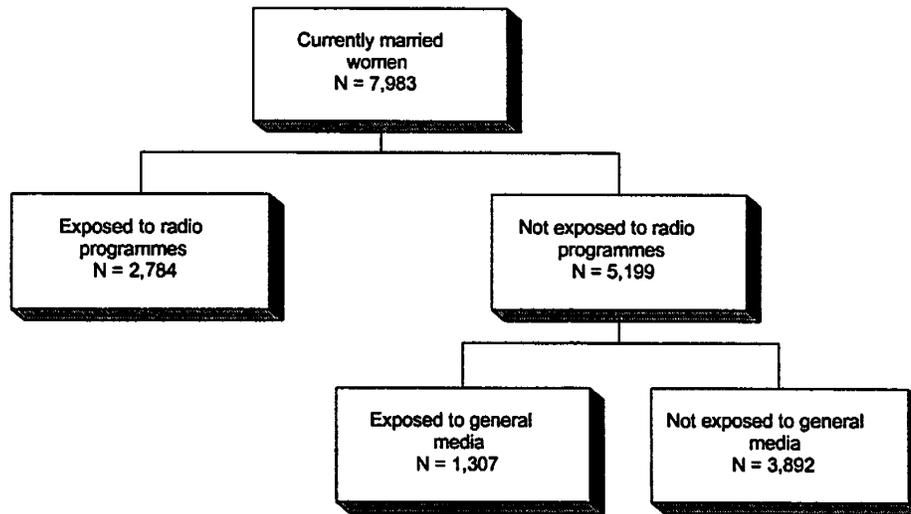
The survey data on media exposure are based on responses recorded for the following questions: "Do you usually read a newspaper or magazine at least once a week?" "Do you usually listen to the radio every day?" and "Do you usually watch television at least once a week?" Only about two-fifths (41 percent) of ever-married women reported regular access to mass media. Thirty-six percent of women listen to the radio daily, 12 percent watch television at least once a week and 5 percent read a newspaper or magazine at least once a week. The percentage of women exposed to all three types of media is very low (3 percent) in Nepal (Pradhan et al., 1997, Table 2.12). As expected, women who live in urban areas are more likely to listen to the radio, watch TV, and read newspapers and thus are more exposed to mass media compared with their rural counterparts. There is also a strong positive relationship between education and media exposure.

In addition, data were collected on exposure to the specific radio programmes *Janaswasthya karyakram*, *Ghanti heri haad nilaun* (drama), *Ghanti heri haad nilaun* (jingle) and *Shriman Shrimatie Pariwarbare Kurakani Gareko Chhoto Radio Natak*, based on the following question: "In the last few months have you heard the following programmes on the radio? <names of programmes>". Out of 8,429 ever-married women, about one-fourth had heard *Janaswasthya Karyakram* and *Shriman Shrimatie*, and one fifth had heard *Ghanti heri haad nilaun* (the drama and jingle respectively), (Pradhan et al., 1997, p.71).

Definition of Media Exposure

For analytical purposes, currently married women are classified into three major groups in terms of media exposure; not exposed to any media, exposed to general media (but not to any of the family planning radio programmes discussed previously), and exposed to at least one of the specific family planning radio programmes (Figure 1). More specifically, the first group consists of those women who do not listen to the radio daily, watch television weekly, or read a newspaper or magazine weekly and who had not heard any of the radio programmes on family planning in the few months before the survey. The second group consists of those who usually listen to the radio daily, watch television at least once a week, or read a newspaper or magazine at least once a week but who had not heard any of the radio programmes on family planning. The third group consists of those who had heard at least one of the specific family planning programme on the radio in the months preceding the survey. According to this classification, a little less than half (48.7 percent) of the women reported that they were not exposed to any media, 35 percent reported that they were exposed to at least one specific family planning programme, and the remaining 16 percent were exposed to the general media but not to a specific family planning programme.

Figure 1
Definition of media exposure



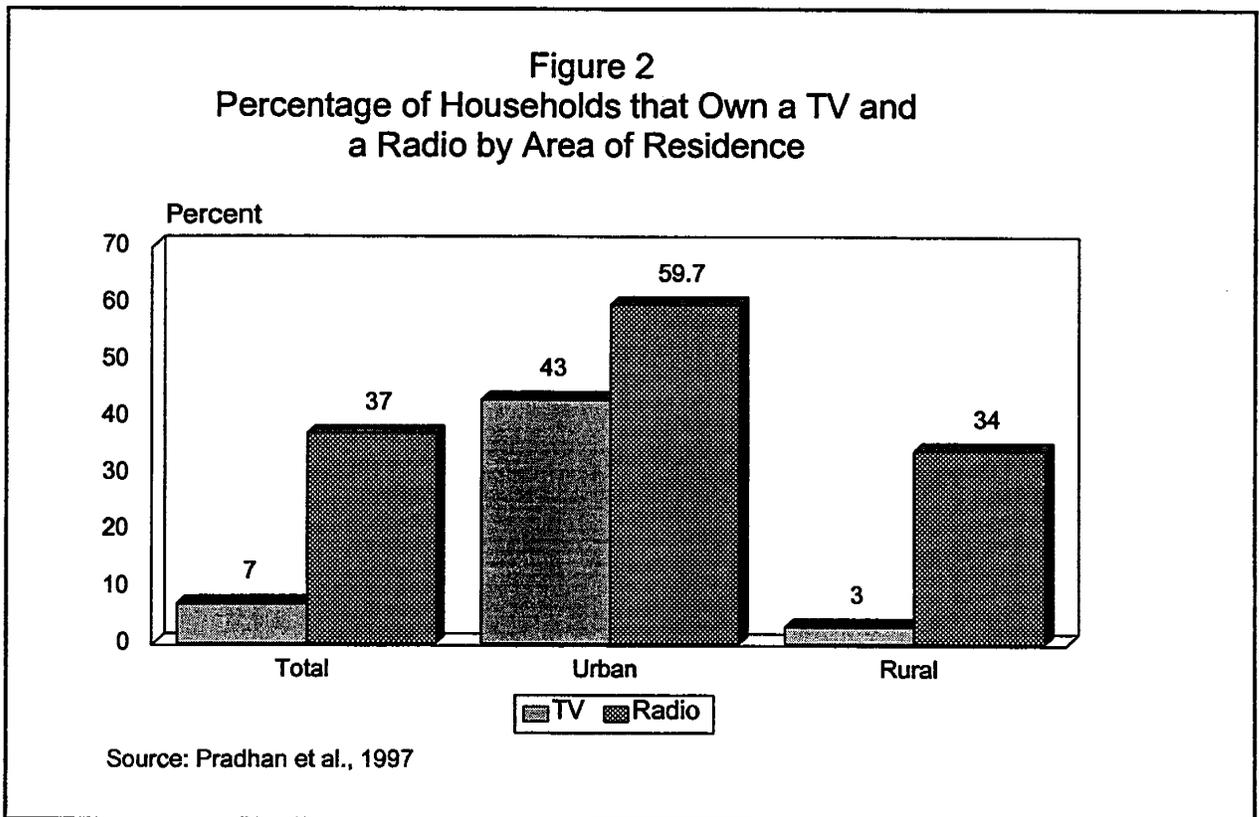
This definition of media exposure allows us to compare those who are exposed to the specific family planning radio programmes with those who have not heard the programmes but are exposed to the media. The latter group act as a partial control for characteristics that affect both media exposure and reproductive behaviour which helps to provide some indication of the extent to which exposure to the specific radio programmes on family planning is associated with reproductive behaviour beyond any association with general exposure to mass media. However, we have no data on the amount of media exposure women have (e.g. how much they listen to the radio each day) and exposure to the specific radio programmes may also reflect greater exposure to the radio.

The analyses presented below are primarily descriptive and contain a number of important limitations. First, as mentioned above, exposure to mass media is not distributed randomly throughout the population. Print media are useful only to literate women, while listening to the radio or watching television is related to owning a radio or television set, which implies a linkage between socioeconomic characteristics and media exposure. Therefore, media exposure is associated with other characteristics of women that affect reproductive behaviour (e.g. rural/urban residence, education, etc.). We partially control for this in the analysis by looking at urban and rural areas separately but the association between media exposure and reproductive behaviour is likely to be affected by confounding. Because of this confounding and the cross-sectional nature of the data, the analysis can only demonstrate association between media exposure and reproductive behaviour; therefore, it is not possible to infer a causal relationship between the two. However strong, consistent associations between media exposure and different aspects of reproductive behaviour support the hypothesis of a causal link.

The dependent variables used pertain to knowledge and use of modern contraceptive methods and reproductive preferences including sex preferences for children. Specifically, the variables analysed are: awareness of contraceptive methods; knowledge of a source of a modern method; current use of contraceptive methods; nonusers' intention to use contraceptives; desire to have no more children; perceived ideal number of children; sex composition of ideal family; and discussion about family planning with others.

Results

A first step in the analysis is to explore some indicators of the access of Nepalese women to the media. The 1996 NFHS reveals that more than one-third (37 percent) of Nepalese households own a radio and only 7 percent own a television (Figure 2). However, there is a vast difference in the likelihood of possessing a radio or television between urban and rural households; urban households are much more likely to own these items than rural households. Bearing in mind that only about one-tenth of the population of Nepal is urban, that the female literacy rate is low, and that access to transport and communication facilities is at a bare minimum, particularly in the Mountains and Hills, radio broadcast is the most viable media to reach large sections of the rural population of the country.



Examination of data on knowledge of modern methods of family planning among currently married women of reproductive age indicates that knowledge of at least two methods is almost universal among Nepalese women whether they are residents of rural or urban areas and irrespective of whether they are exposed to the media or not (Table 1). The more methods a woman knows, the greater is her choice of methods. The data suggest that the media play a significant role in increasing knowledge of family planning methods. Sixty-six percent of nonexposed urban women know at least five methods of contraception compared with 96 percent of urban women who were exposed to one of the specific radio programmes. Similarly, the percentage of women who know at least five methods of contraception increases from 58 to 88 among rural women in the same groups.

Table 1 Percentage of currently married women knowing specific modern contraceptive methods and the percentage of women knowing at least one modern method, at least two modern methods, and at least five modern methods, by exposure to mass media, and area of residence, Nepal 1996

| Method | Urban | | | Rural | | | Total | | |
|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes |
| Pill | 72.7 | 86.8 | 97.1 | 72.2 | 79.5 | 91.2 | 72.2 | 80.6 | 92.0 |
| IUD | 38.0 | 71.7 | 85.7 | 18.9 | 33.2 | 53.2 | 19.4 | 38.9 | 57.5 |
| Injectables | 82.3 | 90.8 | 96.2 | 77.3 | 84.2 | 95.4 | 77.4 | 85.2 | 95.5 |
| Diaphragm | 19.6 | 38.4 | 64.6 | 12.1 | 20.9 | 51.1 | 12.3 | 23.5 | 52.9 |
| Condom | 66.0 | 84.7 | 96.0 | 64.2 | 74.8 | 89.6 | 64.2 | 76.3 | 90.4 |
| Female sterilization | 94.5 | 97.5 | 99.4 | 94.4 | 97.2 | 98.5 | 94.4 | 97.2 | 98.6 |
| Male sterilization | 86.9 | 94.0 | 96.1 | 84.3 | 90.7 | 96.6 | 84.4 | 91.2 | 96.5 |
| Norplant | 59.0 | 79.0 | 93.0 | 43.8 | 57.8 | 71.0 | 44.2 | 61.0 | 73.9 |
| At least one | 96.6 | 99.5 | 99.7 | 97.1 | 98.9 | 99.8 | 97.1 | 99.0 | 99.8 |
| At least two | 94.9 | 99.5 | 99.7 | 93.7 | 97.6 | 99.4 | 93.7 | 97.9 | 99.4 |
| At least five | 66.4 | 87.6 | 96.2 | 58.4 | 71.0 | 88.2 | 58.6 | 73.5 | 89.3 |
| Number of women | 106 | 194 | 368 | 3,786 | 1,112 | 2,416 | 3,892 | 1,307 | 2,784 |

Certain methods are more widely known than others. For example, the percentage of women who have heard of the pill, injections, condoms, and female or male sterilization is much higher than the percentage who have heard of other methods. The percentage of women who know each modern method of contraception is consistently lowest among women who were not exposed to any media and highest among women who were exposed to one of the specific radio programmes. The association between media exposure and contraceptive knowledge is similar in both rural areas and urban areas, although knowledge of every method is almost always higher among urban women than among rural women with the same level of media exposure.

Knowledge of a source for a method is necessary for a woman to use a method and represents a greater level of awareness of family planning than knowledge of methods. Media exposure is expected to provide information about sources for methods of family planning and the evidence presented in Table 2 supports this expectation. Women who were exposed to one of the specific family planning programmes are the most likely to know a source for family planning in both urban and rural areas. Overall, about three-fourths (76 percent) of women who were not exposed to the media know a source for a modern method but this percentage increases to 90 among women exposed to at least one of the radio programmes.

Current use of contraceptive methods depends on having knowledge of methods, knowledge of a source for methods, the intention to use a method, and on the availability of methods. The findings of previous research indicate that contraceptive prevalence in Nepal is gradually increasing but still remains under 30 percent (Pradhan et al., 1997). The 1996 NFHS indicates higher current use of family planning methods by women who were exposed to at least one of the radio programmes compared with other women (Table 3). Thirty-seven percent of women who were exposed to a specific family planning radio programme are currently using a method against 31 percent of women exposed to general media and 22 percent of women who were not exposed to any media. The positive relationship between media exposure and current use of contraceptives exists in both rural and urban areas. Urban women are more likely to use a method than rural women, particularly among those exposed to the mass media. However, rural women who are exposed to at least one of the radio programmes are more likely to be using a method than urban women who are not exposed to the media.

Table 2 Percentage of currently married women who know a source for modern contraceptives by exposure to mass media, and area of residence, Nepal 1996

| Know source | Urban | | | Rural | | | Total | | |
|-----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes |
| Yes | 72.7 | 89.4 | 93.8 | 76.3 | 81.2 | 89.5 | 76.2 | 82.4 | 90.0 |
| No | 27.3 | 10.6 | 6.2 | 23.7 | 18.8 | 10.5 | 23.8 | 17.6 | 10.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 106 | 194 | 368 | 3,786 | 1,112 | 2,416 | 3,892 | 1,307 | 2,784 |

Note: Current users of modern methods are tabulated as knowing a source.

Table 3 Percentage distribution of currently married women by contraceptive method currently used, by exposure to mass media, and area of residence, Nepal 1996

| Method | Urban | | | Rural | | | Total | | |
|----------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes |
| Pill | 2.8 | 3.7 | 3.8 | 0.7 | 1.1 | 2.0 | 0.7 | 1.5 | 2.2 |
| IUD | 0.0 | 3.0 | 2.4 | 0.0 | 0.0 | 0.2 | 0.0 | 0.4 | 0.5 |
| Injections | 8.3 | 7.1 | 9.8 | 3.1 | 4.3 | 5.6 | 3.2 | 4.7 | 6.1 |
| Diaphragm | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 |
| Condom | 0.9 | 6.2 | 7.7 | 1.1 | 2.0 | 2.0 | 1.1 | 2.6 | 2.7 |
| Female sterilization | 10.1 | 21.4 | 15.7 | 11.2 | 14.1 | 11.2 | 11.2 | 15.1 | 11.8 |
| Male sterilization | 3.7 | 5.1 | 7.1 | 3.5 | 3.8 | 9.0 | 3.5 | 4.0 | 8.7 |
| Norplant | 1.6 | 1.5 | 2.1 | 0.2 | 0.3 | 0.4 | 0.2 | 0.5 | 0.6 |
| Traditional | 1.2 | 2.9 | 7.2 | 1.5 | 1.7 | 3.7 | 1.5 | 1.9 | 4.1 |
| Not using | 71.3 | 49.1 | 44.2 | 78.6 | 72.7 | 65.7 | 78.4 | 69.2 | 62.9 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 106 | 194 | 368 | 3,786 | 1,112 | 2,416 | 3,892 | 1,307 | 2,784 |

Among urban women female sterilization is the most popular method followed by injections and male sterilization. Similarly, among rural women female sterilization is the most popular method followed by male sterilization and injections. The positive association between current use and media exposure persists for most individual methods except female sterilization which is more likely to be used by women who are exposed to general media than by women who are exposed to the specific radio programmes.

In Table 4, women who are not currently using contraception are classified according to their intention to use in the future. Women may be nonusers for a variety of reasons; they may be pregnant, infecund, afraid of rumoured side effects, or lack knowledge about possible benefits of contraception. It is difficult to assess how much exposure to the mass media directly influences a nonuser's intention to use a method in the future. However, the general picture is that women who are exposed to at least one of the specific radio programmes are more likely to intend to use contraceptives in the future than other women. Among all nonusers, 56 percent of women who are not exposed to the media expressed an intention to use a method at some time in the future.

This percentage increased to 59 among women exposed to general media and 75 among women exposed to the specific radio programmes. Rural women who are exposed to the specific radio programmes are more likely to intend to use family planning methods than similar urban women. However, the opposite is true among women who are not exposed to the media. This may be because urban women are more likely to be exposed to modern ideas even if they are not exposed to the mass media regularly. Therefore, the family planning radio programmes seem to be associated with motivating women to use contraceptive methods in both rural and urban areas but particularly in rural areas. Also, it appears that exposure to the specific radio programmes is more strongly associated with increased motivation to use contraceptives in the future than exposure to general media.

Table 4 Percentage of currently married nonusers who intend to use contraception in the future by exposure to mass media, and area of residence, Nepal 1996

| Intention to use contraception | Urban | | | Rural | | | Total | | |
|---------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes |
| Intend to use in next 12 months | 34.7 | 32.1 | 39.9 | 25.2 | 27.1 | 37.4 | 25.5 | 27.6 | 37.6 |
| Intend to use later | 25.2 | 25.0 | 30.7 | 30.5 | 31.8 | 37.7 | 30.4 | 31.1 | 37.0 |
| Unsure as to timing | 0.0 | 1.1 | 0.5 | .3 | 0.2 | 0.7 | 0.3 | 0.3 | 0.6 |
| Unsure as to intention | 4.4 | 1.2 | 0.5 | 4.0 | 1.7 | 1.7 | 4.0 | 1.6 | 1.6 |
| Do not intend to use | 35.7 | 40.6 | 28.5 | 40.0 | 39.2 | 22.6 | 39.8 | 39.4 | 23.1 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 76 | 95 | 162 | 2,977 | 809 | 1,588 | 3,053 | 904 | 1,751 |

The desire to stop childbearing is associated with modernization. As the family planning messages broadcast in the media directly promote small family norms, media exposure should be associated with increased desire to limit childbearing. However, the number of living children a woman has is very strongly linked to her desire to stop childbearing. Therefore, in Table 5 the relationship between media exposure and desire to stop childbearing is examined within each family size group.

Table 5 Percentage of currently married women who do not want any more children by number of living children, exposure to mass media, and area of residence, Nepal 1996

| Number of living children | Urban | | | Rural | | | Total | | |
|---------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes |
| Zero | * | (8.0) | (8.3) | 1.7 | 0.7 | 5.1 | 1.8 | 1.5 | 5.4 |
| One | (20.0) | (37.4) | 34.3 | 12.2 | 20.7 | 25.7 | 12.4 | 23.4 | 27.0 |
| Two | (83.6) | 86.2 | 83.3 | 49.0 | 55.8 | 73.1 | 49.8 | 61.1 | 75.1 |
| Three | (77.8) | 88.1 | 94.9 | 70.0 | 77.2 | 84.3 | 70.2 | 78.9 | 85.7 |
| Four or more | 88.8 | 92.5 | 93.7 | 84.9 | 88.0 | 89.1 | 85.0 | 88.6 | 89.6 |

Note: An asterisk (*) indicates that a figure is based on fewer than 25 cases and has been suppressed. Figures in parentheses are based on 25-49 cases.

Women with no living children are likely to want children and, therefore, are unlikely to express a desire for no more children. As expected, only a very small proportion of women in this group reported that they want no more children. The proportion who reported a desire for no more children is higher in urban areas than in rural areas. Although the proportions are small, there appears to be a weak effect of media exposure on desire to stop childbearing among rural women.

Among women with at least one living child, the percentage who want no more children generally increases as media exposure increases from no media exposure through exposure to general media, to exposure to the specific radio programmes. For example, among rural women with two living children 49 percent of women who are not exposed to the media want no more children compared with 56 percent of those exposed to the general media and 73 percent of those exposed to the specific radio programmes. Therefore, family planning programmes in the media seem to be operating in the expected direction with respect to the reproductive attitudes of women (i.e. they are associated with an increased desire for limiting births).

As expected, there is a strong association between the number of living children a woman has and her desire for no more children. The percentage of women who want no more children increases as the number of living children increases. The speed of the increment, however, changes depending on the number of living children, area of residence, and exposure to the media. Over four-fifths of urban women with two children want no more no matter whether they are exposed to the media or not. Among rural women the proportion who desire no more children increases steadily as the number of living children increases and is greater among those exposed to at least one of the family planning radio programmes compared with other women. The majority (over 85 percent) of women with four or more children desire no more children in both rural and urban areas, irrespective of media exposure. It seems that programmes in the media tend to influence most rural women with two or three living children. At high parity most women have the number of children they desire so the role of media is minor but in the expected direction.

Responses to the question on ideal number of children are an indicator of reproductive attitudes and reflect the penetration of family planning messages (intended to change the reproductive behaviour of Nepalese couples) communicated in the media over a long period of time. Data presented in Table 6 show the ideal number of children Nepalese women desire by exposure to the media. The ideal number ranges from two to four for the majority of women. Women exposed to the media are more likely to report two children as their ideal, while women in the nonexposed group are more likely to report three children as their ideal. The percentage of women who reported two children as their ideal family size increases consistently as media exposure increases from no exposure, to general media exposure, to exposure to specific radio programmes (from 36 to 65 percent in urban areas and from 24 to 47 percent in rural areas). The media differentials in the ideal number of children are similar for both rural and urban women.

For several reasons, strong sex preferences for children are expected in Hindu culture. In Nepalese society, a boy is preferred in the family rather than a girl. In general, a son is accepted as an asset, security for old age and is required to perform religious rituals while a daughter is considered a liability. However, with changing social attitudes induced by increasing modernization, traditional norms and values are weakening. The increased cost of raising children, the resulting burden of sex preference, and equality-promoting messages in the media, are expected to erode sex preferences. The ideal family sex composition preferred by Nepalese women according to their ideal family size is presented in Table 7.

Desired sex composition is associated with the ideal family size a woman reports. As ideal family size increases, preference for boys also increases, particularly as ideal family size increases from two to three children where most women's ideal family size lies (Table 7). The preference for sons holds for both urban and rural residents, but is slightly weaker among women in urban areas than among women in rural areas.

Table 6 Percent distribution of currently married women by ideal number of children, by exposure to mass media, and area of residence, Nepal 1996

| Ideal number of children | Urban | | | Rural | | | Total | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes |
| Zero | .0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| One | 1.7 | 5.5 | 7.4 | 1.4 | 2.7 | 3.4 | 1.4 | 3.1 | 3.9 |
| Two | 35.9 | 51.3 | 65.1 | 24.3 | 35.2 | 46.9 | 24.6 | 37.6 | 49.3 |
| Three | 35.1 | 26.5 | 21.9 | 37.8 | 36.8 | 32.0 | 37.8 | 35.3 | 30.6 |
| Four | 22.2 | 12.3 | 5.2 | 25.2 | 19.0 | 14.7 | 25.1 | 18.0 | 13.4 |
| Five | 2.5 | 2.1 | 0.2 | 4.6 | 2.7 | 1.5 | 4.6 | 2.6 | 1.4 |
| Six or more | 2.6 | 0.5 | 0.0 | 2.8 | 1.6 | 0.9 | 2.8 | 1.5 | 0.8 |
| Non-numeric | 0.0 | 1.8 | 0.0 | 3.8 | 2.0 | 0.7 | 3.7 | 1.9 | 0.6 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of women | 106 | 194 | 368 | 3,781 | 1,111 | 2,416 | 3,887 | 1,305 | 2,784 |

There are indications that son preferences are weaker among some groups of women who were exposed to family planning programmes in the media compared with those who were not exposed. Those women who reported two children as ideal are likely to be more exposed to modern ideas and are more likely to be from the younger age groups compared with those who reported three or more children as their ideal. For this group, the ideal sex composition seems to be one boy and one girl and among these women media seems to play a role in changing attitudes towards a weaker preference for sons in both urban and rural areas. The percentage who preferred both children to be sons decreases as media exposure increases and the percentage who do not mind what the sex composition of their family is increases. Among women who consider three or more children as their ideal, the majority prefer more sons than daughters. The role of the media in changing preferences for boys is less consistent among women with ideal family sizes of three or more in both rural and urban areas (Table 7).

Discussion about family planning with other people (partner, friends, relatives, etc.) is expected to provide an opportunity to exchange ideas and gain knowledge about the benefits of family planning which can be used in shaping family size. Information provided by Nepalese women presented in Table 8 show that they are more likely to discuss these matters with friends and neighbours compared with their partner and female relatives. As family planning matters are very personal and related to the use of contraceptives and sexual activities, Nepalese women are very unlikely to discuss such matters with male relatives other than their partner. In general, exposure to family planning programmes in the media is associated with increased discussion of family planning matters with all of the people listed. This association is particularly strong for rural women. The percentage of urban women who have discussed family planning matters with their partner is weakly associated with programme exposure. However, exposure to the specific radio programmes increases the level of spousal discussion in rural areas from 16 percent among unexposed women and 17 percent among women exposed to general media to 27 percent among those who have heard the radio programmes. The majority of Nepalese women reported that they do not discuss family planning with any one. However, women who have been exposed to a family planning radio programme are more likely to have discussed the matter than nonexposed women or women exposed to the general media.

Table 7 Ideal sex composition of family by ideal family size, by exposure to mass media, and area of residence, Nepal 1996

| Ideal family size and sex composition | Urban | | | Rural | | | Total | | |
|---------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes |
| Two children | | | | | | | | | |
| Two boys | 17.8 | 5.1 | 7.1 | 18.7 | 15.5 | 9.6 | 18.6 | 13.4 | 9.1 |
| One boy | 69.9 | 74.0 | 65.7 | 72.7 | 74.8 | 74.2 | 72.6 | 74.6 | 72.7 |
| No boys/don't mind | 12.4 | 20.9 | 27.1 | 8.7 | 9.7 | 16.2 | 8.8 | 11.9 | 18.1 |
| Three children | | | | | | | | | |
| Three boys | 2.3 | 2.0 | 1.8 | 1.5 | 2.0 | 0.6 | 1.6 | 2.0 | 0.7 |
| Two boys | 93.0 | 89.2 | 85.6 | 94.1 | 92.0 | 94.6 | 94.0 | 91.7 | 93.7 |
| One boy | 4.7 | 1.4 | 2.6 | 2.3 | 1.5 | 1.8 | 2.4 | 1.5 | 1.8 |
| No boys/don't mind | .0 | 7.4 | 10.0 | 2.1 | 4.5 | 3.1 | 2.0 | 4.8 | 3.7 |
| Four children | | | | | | | | | |
| Four boys | (.0) | (4.2) | 3.9 | 1.1 | 0.4 | 0.9 | 1.1 | 0.8 | 1.0 |
| Three boys | (1.8) | (9.6) | 9.3 | 19.4 | 16.3 | 10.6 | 19.0 | 15.6 | 10.5 |
| Two boys | (95.0) | (84.5) | 86.8 | 76.4 | 81.9 | 86.8 | 76.9 | 82.1 | 86.8 |
| One boy | (.0) | (.0) | .0 | 1.0 | 0.0 | 0.5 | 1.0 | 0.0 | 0.5 |
| No boys/don't mind | (3.1) | (1.8) | .0 | 2.0 | 1.4 | 1.3 | 2.0 | 1.5 | 1.2 |
| Five or more children | | | | | | | | | |
| All boys | * | * | * | 0.6 | 0.0 | 2.1 | 0.6 | 0.0 | 2.0 |
| More boys | * | * | * | 48.2 | 42.1 | 48.6 | 48.6 | 41.5 | 49.0 |
| More girls | * | * | * | 5.5 | 9.3 | 7.6 | 5.5 | 9.6 | 7.5 |
| Other | * | * | * | 45.7 | 48.6 | 41.7 | 45.4 | 48.9 | 41.4 |

Note: An asterisk (*) indicates that a figure is based on fewer than 25 cases and has been suppressed. Figures in parentheses are based on 25-49 cases.

Table 8 Percentage of currently married women who have discussed family planning with partner, other family members, and friends/neighbours by exposure to mass media, and area of residence, Nepal 1996

| Person | Urban | | | Rural | | | Total | | |
|--------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes | Not exposed to any media | Exposed to general media | Exposed to FP programmes |
| Partner | 20.7 | 14.3 | 19.5 | 16.0 | 16.5 | 27.0 | 16.1 | 16.2 | 26.0 |
| Female relative | 12.5 | 11.4 | 23.5 | 7.9 | 7.1 | 21.0 | 8.1 | 7.8 | 21.3 |
| Male relative | .0 | 0.0 | 0.7 | 0.2 | 0.1 | 0.9 | .2 | 0.1 | 0.8 |
| Friends/neighbours | 24.4 | 19.7 | 40.5 | 15.8 | 19.4 | 35.6 | 16.0 | 19.4 | 36.2 |
| Any of these | 36.0 | 30.9 | 49.6 | 26.7 | 29.0 | 47.9 | 27.0 | 29.2 | 48.1 |
| Number of women | 106 | 194 | 368 | 3,786 | 1,112 | 2,416 | 3,892 | 1,307 | 2,784 |

Conclusion

The analyses in this paper clearly demonstrate a strong, consistent relationship between media exposure and each of the reproductive behaviours and attitudes examined. Media exposure is associated with increased knowledge and use of contraception, increased intention to use contraception in the future among nonusers, increased desire to stop childbearing, smaller ideal family sizes, reduced son preference among women with small ideal family sizes, and increased discussion of family planning with others. In most of the analyses, there is an ordering in these relationships from women exposed to no media, through women exposed to general media, to women exposed to the specific radio programmes on family planning. This ordering is significant because it suggests that exposure to the specific radio programmes has an effect above and beyond general media exposure.

A descriptive analysis such as the one presented here does not allow us to infer a causal relationship between media exposure and the reproductive attitudes and behaviours examined. A particular concern is the issue of the confounding of media exposure with other characteristics of the woman that affect these reproductive outcomes. We have partially controlled for this by examining urban and rural areas separately but a multivariate analysis would control for confounding more fully. Such an analysis was beyond the scope of this paper but could be considered in the future. Cross-sectional data such as those collected in the 1996 NFHS also are limited in that they do not provide the opportunity to examine attitudes and behaviours before and after exposure to the programmes which would permit stronger conclusions to be drawn regarding causality. Nevertheless, the strong, consistent relationships observed support the hypothesis that media exposure, and particularly exposure to family planning programmes in the media, are effective in changing women's reproductive attitudes and behaviour. In this context, our findings support the continued emphasis placed on IEC activities within the MOH.

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**ATTITUDES TOWARD FAMILY PLANNING AND REASONS
FOR NONUSE AMONG WOMEN WITH UNMET NEED
FOR FAMILY PLANNING IN NEPAL**

Dr. Ram Hari Aryal

Tek Bahadur Dangi

Introduction

Knowledge, Attitude and Practice (KAP) surveys conducted during the 1960s first demonstrated the presence of an unmet need for contraception in many developing countries (United Nations, 1979). These surveys were the first to find that a substantial proportion of women who wanted to stop childbearing were not using contraception. Since 1984, when the Demographic and Health Surveys (DHS) programme started, the concept of unmet need has become increasingly refined and a topic of significant interest for family planning programmes. Moreover, DHS has been the main information source for measuring unmet need in developing countries (Robey et al., 1996). It is estimated that more than 100 million married women in developing countries have an unmet need for spacing or limiting births. Thirty-one million women are in need of family planning in India alone. Moreover, the average percentage of married women with unmet need in developing countries is about 20 percent. Bongaarts and Bruce (1995) analysed DHS data from 27 countries and demonstrated that sub-Saharan Africa was the region with the highest level of unmet need (31 percent), the lowest potential demand (44 percent), and the lowest contraceptive prevalence (13 percent) in the world. The existence of this unmet need poses a challenge to family planning programmes in many developing countries (IDEA, 1996).

Unmet need has recently become a topic of concern to policymakers, planners, and demographers in Nepal also. One of the main aims of the government's population policy is to reduce the level of fertility. Contraception is the most important of the proximate determinants of fertility in Nepal. This is primarily because age at marriage is still very low and abortion is illegal. After almost four decades of providing family planning services, a gap remains between demand for and use of family planning. According to the 1996 Nepal Family Health Survey (NFHS), although the total demand for family planning is almost 60 percent, the use rate is only 29 percent (Pradhan et al., 1997). Thus, a substantial proportion of women in Nepal who want no more children or want to postpone their next birth are still not using contraception. This fact warrants an exploration of the reasons for a gap in women's fertility preferences and their actual fertility performance.

From the programme point of view, the assessment of unmet need and total demand for family planning provides an opportunity to estimate the magnitude and characteristics of additional markets for contraception. From the population policy point of view, the impact on fertility that would result if that additional need were met can also be estimated (Westoff and Bankole, 1995). Moreover, an assessment of unmet need can point to the role that services can play in reducing mistimed and unwanted pregnancies (Bongaarts and Bruce, 1995). In order to implement effective programmes to meet unmet demand, detailed information on the reasons for unmet need is needed. In-depth analysis of the reasons for unmet need for family planning so far has remained a neglected area of research in Nepal. Accordingly, the main aims of the present study are to explore the reasons for unmet need and to derive policy implications from the results of the 1996 NFHS.

Background

The family planning movement in Nepal was initiated as early as 1958 by the Family Planning Association of Nepal (FPAN), a voluntary nongovernment organization (NGO), making information and education regarding contraceptive services available to a very limited population in the Kathmandu Valley. In the government sector, population and family planning related policies were adopted, for the first time, during the Third Five Year Development Plan (1965-70). National family planning policies and programmes were formulated and contraceptive services have been made available to married couples through government institutions since 1966. However, the expansion of family planning services throughout the country did not begin in a phased manner until 1969.

Various objectives and targets for family planning programmes have been set in each plan period since the Third Development Plan. The main objective of the Third Plan was to maintain a balance between population growth and economic development by reducing the crude birth rate (CBR). The Fourth Plan also aimed to reduce CBR and, in addition, a target number was set for family planning acceptors by the end of the plan

period. Similar objectives and targets were set for the Fourth and Fifth Plans. However, the Sixth Five-Year Plan (1980-85) aimed to reduce the total fertility rate (TFR) from 6.3 to 5.8 births per woman and to maintain the population growth rate at 2.3 percent per annum; in order to achieve these objectives, 900,000 new family planning acceptors were targeted to be recruited. The Seventh Plan (1985-90) also aimed to reduce the TFR and decrease the rate of population growth in order to limit the size of the population to 20.8 million by the year 2000. The Eighth Plan (1992-97) aimed to reduce the TFR to 4.5 by the end of the plan and further to 4.0 by the year 2000 (Central Bureau of Statistics (CBS), 1995). To achieve the demographic and family planning targets mentioned above, various strategies were implemented. These strategies focused mainly on expanding family planning services, information, education and communication, client motivation and counselling and, more recently, on improving the quality of family planning services.

At present, family planning services as envisaged in the Eighth Five-Year Plan and in the 1991 National Health Policy are being provided through government institutions at different levels as an integral part of total health services. However, the full range of modern contraceptive services are not available in all institutions, especially in institutions below the district level. Family planning services are also provided through outreach clinics at the community level. This strategy was adopted in 1995 with the objective of improving access to family planning services. In addition, surgical contraceptive services (sterilization) are provided through mobile clinics, particularly in areas where these services are not available on a regular basis. Recently, the family planning programme has initiated a range of strategies to improve the quality of contraceptive services for clients as well as service providers.

In addition to FPAN, there are several other NGOs and International Nongovernmental Organisations (INGO) which supplement and complement Nepal's national family planning programme.

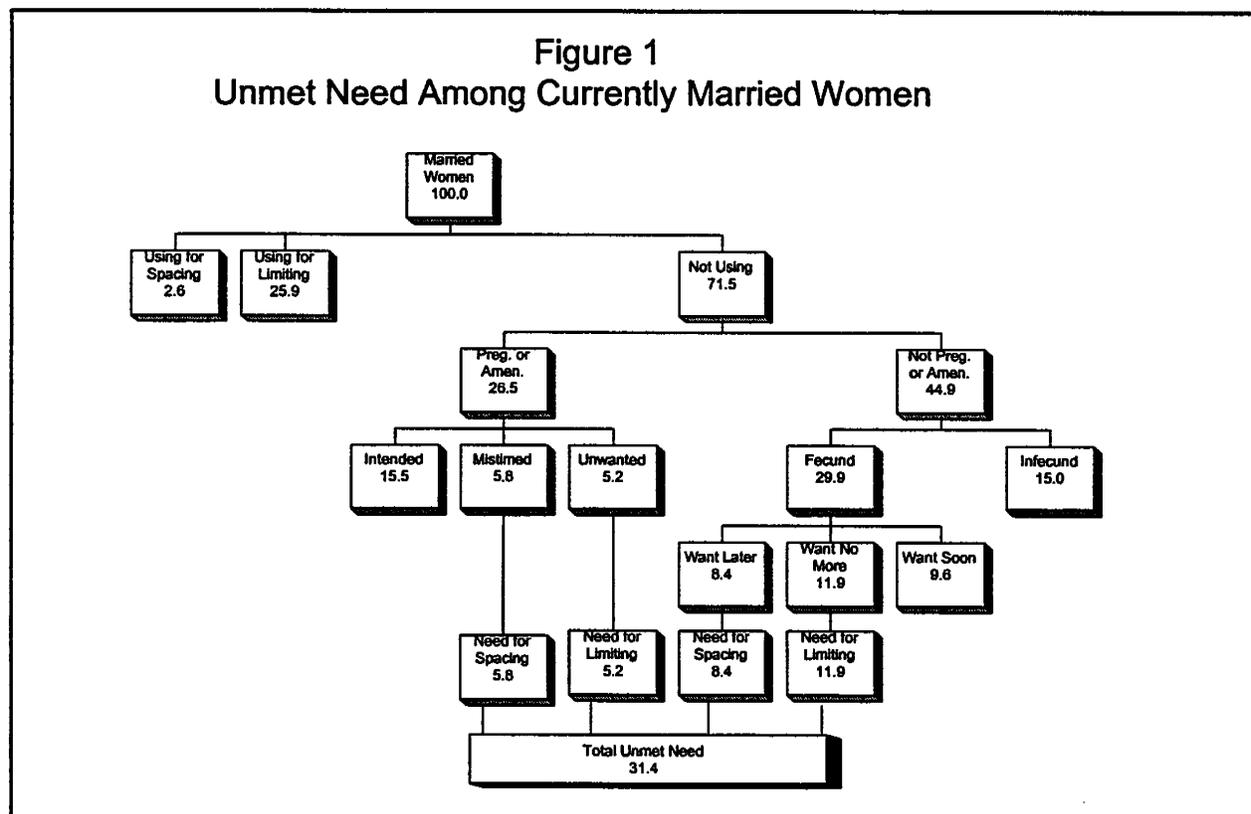
The national family planning programme of Nepal aims at lowering the TFR to 4 children per woman by the year 2000. To meet this national objective, it is estimated that the CPR has to be increased to 37 percent (National Planning Commission (NPC), 1993). Women who desire to cease childbearing but practice no contraception – women with unmet need – are most likely to be potential clients for the family planning programme (De Silva, 1992). The programme of action adopted by the 1994 International Conference on Population and Development (ICPD) in Cairo recommends that governmental goals for family planning be defined in terms of unmet need for information and services. It further suggests that all countries should, over the next several years, assess the extent of unmet need for good quality family planning services paying particular attention to the most vulnerable and underserved groups in the population (United Nations, 1995). Since Nepal is at the stage of developing its Ninth Five-Year Development Plan (1997-2002), in-depth analysis of existing unmet need provides basic information for formulating family planning policies and programmes in accordance with the ICPD recommendations. Thus, this study attempts to investigate in detail the reasons for not practising contraception by women with unmet need and their attitudes toward family planning, and also draws recommendations that will have policy implications.

In 1976, the level of knowledge of modern contraceptives among currently married women in Nepal was 21 percent (Ministry of Health, 1977). Since then, surveys conducted every 5 years have shown a remarkable increase in family planning knowledge. According to the 1996 NFHS, the level of family planning knowledge among married women has increased to more than 98 percent (Pradhan et al., 1997). However, in spite of an increasing trend, the contraceptive use rate among currently married women in Nepal is still very low. It has increased from 3 percent in 1976 to 29 percent in 1996 but is far below the level required for achieving the fertility reduction goals of the country. There also exists a large gap between knowledge and use of family planning. The reasons for this gap may be due to lack of choice in contraceptive methods and limited knowledge about the type of methods available. Nevertheless, demand for family planning services has increased substantially. The total demand for family planning has increased from 50 percent in 1991 to 60 percent in 1996 (Pradhan et al., 1997), while unmet need has increased from 28 percent in 1991 to 31 percent in 1996.

Data and methods

The data for this study come from the 1996 NFHS, conducted under the aegis of the Family Health Division of the Ministry of Health, His Majesty's Government (HMG)/Nepal. The sample for the NFHS was designed to provide estimates with acceptable precision of population and health indicators, including fertility and mortality rates, for the country as a whole, for urban and rural areas separately, for the three ecological regions and five development regions. In the NFHS, 8,429 ever-married women were successfully interviewed. Since the main aim of the present study is to identify policy and programme issues, the methodology used in the study is basically descriptive and based on bivariate analysis. An effort is made here to make this study accessible and understandable to all policymakers and planners in Nepal so that the outcomes of the study can be used to formulate policy and programmes.

The concept of unmet need is illustrated in Figure 1. Unmet need for spacing is defined as the percentage of currently married fecund women of reproductive age who are currently pregnant and whose pregnancy was mistimed; women who are amenorrhoeic and whose last birth was mistimed; and women who are neither pregnant nor amenorrhoeic and are not using any method of family planning, but who want to wait 2 or more years for their next child. Unmet need for limiting is defined as the percentage of currently married women of reproductive age who are currently pregnant and whose pregnancy was unwanted; women who are amenorrhoeic whose last birth was unwanted; and women who are neither pregnant nor amenorrhoeic and are not using any method of family planning but who do not want any more children. The percentage of women who are currently using contraception either for spacing or limiting births plus the women not using contraception but with an unmet need constitute the total demand for family planning.



Unmet need is calculated using information derived from questions regarding reproductive intentions and contraceptive behaviour of the respondents. The validity of information on reproductive intentions has been questioned, particularly in settings where women do not have strong preferences or have little control over their own reproduction. Accordingly, an effort is made here to look at whether women's responses are internally consistent. The questions on whether a respondent would like to have another child and her ideal versus her actual number of children are examined first. Among women whose ideal number of children is less than their actual number, 64 percent did not want any more children and 28 percent are sterilized (Table 1). Among women whose ideal number of children is equal to their actual number, the majority (56 percent) did not want any more children and 26 percent are sterilized. Among women whose ideal number is greater than the actual number, the majority of women (86 percent) wanted to have another child. This table suggests that in general, Nepalese women respond consistently to these questions.

Table 1 Percent distribution of current fertility preference by ideal versus actual family size among currently married women, Nepal 1996

| | Fertility preference | | | | Total | Number of women |
|------------------------|----------------------|------------|-------------|-------------|--------------|-----------------|
| | Have another | Un-decided | No more | Sterilized | | |
| Ideal vs actual | | | | | | |
| Ideal < actual | 7.5 | .7 | 63.6 | 28.2 | 100.0 | 3,180 |
| Ideal = actual | 17.5 | 1.4 | 55.6 | 25.5 | 100.0 | 1,691 |
| Ideal > actual | 85.6 | 2.2 | 9.8 | 2.4 | 100.0 | 2,541 |
| Total | 36.6 | 1.4 | 43.3 | 18.7 | 100.0 | 7,413 |

To further examine the internal consistency of questions used to calculate unmet need responses to the question on preferred waiting time until the next birth and attitude toward becoming pregnant are cross checked. As can be seen in Table 2, as the preferred waiting time increases, the percentages of women who responded that they would be happy if they became pregnant in the next few weeks decreases. Similarly, the percentage of women who responded that they would be unhappy if they become pregnant in the next few weeks increases, indicating in general that the responses to these questions are as expected. It is important to recognize, however, that in a country like Nepal where the literacy rate for women is very low, reproductive preferences may be weakly held. It is also possible that Nepalese women are prevented from acting effectively to realise their reproductive intentions in the face of objections or perceived objections from their husbands or others.

Profile of women with unmet need

Reasons for nonuse

In the 1996 NFHS, women who were not using contraception were asked to identify their principal reason for nonuse. The distribution of these responses for women with unmet need is presented in Table 3. The main reason for nonuse of contraception is: 'wants more children' (27 percent). Aryal (1995) from a study of Kathmandu city found that one of the most important reasons for nonuse of contraception was a desire for more children. This was also the most commonly reported reason for not intending to use a method in a study of unmet need in a large number of developing countries (Westoff and Bankole, 1995). According to Westoff and Bankole (1995:17) "this is a particularly frustrating response because it is ostensibly inconsistent with the basis of the unmet need classification, which includes nonusers who say either they want to postpone the next birth or that they want no more children". Table 3 shows that this response is particularly significant among women with an unmet need for spacing; a similar result was found by Westoff and Bankole. This may reflect

the misperception that family planning is only for use once women have reached their desired family size. Women may not think about using family planning to space births. This is likely to be the case in Nepal, where the majority of contraceptive users are sterilized.

Table 2 Percent distribution of attitude toward becoming pregnant in the next few weeks by preferred waiting time until next birth among women who want another child, Nepal 1996

| Preferred waiting time | Attitude toward becoming pregnant | | | | Total | Number of women |
|------------------------|-----------------------------------|---------|------------------|---------|-------|--------------------|
| | Happy | Unhappy | Would not matter | Missing | | |
| <12 months | 99.2 | 0.1 | 0.7 | 0.0 | 100.0 | 729 |
| 1 year | 28.0 | 33.0 | 39.0 | 0.0 | 100.0 | 261 |
| 2 years | 6.5 | 68.0 | 25.4 | 0.0 | 100.0 | 498 |
| 3 years | 0.9 | 86.0 | 12.9 | 0.2 | 100.0 | 394 |
| 4 years | 1.2 | 87.7 | 10.6 | 0.5 | 100.0 | 246 |
| 5 years | 2.0 | 90.9 | 7.1 | 0.0 | 100.0 | 183 |
| 6+ years | 0.0 | 95.8 | 4.2 | 0.0 | 100.0 | 28 |
| Don't know | 51.3 | 17.4 | 31.3 | 0.0 | 100.0 | 107 |
| Total | 36.5 | 48.6 | 14.8 | 0.1 | 100.0 | 2,454 ¹ |

¹ Total includes 8 women who gave a non-numeric response to question on preferred waiting time

The second most common response is 'fear of side effects'. This response is not surprising in a country like Nepal, where follow-up services are limited. However, fear of side effects is an obstacle to use that is much more easily overcome than attitudes related to religion or other forms of opposition. It is not clear whether women who report this reason had actually experienced side effects or are apprehensive about the possibility. Sixteen percent of women with unmet need mentioned that fear of side effects is the main reason for nonuse, 7 percent of those who want to space births and 24 percent of those who want to limit births altogether cited this as the main reason.

Nine percent of women were not using contraception because they (2 percent) or their husbands (6 percent) or someone else (1 percent) were opposed to the use of contraception, while 3 percent of women cited religious opposition as a reason for nonuse. Other more common reasons include: 'not having sex' and 'infrequent sex' (11 percent), 'lack of knowledge of method, source or access' (12 percent), and 'health concerns' (6 percent). Seven percent of women with unmet need are postpartum amenorrhoeic or breastfeeding. The remaining reasons are typically considered important by only a very small proportion of women.

Table 3 Among women with unmet need, the percent distribution of main reasons for nonuse, by type of unmet need, Nepal 1996

| Reason for nonuse | Type of unmet need | | |
|---------------------------|--------------------|----------|-------|
| | Spacing | Limiting | Total |
| Not having sex | 2.2 | 2.5 | 2.4 |
| Infrequent sex | 8.5 | 7.9 | 8.2 |
| Menopausal, hysterectomy | 0.0 | 0.0 | 0.0 |
| Subfecund, infecund | 0.0 | 0.1 | 0.0 |
| Postpartum, breastfeeding | 7.7 | 6.3 | 6.9 |
| Wants more children | 47.1 | 9.4 | 26.6 |
| Pregnant | 3.4 | 3.7 | 3.6 |
| Respondent opposed | 1.0 | 2.1 | 1.6 |
| Husband opposed | 2.9 | 9.1 | 6.3 |
| Others opposed | 0.8 | 0.8 | 0.8 |
| Religious prohibition | 3.0 | 3.4 | 3.2 |
| Knows no method | 3.8 | 4.8 | 4.4 |
| Knows no source | 2.7 | 3.3 | 3.1 |
| Health concerns | 1.4 | 9.8 | 6.0 |
| Fear side effects | 6.8 | 23.5 | 15.9 |
| Lack of access | 2.7 | 6.0 | 4.5 |
| Cost too much | 0.1 | 0.1 | 0.1 |
| Inconvenient to use | 0.4 | 0.1 | 0.2 |
| Interfere with body | 0.0 | 0.4 | 0.2 |
| Other | 4.1 | 6.4 | 5.3 |
| Don't know | 1.3 | 0.2 | 0.7 |
| Total | 100.0 | 100.0 | 100.0 |
| Number of women | 1,138 | 1,366 | 2,504 |

It is also seen that ‘fear of side effects’, ‘health concerns’ and ‘husband’s opposition’ are concentrated among women with a need for limiting and who are generally older. Women with unmet need for spacing are more likely to be younger women who have not completed their desired family size.

The detailed reasons for nonuse can be further grouped into five broad categories: fertility related reasons, opposition to use, lack of knowledge, method related reasons, others and don’t know (Figure 2 and Table 4). Fertility-related reasons include: not having sex, infrequent sex, menopausal/hysterectomy, sub-fecund/infecund, postpartum/breast-feeding, wants more children, and pregnant. Nearly one of two women with an unmet need for family planning are nonusers due to fertility related reasons. Opposition to use, which includes respondent opposed, husband opposed, other opposed and religious prohibition are reasons cited by 12 percent of nonusers. Lack of knowledge is cited by 7 percent of nonusers. One of four women cite method-related reasons (health concerns, fear of side effects, lack of access, cost too much, inconvenient to use and interferes with body) as the main reason for nonuse.

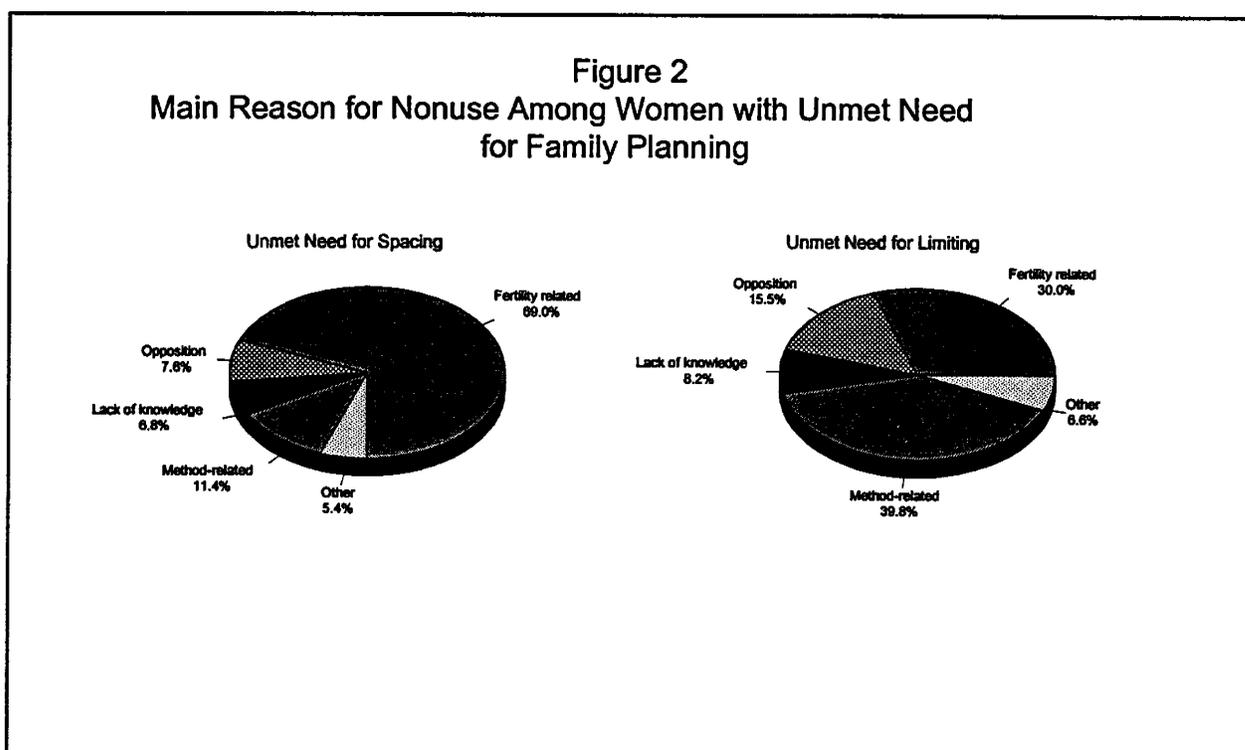


Table 4 shows the relationship between reasons for nonuse and the number of living children, age of women, and educational level. Two-thirds of women with unmet need who did not have any living children or had less than three children gave fertility-related reasons for not using contraception. However, less than one-third of women with three or more children mentioned this reason for nonuse. Among the various fertility-related reasons ‘wants more children’ is the most important, therefore, it is likely that women with few or no children are not using contraception because they have not yet achieved their desired number of children. Method-related reasons for nonuse were more frequently mentioned by women who already have at least one living child. Sixteen percent of women who have one or two living children, and 39 percent of those who had three or more, said that they were currently not using because of method-related reasons, the most important of which is ‘fear of side effects’. Since these women have already given birth at least once and are relatively older, it is possible that they may have used a method of contraception sometime in the past and have experienced side effects. As expected, the number of living children is positively related to opposition to use.

Table 4 Among women with unmet need, the percent distribution of main reasons for nonuse, by background characteristics, Nepal 1996

| Reasons for nonuse | Number of living children | | | Age in completed years | | Level of education | | | Total |
|---------------------------|---------------------------|-------|-------|------------------------|-------|--------------------|---------|-----------|-------|
| | None | 1-2 | 3+ | <30 | ≥30 | No | Primary | Secondary | |
| | | | | | | education | or less | and above | |
| Fertility-related reasons | 68.5 | 66.0 | 31.3 | 60.9 | 26.8 | 43.6 | 63.4 | 62.8 | 47.7 |
| Opposition to use | 6.4 | 8.5 | 15.3 | 9.4 | 15.9 | 13.5 | 6.5 | 5.0 | 11.9 |
| Lack of knowledge | 8.2 | 5.4 | 8.7 | 6.4 | 9.0 | 8.9 | 2.6 | 1.1 | 7.4 |
| Method-related reasons | 5.2 | 15.7 | 38.5 | 17.9 | 41.1 | 28.8 | 19.1 | 20.4 | 26.9 |
| Other | 8.9 | 3.7 | 5.9 | 4.3 | 7.0 | 4.4 | 8.0 | 10.2 | 5.3 |
| Don't know | 2.6 | 0.7 | 0.4 | 1.0 | 0.2 | 0.8 | .3 | .5 | .7 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number | 238 | 929 | 1,337 | 1,536 | 968 | 1,974 | 324 | 206 | 2,504 |

Sixty-one percent of women with unmet need who were less than 30 years of age were not using family planning because of fertility-related reasons (and especially because they want more children), while this proportion is less than 27 percent among women aged 30 years and above. It is likely that younger women have not yet achieved their desired number of children and are therefore not using contraception. Method-related reasons are more than twice as likely to be cited by older women (41 percent) than younger women (18 percent). Opposition to use is also a more common reason among older women (16 percent) than younger women (9 percent).

Fertility-related reasons for nonuse are more important among women who have some education than among women with no education. Again, women who have some education are more likely to be young and have, therefore, not completed their desired family size. As expected, women with some education are less likely to cite opposition to contraception and lack of knowledge as their main reason for nonuse.

Intention to use in the future

From the policy and programmatic point of view, it is essential to know whether couples with unmet need intend to use contraception in the future. In the NFHS, all currently married women who were not using contraception at the time of the survey were asked if they intend to use a method at any time in the future. This provides information about the potential demand for family planning services. Table 5 presents the distribution of women with unmet need by intention to use contraception in the future and reasons for not intending to use. Three of four women with unmet need intend to use contraception in the future (80 percent of those with an unmet need for spacing and 71 percent of those with an unmet need for limiting). One in four women does not intend to use in the future. The most important reason for not intending to use in the future is 'fear of side effects' (28 percent), followed by 'religious prohibition' (13 percent) and a 'desire for more children' (13 percent). Another 10 percent of women reported that health concerns are the main reason they do not intend to use. This suggests that programmes should provide counselling and follow-up services and information to dispel women's fear of side effects. Five percent of respondents do not intend to use because they oppose family planning and 8 percent do not intend to use because their husbands oppose family planning indicating that advocacy and Information, Education, and Communication (IEC) programmes that encourage inter spousal communication on family planning issues are important.

Table 5 Among women with unmet need, the percentage who intend to use contraception in the future and reasons for not intending to use, by type of unmet need, Nepal 1996

| | Type of unmet need | | |
|------------------------------|--------------------|--------------|--------------|
| | Spacing | Limiting | Total |
| Intend to use | 81.0 | 70.9 | 75.5 |
| Do not intend to use | 19.0 | 29.1 | 24.5 |
| Total | 100.0 | 100.0 | 100.0 |
| Number of women | 1138 | 1366 | 2504 |
| Do not intend to use due to: | | | |
| Infrequent sex | 4.0 | 8.6 | 7.0 |
| Menopausal | 0.0 | 0.1 | 0.1 |
| Wants (more) children | 35.5 | 0.2 | 12.6 |
| Respondent opposed | 3.2 | 5.7 | 4.8 |
| Husband opposed | 5.0 | 8.8 | 7.5 |
| Others opposed | 1.4 | 0.0 | 0.5 |
| Religious prohibition | 16.8 | 10.6 | 12.8 |
| Knows no method | 6.2 | 3.1 | 4.2 |
| Knows no source | 4.6 | 2.2 | 3.1 |
| Health concerns | 1.9 | 14.3 | 9.9 |
| Fear of side effects | 19.1 | 32.6 | 27.8 |
| Lack of access/too far | 0.7 | 1.9 | 1.5 |
| Interferes with body | 0.0 | 0.4 | 0.2 |
| Other | 0.0 | 10.8 | 7.0 |
| Don't know | 1.6 | 0.8 | 1.0 |
| Total | 100.0 | 100.0 | 100.0 |
| Number of women | 216 | 397 | 613 |

Currently married women with unmet need who said they intend to use family planning in the future were asked which method they preferred to use. This information is useful to programmers from a supply point of view. Table 6 shows that the majority of women (39 percent) who intend to use stated that they would choose sterilization as their future method. It is notable that 39 percent of women who have an unmet need for spacing now choose sterilization as a future method. This is further evidence that women in Nepal identify the use of family planning with limiting rather than spacing births. The injectable is also increasing in popularity as a future method of family planning with 35 percent of women with unmet need intending to use it in the future. It is interesting to note that virtually identical percentages of women (35 percent) who have a need for limiting and spacing intend to use this method. According to the 1996 NFHS, the injectable is currently the most popular method among modern temporary methods in Nepal. The second most popular temporary method for future use among women with unmet need is the pill (17 percent). Almost one-fifth of women who have an unmet need for spacing births intend to use the pill while 16 percent of women who have an unmet need for

limiting births intend to use this method in the future. Five percent of women intend to use Norplant in the future. Very few women (1 percent) mentioned IUD as their future method of choice. Although the IUD and Norplant are some of the most effective temporary methods, they are not popular among Nepalese women in spite of the fact that they are available at the district level clinics in some selected districts. This table suggests that programmes should recognise the growing popularity of injectables and ensure their availability to cater to the rising demand among potential users. At the same time, appropriate strategies should be adopted to expand IUD and Norplant services. Similarly, sterilization services should be expanded to continue to meet the increasing demand.

Timing of intended future use is also an important programmatic issue. Table 7 and Figure 3 show the distribution of women with unmet need who intend to use a family planning method in the future, by when they intend to use, according to the reason for currently not using. Timing of intention to use is classified into two categories: 'intend to use in next 12 months' and 'intend to use later'. Respondents who were unsure about whether they intend to use are grouped with those who do not intend to use. Among women with unmet need, who are currently not using contraception for fertility related reasons, 45 percent intend to use contraception within the next 12 months and 39 percent intend to use later. As mentioned, earlier the majority of these women are currently not using because they want more children, and intend to use in the future. A small minority of these women do not intend to use at all. Surprisingly, one of two women, who are currently not using due to some opposition, intend to use contraception in the future suggesting that they may face opposition only in the short run. It could also be that in spite of this disapproval, especially from their husbands, Nepalese women believe that they will overcome this opposition in the future. Seven of ten women currently not using due to method-related reasons, nevertheless intend to use in the future. This is encouraging from the programme point of view. IEC activities should focus on offering counselling and providing more detailed information on specific methods to these women to maintain their intention to use family planning in the future. It is also encouraging to see that the majority of women currently not using due to lack of knowledge intend to use in the future.

Table 6 Among women with unmet need who intend to use in the future, the percent who intend to use specific methods, by type of unmet need, Nepal 1996

| Intend to use | Type of unmet need | | Total |
|---------------------|--------------------|----------|-------|
| | Spacing | Limiting | |
| Pill | 18.6 | 16.1 | 17.3 |
| IUD | 1.0 | 1.2 | 1.1 |
| Injectable | 35.0 | 34.9 | 35.0 |
| Vaginal methods | 0.0 | 0.1 | 0.1 |
| Condom | 2.3 | .9 | 1.6 |
| Sterilization | 38.5 | 39.8 | 39.2 |
| Periodic abstinence | 0.5 | 0.2 | 0.3 |
| Withdrawal | 0.2 | 0.4 | 0.3 |
| Norplant | 3.8 | 5.9 | 4.9 |
| Other methods | 0.1 | 0.4 | 0.2 |
| Missing | 0.0 | 0.1 | 0.1 |
| Total | 100.0 | 100.0 | 100.0 |
| Number of women | 761 | 846 | 1,606 |

Previous use

According to Westoff and Bankole (1995), in countries with high prevalence rates, previous use of a method is related to the likelihood of currently having unmet need. However, in a country where the prevalence rate is not very high, previous use of a method does not make a big difference to the determination of unmet need. This finding is validated in the case of Nepal where among women with unmet need, only slightly less than one-fourth (22 percent) of women ever used any method in the past, 17 percent used only one method and 5 percent used more than one method (Table 8). In contrast, among all currently married women, 38 percent have ever used contraception (Pradhan et al., 1997). Women with an unmet need for limiting are more likely to have used a method in the past than women with a spacing need; 87 percent of those with an unmet need for spacing have never used compared to 71 percent with unmet need

for limiting. This suggests that to reduce the overall level of unmet need, the family planning programme should focus on those women who have never used any method because they constitute the vast majority of women with an unmet need. Women who have used a method in the past may be more likely to be potential users because of their previous experience.

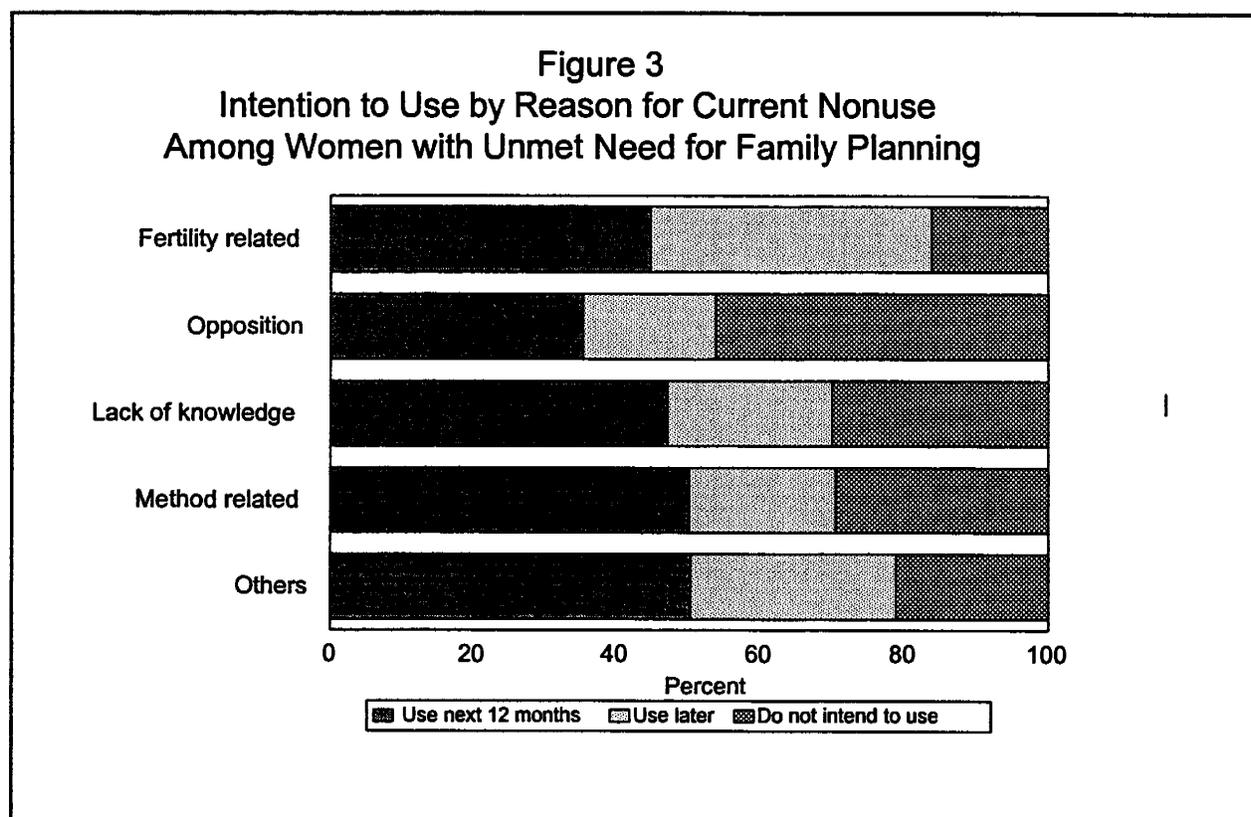


Table 7 Among women with unmet need, percent who intend to use by reason for current nonuse, Nepal 1996

| | Intentions regarding future contraceptive use | | | Total | Number of women |
|---------------------------|---|---------------------|----------------------|--------------|-----------------|
| | Intend to use in next 12 months | Intend to use later | Do not intend to use | | |
| Fertility-related reasons | 44.9 | 39.1 | 16.0 | 100.0 | 1,195 |
| Opposition to use | 35.5 | 18.4 | 46.2 | 100.0 | 298 |
| Lack of knowledge | 47.2 | 22.9 | 29.9 | 100.0 | 186 |
| Method-related reasons | 50.2 | 20.4 | 29.4 | 100.0 | 673 |
| Other | 50.4 | 28.5 | 21.1 | 100.0 | 134 |
| Don't know | 32.6 | 50.2 | 17.2 | 100.0 | 18 |
| Total | 45.6 | 29.9 | 24.5 | 100.0 | 2,504 |

Nine percent of women with unmet need had used the pill and injectables, and 4 percent used a condom. A very small proportion of women have ever used an IUD or diaphragm/foam/jelly. Among traditional methods, 3 percent of women have ever used periodic abstinence and 2 percent withdrawal.

Knowledge of a source

It is also important to find out from the programmatic point of view whether women with unmet need know a source for contraception. This is because women who know a source are more likely to use in the future. Table 9 presents the percentage of women with an unmet need who know a source for contraception, by type of source known. Twenty percent of women with unmet need do not know a source of contraception. The majority of women (64 percent) know a government source for contraception. Sixty-seven percent of those in need of limiting and 62 percent in need of spacing know a government source. Only 2 percent named the mobile clinic as a source for contraception and 8 percent of women with unmet need named private clinic/delivery or private pharmacy as a source for contraception. In terms of knowledge of sources, there

are no substantial differences between women who have an unmet need for spacing or limiting.

Table 8 Among women with unmet need, the percentage who have ever used contraception by method used, by type of unmet need, Nepal 1996

| | Type of unmet need | | |
|--|--------------------|--------------|--------------|
| | Spacing | Limiting | Total |
| Total number of methods ever used | | | |
| Never used contraception | 87.3 | 70.6 | 78.1 |
| Ever used only 1 method | 10.0 | 22.2 | 16.6 |
| Ever used > 1 method | 2.8 | 7.3 | 5.2 |
| Pill | 4.3 | 12.6 | 8.8 |
| IUD | 0.1 | 0.8 | 0.5 |
| Injection | 2.5 | 14.0 | 8.8 |
| Vaginal methods | 0.4 | 0.4 | 0.4 |
| Condom | 4.6 | 4.1 | 4.3 |
| Periodic abstinence | 2.5 | 3.1 | 2.8 |
| Withdrawal | 1.9 | 2.3 | 2.2 |
| Other methods | 0.0 | 0.9 | 0.5 |
| Norplant | 0.0 | 0.2 | 0.1 |
| Total | 100.0 | 100.0 | 100.0 |
| Number of women | 1,138 | 1,366 | 2,504 |

Table 9 Among women with unmet need, the percentage who know a source for contraception, by source known, according to type of unmet need, Nepal 1996

| | Type of unmet need | | Total |
|-------------------------------|--------------------|--------------|--------------|
| | Spacing | Limiting | |
| Govt. clinical/pharmacy | 61.6 | 66.7 | 64.4 |
| Govt. home/community delivery | 1.8 | 2.1 | 2.0 |
| NGO | 0.7 | 2.0 | 1.4 |
| Private clinic/delivery | 0.9 | 1.1 | 1.0 |
| Private pharmacy | 8.8 | 5.2 | 6.8 |
| Shop, church, friend | 1.0 | 1.3 | 1.1 |
| Other | 3.1 | 2.6 | 2.9 |
| Don't know | 22.0 | 19.1 | 20.4 |
| Total | 100.0 | 100.0 | 100.0 |
| Number of women | 1,138 | 1,366 | 2,504 |

Table 10 Percentage of women who approve of family planning use by unmet need status, according to age, Nepal 1996

| | <30 | >=30 | Total | Number |
|---------------------|------|------|-------|--------|
| Using to limit | 99.2 | 98.4 | 98.6 | 2,050 |
| Using to space | 98.5 | 89.5 | 97.4 | 224 |
| Unmet need to limit | 94.5 | 88.9 | 90.9 | 1,376 |
| Unmet need to space | 93.6 | 77.0 | 92.1 | 1,128 |

Table 11 Percentage of women who approve of family planning messages on the radio or television by unmet need status, according to age, Nepal 1996

| | <30 | >=30 | Total | Number |
|---------------------|------|------|-------|--------|
| Using to limit | 91.5 | 87.1 | 88.4 | 2,050 |
| Using to space | 92.9 | 54.7 | 88.3 | 224 |
| Unmet need to limit | 88.3 | 80.1 | 83.1 | 1,376 |
| Unmet need to space | 80.6 | 71.5 | 79.8 | 1,128 |

women who approve of family planning on the radio and television is higher among users than nonusers. However, 13 percent of women aged 30 years and above who were using family planning methods for limiting, and more than 45 percent of those who were using for spacing did not approve of family planning messages on the radio or television (although this figure is based on a small number of cases). This may be because women do not feel comfortable listening to family planning messages on the radio or television while sitting together with their husband, children, and sometimes in-laws. Thus, the survey data suggest that family planning messages may need to be culturally sensitive in order to be widely approved in the mass media, and targeted specifically to couples of childbearing age.

Comparison of women with unmet need and contraceptive users

Attitudes towards family planning

In general, Nepalese women have a positive attitude towards family planning. Almost 99 percent of women who are using to limit and 97 percent of those who are using to space their next birth approve of family planning (Table 10). This proportion is only slightly lower among women with unmet need. Younger women are more likely to approve of family planning than older women. More than 10 percent of spacers above age 30, who are using contraceptives, have a negative attitude toward the use of family planning. This result may indicate ambivalence toward the use of contraception or dissatisfaction with family planning services. Similarly, among women with unmet need, 9 percent of those who have a need to limit and 8 percent of those who have a need to space do not approve of family planning, even though they may have achieved their desired level of fertility or want to postpone their next birth. These women are potentially a target group for improved IEC and counselling.

Information on family planning is widely disseminated through radio and television, the two most important means of communication in Nepal. Besides, adult literacy in Nepal is still very low and the majority of women cannot read printed materials. Also, printed materials are not widely available. In the NFHS women were asked whether they approve of the broadcast of family planning messages on the radio or television. The majority of women with met and unmet need said that they approve of family planning messages on the radio and television (Table 11). However, nearly one-fifth of women with an unmet need and one-tenth of women who are currently using said that they do not approve. Not surprisingly, the proportion of

As noted earlier, 6 percent of women with an unmet need stated they were not using contraception because of opposition from their husbands (Table 3). A husband's role in unmet need is further explored in Table 12 by looking at a woman's perception of her husband's approval of family planning. The proportion of women with unmet need to limit and space, who reported that their husbands did not approve of family planning (or who did not know their husband's opinion) was higher among women aged 30 years and above compared to women aged less than 30 years. However, it is interesting to note that despite their husbands' disapproval, some women were using family planning methods; 8 percent of limiters and 7 percent of spacers believe that their husbands disapprove of family planning. This proportion is even higher among women aged 30 years and above. Overall, 31 percent of women with an unmet need to limit and 28 percent of women with an unmet need to space believe that their husbands do not approve of family planning. It is notable that even though almost one-third of women with an unmet need believe that their husbands' disapprove of the use of family planning, only 6 percent cited husband's opposition as the main reason for nonuse (Table 3). This finding suggests that husbands' opposition or a perception that the husband disapproves may be a secondary reason for nonuse among a significant number of women with unmet need.

Exposure to family planning information

Table 12 Percentage of women whose husbands do not approve of family planning use or who do not know their husband's opinion by unmet need status, according to age, Nepal 1996

| | <30 | >=30 | Total | Number |
|---------------------|------|------|-------|--------|
| Using to limit | 5.4 | 8.5 | 7.6 | 2,050 |
| Using to space | 5.5 | 17.1 | 6.9 | 224 |
| Unmet need to limit | 19.3 | 37.5 | 30.9 | 1,376 |
| Unmet need to space | 27.9 | 34.4 | 28.4 | 1,138 |

This section attempts to examine whether information provided through mass media or communication with health workers is correlated with the likelihood of using family planning and having unmet need.

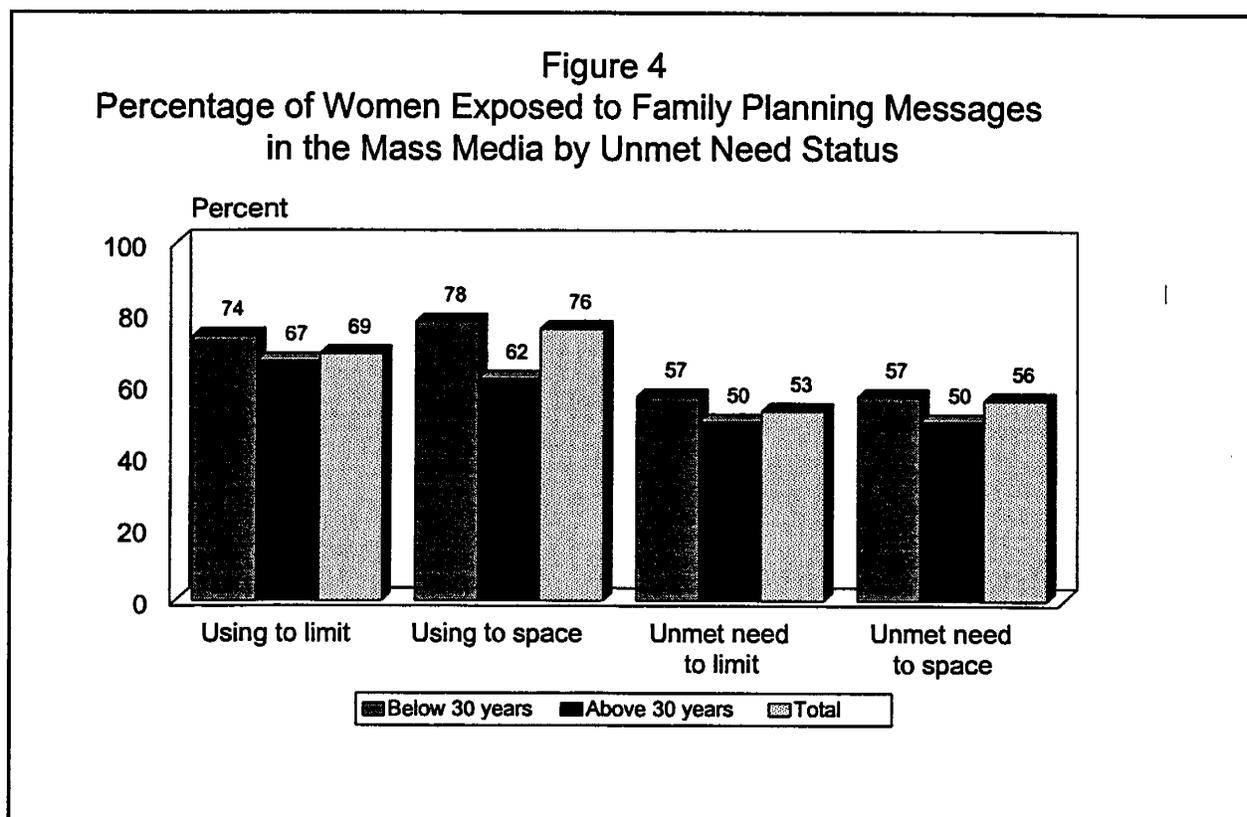
Since clients have the right to easy access and complete and accurate information about family planning, IEC programmes play a crucial role. Realising the fact that to meet clients' demand for information by any means is essential, family planning messages are being provided through different means of mass communication

including radio, television, and print media. From the programme point of view, it is important to know whether family planning messages imparted through these media reach women who are most in need of family planning. Therefore, in the NFHS women were asked whether they had heard about family planning through any of these media in the last few months preceding the survey. The majority of women, regardless of family planning need status, had heard about family planning on one or more of these media (Figure 4). The proportion of women who have heard of family planning was slightly higher among women aged less than 30 years compared to women of age 30 years and above. This proportion is significantly higher among women who were using contraception either to limit or space than among those with unmet need. On the basis of this information, it can be concluded that younger women are more exposed to mass media and there is a correlation between exposure to information and use of family planning.

Special radio programmes on family planning designed for specific target groups are also broadcast on the radio regularly. In order to know whether these programmes have made any impact on the use of family planning, women were asked if they had heard these specific programmes in the last few months before the survey.⁶ The percentage of women who have heard any of these specific radio programmes is given in Table 13. The proportion of women who have heard at least one specific programme is higher among users than among nonusers in both age groups. This indicates that these radio programmes may have contributed to

⁶ The specific programmes about which questions were asked are: *Jana Swastha Karyakram*, *Ghanti Heri Haad Nilaun* (drama), *Ghanti Heri Haad Nilaun* (song), and *Shriman Shrimatie Pariwarbare Kurakani Gareko Chhoto Radio Natak*.

increasing contraceptive use to some extent. Women aged less than 30 years are more likely to have heard these specific radio programmes compared to women aged 30 years and above. The important point is that the majority of women with unmet need (70 percent limiters and 65 percent spacers) had not heard any of these specific radio programmes in the past few months. Therefore, coverage needs to be expanded to reach more women and family planning programmes should target their message to those women with unmet need.



Contact with health services

Since the integration of the family planning programme within the overall health system in 1991, family planning services are rendered through primary health care (PHC) providers at all levels. Health workers are not specifically assigned to provide family planning alone but provide family planning services within the context of overall health services. Data presented in Table 14 indicate that the majority of women of both age groups with met and unmet need were not visited by a health worker in the 12 months before the survey. There may be a number of reasons why health workers are not visiting these women. In the past, community-based health workers were supposed to contact all eligible couples living in the area they had been assigned and provide information on family planning. They were also required to make follow-up visits to those couples who were already using family-planning methods. Since the integration of health services and restructuring

Table 13 Percentage of women who have heard at least one specific radio programme¹ in the past few months by unmet need status, according to age, Nepal 1996

| | <30 | >=30 | Total | Number |
|---------------------|------|------|-------|--------|
| Using to limit | 46.5 | 44.1 | 44.8 | 2,050 |
| Using to space | 52.8 | 40.6 | 51.3 | 224 |
| Unmet need to limit | 36.0 | 26.1 | 29.7 | 1,128 |
| Unmet need to space | 35.8 | 31.6 | 35.4 | 1,138 |

¹ Programmes are: *Jana swastha karyakam*, *Ghanti heri haad nilaun* (drama), *Ghanti heri haad nilaun* (song), *Shriman shrimati parivarbare kurakani gareko chhoto radio natak*.

of health service delivery systems, health workers may be over burdened with different health care activities and therefore do not have enough time to make field visits to discuss family planning specifically. This may be the reason that less emphasis is given to home visits at present. However, regular and routine follow-up of family planning acceptors is essential to ensure continuity and client satisfaction. Therefore, the government has adopted a new policy to conduct outreach clinics at the community level to provide family planning information and services including client follow-up. Table 14 shows that the proportion of women visited by health workers is higher among users than among those with unmet need. It suggests that contact with a health worker can really make a difference and therefore health workers should be encouraged to make frequent and regular visits to the community, and discuss specific family planning issues.

Table 14 Percentage of women who have been visited by a family planning worker in the past 12 months by unmet need status, according to age, Nepal 1996

| | <30 | >=30 | Number |
|---------------------|------|------|--------|
| Using to limit | 11.8 | 11.1 | 11.3 |
| Using to space | 15.4 | 22.5 | 16.2 |
| Unmet need to limit | 11.1 | 7.3 | 8.7 |
| Unmet need to space | 6.4 | 3.7 | 6.2 |

Contact with a health facility (for any health-related reason) can also be an important opportunity for the transmission of family planning information and services. The percent distribution of women with met and unmet need who visited a health facility for any reason during the 12 months prior to the survey is shown in Table 15. Women who had visited a health facility were further asked whether they had talked about family planning during the visit. Women with a met need are far more likely to have visited a health facility, and to have talked

about family planning than women with unmet need. Forty-five percent of women who have a met need to limit and 61 percent of women who have a met need to space, have visited a health facility compared with 39 percent of women with an unmet need to limit and 42 percent of women with an unmet need to space. Twenty-three percent of limiters and 28 percent of spacers with a met need discussed family planning with a health worker compared with 10 percent of limiters and 5 percent of spacers with an unmet need. These figures are consistent with the existing family planning service delivery system in which most clinical contraceptive methods like IUD, Norplant, injectables, and sterilization are available in selected health facilities only. Not surprisingly, spacers with a met need are most likely to have visited a health facility in the past 12 months and discussed family planning (28 percent). This may be because they have to get a resupply of methods. However, more than one-third of current spacers also reported that even though they visited a health facility during the past 12 months, they did not discuss family planning. This could be because these women were using nonclinical methods such as the pill and condom which are easily available from pharmacies or delivered at home by community-based health workers and volunteers. Some of these women are also practising periodic abstinence and withdrawal.

Table 15 Percentage of women who have visited a health facility in the past 12 months by unmet need status, according to age, Nepal 1996

| | Age in completed years | | | | | | | | | Total |
|---------------------|------------------------|-----------------|---------------|-----------|-----------------|---------------|-----------|-----------------|---------------|-------|
| | <30 | | | >=30 | | | Total | | | |
| | Talked FP | Did not talk FP | Did not visit | Talked FP | Did not talk FP | Did not visit | Talked FP | Did not talk FP | Did not visit | |
| Using to limit | 31.5 | 27.2 | 41.3 | 18.7 | 20.8 | 60.6 | 22.5 | 22.7 | 54.9 | 100.0 |
| Using to space | 27.2 | 34.8 | 38.0 | (29.1) | (27.2) | (43.7) | 27.5 | 33.9 | 38.7 | 100.0 |
| Unmet need to limit | 11.1 | 32.4 | 56.5 | 9.8 | 26.2 | 64.1 | 10.2 | 28.4 | 61.3 | 100.0 |
| Unmet need to space | 4.8 | 36.8 | 58.4 | 5.3 | 34.6 | 60.1 | 4.9 | 36.6 | 58.5 | 100.0 |

() Based on 25-49 cases

It is also noteworthy that although almost 40 percent of women with an unmet need for limiting visited a health facility in the past 12 months, only about a quarter discussed family planning during the visit. Similarly, only about 12 percent of women with an unmet need for spacing who visited a facility discussed family planning during the visit. These results suggest that opportunities for the provision of information and services to women with unmet need are being missed.

Past use and unwanted births

Information on awareness of the importance of birth spacing is useful for formulating appropriate strategies to meet the unmet need for family planning. Data regarding the purpose of using contraception in the past by women with met and unmet need provide a basis for knowing about the concept of birth spacing among Nepalese women. As shown in Table 16, among women under age 30 who were currently using to limit, 74 percent said that they had first used for limiting purposes and 99 percent of those who were currently using for spacing reported that they first used contraception to space births. Past use of contraception for spacing purposes among limiters was relatively low. Among women of both age groups who were not currently using any method, only 8 to 13 percent reported that they had used in the past for spacing purposes. Thus, the data indicate that the concept of using contraception for spacing among Nepalese women has not been developed yet. This may be one of the reasons that the prevalence rate for spacing methods is just half of that for permanent means of contraception. At the same time, the programme emphasis on temporary methods, both in terms of service provision and IEC activities, is a recent phenomenon.

Table 16 Percentage of women who first used contraception for spacing or limiting by unmet need status, according to age, Nepal 1996

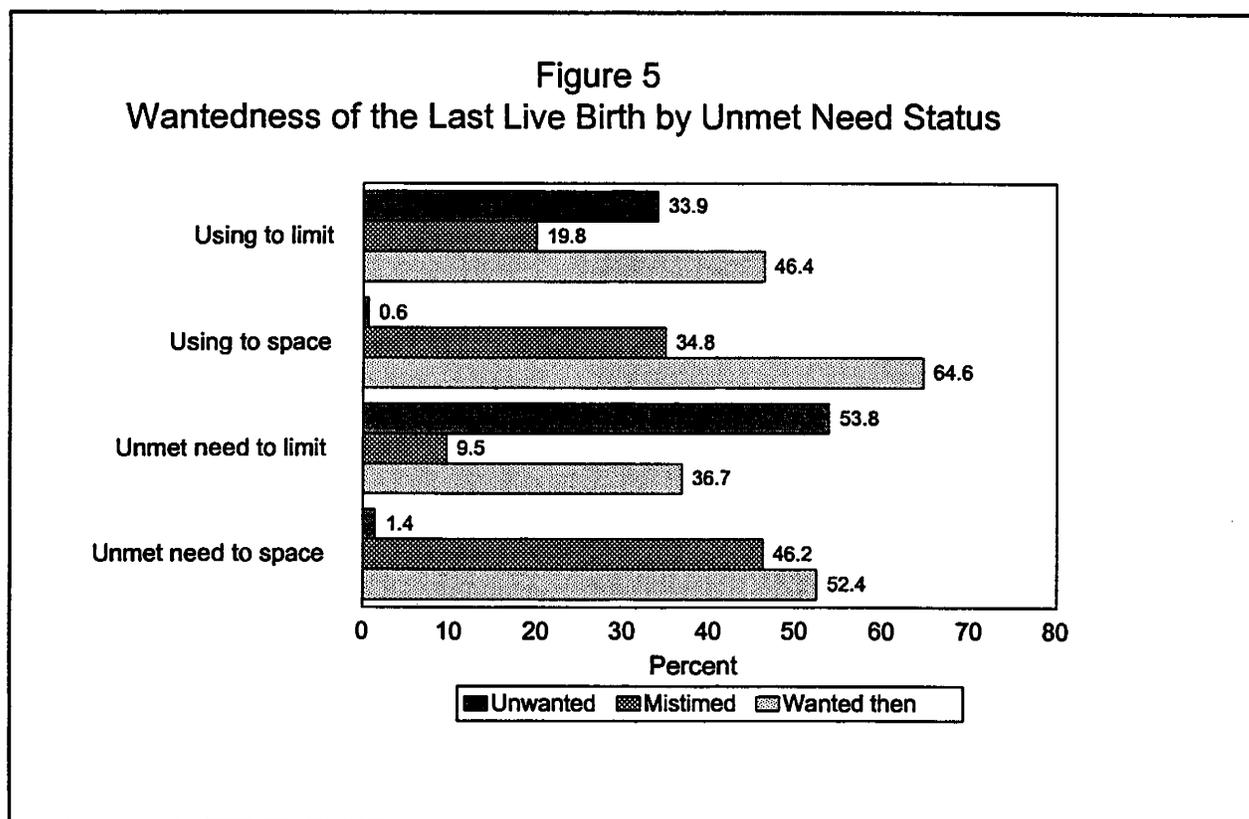
| | Age in completed years | | | | | | | | | Number of women |
|---------------------|------------------------|-------|-------|------------|-------|-------|-------|-------|------------|-----------------|
| | <30 | | | | ≥30 | | | | | |
| | Space | Limit | Other | Never used | Total | Space | Limit | Other | Never used | |
| Using to limit | 25.1 | 74.2 | 0.7 | 0.0 | 100.0 | 13.1 | 86.0 | 0.8 | 0.0 | 2,050 |
| Using to space | 98.9 | 1.1 | 0.0 | 0.0 | 100.0 | 95.6 | 4.4 | 0.0 | 0.0 | 224 |
| Unmet need to limit | 12.8 | 14.7 | 0.0 | 72.5 | 100.0 | 8.1 | 22.7 | 0.2 | 69.0 | 1,376 |
| Unmet need to space | 12.0 | 0.8 | 0.0 | 87.2 | 100.0 | 12.0 | 0.0 | 0.0 | 88.0 | 1,128 |

Women interviewed in the 1996 NFHS were also asked whether their last live birth was wanted, mistimed, or unwanted. Table 17 and Figure 5 provide information regarding the wantedness status of last live births according to met and unmet need. More than half of the women who were currently using contraceptives for limiting said that their last live birth was either unwanted or mistimed. This proportion was nearly two-thirds among the women with unmet need for limiting. It is also noteworthy that 54 percent of women with unmet need to limit stated that their last live birth was unwanted. In general, last live births were more likely to be unwanted among women with a met or unmet need to limit, whereas mistimed births were more common among women who had met or unmet need to space. In addition to being at risk of having a future unwanted birth, a large percentage of women with unmet need have already had

Table 17 Percent distribution of last live births in the past 3 years by wantedness status, according to unmet need status (among women with at least one live birth born in the past 3 years), Nepal 1996

| | Last birth | | | Total | Number |
|---------------------|------------|----------|-------------|-------|--------|
| | Un-wanted | Mistimed | Wanted then | | |
| Using to limit | 33.9 | 19.8 | 46.4 | 100.0 | 564 |
| Using to space | 0.6 | 34.8 | 64.6 | 100.0 | 153 |
| Unmet need to limit | 53.8 | 9.5 | 36.7 | 100.0 | 941 |
| Unmet need to space | 1.4 | 46.2 | 52.4 | 100.0 | 861 |

an unwanted or mistimed birth. The large percentage of unwanted or mistimed births suggest the need for timely identification of women who are in need of family planning and intervention through the provision of appropriate contraceptive services to these women.



Discussion and Policy Recommendations

In Nepal, approximately 1.2 million currently married women of reproductive age have an unmet need for contraceptive services either for limiting (17 percent) or for spacing (14 percent) their births. This analysis of the 1996 NFHS data attempts to shed light on why approximately one of two women who express a demand for family planning are not using any contraception. There are a number of reasons that prevent these women from practising family planning. Some of the reasons for nonuse are directly related to women's misconceptions about family planning and shortfalls in the existing family planning programme in the country. There are also socioeconomic and cultural barriers to the use of family planning.

'Want more children' is the most frequently cited fertility-related reason for not using contraception, especially among women with unmet need for spacing. There appears to be a misperception among many Nepalese women that family planning is only for use once women have reached their desired family size. Women may not think about using contraception to space births which may both result in and result from the fact that the majority of contraceptive users in Nepal choose sterilization. To eliminate this kind of misperception about family planning, the programme should further develop appropriate method specific IEC strategies. Strengthening recent initiatives in this area by offering a wide range of temporary methods supported by a method specific IEC programme and good counselling would help reduce the unmet need for spacing. Bringing these women into the family planning programme will not only help avoid mistimed births, but the existing imbalanced contraceptive mix (67 percent permanent and 33 percent temporary) will also be corrected.

In addition, since birth spacing plays a significant role in reducing maternal and child morbidity and mortality, the promotion of temporary methods is very important, particularly in a country like Nepal, where both maternal and infant and child mortality rates are relatively high.

The second most important reason that prevents women in need from using contraception is 'fear of side effects'. Similarly, lack of knowledge of a source and lack of knowledge of contraception are also significant reasons that women with unmet need are not using contraception in Nepal. These two reasons are directly relevant to programme design. If programmes provide effective counselling, follow-up, and correct information about side effects of specific methods, the percentage of women for whom fear or lack of knowledge are obstacles to use could be reduced substantially.

Women who are not using contraception because of religious prohibitions and opposition by themselves, their husbands, or others are also important from a policy point of view. Convincing these women and their husbands through appropriate IEC and counselling will contribute to increased contraceptive use. Since there is a positive relationship between women's education and contraceptive use, in the long run raising the educational level, particularly of women, will also help to mitigate this obstacle.

Among women who intend to use family planning in the future, most prefer to use sterilization followed by injectables and the pill. As a whole in Nepal, sterilization is not only the dominant method of current use but it is also in high demand by women who intend to use in the future. Accordingly, in addition to the promotion of temporary methods, the programme should continue to provide quality permanent contraceptive services.

Although IUD and Norplant are highly effective and long-acting temporary methods, only a few women mentioned that they would like to use these methods in the future. This may be due to lack of detailed knowledge of these methods and limited access to them. In order to encourage women to use these methods, specific IEC interventions, good counselling, and improved accessibility of services are essential.

It is found that a substantial number of women with unmet need intend to use family planning in the future. This finding is important because it suggests that there is a substantial future demand for family planning and a goal of the programme should be to provide quality contraceptive services for those who intend to use sooner or later in the future. In addition, however, since the majority of women with unmet need have never used family planning methods, the programme may have to make a considerable effort to bring them into the programme. Effective IEC programmes, increased accessibility, and improved quality of care will play a crucial role in involving these women in family planning.

In general, most Nepalese women seem to have a positive attitude towards family planning. However, many older women compared to younger women still do not approve of family planning. The majority of women with met and unmet need reported that they approve of family planning messages on radio and television. However, some women still do not approve of family planning messages on these two media suggesting that family planning messages may need to be culturally sensitive in order to be widely approved.

It is also found that about 7 percent of contraceptive users are using contraception despite their husband's disapproval (perceived or real). Among women with unmet need, however, almost a third believe that their husbands do not approve of family planning. The programme should adopt an appropriate strategy to increase the involvement of men in family planning. Increased communication between husband and wife would also mitigate the misperceptions of women about their husband's attitude towards family planning.

A large proportion of women with met and unmet need have already had unwanted or mistimed births. This situation suggests that timely identification of those women who are in need of family planning and provision of appropriate contraceptive services to them is essential to check unwanted and mistimed births. There is a positive correlation between exposure to mass media and communication with health personnel and use of family planning. Accordingly, the programme should continue to provide information through the mass media

and should make an effort to make these messages more effective. In addition, the communication between clients and service providers must be enhanced.

Overall, analyses of the 1996 NFHS data regarding reasons for not using contraception by women with unmet need and their attitudes toward and intention to use family planning suggest several areas of intervention for bringing down the level of unmet need. Raising the level of women's education, intensifying IEC programmes through various mass media, providing complete and accurate information on specific methods through good counselling, especially temporary methods, educating men regarding their role and responsibility in fertility planning, making readily available quality family planning services, and improving the access to a wider range of contraceptive choices are some of the potential areas of intervention that should be considered when formulating future policies and programmes of the government.

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