NEPAL FURTHER ANALYSIS

Effects of Communication Campaigns on the Health Behavior of Women of Reproductive Age in Nepal

Further Analysis of the 2006 Nepal Demographic and Health Survey

This report presents findings from a further analysis study undertaken as part of the follow up to the 2006 Nepal Demographic and Health Survey (NDHS). Macro International Inc. provided technical assistance for the project. Funding was provided by the U.S. Agency for International Development (USAID) under the terms of Contract No. GPO-C-00-03-00002-00. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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Further Analysis of the 2006 Nepal Demographic and Health Survey

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1 Introduction

Nepal is largely a rural society. About 86 percent of the total population of Nepal resides in rural areas (CBS and UNFPA, 2002), and although the infant mortality rate (IMR) has declined from 79 deaths per 1,000 live births during the five-year period preceding the 1996 survey (Pradhan et al., 1997) to 48 deaths per 1,000 live births during the five-year period preceding the 2006 survey (MOHP, New ERA and Macro International Inc., 2007), the current level of IMR is one of the highest in Asia. Social pressure to bear male children (Karki, 1988; Stash, 1996), combined with poor nutritional status, creates enormous stress on women's health. Nepal's maternal mortality ratio (MMR) is estimated at 281 maternal deaths per 100,000 live births for the 6 years before the 2006 survey, and although this level has declined by nearly 50 percent from the MMR estimated for the 6 years before the 1996 survey (539 maternal deaths per 100,000 live births), it is still high by world standards. Fewer children and more widely spaced childbirths are two of the most effective ways to reduce maternal mortality; 25 percent of married women of reproductive age in Nepal say they want to space or limit their births but use no form of contraception (MOHP, New ERA and Macro International Inc., 2007). These problems have led many governmental and nongovernmental organizations (NGOs) to implement communication programs encouraging people to engage in healthy behavior (NHEICC, 2006). Responding to the growing magnitude and importance of these communication programs, the 2006 Nepal Demographic and Health Survey (NDHS) included a set of questions measuring the reach of selected health communication programs. The purpose of this study is to assess the reach of selected health communication programs about family planning and health in Nepal, the effect of exposure to these health communication programs on contraceptive use and spousal communication, and the programs' effect on some safe motherhood practices, such as use of skilled birth attendants during delivery and practice of immediate breastfeeding.

2 Background

Evidence from a number of studies suggests that individuals' exposure to mass media messages promoting family planning may affect their contraceptive behavior (Piotrow et al., 1990; Bankole et al., 1996; Westoff and Bankole, 1997; Kincaid, 2000). For example, in Nigeria, the use of modern contraceptives, intention to use them, and desire for fewer children were found to be associated with exposure to media messages about family planning (Bankole et al., 1996). Research in Malawi shows that mass media exposure to family planning messages and exposure to advertising that promotes condom use can have a significant positive effect on use of modern contraceptives (Cohen, 2000). Research has shown, for example, that women who learn about family planning from the *Radio Doctor* program are more likely than others to use modern contraceptives (Lawrence, 2000). Significant effects of communication campaigns promoting family planning have also been documented in other countries in the region (Rogers et al., 1999). Because behavior change theories indicate that discussion often precedes behavioral change, assessing the effects of mass media programs on discussion of family planning between spouses as a step toward adoption of a contraceptive method is important.

Studies in Nepal have shown that female contraceptive users are more likely than nonusers to either perceive or actually know that their husbands approve of family planning, indicating the important influence of spousal communication and approval on contraceptive behavior (Schuler, McIntosh, Goldstein, & Pande, 1985; Schuler and Goldstein, 1986; Ministry of Health, Nepal and Johns Hopkins University Communication Services, 1994; Stash, 1996), yet in 1996, 55 percent of married women reported that they had never discussed family planning with their husband (Pradhan et al., 1997).

A number of models have emerged from different fields identifying specific pathways to behavioral change and offering insights to aid programs intended to influence and change behavior. Several studies have been useful in explaining the effects of mass media campaigns on fertility-related

behavior. Ideation change, defined as a change in a person's way of thinking brought about by the diffusion of new ideas and practices, has been identified as an important determinant of fertility decline (Cleland and Wilson, 1987). The ideation model derives from the diffusion-of-innovation theory and includes five stages through which an individual's comportment progresses: knowledge, persuasion, decision making, implementation, and confirmation (Rogers, 1995). The input/output persuasion model considers how various aspects of communication affect behavioral theory and is an adaptation of the diffusion-of-innovation theory and the input/output persuasion model; it consists of five major stages of change: knowledge, approval, intention, practice, and advocacy (Piotrow et al. 1997). This framework emphasizes several intermediate steps that people move through before they change their behavior, suggesting that different messages and approaches in communication are required to reach people at different stages in the process.

Several empirical studies have confirmed that mass media campaigns are effective at different stages in the process of altering reproductive behavior. According to a study conducted in Nepal, exposure to messages in mass media had an indirect effect on contraceptive use by increasing interpersonal communication and encouraging positive changes in attitudes and perceived social norms regarding family planning (Storey et al. 1999). Similarly, women exposed to a mass media campaign in Tanzania were found to have developed more positive attitudes toward family planning and were more likely to discuss family planning issues with their spouses than were those who were not exposed (Jato et al. 1999). In Mali, exposure to a campaign was linked to an increase in favorable attitudes toward contraception and a decline in the proportion of men and women who believed that Islam opposes family planning (Kane et al., 1998).

Exposure to messages broadcast through a variety of channels is currently considered the most effective way to change knowledge, attitudes, and behavior. Behavioral change communication (BCC) campaigns often include a combination of radio spots or advertisements, videos, print materials such as newsletters and leaflets, posters, clinic-based counseling, and community activities such as festivals, theater, or group meetings. The use of multiple media is considered the best strategy for extending the reach of a message to a larger audience and for reinforcing its effect (Piotrow et al., 1997). Some studies have shown that a dose-response effect exists between the amount of exposure to family planning messages that a person experiences and the increase in that person's use of contraceptive methods. In Tanzania, Jato et al. (1999) found that the more types of media vehicles used to promote family planning, the greater the likelihood of contraceptive use.

In Nepal, the Family Health Division, Department of Health Services, Ministry of Health and Population, when implementing reproductive health programs, strove to increase service use and change behavior related to reproductive, maternal, and child health. In addition, a number of national and international NGOs and the private sector have implemented a number of reproductive health programs including family planning, safe motherhood, infant and child health, and sexually transmitted infections (STIs)/HIV/AIDS programs. The various projects in the reproductive health programs have been carrying out specific activities including training of nurses and midwives to provide integrated reproductive health services and to improve standards of care; strengthening support systems for the procurement, distribution, and storage of contraceptives and other commodities; and conducting communications activities to increase knowledge and improve perceptions related to family planning and reproductive health.

3 Communication for health in Nepal

Communication today is a sine qua non of everyday life. The rapid growth of communication technology and the availability of a varied number of communication media and their application have contributed substantially to improving the lives of people. Communication influences and shapes how people conduct their daily lives.

In the field of health, substantial evidence shows that people want to know more about their health—they want to talk more about health to friends and family, hear about it through mass media, and discuss it with caring service providers. People are willing to change their health behavior, and health communication programs are helping people make these changes.

Health communication has been an important feature of the development of the government of Nepal. With United States Agency for International Development (USAID) support, the Rapti Valley Development Project began public health services in 1957 that also carried out health promotion activities (Isaacson, et al, 2001). In 1961, the MOH established a health education section as the second step in its institutionalization of health communication. The initial vertical health communication projects were later modified, and the health communication program has been an essential component of the integrated health services since the establishment of the National Health Education, Information and Communication Centre (NHEICC) at MOH in 1993 (NHEICC, 2006).

The expansion of health services to the grassroots level by the government as well as NGOs and the private sector has contributed to reducing morbidity and mortality over the years. Nepal is making progress toward reaching the Millennium Development Goals in reducing child mortality, improving maternal health, and combating infectious diseases. In terms of the nation's health, Nepal has much to be proud of. For example, during the past 10 years, maternal mortality (down from 539 deaths per 100,000 live births in 1996 to 281 in 2006), infant mortality (down from 79 deaths per 1,000 live births in 1996 to 48 in 2006), and child mortality (down from 43 deaths per 1,000 children aged 1-4 years in 1996 to 14 in 2006) rates have decreased; contraceptive use has increased from 29 percent in 1996 to 48 percent in 2006; life expectancy has increased from 60.4 years (males, 60.1 years; females, 60.7 years) in 2001 to 63.3 years (males, 62.9 years; females, 63.7 years) in 2006; good health has gained momentum; and the country has developed one of the best child vaccination programs in South Asia, with 83 percent of children aged 12-23 months fully immunized against six vaccine-preventable diseases—tuberculosis, diphtheria, whooping cough, tetanus, polio, and measles (MOHP, New ERA and Macro International Inc., 2007).

However, there are still many challenges to be met. Half of all deaths in Nepal are caused by infectious and parasitic diseases and perinatal and reproductive disorders. The main causes of deaths and disability are infectious and parasitic diseases and perinatal and reproductive ill health. The groups at highest-risk are children less than five years of age and women of reproductive age (World Bank, 2000).

In addition, literacy is still low in Nepal: Only 54 percent of the population aged 6 years and over are literate, and this number is much lower among females (43 percent) than among males (66 percent). Health information, education, and communication (IEC) can play a pivotal role in reducing disease transmission, controlling vectors, improving hygiene and sanitation, and creating demand for service provision, resulting in a healthier population.

Periodic development plans have recognized the health communication program as a priority program. The Second Long-Term Health Plan (SLTHP; 1997-2017) has clearly pointed out the important role of communication in contributing to the reduction of morbidity and mortality in Nepal (MOH, 1999). The government of Nepal is committed to providing an equitable, high-quality health care system for the people of Nepal. The government is also committed to achieving the health-related Millennium Development Goals (1990-2015), such as reducing child and maternal mortality, halting the spread of HIV/AIDS by 2015, and reducing the incidence of malaria and other diseases including tuberculosis (MOH, 2004).

In September 1991, the cabinet approved the Essential Health Care Services (EHCS) package as part of the SLTHP. Twenty broad areas of intervention have been identified. The GoN's "Health Sector Strategy: An Agenda for Change," which focuses on attaining the MDGs of reducing child mortality; improving maternal health; and combating HIV/AIDS, malaria, and other diseases by 2015, has recognized communication to be a cross-cutting issue. The strategy has pointed out that the EHCS

will be supported by a Behavior Change Communication (BCC) program, which will increase consumer knowledge about common illness and cost-effective interventions. As specified by the Nepal Health Sector Program-Implementation Plan (NHSP-IP), a combination of mass media and effective community mobilization will be critical for improving EHCS. The NHSP-IP has clearly specified that for effective BCC to support individual EHCS programs, adequate funding should be provided. The additional recommended actions are: dissemination of IEC materials through health workers and community members influential at the community level, integration of IEC/BCC across the EHCS package, and use of all possible channels of communication (mass media) for promoting health education (MOH, 2004).

To promote reproductive health issues including safe motherhood, family planning, and prevention and control of STDs and HIV/AIDS, all related programs have highlighted the importance of IEC activities. These programs have given due importance to advocacy, IEC/BCC, and social mobilization activities at all levels. Equally, child health and nutrition programs have given importance to IEC/BCC and community mobilization activities to empower the target communities.

Data from the 2006 NDHS show that ownership of household durable consumer media goods has proliferated (MOHP, New ERA and Macro International Inc., 2007). The percentage of households possessing radios has increased from 37 percent (rural, 34 percent; urban, 60 percent) in 1996 to 61 percent (rural, 59 percent; urban, 70 percent) in 2006. Similarly, household ownership of televisions has increased from 7 percent (rural, 3 percent; urban 43 percent) in 1996 to 28 percent (rural, 21 percent; urban, 63 percent) in 2006. Household ownership of landline telephones has increased from just over 1 percent (rural, 0.1 percent; urban, 14 percent) in 1996 to 6 percent (rural, 2 percent; urban, 27 percent) in 2006; the corresponding figure for mobile ownership in 1996 was 0 percent, but in 2006 that number has increased to 6 percent (rural, 2 percent; urban, 22 percent). The 2006 survey also shows household ownership of computers, which was 2 percent overall, to be higher (8 percent) in urban areas than in rural areas (1 percent).

The number of media channels has also increased in recent years. There are 19 TV channels, one national short wave radio channel, one national medium wave radio channel, and 241 FM radio stations in the country. National networks of FM stations have also been established. Similarly, the number of daily and other newspapers has also increased in recent years. Since the mid-1990s, USAID has supported the government of Nepal in its long-term goal of reducing fertility and under-five mortality within the context of the Government's National Health Policy and the SLTHP. The two intermediate objectives of USAID support are to increase the use of quality family planning services and to increase the use of selected maternal and child health services.

In the mid-1990s, USAID supported the Radio Communication Project (RCP; 1995-2004), which pioneered the use of radio drama serials to communicate health messages alongside other educational initiatives. The RCP supported a drama serial for the general public—*Ghanti Heri Had Nilau* (Cut Your Coat According to Your Cloth) and the *Sewa Gare Mewa Painchha* (Service Brings Reward) radio programs. These programs promoted health awareness among the general public and provided new information and skills to grassroots health workers. The Government's National Health Education, Information and Communication Centre (NHEICC) was involved in the RCP.

The Radio Health Program (RHP) started in 2004 and continued until 2007, continuing the work of RCP by supporting an integrated program of mass media and community activities and an interpersonal communication intervention for female community health volunteers (FCHVs). RHP supported *Gyan nai Shakti Ho* (Knowledge is Power), a radio drama serial for the general public, and *Sewa nai Dharma Ho* (Service is Religion), a radio distance education program intended to improve the knowledge and skills of FCHVs.

The NHEICC, Ministry of Health and Population; USAID through international and other NGOs; United Nations Children's Fund (UNICEF); and other organizations have launched a number of radio and television programs to increase use of health services and change desired behavior, as

well as to raise awareness and increase knowledge about life in general and health in particular. Information on exposure to several specific radio programs was collected in the 2006 NDHS. These are described briefly in Table 3.1 below.

Posters, flip charts for service providers, and a number of articles and health messages are published in various newspapers. A range of other community-education activities include street drama performances, video shows, and village meetings. Additional activities include radio advertisements as well as erecting hoarding boards and putting posters at health service facilities and main highway junctions.

Table 3.1 Health media programs

Elements of radio and television programs on health and reproductive health, including family planning, Nepal 2006

Radio	Program brief
Janaswasthya radio karyakram (Public Health Radio Program)	This program is designed and produced by NHEICC and MOHP and is aired by Radio Nepal. The cost of airing it is borne by NHEICC. In 2006, this program was aired three times a week and focused on Essential Health Care Services (EHCS) including family planning, child health, safe motherhood and newborn, communicable and noncommunicable diseases, and beyond. It is an ongoing radio program for creating awareness, increasing knowledge, increasing use of essential health care services, and changing desired behavior on health (Badri B. Khadka, NHEICC, MOHP, personal communication).
Gyan nai shakti ho (Knowledge Is Power)	This is an extension of the earlier RCP, jointly implemented by NHEICC, MOH, and Johns Hopkins University Population Communication Services (JHU/PCS). This is one of two series of the Radio Health Program (RHP) jointly implemented by the NHEICC/MOH and JHU/PCS. The purpose of this audio drama serial was to increase awareness of the general public about family planning, reproductive health, and maternal and child health issues and to increase the demand for quality health services. It began in 2004 and continued until the end of 2006; it has since been discontinued (Badri B. Khadka, NHEICC, MOHP, personal communication).
Sewa nai dharma ho (Service Is "Religion")	*Sewa nai dharma ho* is another series of the RHP. It was a radio distance education series aimed at improving the knowledge and skills of FCHVs. It was on the air until the end of 2006 (Badri B. Khadka, NHEICC, MOHP, personal communication).
Hamro swasthya radio karyakram (Our Health Radio Program)	This program is designed and produced jointly by NHEICC/MOHP and Radio Nepal and is aired by Radio Nepal. In 2006, this program was aired for 15-30 minutes daily, and the issues it covered included EHCS and beyond, including family planning, child health, and safe motherhood. It is an ongoing program (Badri B. Khadka, NHEICC, MOHP, personal communication).
Sathi sanga manka kura (Discussion of Issues of One's Liking with a Friend)	The *Sathi sanga manka kura* radio series is implemented by an NGO called Equal Access, Nepal. It started in 2002 and is supported by UNICEF/Nepal. The target audience of this program is youths and adolescents. The issues focused on are juvenile problems and life skills, and to some extent it also addresses adolescent reproductive health. It is broadcast one hour a week from the national grid of Radio Nepal and from a number of FM stations in different parts of the country. It is an ongoing series (Upendra Aryal, Equal Access Nepal, personal communication).
Desh Pradesh (Homeland and Foreign Land)	The *Desh Pradesh* radio series began in 2005. It is also implemented by Equal Access/Nepal. The program deals with safer migration, STIs/HIV/AIDS, and girl trafficking. The program is broadcast through the Radio Nepal national grid for half an hour every week. It is also broadcast from Mumbai and New Delhi every week. Wherever applicable, FM radio stations are also used to broadcast the program. The WorldSpace International Satellite Radio Service is used to cover larger areas. Equal Access works with Family Health International (FHI) and its partner NGOs, with financial assistance from USAID/Nepal. The program is ongoing (Upendra Aryal, Equal Access Nepal, personal communication).
Ek apaas ka kura (Discussion between Friends)	The *Ek apaas ka kura* radio series is implemented by Thomson/Nepal with an agreement with FHI/Nepal, and with funding from USAID/Nepal. It was targeted at youth and adolescents and promoted peer communication on HIV/AIDS issues. It has since been discontinued (Upendra Aryal, Equal Access Nepal, personal communication).

Continued…

Table 3.1—*Continued*

Television	Program brief
Jeevan Chakra (Cycle of Life)	This is a weekly television program designed and produced by NHEICC/MOHP for the general public. It is a 30-minute national program (Telefilm based on life-cycle approach), broadcast by Nepal Television, focusing on prioritized essential health care, and particularly the promotion of family planning, safe motherhood and newborn, child health, prevention and control of communicable and noncommunicable diseases, and other health issues. It prepares program on health issues prioritized by the EHCS program and beyond. It is an ongoing program (Badri B. Khadka, NHEICC, MOHP, personal communication).
Teli-swasthya karyakram (Television Health Program)	This program is also implemented jointly by NHEICC, MOHP, and Nepal Television. It is a live Teli-Health program on health issues. Usually a health expert, such as a medical doctor, is asked to talk to a presenter and audience by telephone, and this conversation is broadcast live. This format was discontinued after 2006. Now, it is broadcast as a studio-based, panel discussion, recorded television program titled *Hamro Syasthya Television Program*, focusing on prioritized essential health care, and particularly promotion of family planning, safe motherhood and newborn, child health, prevention and control of communicable and noncommunicable diseases, and health issues in general (Badri B. Khadka, NHEICC, MOHP, personal communication).

Recent data from the 2006 NDHS Survey suggested that the majority of women (68 percent) age 15-49 years have heard a family planning message recently on the radio, whereas only 40 percent of women have heard family planning messages on television. About 15 percent of women have read about family planning messages in the newspaper or magazine. In addition to mass media exposure, the trends in family planning attitudes and practices observed in the country were likely conditioned by other factors as well, notably women's sociodemographic characteristics. A strong and positive relationship between family planning and educational attainment emerges as one of the most consistent findings from empirical analyses of reproductive knowledge, attitudes, and behavior in developing countries. Education may be seen as a catalyst in diffusion-of-innovation theories. In addition, it typically is employed as an indicator of socioeconomic development or, among women, a proxy for gender status. Other sociodemographic factors often cited in the literature as important determinants of changing family planning attitudes and practices include age and parity. Generally speaking, contraceptive use tends to peak in the middle of the reproductive span, likely reflecting a greater desire among couples in the middle age bracket, who are at higher fecundity, to prevent or space additional pregnancies. Likewise, contraceptive use is often found to vary with the number of children ever born, along with the changing nature of family planning goals. Residence also has repeatedly been found to influence reproductive behaviors, with urban-rural distinctions differentiating access to health care facilities, sociocultural norms, and living situations. Overall, women's behavior in reproductive matters probably is conditioned by a combination of both individuals' characteristics and ideological differences.

The aim of the study is to examine whether observed differences in the levels of modern contraceptive use and the intention to use a method among women after the implementation of health communication programs signified a positive relationship between exposure to family planning messages and improved perceptions and use. Multivariate regression analyses are employed to help elucidate the relationship between intensity of exposure to BCC messages and family planning attitudes and practices, controlled for the effects of a number of background characteristics including age, parity, education, ethnicity, economic well-being, and residence. The analyses take into consideration the intensity of exposure both in terms of the dose effects of multichannel interventions and of the influences of particular combinations of media messages.

4 Data and methodology

This study draws from the 2006 NDHS, which collected information from a representative sample of 10,793 women aged 15-49 and 4,397 men aged 15-59 (MOHP, New ERA and Macro International Inc., 2007). This analysis is restricted to the responses of currently married women of reproductive age. The NDHS contains information about a wide range of topics, including mass media exposure; fertility; family planning; infant, child, and maternal health; and HIV/AIDS-related knowledge and behavior.

In addition to the standard questions, the survey includes questions on exposure to several communication-campaign programs concerning health issues. Specifically, respondents were asked whether in the past few months they had heard any of the seven different radio series and two television serials described in Table 1 about health and family planning.

4.1 Measures

The outcome measures for the current analyses, which capture respondents' reproductive health behaviors, are dichotomous variables indicating whether a respondent practices contraception, discussed family planning matters with her partner in the past few months, and among the nonusers of contraception, whether they intend to use contraction in the future. The safe motherhood outcome measures include whether the birth was attended by a skilled birth attendant and whether the newborn was put to the breast soon after birth.

To measure exposure to communication programs about family planning and health, we examine the responses to the number of radio and television programs heard of or watched in the recent past. It is recognized that some of these programs focus exclusively on family planning, whereas others address other topics as well. Unfortunately, detailed information about the specific components of the programs to which the respondents were exposed is not available. Respondents' general media exposure is captured by dichotomous variables measuring whether the respondent read newspapers or magazines, listened to the radio, or watched television.

As control variables, we include respondents' age (in years), highest level of education achieved (none, primary, secondary, and higher), wealth index (lowest, second, middle, fourth, and highest), caste/ethnicity, residence, and children ever born.

4.2 Method of analysis

Multivariate regression models were used to assess the influences of BCC exposure on women's family planning attitudes and practices. To examine the effects of communication on family planning, three dependent variables were considered: current use of contraceptive method; among current nonusers, intention to use a method in the future; and spousal communication. "Current contraceptive practice" refers to use as reported by the respondent for either herself or her spouse or for any sexual partner. To better gauge the demand for contraceptives, results concerning intention to use a method excluded respondents who were currently using a contraceptive method. For spousal communication on family planning, all currently married women were included in the analysis.

To look at the effects of communication programs on safe motherhood, two dependent variables—births attended by skilled birth attendants and the time when a newly born child was put to the breast—were used. Multivariate logistic regression models for binary dependent variables were applied using SPSS version 13. Standard regression models assume that individual observations are independent.

The main hypotheses of the study were that exposure to family planning and health messages in the media would be independently and positively associated with the likelihood of an individual's use of contraceptives or intention to use a method in the near future and that the magnitude of the effect would be greater at a higher intensity of exposure. Similarly, exposure to health messages in the

media would be independently and positively associated with the likelihood of an individual's use of health services such as the use of the service of skilled birth attendants (SBAs) and whether a newborn would be put to the breast immediately after birth.

It must be noted, however, that even positive effects of BCC exposure do not necessarily imply direct causation because precise information about the timing of changes in individuals' health behavior and intentions with respect to their exposure to mass media is lacking. Ideally, such information could be collected using a longitudinal survey approach.

To facilitate interpretation of the results from the logistic models, the estimates are presented here in terms of odds ratios. A ratio greater than one implies that an individual in the given category would have a greater likelihood of using a modern contraceptive (or of intending to use one in the near future) compared with a counterpart in the reference category, other factors remaining the same; a ratio lower than one suggests a lower likelihood, and a ratio equal to one suggests a similar likelihood.

5 Results

5.1 Sociodemographic characteristics

Selected sociodemographic characteristics of the female respondents are shown in Table 5.1. Among currently married women aged 15-49, nearly 10 percent are adolescents, and about half of all women are under the age of 30. More than 85 percent of respondents live in rural areas. Although the number of caste/ethnic groups is large for analytical purposes, they were grouped into six categories.

The largest proportion of women (34 percent) belonged to the Janjati caste, and nearly the same proportion belonged to the Brahmin/Chhetri group (33 percent). The third largest group was Dalit women (13 percent), followed by other Terai castes (12 percent). Newar and Muslim women made up 4 percent each, and the remaining group of Others was nearly 2 percent (Table 5.1). About 10 percent of currently married women have had no live birth.

Nearly one in three (62 percent) currently married women had no education, nearly one in five had primary (17 percent) or some secondary (18 percent) education, and very few (3 percent) had higher education. Nearly half of all women (48 percent) were currently using contraceptives, and nearly 57 percent of women discussed family planning with their husbands.

Among women who were currently not using contraceptives, nearly three-fourths were intending to use family planning in the future. Among the births that took place in the last 5 years, nearly one in five were attended by SBAs, and a little over one in three newly born infants were put to the breast within one hour of birth (Table 5.1).

Table 5.1 Sociodemographic characteristics of female respondents

Percentage of currently married women surveyed, by sociodemographic characteristics, Nepal 2006

Characteristics	Percent
Age	
15-19	9.5
20-24	19.4
25-29	20.1
30-34	15.3
35-39	13.7
40-44	12.3
45-49	9.5
Lives in rural area	85.2
Major caste/ethnic groups	
Brahmin/Chhetri[1]	32.1
Other Terai castes[2]	11.7
Dalit[3]	12.6
Newar	4.0
Janjati[4]	33.8
Muslim	4.0
Other[5]	1.9
Wealth quintile	
Lowest	18.6
Second	19.9
Middle	21.2
Fourth	19.9
Highest	20.5
Children ever born	
No birth	9.7
1-3 births	55.2
4+ births	35.1
Education	
No education	61.9
Primary	17.0
Secondary	18.4
Higher	2.7
Currently use a contraceptive method	**48.0**
Discussed family planning with husband in past year	**56.6**
Number	8,257
Intention to use contraception among women who are not currently using contraceptives	**74.1**
Number	4,297
Delivery attended by SBA (Doctor, nurse, or midwife)	**18.7**
Number	5,545
Newly born child breastfed within 1 hour of birth	**35.4**
Number	4,020

[1] Brahmin/Chhetri group includes Brahmin, Chhetri, Thakuri, Sanyasi, Brahmin (Terai), Rajput, Kayastha, and Bhumihar.
[2] Other Terai castes included Yadav, Teli, Koiri, Kurmi, Sonar, Kewat, Baniya, Malah, Kalwar, Hazam, Kanu, Sundi, Lohar, Nuniya, Kumhar, Haluwai, Badahi, Barahi, Kahar, Lodha, Rajbhar, Bhedhihar, Malli, Kamar, and Kushawa.
[3] Dalits included Kami, Damai/Dholi, Sarki, Chamar, Mushahar, Dusad, Tatma, Khatwe, Dhobi, Bantar, Dom, Gaine, and Badi
[4] Janjati included Magar, Tharu, Tamang, Rai, Gurung, Limbu, Dhanuk, Sherpa, Gharti/Bhujel, Kumal, Rajbangshi, Sunuwar, Majhi, Danuwar, Chepang/Praja, Santhal/Satar, Gangai, Dhimal, Bhote, Darai, Thakali, Jirel, and Lepcha.
[5] Other included Marwari, Bengali, Punjabi/Sikh, and other.
Source: MOHP, New ERA and Macro International Inc., 2007.

5.2 Access to mass media

Access to information through the media is essential to increasing people's knowledge and awareness of what is taking place around them, which may eventually affect their perceptions and behavior. In the 2006 NDHS, exposure to media was assessed by asking respondents whether they listened to a radio, watched television, or read newspapers or magazines at least once a week. This information is useful for program managers and planners in determining which media may be more effective for disseminating health information to targeted audiences. The detailed results are presented in Table 5.2.

Slightly less than three-fifths (57 percent) of currently married women are exposed to at least one type of media, with exposure to the radio being the highest. About 35 percent of currently married women watch television at least once a week. Exposure to the print media is relatively lower, with only one in 14 currently married women reporting that they read a newspaper or magazine at least once a week. Young married women less than 25 years of age are more likely to be exposed to mass media than older women, presumably in part because of their higher level of education. There is also a wide gap in exposure to mass media when measured by place of residence. For example, the proportion of newspaper readers is higher among urban married women (26 percent) than among their rural counterparts (4 percent).

Table 5.2 Mass media access

Percentage of currently married women aged 15-49 years who are exposed to specific media on a weekly basis, by background characteristics, Nepal 2006

Background characteristics	Reads a newspaper at least once a week	Watches television at least once a week	Listens to the radio at least once a week	Number
Age (years)				
15-19	6.1	34.8	61.0	784
20-24	9.5	40.2	62.0	1,605
25-29	9.5	38.4	56.8	1,664
30-34	8.3	34.8	60.6	1,266
35-39	4.7	30.2	53.7	1,135
40-44	4.6	28.9	48.4	1,016
45-49	2.9	29.3	48.5	787
Residence				
Urban	25.8	75.4	60.9	1,226
Rural	3.9	27.6	55.8	7,031
Education				
No education	0.4	21.9	45.8	5,109
Primary	3.7	41.5	68.0	1,404
Some secondary	19.1	60.2	77.7	1,197
SLC and above	52.1	81.0	81.2	547
Wealth quintile				
Lowest	0.6	2.3	42.7	1,537
Second	0.7	9.8	48.3	1,641
Middle	1.1	21.6	55.4	1,747
Fourth	5.1	52.3	66.2	1,640
Highest	27.4	84.7	69.0	1,692
Ethnicity				
Brahmin/Chhetri	13.4	41.0	69.8	2,650
Other Terai castes	1.8	25.5	34.3	964
Dalit	1.5	23.1	45.2	1,037
Newar	20.1	65.6	64.9	334
Janjati	4.2	31.6	58.1	2,789
Muslim	3.3	31.0	35.8	329
Other	3.9	59.1	43.8	154
Total	**7.1**	**34.7**	**56.5**	**8,257**

Source: MOHP, New ERA and Macro International Inc., 2007.

Not surprisingly, media exposure is highly related to the educational level as well as economic status of the respondent. Exposure to mass media is highest among married women with secondary or higher level of education and among those who are in the highest wealth quintile. The lower level of exposure to media among poor respondents may be because they are less likely to own a radio or television and, therefore, are less likely to be consistently exposed to these media sources. Among the caste/ethnic groups, Newar women have the highest exposure to mass media, followed by Brahmin/Chhetri women and Janjati women. Muslim and Dalit women have low access to mass media.

5.3 Access to specific radio and television programs

Dissemination of health information through the electronic media and especially through the radio is not new in Nepal. The NHEICC, USAID, UNICEF, and other organizations have launched several different radio and television programs to raise awareness about life in general, and health in

particular. Information on the exposure to seven specific radio and two television programs was collected in the 2006 NDHS. Table 5.3 shows the percentage of currently married women who have heard or seen such programs.

Table 5.3 Access to specific media health programs

Percentage of currently married women aged 15-49 years who have heard or seen specific health programs on the radio and television, by background characteristics, Nepal 2006

Background characteristics	Public health radio program							Television health program		Number
	Jana swasthya Karyakram	*Sewa Nai Dharma Ho*	*Gyan Nai Shakti Ho*	*Hamro swasthya*	*Ek Apaas Ka Kura*	*Sathi Sanga Manka Kura*	*Desh Pardesh*	*Jeevan Chakra*	*Health Karyakram*	
Age (years)										
15-19	29.1	22.9	18.8	26.3	30.7	52.4	18.3	22.4	11.4	783
20-24	31.3	26.4	21.7	29.3	29.0	51.9	20.0	26.7	16.5	1,606
25-29	27.5	23.1	15.9	23.5	24.1	41.5	18.6	22.8	13.0	1,664
30-34	30.8	26.5	18.1	26.6	24.0	41.5	17.5	24.3	14.0	1,265
35-39	23.1	24.3	18.6	24.3	19.8	35.6	16.7	16.9	9.9	1,134
40-44	20.3	20.3	14.7	19.1	15.1	27.6	12.9	15.4	6.4	1,016
45-49	18.9	19.1	15.6	19.9	14.1	28.4	13.3	15.6	7.7	789
Residence										
Urban	32.9	32.6	21.9	31.1	30.9	48.9	18.7	43.2	29.1	1,226
Rural	25.5	22.1	17.1	23.5	21.6	39.4	17.0	17.5	8.9	7,031
Education										
No education	17.7	13.7	10.4	15.0	12.3	26.0	10.2	10.8	3.9	5,109
Primary	33.1	30.3	24.6	33.1	32.1	56.0	23.5	27.7	14.5	1,404
Some secondary	45.2	44.5	33.5	43.6	46.3	71.3	32.3	41.9	27.7	1,197
SLC and above	52.3	54.1	35.5	50.7	48.4	72.9	33.5	58.5	46.7	547
Wealth quintile										
Lowest	20.4	13.5	10.0	20.1	15.4	31.0	14.8	3.3	1.3	1,537
Second	23.1	18.3	13.8	18.1	16.5	31.4	12.9	5.3	2.1	1,641
Middle	22.7	19.0	16.4	18.7	19.3	34.0	14.5	10.3	4.1	1,747
Fourth	31.5	29.1	21.4	30.2	29.4	52.0	21.0	34.1	16.8	1,640
Highest	34.9	37.7	26.9	35.5	33.9	55.1	22.7	52.4	34.5	1,692
Ethnicity										
Brahmin/Chhetri	37.2	36.3	26.0	36.9	35.3	57.3	26.0	30.6	19.0	2,650
Other Terai castes	9.8	6.0	6.0	4.9	5.3	12.6	3.2	5.3	3.6	964
Dalit	19.9	14.3	13.6	19.2	16.8	30.6	12.7	13.2	6.4	1,037
Newar	38.6	34.1	23.4	35.0	31.1	56.6	22.2	43.1	27.2	334
Janjati	26.2	22.4	16.9	22.7	20.7	40.7	16.9	19.4	8.6	2,789
Muslim	9.1	7.9	8.8	7.3	7.0	11.8	6.4	4.8	2.4	329
Other	13.0	13.1	4.6	20.8	21.4	31.8	1.3	41.6	27.3	154
Total	**26.6**	**23.7**	**17.8**	**24.6**	**23.0**	**40.8**	**17.2**	**21.3**	**11.9**	**8,257**

Source: MOHP, New ERA and Macro International Inc., 2007.

Forty-one percent of currently married women age 15-49 listened to the *Sathi sanga manka kura* radio program. About 17 to 27 percent of currently married women were exposed to each of the other radio programs. Of the two programs on the television, more women (21 percent) were exposed to *Jeevan Chakra* than to *Teli-swasthya Program* (12 percent).

Among the seven radio programs, *Sathi Sanga Manka Kura* is the most popular, as 41 percent of currently married women age 15-49 have heard it. *Jana Swasthya karyakram* is the second most popular program (27 percent). Overall, *Hamro Swasthya radio karyakram* (25 percent) is the third most popular program, followed by *Sewa Nai Dharma Ho* (24 percent), *Ek Apaas Ka Kura* (23 percent), *Gyan Nai Shakti Ho* (18 percent) and *Desh Pradesh* (17 percent). About one in five women (21 percent) have watched the *Jeevan Chakra* television program, and about one in 12 women (12 percent) have watched *Teli-swasthya karyakram*. Overall, however, exposure to specific radio and television programs among women decreases with age.

Urban women are more likely than rural women to access both radio and television programs. Not surprisingly, level of education and economic status are directly associated with exposure to the specific health programs. Respondents who are highly educated and come from the wealthiest households are more likely to have heard or seen these programs.

5.4 Exposure to mass media and family planning messages

The proportions of currently married women age 15-49 that are currently using modern contraceptives is shown in Tables 5.4 and 5.5, according to exposure status for each of the nine media health interventions and to exposure status to radio, television, print media, and street drama and family planning messages (see Table 5.5). Results indicate that radio listeners and television watchers who were exposed to family planning messages in general and to the specific project intervention messages were significantly more likely to use modern contraceptive methods than were listeners and television watchers who did not recall hearing or seeing any of the family planning messages or programs during the preceding few months. Furthermore, it is seen that a lack of exposure to radio or television or print media within the past few months before the survey is associated with lower prevalence of current use of contraceptive methods compared with current use among women who listened to the radio or watched television or got messages from other media during the past few months.

Table 5.4 Contraceptive use: specific radio and television programs

Percentage of currently married women aged 15-49 years who are currently using a contraceptive method, by their exposure to specific health programs on the radio and television, Nepal 2006

Family planning/health programs	Currently married women aged 15-49 years			
	Exposed	Number	Unexposed	Number
Radio				
*Jana swasthya Radio Karyakram***	51.4	1,129	46.7	2,831
*Sewa Nai Dharma Ho****	52.5	1,027	46.5	2,933
*Gyan Nai Shakti Ho****	51.3	755	47.2	3,205
*Hamro swasthya Radio Karyakram***	50.0	1,016	47.3	2,944
*Ek Apaas Ka Kura****	49.8	945	47.4	3,015
*Sathi Sanga Manka Kura****	48.8	1,643	47.4	2,317
*Desh Pardesh**	49.2	699	47.7	3,261
Television				
*Jeevan Chakra****	54.5	960	46.2	3,000
*Teli-swasthya Karyakram****	54.8	540	47.0	3,420

*Significant at p≤0.05; **p≤0.01; ***p≤0.001.
Source: MOHP, 2007.

Table 5.5 Contraceptive use: media exposure

Percentage of currently married women aged 15-49 years who are currently using a contraceptive method by exposure status to radio, television, and print media, Nepal 2006

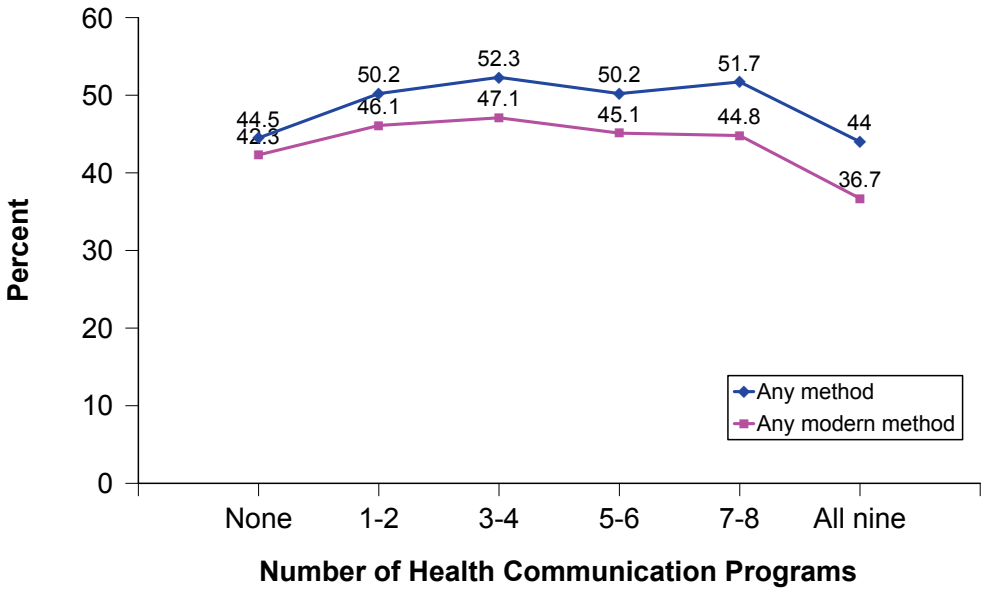
Exposure to radio, television, and print media	Currently using a contraceptive method[1]		
	Any traditional method[2]	Any modern method[3]	Number
Radio			
Did not hear about FP message on the radio	2.2	41.4	2,796
Heard about FP message on the radio	4.5	45.6	5,459
Total (*n*)			8,255
Television			
Did not see/watch FP message on television	2.4	40.3	5,252
Saw/watched messages about FP on television	6.1	51.0	3,001
Total (*n*)			8,253
Newspaper/ Magazine			
Did not read about FP in the newspaper or magazine	3.1	44.0	7,319
Read about FP in the newspaper or magazine	8.7	45.5	936
Total (*n*)			8,255
Poster/billboard			
Did not see a FP message on a poster or billboard	2.3	42.4	5,255
Saw a FP message on a poster or billboard	6.3	47.3	3,000
Total (*n*)			8,255
Street drama			
Did not see/watch street drama	3.7	43.9	7,900
Saw/watched street drama about FP message	4.8	49.4	354
Total (*N*)	**3.7**	**44.2**	**8,254**

Note: The small number of missing cases has been excluded.
FP=family planning
[1] Pearson Chi-Square significant at the 0.01 level.
[2] Traditional methods include: rhythm, withdrawal and folk methods
[3] Modern methods include: pills. IUDs, condoms, injectables, implants and male and female sterilization
Source: MOHP, New ERA and Macro International Inc., 2007.

Figure 5.1 shows the bivariate relationship between the intensity of exposure to the interventions and current use of modern contraceptive methods. In this instance, intensity of exposure is measured in terms of the number of media health interventions heard or seen, ranging from no exposure to exposure to all of the interventions.

Research in several countries has shown that as the number of IEC interventions heard or seen increases, the prevalence of current use of modern contraceptives rises significantly (Kane et al., 1998). In Nepal, data show an increase in contraceptive use for up to four IEC interventions, but thereafter it peters out. The proportion of currently married women who were not exposed to any media health intervention was 42 percent; this proportion increases to 50 percent for respondents listening to or watching at least four television programs. However, for those respondents exposed to five or more interventions, the proportion using contraception does not increase (Figure 5.1).

Figure 5.1 Percentage of currently married women of reproductive age using a contraceptive method, by intensity of their exposure to nine health programs on the radio and television, Nepal 2006



Source: MOHP, 2007.

As briefly mentioned earlier, it could be that because not all media health interventions deal extensively with family planning, the intensity of exposure to all media programs may not necessarily contribute to an overall increase in the use of contraception. However, the consistent increases in contraceptive prevalence with increasing exposure to greater numbers of media health interventions suggests a positive link between exposure to family planning IEC mass media interventions and contraceptive use. Theoretically, it is envisioned that exposure would lead to improved knowledge and positive attitudes toward family planning use, and an increase in an individual's motivation to practice contraception would ultimately lead to the adoption of a modern method.

6 Multivariate analysis

6.1 Effect of health communication program exposure on use of contraceptives

Table 6.1 shows the results of the multivariate regression analyses used to disentangle the relationships between women's sociodemographic characteristics and their exposure to messages in the media and to assess the independent influence of exposure to family planning and health messages on contraceptive use, spousal communication, and intention to use family planning in the future.

As expected, several sociodemographic factors, including educational attainment, age, parity, residence, income level, and caste/ethnicity, were seen to exercise important independent effects on women's use of contraceptives. Contrary to findings in other countries, more educated women were significantly less likely than others to use contraceptives. This finding is consistent with the findings reported in the NDHS (MOHP, New ERA and Macro International Inc., 2007).

The results also show that educated women are more likely than uneducated women to have discussed family planning. In addition, women age 30 and above are less likely to have discussed family planning with their husbands than their younger counterparts. Parity has an effect on discussion of family planning. Women with one to three children were two times more likely to have discussed contraceptive use than their counterparts with no children, whereas those with four or more children were about five times more likely to do so. Women in their twenties (age 20-29) were nearly two times more likely to report current contraceptive use than were adolescents (age 15-19), whereas women in their thirties (age 30-39) were nearly four times more likely to report current contraceptive use than were adolescents (Table 6.1). Women in the youngest and oldest age categories may be less likely to practice family planning because they perceive that they have a relatively low risk of pregnancy because of less frequent sexual activity or lower fecundity. Older women may also tend to prefer traditional or folk methods for family planning purpose—methods that were not considered in the present analysis.

Contraceptive use was found to increase with parity. Women with one to three children were seven times more likely to report contraceptive use than their counterparts with no children, whereas those with four or more children were about eight times more likely to do so, underlining their motivation for family size limitation. Anecdotal evidence points clearly to the high costs of rearing children, especially the expenses of education, as a factor driving the preference for smaller family sizes among aspiring Nepalese families. The relative odds of current use of contraceptives are significantly higher for the wealthiest women and for women belonging to the Janjati groups but are significantly lower among Muslim women.

Women's exposure (particularly television) to family planning and health messages was found to be significantly associated with increased contraceptive use, all else being equal (Table 6.1). Interestingly, respondents with no reported exposure to the radio were more likely to be using contraception than were radio listeners. The results also seem to suggest that the more health communication programs the respondent reports being exposed to the less likely they are to be using family planning or to have discussed family planning with their husbands, perhaps indicating that some media messages are not effective due to non-specific health messages. Interpersonal communication may be more effective in impacting behavior instead.

Table 6.1 also shows that, among the seven radio programs on family planning and general health, only two programs, namely, *Jana swasthya radio karyakram* and *Ek apaaska kura* were significantly associated with the use of contraception among women.

Table 6.1 Odds ratios: Current use of contraception, spousal communication on family planning, and intention to use family planning in the future

Odds ratios from logistic regression models measuring effects of sociodemographic characteristics, women's exposure to family planning and health messages in the mass media and nine specific radio and television programs on contraceptive use, spousal communication on family planning and intention to use, Nepal, 2006

Characteristics	Currently uses family planning method	Discusses family planning with husband	Intends to use a family planning method in the future
Educational level			
No education (r)	1.00	1.00	1.00
Primary	0.86*	0.84	1.09
Secondary	0.68***	0.99	2.53***
Higher	0.62**	2.07**	0.69
Age			
15-19 (r)	1.00	1.00	1.00
20-29	1.60***	0.81	0.57*
30-39	3.81***	0.43***	0.08***
40 and over	2.60***	0.12***	0.01***
Children ever born			
No birth (r)	1.00	1.00	1.00
1-3 births	6.83***	2.18***	1.90***
4+ births	7.84***	4.83***	3.11***
Residence			
Urban (r)	1.00	1.00	1.00
Rural	0.81**	1.08	1.15
Wealth index			
Lowest (r)	1.00	1.00	1.00
Second	1.63***	1.05	0.80
Middle	2.17***	0.95	0.90
Fourth	2.20***	0.77*	0.67*
Highest	2.44***	0.65**	0.53**
Caste/ethnic groups			
Brahmin/Chhetri (r)	1.00	1.00	1.00
Other Terai castes	0.91	1.22	0.83
Dalit	0.94	0.94	0.92
Newar	1.28	0.86	0.66
Janjati	1.22**	0.95	0.72**
Muslim	0.24***	0.84	0.09***
Other	1.19	1.78*	0.25***
Exposure to television			
Not at all (r)	1.00	1.00	1.00
Less than once a week	1.03	1.37***	0.97
At least once a week	1.04	1.37*	1.12
Almost every day	1.37**	1.59**	0.80
Exposure to radio			
Not at all (r)	1.00	1.00	1.00
Less than once a week	0.69***	1.24	0.98
At least once a week	0.72***	1.33*	1.11
Almost every day	0.82	1.39*	1.14
Exposure to newspaper or magazine			
Not at all (r)	1.00	1.00	1.00
Less than once a week	0.91	1.00	1.56*
At least once a week	1.27	1.01	1.74
Almost every day	1.12	1.14	3.07
Heard FP on radio in the past few months			
No (r)	1.00	1.00	1.00
Yes	1.13	1.22*	1.20
Heard FP on television in the past few months			
No (r)	1.00	1.00	1.00
Yes	1.39***	1.09	1.08
Read about FP in the newspaper in the past few months			
No (r)	1.00	1.00	1.00
Yes	1.22	1.45**	1.47
Seen FP poster/hoarding board in the past few months			
No (r)	1.00	1.00	1.00
Yes	1.20**	1.10	1.05
Watched FP street dramas in the past few months			
No (r)	1.00	1.00	1.00
Yes	1.13	1.43	0.84

Continued…

Table 6.1—*Continued*

Radio Programs			
Jana Swasthya Radio Karyakram			
No (r)	1.00	1.00	1.00
Yes	1.25*	1.29	0.88
Sewa Nai Dharma Ho			
No (r)	1.00	1.00	1.00
Yes	1.10	1.17	0.73
Gyan Nai Shakti Ho			
No (r)	1.00	1.00	1.00
Yes	1.17	0.96	0.66
Hamro Swasthya Radio Karyakram			
No (r)	1.00	1.00	1.00
Yes	1.04	1.00	0.62*
Ek Apaas Ka Kura			
No (r)	1.00	1.00	1.00
Yes	1.29**	1.03	0.64
Sathi Sanga Manka Kura			
No (r)	1.00	1.00	1.00
Yes	0.95	1.16	1.02
Desh Pardesh			
No (r)	1.00	1.00	1.00
Yes	1.19	0.94	1.03
Television Programs			
Jeevan Chakra			
No (r)	1.00	1.00	1.00
Yes	0.85	1.05	0.84
Teli-Health Karyakram			
No (r)	1.00	1.00	1.00
Yes	1.02	1.11	0.60
Health communication programs listened/watched			
None	1.00	1.00	1.00
1-2 programs	1.00	0.79	1.75*
3-4 programs	0.84	0.69	2.86
5-6 programs	0.62	0.70	5.07
7-8 programs	0.44	0.68	9.16
All nine programs	0.22*	0.55	15.57
Constant	0.04***	0.24***	12.55***
Model summary			
−2 log likelihood	9829.695	5239.333	2787.094
Cox and Snell *R* Square	0.175	0.103	0.390
Nagelkerke *R* Square	0.234	0.140	0.572
Number	8,257	8,257	4,297

Significant at *$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$. (r) = Reference category
FP = Family planning

6.2 Effect of health communication program exposure on discussion of family planning

Women's exposure to family planning and health messages in the mass media was found to be significantly associated with increased spousal communication (Table 6.1). The findings show that watching television and/or listening to radio programs increase the odds that women will have discussed family planning by nearly 40 percent. However, this relationship is not significant with respect to the seven specific radio series and two specific television series or to exposure to family planning messages on television and posters in the past few months.

6.3 Effect of health communication program exposure on the intention to use family planning

As with family planning practices, women's self-reported exposure to behavior change communication messages in the media was significantly associated with favorable attitudes toward family planning. Women exposed to up to two of the nine family planning and health programs were about two times more likely to intend to use a contraceptive method in the near future compared with their counterparts who reported being exposed to no health or family planning program. However, the effects are not significant even if respondents were exposed to more than two programs.

6.4 Effect of health communication program exposure on safe motherhood service utilization-use of service of SBA

Several sociodemographic factors were seen to exercise important independent effects on women's use of services of SBAs, including educational attainment, age, residence, income level, and caste/ethnicity. The relative odds are significantly higher for women who have had a primary (OR = 1.68) or secondary (OR = 2.64) or higher education (OR = 10.36); for the wealthiest women; and for women who live in urban areas. It appears that young women are nearly two times more likely to ask for assistance from SBAs during delivery than their older counterparts (Table 6.2).

Compared with women of the Brahmin/Chhetri caste, Dalit women are significantly less likely to ask for assistance from SBAs during delivery, whereas Newar women are more than one and half times more likely to seek the service of SBAs during delivery.

The effect of exposure to health communication programs about family planning and health on the odds that a respondent used the service of a SBA at last delivery is shown in Table 6.2. The results indicate that respondents exposed to media were significantly more likely (40 percent in the case of exposure to television programs and over 50 percent in the case of exposure to radio programs) to use the services of SBAs at their last delivery. Among women who had heard about family planning on the television in the last few months, the relative odds of using the services of SBAs are significantly high, which is also the case with women who were exposed to family planning messages in the newspapers over the past few months.

Of the seven radio programs on health and family planning, only exposure to *Sewa Nai Dharma Ho* was associated with significant increased use of services of SBAs at last delivery, with women exposed to *Sewa Nai Dharma Ho* one and half times more likely to use the services of SBAs during delivery than those women who were not exposed (Table 6.2).

Table 6.2 Odds ratios: Use of SBA for delivery and child put to breast within one hour of birth

Odds ratios from logistic regression models measuring effects of socio-demographic characteristics, women's exposure to family planning and health messages in the mass media and nine specific radio and television programs on safe motherhood practices – use of SBA for delivery and live birth put to breast within one hour of birth, Nepal, 2006

Characteristics	Last birth assisted by SBA	Child put to breast within one hour of birth
Education		
No education (r)	1.00	1.00
Primary	1.68***	1.26*
Secondary	2.64***	1.59***
Higher	10.36***	1.81*
Age		
15-19 (r)	1.00	1.00
20-29	0.56***	0.82
30-39	0.64**	0.82
40 & over	0.79	0.59**
Residence		
Urban (r)	1.00	1.00
Rural	0.52***	0.96
Wealth index		
Lowest (r)	1.00	1.00
Second	2.00***	1.44***
Middle	1.94***	1.25*
Fourth	2.20***	1.29*
Highest	5.10***	1.44*
Caste/ethnic groups		
Bahun/Chhetri (r)	1.00	1.00
Other Terai castes	1.19	0.68**
Dalit	0.73*	0.99
Newar	1.59*	1.06
Janjati	0.84	1.73***
Muslim	0.84	0.91
Other	2.10**	1.33
Exposure to television		
Not at all (r)	1.00	1.00
Less than once a week	1.35*	0.83*
At least once a week	1.36	0.72*
Almost every day	1.43*	0.70*

Continued…

Table 6.2—*continued*

Exposure to radio		
Not at all (r)	1.00	1.00
Less than once a week	1.54*	0.68***
At least once a week	1.58*	0.62***
Almost every day	1.40	0.70*
Exposure to newspaper or magazine		
Not at all (r)	1.00	1.00
Less than once a week	1.26	0.76*
At least once a week	1.15	0.78
Almost every day	1.81	0.90
Heard FP on radio in the past few months		
No (r)	1.00	1.00
Yes	1.02	0.95
Heard FP on television in the past few months		
No (r)	1.00	1.00
Yes	1.78***	0.97
Read about FP in the newspaper in the past few months		
No (r)	1.00	1.00
Yes	1.37*	1.18
Seen FP poster/hoarding board in the past few months		
No (r)	1.00	1.00
Yes	1.09	1.32**
Watched FP street dramas in the past few months		
No (r)	1.00	1.00
Yes	0.85	0.96
Radio Programs		
Jana Swastha Radio Karyakram		
No (r)	1.00	1.00
Yes	0.91	1.10
Sewa Nai Dharma Ho		
No (r)	1.00	1.00
Yes	1.52**	0.93
Gyan Nai Shakti Ho		
No (r)	1.00	1.00
Yes	1.27	1.35
Hamro Swastha Radio Karyakram		
No (r)	1.00	1.00
Yes	0.94	0.73
Ek Apaaska Kura		
No (r)	1.00	1.00
Yes	1.17	0.86
Sathi Sanga Manka Kura		
No (r)	1.00	1.00
Yes	0.96	0.81
Desh Pardesh		
No (r)	1.00	1.00
Yes	1.05	0.89
Television Programs		
Jeevan Chakra		
No (r)	1.00	1.00
Yes	1.26	0.91
Teli-Health Karyakram		
No (r)	1.00	1.00
Yes	1.11	1.28
Health communication programs listened/watched		
None	1.00	1.00
1-2 programs	0.68	1.28
3-4 programs	0.82	1.34
5-6 programs	0.43	1.46
7-8 programs	0.40	1.76
All nine programs	0.35	3.11
Constant	0.08***	0.66*
Model summary		
-2 Log likelihood	3861.944	5018.548
Cox & Snell R Square	0.235	0.049
Nagelkerke R Square	0.379	0.067
Number	5,545	4,020

Significant at *$p \leq 0.05$; **$p \leq 0.01$; ***$p \leq 0.001$. (r) = Reference category
FP = Family planning
SBA = Skilled birth attendant

6.5 *Effect of health communication program exposure on safe motherhood practice: time newly born child put to breast*

As expected, several sociodemographic factors were seen to exercise important independent effects on women's practice of breastfeeding including age, income level, and educational attainment. Older women (age 40 and over) were nearly 40 percent less likely to breastfeed their new born immediately than their young counterparts (age 15-19) (Table 6.2). Older women may, however, be subject to recall lapse because they have relatively fewer births (the analysis included births in the last five years only) and because older women might have had more difficulty recalling the time when the newborn was put to the breast compared with younger mothers.

Not surprisingly, educated women were significantly more likely than others to breastfeed the newly born within 1 hour of birth. The likelihood that a woman would be immediately breastfeeding the newly born child was more than 25 percent higher for those with at least some primary schooling, more than 50 percent higher for those with secondary schooling, and nearly two times higher for those with higher education compared with their uneducated counterparts.

Also, the likelihood that wealthier women would be practicing immediate breastfeeding was nearly 50 percent higher compared with that of their poor counterparts. Women who had more education and who were well off may better appreciate the health benefits of immediate breastfeeding of infants.

Exposure to mass media such as radio, television, or newspapers or magazines does not seem to have influenced mothers to put their newly born child to the breast immediately after birth. Specific media program exposure also had little effect on breastfeeding practices. In fact, one of the seven radio programs on health and family planning (*Hamro Swasthya Radio Karyakram*) showed a negative relationship between exposure and breastfeeding.

This analysis indicates that after controlling for the confounding effects of sociodemographic variables such as education, income level, and residence, media exposure per se is not having any effect on breastfeeding practices.

7 Discussion

Nepal has been dealing with important public health problems such as the need for essential health care services, including reproductive health, particularly high levels of unwanted pregnancy, the lack of safe motherhood programs, poor adolescent reproductive health, and STIs/HIV/AIDS and communicable and noncommunicable diseases. In response, both governmental organizations and NGOs have implemented mass media communication programs designed to educate the population about these problems and to promote healthier behaviors. Radio and television programs on family planning, STIs/HIV prevention, and sexual and reproductive health are important components of these efforts. Various print media such as posters, pamphlets, booklets, wall paintings, street drama, and group communication activities informing and disseminating family planning and other health messages have been implemented in the country. The purpose of this study is to assess the reach and effects of such health-oriented radio and television programs and mass media on family planning and selected safe motherhood practices of women.

The study is subject to several limitations. The cross-sectional nature of the 2006 NDHS data does not allow for causal relationships to be established. Because the NDHS and similar surveys are designed to serve the information needs of program managers, the questionnaires are lengthy and leave little room for additional detailed questions about specific topics. As a consequence, no information is available about precisely what respondents recall from hearing the radio programs or watching the television programs that are included here. Likewise, although the survey asks whether respondents discussed family planning with their partners, we know neither what they discussed nor

the extent or frequency of the discussions. The absence of such information limits our understanding of how these programs may have led to behavioral change and what may impede them from having such an effect.

Nevertheless, the data reveal several relevant findings. Radio exposure is highest, followed by exposure to television. Exposure to the newspaper is, however, relatively low. Among the seven specific radio programs on health in general and on family planning in particular, *Sathi Sanga Manka Kura* had the widest coverage among currently married women. Of the two television programs, *Jeevan Chakra* was more popular among currently married women than *Teli swasthya Karyakram*.

Two in three currently married women heard about family planning messages on the radio, and one-third each heard about family planning messages on television and through print media. Only about one in ten women read about family planning in the newspaper or magazine, and one in four learned about family planning messages by watching street dramas.

After controlling for the effects of a number of sociodemographic characteristics, overall exposure to health communication messages in the mass media was found to be positively associated with current use of contraceptive method, discussion of family planning with one's partner, and intention to use a method in the near future among nonusers. In the past few years, radio and television messages have been promoting the use of family planning. This has probably had a positive impact in encouraging women and men to use family planning in the future.

This is consistent with findings from an earlier evaluation study designed for the 1994-1997 Nepal Radio Communication Project, which showed greater use of contraceptives among respondents who reported higher exposure after controlling for selected background characteristic (Storey et al., 1999).

The analysis, however, showed that when media effect on family planning is looked at with reference to the nine specific radio and television programs on health and family planning, only *Jan swasthya karyakram* and *Ek apaska kura* were found to positively affect contraceptive behavior. None of the nine radio and television programs were significantly associated with increased spousal communication or intention to use family planning in the future.

The relatively low impact of the nine specific radio and television programs may be explained by the lack of focus on a specific family planning message, and instead trying to cover many different health messages over the short period of 30 minutes a week—too little time to have a substantial impact on the attitudes and behavior of women with respect to family planning.

A number of sociodemographic characteristics were included in the models to control for differences among respondents exposed to the mass media that also may help explain their family planning attitudes and practices. As expected, women who were in the midst of their reproductive years, who had four or more children, and who belonged to wealthy households were more likely than others to report that they used contraception and discussed family planning with their husbands. Similarly, younger women with four or more children were also more likely than others to say they intend to use a contraceptive method in the future. Contrary to several other studies, contraceptive use was more significant among uneducated than educated women. This could be because of the success of the family planning program in recruiting an increasing number of less educated women, particularly in the terai.

Multivariate regression results indicate that exposure to mass media had a significant positive impact on the use of services of SBAs at last delivery. However, again, of the seven specific radio programs on health and family planning, only *Sewa Nai Dharma Ho* showed a significant positive impact on the use of services of SBAs at last delivery. None of the two television programs showed any effect on the health behavior of women. *Jeevan Chakra* and *Teli-swasthya karyakram* also lack focus on specific health issues, as they try to cover many aspects of EHCS and beyond. Although the

NHEICC mentioned that *Jeevan Chakra* is broadcast as a recorded program, it is not clear how health issues are addressed in the program.

With regard to background variables, educated and urban women were more likely to use the services of SBAs. Likewise, young women were more likely to ask for assistance from SBAs during delivery than were their older counterparts. Among the caste/ethnic groups, Newar women were most likely to seek the services of SBAs during delivery compared with Brahmin/Chhetri and other women. It may be because Newar women are more urban and therefore may have better access to health care services in general. Dalit women are significantly less likely to ask for assistance from SBAs during delivery.

Overall exposure to mass media did not affect breastfeeding. In fact, it seemed to exert a negative influence on breastfeeding, with women exposed to mass media being significantly less likely to breastfeed than women not exposed to the media. Analyzing the effect of the specific nine radio and television programs separately also showed them having little effect on breastfeeding.

Not surprisingly, educated women were significantly more likely than others to breastfeed their newborn within 1 hour of birth. Likewise, wealthier women were also more likely to practice immediate breastfeeding than their poorer counterparts. Among caste/ethnic groups, "Other terai castes," who are largely uneducated but exposed to mass media, were found to be less likely to breastfeed their newborn immediately after birth in contrast to the "Janjati" women, who are largely uneducated and not exposed to mass media, indicating that cultural factors might play a bigger role in immediate breastfeeding than exposure to mass media.

One important limitation of our analysis is our inadequate knowledge of the messages conveyed by each program. Although the NDHS is a rich data set, it does not include information about what respondents learned from each program. To enhance our understanding of the strengths and weaknesses of the health-related programs that are currently being aired, content analyses of the programs should be conducted, and survey data concerning respondents' recall and understanding of the key messages the programs present should also be collected. Results from such analyses can be used to inform the design of messages for future communication programs and to aid in their effectiveness at enhancing healthy behavior.

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