



TRENDS AND DETERMINANTS IN THE USE OF REPRODUCTIVE HEALTH SERVICES IN INDIA

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ABSTRACT

The Sample Registration System(SRS) data showed India's MMR was 167 in 2011-13 and the estimation by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population shown that India's MMR would be 174 in 2015 which is far below than MDGs target. Thus a major objective of primary health care programmes in India should be to improve mother survival through improvement of use of preventive reproductive health care services. This study first examines changes in the use of the antenatal care, delivery care and contraceptives methods over the period 1992-2015 and secondly this paper examines the determinants of the use of reproductive health care services in India using multivariate logit model and ordered logit model using National family Health Survey 4 data. Result shows that the use of reproductive health services are strongly associated with demographic (birth order, religion, caste, mother's age) and socioeconomic variables (i.e mother's education, partner education, standard of living index and media exposure). The empirical findings of this study indicate certain policy pointers. Maternal education has played in crucial role in enhancing antenatal care and contraceptive uses. Focus, therefore, should be on enhancing maternal education. It has been also found that

Muslim were less likely to be used reproductive health care services. Special efforts on monitoring in increase awareness on antenatal visits, family planning have to be given in areas with higher concentration of Muslims. Focus on rural as well as economically backward region has to be given.

Keywords: Reproductive Health, Antenatal Care, Delivery Care, Contraceptives Usage, Mother-baby package, Maternal Mortality Ratio

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Introduction

While the global maternal mortality ratio has significantly declined since 1990, a large number of women still die in child birth, with most of these deaths occurring in sub- Saharan Africa and south Asia. In India considerable attention has been paid to improve maternal health and to reduce the maternal mortality. Despite substantial improvement in maternal health indicators in India it is yet to achieved the Millennium Development Goals. The United Nations focused on improving maternal health in the Millennium Development Goals to reduce Maternal Mortality Ratio (MMR) by 75% during 1990-2005. From Maternal Mortality Ratio of 437 per 100000 live births in 1990-91, India was required to reduce MMR to 109 per 100000 live births by 2015. But the Sample Registration System(SRS) data showed India's MMR was 167 in 2011-13 and the estimation by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population shown that India's MMR would be 174 in 2015 which is far below than MDGs target. Thus a

major objective of primary health care programmes in India should be to improve mother survival through improvement of use of preventive reproductive health care services.

To improve mother and child health, the World Health Organization formulated the Mother Baby Package, based on four principles of safe motherhood: (a) Family planning –to ensure that individuals and couples have the information and services to plan, timing, number and spacing of pregnancies. (b) Antenatal Care- to prevent Complications where possible and ensure that pregnancy related complications are detected early and treated appropriately. (c) Safe Delivery- to ensure that all birth attendants have the knowledge, skill and equipment to perform a clean and safe delivery (d) Essential Obstetric care- to ensure that essential care for high risk pregnancies and complications is made available to all women who need it.

Following the implementation of the safe motherhood programme, many developing countries emphasised on investments in reproductive health care services to reduce mother and child-related morbidity and mortality. Policy makers and academicians have become interested to determine the factors affecting reproductive health care services. Several Studies were conducted to find out the determinants of utilization of reproductive health services in developing countries. Salam and Siddiqui (2006) showed that there is a positive association between socioeconomic status of women and the use of maternal health care services in India. Those women who were better educated, economically well off and resided in urban areas availed the delivery care services to the maximum. Singh and Rai (2012) found that several socioeconomic and cultural factors are affecting the utilization of maternal health care services among rural adolescent women in India. Obermeyer and Potter (1991) have found that socioeconomic factors including residence, education, parity and standard of living were affecting the use of maternal health care services in Jordan. A Study by Stephenson and Tsui (2002) in order to find out the determinants of the use of contraceptive services, antenatal care, delivery in a medical institution, revealed strong community level influences on service use in Uttar Pradesh.

Objectives of the study

The study first examines changes in the use of the antenatal care, delivery care and contraceptives methods over the period 1992-2015 and secondly this paper examines the determinants of the use of reproductive health care services in India.

The hypothesis here is that the use of reproductive health services are strongly associated with demographic (birth order, religion, caste, mother's age) and socioeconomic variables (i.e mother's education, partner education, standard of living index and media exposure).

Data Source:

Data were drawn from the first, second and third round of the National Family Health Survey (NFHS) for India. NFHS-1, undertaken during 1992-93, NFHS-2, undertaken during 1998-99 and NFHS-3, undertaken during 2005-06 were conducted by ORC Macro International, the International Institute of Population Sciences. NFHS provides data on fertility, mortality, morbidity, family planning, important aspects of nutrition, health and health care.

NFHS-4 data sheet, under taken during 2015-16 was also used in this analysis.

Methodology:

This study aims to examine the effects of selected socioeconomic and demographic on the use of maternal health care services. Delivery care and Contraceptive use were transform to a binary variable which indicates deliveries assisted by health professionals or not and modern contraceptives used or not. To identify the influence of demographic and socio-economic variables on the use of reproductive healthcare services, multivariate logit models were used.

The multivariate binary logit model is specified as:

$$P=F(z)=1/1+e^{-z} \quad \dots\dots (1)$$

$$P/1-P = e^z = \text{Odds}$$

$$\text{Where } z = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

Where e represents base of natural logarithm and P is the estimated probability of vaccination given X 's.

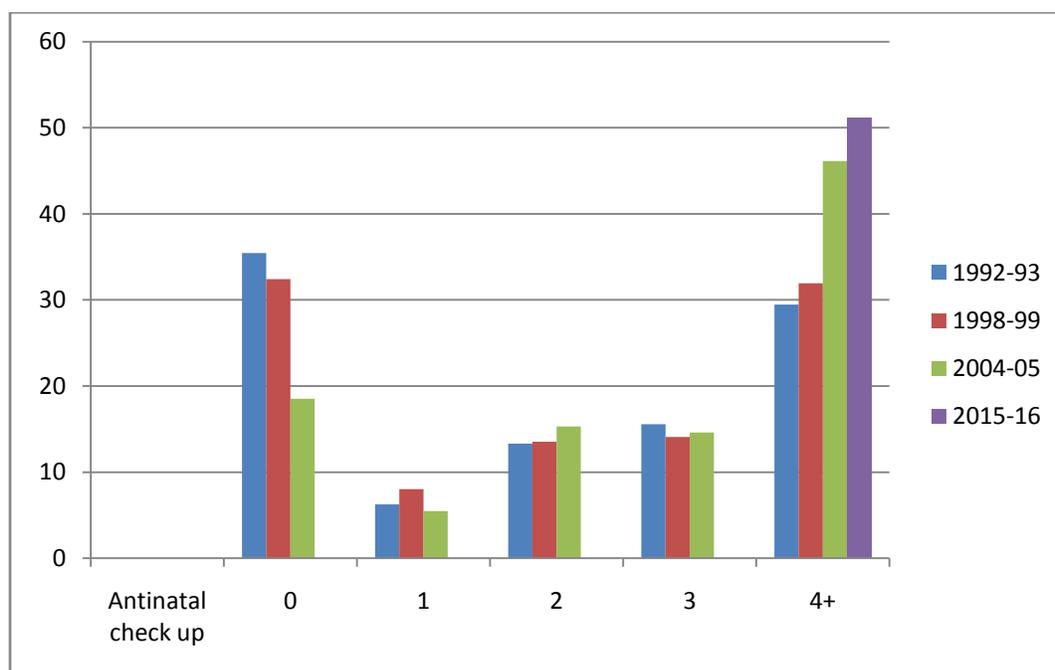
To examine the effects of Socioeconomic and demographic factors on the use of antenatal visits Ordered logit model has been used.

Trends in the use of antenatal care visit in India:

In this section I present trends in use of antenatal care visit at the national and rural/urban areas.

The antenatal visits variable captures the number of antenatal visits made by the pregnant woman. However, WHO recommends at least 4 antenatal visits for a pregnant woman to be deemed protected from pregnancy related risk and complications. During the period 1992-93 and 2015-16 it was observed that the antenatal check up visits has increased considerably but it was just above the 50 percentage points as depicted in Figure -1. Urban –rural differences in antenatal check up visits consistently persist during this period of time as depicted from table-1. It may be noted that antenatal care visits increased by 21 percentage points during 1992-93 to 2015-16. In urban areas it has been increased by 17 percentage points whereas in rural areas it has increased remarkably by 22 percentage points. Non visits for antenatal check up have also been gone down by 50 percent in both urban and rural areas during this period.

Figure-1: Antenatal care Visits in India from 1992-93 to 2015-16



Source: Computed from NFHS data

Table-1: Antenatal care Visits in Urban/Rural Areas from 1992-93 to 2015-16

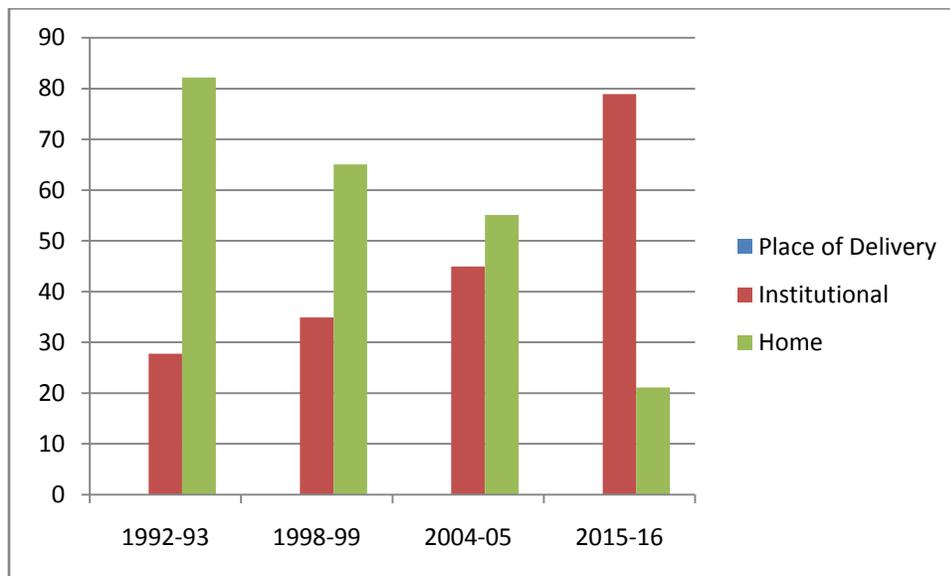
NFHS	1992-93		1998-99		2004-05		2015-16	
Antenatal Check up	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban
0	42.09	17.35	39.49	12.18	24.75	8.94		
1	6.99	4.14	8.94	5.37	7.02	3.07		
2	13.83	11.9	14.58	10.52	18.76	9.98		
3	14.9	17.3	14.11	13.98	15.97	12.47		
4+	22.19	49.3	22.88	57.95	33.5	65.54	44.8	66.4

Source: Computed from NFHS data

Trends in use of Delivery care services in India from 1992-93 to 2015-16:

Figure -2 depicts trends in use of delivery care services in India between 1992-93 and 2015-16. It has been observed that delivery by institution or skilled professional has been improved gradually over the years. Delivery by skilled professional has increased from 22.78 percent to 78.9 percent during this period. Delivery care service has been availed by 75.1 percent mother in rural areas and that of 88.7 percent mother in urban areas.

Figure 2 : Trends in use of Delivery care services in India

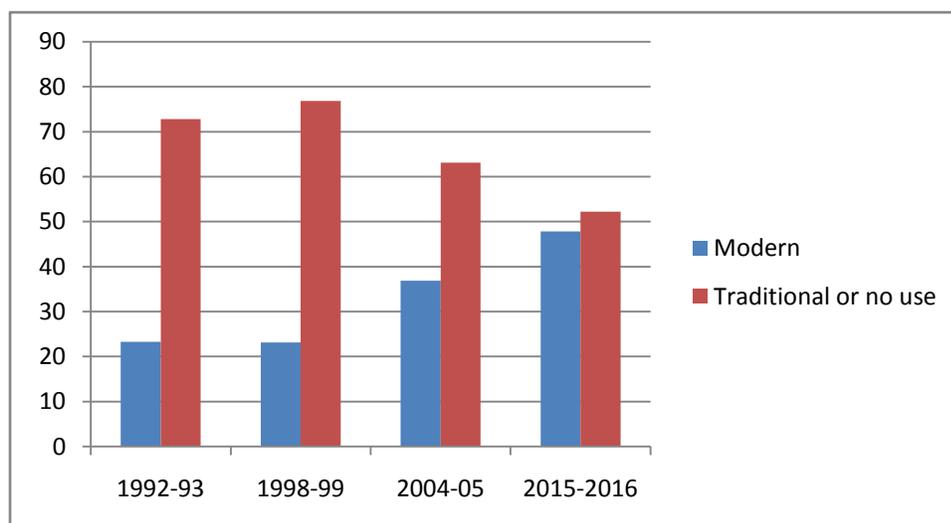


Source: Computed from NFHS data

Trends in Usage of contraceptives in India:

In this section I present trends in Contraceptive usage at the national level for all women between 15 and 50 years of age. I have categorized this variable as use of modern contraceptive and traditional or non usage of contraceptive. From Figure-3 it can be observed that the use of modern contraceptives have been improved gradually over the years. It may be noted that though it has been increased consistently still the usage of modern contraceptives is below 50 percent among the women. An Urban-rural difference in usage of contraceptives has also observed.

Figure-3: Trends in usage of contraceptives in India



Source: Computed from NFHS data

Effect of Demographic and socioeconomic variables on Use of Delivery care Services

Odds ratios (OR) with 95% CI of multivariate logistic regression models presented in Table-2. During nineties variable like place of residence, religion, caste, sex of household head, women education level, partner's education level, birth order and mother's age had significant effects on use of delivery care services. These variables were still significantly associated with use of delivery care services during 2005-06. The likelihood of use of delivery care services was significantly lower for rural areas' women (OR=.501, 95% CI=.46, .53). The more educated women are more likely to used the delivery care services (OR=4.4, 95% CI=3.5, 5.5). Women belonging to Muslim families were least likely to used delivery care services compared to others socio-economic group. It has also been observed that women belonging to Sts were less likely to be used the delivery care services (OR=0.607, 95% CI=.537, .685). It has been observed that mother's age was one of the strong predictors of uptake of use of delivery care services. It has been observed that likelihood of use of delivery care varies significantly by economic condition of families. Women belonging to rich families were found to have significantly higher odds of being used delivery care compared to middle and poorer sections of the society (OR=3.72, 95% CI=3.24, 4.27). It has been found that women's media exposure was significantly associated with uptake of use of delivery care services.

Effects of Demographic and Socio-economic factors on antenatal care visit

Table-3 Depicts the coefficients of ordered logistic regression of selected demographic and socioeconomic variables of antenatal care visit in India. It has been observed that socioeconomic factors like religion, women's education and mother's exposure to any sort of mass media have significantly influence the antenatal check up visits during 2004-05. It has been found that sex of the household head had negative impact on antenatal visit if head of the household is female though it is insignificant. Demographic factor like mother's age and socioeconomic factor like standard of living index has significant positive association with the antenatal care visits. As Mother's age increases chances to visit antenatal check up increases. Women, who were watching tv, listening radio every day had the greater chance for antenatal check up.

Table-2 : Odd ratios of logit regression of predictor variables of Delivery care services in India during 2004-05

Predictor variables	Odd Ratios	Predictor Variables	Odd Ratios
Place of residence		Number of Living children	0.74(0.71,0.78)***
Urban(ref)	1.00	Birth order of child	0.87(0.83,0.91)***
Rural	0.50(0.68, 0.53)***	Mothers Age	
Highest Education Level		13-19(ref)	1.00
No education(ref)	1.00	20-24	1.04(0.91,1.19)
Primary	1.46(1.34, 1.59)***	25-29	1.26(1.09,1.45)**
Secondary	2.10(1.93, 2.28)***	30-34	1.75(1.50,2.05)***
Higher	4.40(3.5,5.5)***	35-40	2.40(1.98,2.92)***
Religion		41-49	2.85(2.09,3.89)***
Hindu(ref)	1.00	Wealth index	
Muslim	0.86(0.80,0.94)***	poorest	1.00

Christian	1.26(1.06, 1.49)**	poorer	1.43(1.30,1.58)***
Sikh	0.89(0.74,1.0)	Middle	1.94(1.76,2.14)***
Others	1.27(1.00, 1.60)*	Richer	2.35(2.11,2.16)***
Ethnicity		Richest	3.72(3.24,4.27)**
SC(ref)	1.00	Reading news paper	
ST	0.60(0.53,0.68)***	Not at all	1.00
OBC	1.07(0.99,1.16)*	at least once a week	1.29(1.15,1.44)***
None of them	1.17(1.07,1.27)***	almost every day	1.94(1.66,2.28)***
Sex of Household Head		Watching TV	
Male(ref)	1.00	Not at all	1.00
Female	1.09(0.99,1.19)*	at least once a week	1.32(1.19,1.45)***
		almost every day	1.91(1.77,2.07)***

Source: Computed from NFHS-3 data

Table-3: **Ordered Logistic regression of predictors variables for Antenatal care in India during 2004-05**

Predictor variables	Odd Ratios
Place of Residence	0.73(0.69,0.78)***
Education level	1.45(1.40,1.50)***
Religion	1.03(1.00,1.06)*
Ethnicity	1.01(0.98,1.03)
Sex of Household Head	0.93(0.86,1.01)
Number of living Children	0.87(0.83,0.91)***
Partner's Education	0.98(0.95,1.01)
Birth order of child	0.82(0.79, 0.85)***

Mother's Age	1.21(1.18,1.25)***
Wealth	1.25(1.21,1.28)***
Reading News paper	1.19(1.15,1.23)***
Watching Tv	1.34(1.30,1.37)***

Source: Computed from NFHS-3 data

Conclusion

Significant impact of Socio-economic and Demographic factors on Reproductive health care services has been found. Significant rural-urban and poor-rich differences in reproductive health services have been observed. Standard of living Index , ethnicity, religion and media exposure were notably associated with reproductive health care services. The empirical findings of this study indicate certain policy pointers. Maternal education has played in crucial role in enhancing antenatal care and contraceptive uses. Focus, therefore, should be on enhancing maternal education. It has been also found that Muslim were less likely to be used reproductive health care services. Special efforts on monitoring in increase awareness on antenatal visits, family planning have to be given in areas with higher concentration of Muslims. Focus on rural as well as economically backward region has to be given.

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