Antenatal Care and Safe Delivery among Social Groups in Madhya Pradesh

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Abstract
Maternal and child health (MCH) programmes emphasized the need to give high priority to provision of adequate health services for mothers and children in order to reduce maternal and infant mortality. This paper attempted to study the utilization of antenatal care among social groups in Madhya Pradesh and the factors influencing it. The data for the present paper have been analyzed from District Level Household Survey– Reproductive and Child Health (DLHS-RCH) survey conducted during 2002-2004. The analysis has been done by using bivariate and multivariate logistic regression analysis. The analysis revealed that there are wide inter- district variations in the utilization of antenatal care services among social groups in Madhya Pradesh. The coverage of full antenatal care is a matter of concern in Madhya Pradesh. Only one third of deliveries are safe in Madhya Pradesh. The urban rural differentials still exist in utilization of antenatal care in Madhya Pradesh. The use of antenatal care and safe delivery significantly increases with education and standard of living in Madhya Pradesh. Special attention should be focussed on the women staying in rural areas, SC and ST women, women with low standard of living and 16 districts with low antenatal care and safe delivery as most of the women are not seeking services. From these findings, it can be concluded that with the improvement of socioeconomic status, use of health care will increase. This would entail a more widely dispersed development program, stressing wider improvements in conditions that influence utilization of antenatal care, such as education and the overall standard of living. It will help to narrow the differentials in utilization of health care services among social groups in Madhya Pradesh.
Keywords: Antenatal Care, Safe Delivery, Social Groups, Madhya Pradesh

1. Introduction

The concern for health of mothers and children in India dates back to pre-independence period. In fact, as early as in the forties, the Bhore committee and later the Mudaliar committee in the seventies had pinpointed the need to give high priority to provision of adequate health services for mothers and children in order to reduce maternal and infant mortality (Kanitkar, 1979). Maternal and child health (MCH) programmes emphasized the need to ensure that pregnant women receive adequate prenatal care, safe delivery, post natal care and sought to address high risks that women in many contexts face in relation to child bearing. The utilization of MCH mainly depends on the socio-economic characteristics of the individuals of a community and success in child immunization programs which leads to the child surviva (UNICEF 1990; Kim-Farley, R. et al. 1992; Grant 1993). The maternal factor is one of the five proximate determinants through which socio-economic factors influence the risk of infant and child mortality (Mosley and Chen 1984).

Antenatal care (ANC) refers to pregnancy related health care provided by a doctor or a health worker in a medical facility or at home. The safe motherhood initiative proclaims that all pregnant women must receive basic, professional antenatal care. The MCH programme has been extended in all districts of country by 1989-90. Child survival and safe motherhood (CSSM) approach attempts to ensure effective implementation of MCH services through better understanding of programme components and emphasizes the feasibility of achieving substantial reduction in maternal and child mortality (Ministry of Health and Family Welfare 1998).

The National Rural Health Mission (NRHM) launched throughout the country with special focus on 18 states, including eight empowered action group (EAG) states, the north-eastern states, Jammu & Kashmir and Himachal Pradesh. The NRHM seeks to provide accessible, affordable and quality health care to the rural population, especially the vulnerable sections. It also seeks to reduce maternal mortality ratio in the country from 407 to 100 per 100,000 live births, infant mortality rate from 60 to 30 per 1000 live births and the total fertility rate from 3 to 2.1 within the 7 year period of the mission (Ministry of Health and Family Welfare 2005).

The state of Madhya Pradesh is located in the centre of the country with about 60 million population in 2001, is the 7th largest state in India in terms of population whereas it is second in terms of geographical spread. The state is consisted of 45 districts. Madhya Pradesh is surrounded by five states of India namely Uttar Pradesh, Rajasthan, Gujarat, Maharashtra, and Chhattisgarh. Madhya Pradesh has recorded a sharp decline in the decadal growth rate from 27.2 percent in 1981-91 to 24.3 percent during 1991-2001. The percentage of scheduled castes (SC) and scheduled tribes (ST) population in total population are 15.2 percent and 20.3 percent respectively. Madhya Pradesh belongs to a category of less developed states in the country with considerable district wise variations in demographic, social and economic characteristics. The state of Madhya Pradesh is marked by a

complex social structure, a predominantly agrarian economy, a difficult and inaccessible terrain and scattered settlements over a vast area. It poses several formidable problems to family planning and reproductive health services. There are inter-district variations in terms of culture, socio-economic conditions and status of women. The state is committed for the betterment of the families, communities, health, status of women and children by bringing down the level of maternal mortality and infant mortality. In view of the above, the present paper is an attempt to study the utilization of antenatal care in Madhya Pradesh and the factors influencing it.

2. Methodology

The data have been analyzed from District Level Household Survey–Reproductive and Child Health (DLHS-RCH) (International Institute for Population Sciences 2004) conducted during 2002-2004 for the present paper. The analysis has been done by using bivariate and multivariate logistic regression analysis. The bivariate relationship between antenatal care, safe delivery and background characteristics has been analyzed. An attempt has been made with the help of logistic regression analysis to explore the factors influencing the antenatal care in Madhya Pradesh.

3. Results and Discussion

3.1 Antenatal Care by Background Characteristics of Women in Madhya Pradesh

Women who had given a birth during the three years preceding the survey were asked whether they had gone for antenatal check-ups. The percentage of women who had received antenatal check-ups during pregnancy according to selected background characteristics of the women in Madhya Pradesh are shown in Table 1. Seventy four percent of the women received any antenatal care and twenty six percent of the women have not received any antenatal care during their last pregnancy in Madhya Pradesh. Any antenatal care by caste/tribe is found to be highest 86 percent among women of other category followed by 77 percent of the women among other backward castes (OBC), 71 percent of the women among scheduled castes (SC) and lowest 61 percent of the women among scheduled tribes (ST). More than three-fourth of the women among younger age groups 15-19 and 20-34 received any antenatal care than among older women in the age group 35-44 (62 percent) and it is more common among those women who had given birth for first time among all the social groups. Eighty two percent of women with parity one received any antenatal care and it declined to 79 percent for parity two, 74 percent for parity three and lowest 65 percent for parity 4 and above. It is important to note from table that, the percentage of women who received any antenatal care increases with increase in education of the women, place of residence and standard of the living of the household of the women among all the social groups. The percentage of the women who received any antenatal care was comparatively higher in urban areas (89 percent) than in rural areas (69 percent). Any antenatal care by religion is found to be higher among other religions (93 percent) and lower among Muslim (90 percent) and Hindu (73 percent). Any antenatal care by standard of living of the household of the women is found to be highest 95 percent in case of women belonging to high standard of living of the household followed by women belonging to medium standard of living of the household (84 percent) and lowest 64 percent in case of women belonging to low standard of living of the household in Madhya Pradesh. The almost similar pattern is observed among all the social groups.

3.2 Antenatal Care in the districts of Madhya Pradesh

The coverage of any antenatal care among social groups in the districts of Madhya Pradesh is depicted in Table 2. The antenatal coverage in Madhya Pradesh ranges from the highest of more than 90 percent in Neemuch, Mandsaur, Jabalpur, Ratlam, Shajapur and Ujjain to the lowest of 32 percent in Sidhi district. Almost all districts, except Chhatrapur, Guna, Satna and Sidhi more than 60 percent of the women received any antenatal care. In case of scheduled castes, the highest coverage of any antenatal care of more than 90 percent are found in Balaghat, Barwani, Dhar, East Nimar, Jabalpur, Neemuch, Ratlam, Seoni, and Shajapur districts and lowest 25 percent in Satna district. Almost all districts, except Chhatrapur, Guna, Satna, Sidhi and Umaria more than 60 percent of the women received any antenatal care. More than 90 percent of the women received any antenatal care in Datia, Mandsaur, Morena and Neemuch districts and more than 60 percent of the women received any antenatal care in Balaghat, Barwani, Bhopal, Damoh, Dewas, Dhar, Dindori, East Nimar, Hoshangabad, Jabalpur, Katni, Mandla, Narsimhapur, Rajgarh, Ratlam, Seoni, Shajapur, Shivpuri, Ujjain and Umaria districts whereas less than 60 percent of the women received any antenatal care in remaining 20 districts of Madhya Pradesh among scheduled tribes. In case of other backward castes, the highest of more than 90 percent of the women received any antenatal care in Balaghat, Barwani, Betul, Dewas, Dhar, East Nimar, Indore, Jabalpur, Jhabua, Mandla, Mandsaur, Ratlam, Shajapur and Ujjain districts and lowest 26 percent of the women in Sidhi district. Almost all districts, except Chhatrapur, Guna, Satna and Sidhi more than 60 percent of the women received any antenatal care. The highest of more than 90 percent of the women received any antenatal care in Balaghat, Barwani, Bhopal, Chhindwara, Damoh, Datia, Dhar, East Nimar, Gwalior, Harda, Hoshangabad, Indore, Jabalpur, Jhabua, Katni, Mandla, Mandsaur, Neemuch, Ratlam, Sehore, Shahdol, Shivpuri, Tikamgarh,

Ujjain and West Nimar districts and lowest 54 percent of the women in Sidhi district. Almost all districts, except Sidhi district more than 60 percent of the women received any antenatal care to the women of other castes category.

3.3 Full Antenatal Care by Background Characteristics of Women in Madhya Pradesh

Research evidences have shown that antenatal care (ANC) during pregnancy will reduce maternal mortality and leads to safe delivery. Full antenatal care includes at least three antenatal check-ups, at least one tetanus toxoid injection and supplementary iron in the form of iron folic acid tablets/syrup daily for 100 days as recommended by the RCH programme. The coverage of full antenatal care by background characteristics of the women in Madhya Pradesh is given in Table 3. Only 5 percent of the women received full antenatal care during their last pregnancy in Madhya Pradesh. Full antenatal care among social groups is found to be highest 12 percent among the women of other category followed by 5 percent of the women among other backward castes (OBC), 3 percent of the women among scheduled castes (SC) and scheduled tribes (ST). The higher 6 percent of the women in age group 20-34 received full antenatal care than 3 percent each among younger (15-19) and older women (35-44). Nine percent of the women with parity one received full antenatal care and it declined to 6 percent for parity two, 4 percent for parity three and lowest 3 percent for parity 4 and above. The almost similar pattern is observed among all the social groups. It can be seen from table that, full antenatal care increases with increase in education of the women, place of residence and standard of the living of the household of the women among all the social groups. The percentage of the women who received full antenatal care is comparatively higher in urban areas (12 percent) than in rural areas (3 percent). Full antenatal care by religion is found to be highest 19 percent among the women of other religions than 7 percent among the women of Muslim religion and 5 percent among the women of Hindu religion. Full antenatal care by standard of living of the household of the women is found to be highest 17 percent in case of the women belonging to high standard of living of the household of the women followed by women belonging to medium standard of living of the household (5 percent) and lowest 2 percent in case of women belonging to low standard of living of the household in Madhya Pradesh and almost similar pattern is observed among all the social groups.

3.4 Full Antenatal Care in the districts of Madhya Pradesh

The coverage of full antenatal care among social groups in the districts of Madhya Pradesh is shown in Table 4. The full antenatal coverage in Madhya Pradesh is 5 percent and it is 4 percent of the women among scheduled castes, 3 percent of the women among scheduled tribes, 5 percent among the women of other backward castes and 11 percent of the women among other castes category. In all the districts, the value ranges from just 1 percent of the women to 26 percent of the women and it is lowest in Chhatarpur and Sidhi districts. The percentage of women who received full antenatal care ranges from less than one percent in Chhatrapur, Panna and Sidhi districts to 20 percent in Bhopal. In 29 of 45 districts, coverage rate of full antenatal care is lower than that of state average. In case of scheduled castes, the percentage of the women who received full antenatal care ranges from less than one percent in Damoh, Dewas, Dhar, Harda, Morena, Narsimhapur, Rewa, Satna, Sidhi, Vidisha and West Nimar districts to highest 28 percent in Seoni district. In 26 of 45 districts, coverage rate of full antenatal care is lower than that of state average among scheduled castes. The percentage of the women who received full antenatal care ranges from less than one percent in Bhind, Chhatrapur, Chhindwara, Damoh, Datia, Dewas, Dindori, Katni, Mandsaur, Narsimhapur, Panna, Satna, Sehore, Shajapur, Sheopur, Shivpuri, Sidhi, Tikamgarh and Vidisha districts to highest 40 percent in Morena district. In 28 of 45 districts, coverage rate of full antenatal care is lower than that of state average among scheduled tribes. In case of other backward castes, the percentage of the women who received full antenatal care ranges from less than one percent in Chhatarpur, Katni, Panna, Raisen, Satna, Shivpuri, Sidhi and Tikamgarh districts to highest 17 percent in Jhabua district. The coverage rate of full antenatal care is lower than that of state average in 25 out of 45 districts in Madhya Pradesh. In all the districts, the value ranges from less than 1 percent of the women to 36 percent of the women and it is lowest in Betul and Chhatarpur districts. The percentage of the women who received full antenatal care ranges from less than one percent in Betul and Chhatarpur districts to 36 percent in Balaghat district. In 28 of 45 districts, coverage rate of full antenatal care is lower than that of state average.

Logistic regression analysis has been used to know the influence of background characteristics on full antenatal care coverage and results are presented in Table 5. It can be seen from table that the likelihood of full antenatal care coverage significantly increases among the women of younger age group 20-34 and decreases among the women of older age group 35-44 than among the women in age group 15-19 among all the social groups in Madhya Pradesh. The likelihood of full antenatal care coverage significantly decreases as parity of the women increases among all the social groups in Madhya Pradesh. As expected, the chance of full antenatal care increases significantly with increase in education of the women among all the social groups in state. The likelihood of full antenatal care increases in urban areas than rural areas among all the social groups in Madhya Pradesh. In case of religion, the likelihood of getting full antenatal care is less among Muslim and high among

other religions than that of the Hindu. The possibility of full antenatal care is significantly much higher among the women belonging to household of high and medium standard of living than low standard of living among all the social groups in Madhya Pradesh.

3.5 Reasons for not seeking Antenatal Care among Social Groups in Madhya Pradesh

The percentage of women who did not receive any antenatal check-up by the main reasons among social groups in Madhya Pradesh is depicted in Table 6. Fifty six percent of the women reported that it was not necessary to have antenatal check-up in Madhya Pradesh. Sixty percent of the women in case of other category, 58 percent of the women in case of other backward castes and scheduled castes and 49 percent of the women in case of the women of scheduled tribes reported the same reason. Not necessary to have antenatal check-up is an important reason reported by majority of the women among all the social groups in Madhya Pradesh. Eleven percent of the women reported that lack of knowledge as the main reason for not seeking antenatal care followed by not customary, health facility too far/ no transport, cost too much, family did not allow, and no time to go. The low status of women or dependence of the women on their family is also a matter of concern as some of them reported family did not allow, no time to go, too far/no transport as the reasons for not seeking antenatal care. Only two percent of the women stated poor quality of services as the main reason for not seeking antenatal care. The reasons for not seeking antenatal care vary among the social groups.

3.6 Safe Delivery by Background Characteristics of the Women in Madhya Pradesh

The percentage of safe delivery by background characteristics of the women in Madhya Pradesh is presented in Table 7. Only 36 percent of the deliveries are safe in Madhya Pradesh. Only 15 percent of deliveries to the women from scheduled tribe are safe, compared to 28 percent of the women among scheduled castes, 38 percent of the women among other backward castes and 60 percent of deliveries among the women from other castes category. Thirty four percent of the deliveries are safe for younger women in age group 15-19, 36 percent of deliveries are safe for the women in the age group of 20-34 years and 28 percent of the deliveries are safe to the women in age group 35-44 years. The proportion of safe delivery decreases as parity increase from 1 (52 percent) to 4 and above (22 percent). The safe deliveries have been increased substantially by education. Only 21 percent of non-literate women had safe deliveries, whereas it is 82 percent among the women who had completed at least 10 or more years of schooling. In urban areas, 69 percent of the deliveries are safe as against 24 percent in rural areas. The percentage of safe deliveries is lower among Hindu women (34 percent) than Muslim women (57 percent) and women for other religions (73 percent). The percentage of safe deliveries increased substantially with standard of living of the household of the women. Women with high standard of living had highest 81 percent safe deliveries as compared to the women with medium standard of living (45 percent) and the women with low standard of living (19 percent). The percent of safe deliveries by background characteristics vary among social groups but similar pattern to state is observed in almost all the social groups in the state.

3.7 Safe Deliveries in the districts of Madhya Pradesh

The extent of safe delivery varied substantially in the districts of Madhya Pradesh (Table 8). Only 36 percent of the deliveries are safe in Madhya Pradesh and this proportion is 29 percent for scheduled castes, 17 percent for scheduled tribes, 39 percent for other backward castes and 60 percent for other castes category. The percentage of safe deliveries varies from lowest 12 percent in Sidhi district to highest 76 percent in Indore district. The percentage of safe deliveries is lower than that of state average in 23 out of 45 districts. In case of scheduled castes, the percentage of safe deliveries ranges from lowest 7 percent in Sidhi district to highest 63 percent in Balaghat district. In 18 of 45 districts, the percentage of safe deliveries is lower than that of state average. The percentage of safe deliveries ranges from lowest 2 percent in Shivpuri district to highest 50 percent in Morena district. The percentage of safe deliveries is lower in 23 of 45 districts than that of state average among scheduled tribes. In case of other backward castes, the percentage of safe deliveries varies from lowest 11 percent in Sidhi district to highest 69 percent in Barwani district. The percentage of safe deliveries is lower than that of state average in 20 out of 45 districts in Madhya Pradesh. The percentage of safe deliveries ranges from lowest 37 percent in Dindori district to highest 87 percent in Indore district. The percentage of safe deliveries is lower than that of state average in 19 out of 45 districts. This indicates that percentage of safe deliveries is lower among scheduled castes and scheduled tribes than other backward castes and other castes category.

Logistic regression analysis (Table 9) reveals that the probability of having safe delivery increases among the women of younger age group (20-34) and decreases among the women of older age group (35-44) than women in age group 15-19 among all the social groups in Madhya Pradesh. The likelihood of safe delivery significantly decreases with parity of the women in almost all the social groups in the state. It is also observed that the chances of having safe delivery significantly increases with increase in education of the women among all the social groups in Madhya Pradesh. The likelihood of safe delivery increases in urban areas than rural areas

among all the social groups in Madhya Pradesh. It is also observed that the likelihood of safe delivery is more among the women of Muslim and the women of other religions than Hindu women. The likelihood of safe delivery by social groups is more among the women of Muslim and the women of other religions than Hindu women in case of the women of scheduled castes and scheduled tribes whereas it is more among the women of Muslim and lower among the women of other religions than the women of Hindu religion in case of other backward castes and other castes category in Madhya Pradesh. The possibility of safe delivery increases significantly with the standard of living of the household of the women among all the social groups in Madhya Pradesh.

3.8 Relationship between Any Antenatal Care and Safe Delivery

The association between any antenatal care and safe delivery is presented in Table 10. One would expect a positive association between any antenatal care received by the women and safe delivery. But from the examination of Table 13, there is no such strong relationship between any antenatal care and safe delivery. It can be seen from table that there is a positive association between antenatal care received by the women and safe delivery in 17 districts as these districts recorded both high antenatal care and safe delivery, while 16 districts had low any antenatal care and safe delivery. Eight districts namely East Nimar, Katni, Mandla, Ratlam, Rewa, Sagar, Satna and Shivpuri districts had high antenatal care and low safe delivery. Damoh, Guna, Sheopur and Tikamgarh districts had low antenatal care and high safe delivery. This indicates that there are very wide inter-district variations in relationship between these variables. In case of the women of SC, a positive association was witnessed between any antenatal care and safe delivery in 9 districts. Thirteen districts showed both low antenatal care and safe delivery, while 19 districts had high any antenatal care and low safe delivery and 4 districts had low any antenatal care and high safe delivery. Seven districts had high any antenatal care and safe delivery, 32 districts had low any antenatal care and safe delivery, 7 districts had high any antenatal care and low safe delivery whereas Umaria district had low any antenatal care and high safe delivery among the women of ST. In case of the women of OBC, a positive association was witnessed between any antenatal care and safe delivery in 22 districts. Eight districts namely Bhind, Chhatarpur, Datia, Panna, Satna, Sidhi, Tikamgarh and Vidisha showed both low any antenatal care and safe delivery, while 10 districts had high any antenatal care and low safe delivery. Bhopal, Chhindwara, Guna and Sheopur districts had low any antenatal care and high safe delivery whereas Gwalior district is having similar antenatal care as state average and high safe delivery among the women of OBC. There is a strong relationship between any antenatal care and safe delivery in 39 districts, while 5 districts had low any antenatal care and high safe delivery. Raisen district is having similar any antenatal care as to state average and high safe delivery among the women of other castes. The average state figures of the corresponding variables are considered here to calculate the high and low value.

4 Conclusions and Recommendations

This paper attempted to study the utilization of antenatal care among social groups in Madhya Pradesh and the factors influencing it. The analysis revealed that there are wide inter-district variations in the utilization of antenatal care services among social groups in Madhya Pradesh. The coverage of full antenatal care is a matter of concern in Madhya Pradesh as only 5 percent of the women have availed it. Only one third of deliveries are safe in Madhya Pradesh. The extent of safe delivery varied substantially among the social groups in the districts of Madhya Pradesh. The urban rural differentials still exist in utilization of antenatal care in Madhya Pradesh. The antenatal care and safe deliveries have been increased substantially by education. Results of logistic regression analysis on antenatal care and safe delivery showed differentials among social groups. The use of antenatal care and safe delivery significantly increases with education and standard of living in Madhya Pradesh. Special attention should be focussed on the women staying in rural areas, scheduled caste and scheduled tribe women, women with low standard of living and 16 districts with low antenatal care and safe delivery as most of the women are not seeking services. Lack of knowledge, cost too much, no transportation or health facility too far and poor quality of services are found to be the major reasons for not availing antenatal care.

5. Policy Implications

1. As education is playing very important role in utilization of antenatal care, the education of the girls need to be encouraged.
2. The government should make necessary steps to improve the antenatal care, safe delivery through information, education and communication campaigns and sending the dedicated health personnel to the remote and inaccessible areas in order to create awareness, remove rural-urban disparity and increase institutional deliveries.

From these findings, it can be concluded that with the improvement of socioeconomic status, such as education and the overall standard of living use of health care will increase. It will help to narrow the differentials in utilization of health care services among social groups in Madhya Pradesh.

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Table 1: Percentage of the women who received any antenatal care during pregnancy by background characteristics of women among social groups in Madhya Pradesh, 2002-04

Background characteristics	SC	ST	OBC	Other Castes	Total	N
Age-group						
15-19	77.7	66.8	78.3	89.5	75.7	1240
20-34	72.1	61.5	78.0	86.7	75.1	13469
35-44	59.1	50.7	64.1	79.5	62.2	1304
Children ever born						
0-1	77.3	67.8	83.3	93.2	82.0	3818
2	76.9	67.5	80.7	88.4	79.2	3886
3	69.1	63.4	76.4	85.2	74.0	3005
4+	65.8	54.1	69.5	74.3	64.7	5306
Women's education						
Illiterate	65.9	56.9	68.6	73.2	64.8	9758
0-9 years	81.8	81.1	87.2	87.5	85.6	4339
10+ years	91.9	93.2	94.8	96.1	95.2	1917
Place of residence						
Rural	67.8	59.6	73.4	79.3	69.1	11874
Urban	81.6	83.3	87.7	93.5	88.5	4140
Religion						
Hindu	70.8	60.8	75.9	85.2	72.8	14782
Muslim	92.9	85.7	90.2	88.2	89.5	992
Others	92.3	77.5	94.4	97.4	93.3	240
Standard of living index						
Low	65.0	58.2	68.4	70.8	64.4	9566
Medium	82.3	83.7	83.2	87.4	84.1	3777
High	94.9	96.6	94.4	95.5	95.0	2670
Total	**71.2**	**61.1**	**77.1**	**86.2**	**74.1**	**16013**

Table 2: Percentage of the women who received any antenatal care during pregnancy among social groups in the districts of Madhya Pradesh, 2002-04

Districts	SC	ST	OBC	Other Castes	Total	N
Balaghat	90.2	80.7	91.2	100.0	89.8	344
Barwani	90.5	64.6	94.6	90.0	73.9	295
Betul	78.0	58.3	90.4	77.8	72.9	317
Bhind	66.7	0.0	68.2	72.2	68.5	419
Bhopal	80.8	71.4	73.3	94.6	84.9	518
Chhatarpur	39.3	56.1	41.8	67.3	45.7	444
Chhindwara	74.0	44.2	73.6	96.8	65.8	383
Damoh	74.6	78.0	87.0	94.6	83.4	296
Datia	69.6	100.0	68.8	90.0	72.1	129
Dewas	81.5	69.7	92.7	88.6	85.9	362
Dhar	90.0	70.0	96.4	100.0	82.0	489
Dindori	77.8	63.7	82.6	86.7	69.8	149
East Nimar	90.2	61.4	90.8	92.1	84.4	424
Guna	47.1	42.6	53.6	74.3	50.0	524
Gwalior	73.8	35.3	74.1	90.3	76.2	471
Harda	66.7	51.5	78.8	91.7	71.1	114
Hoshangabad	78.0	63.4	80.0	93.9	78.7	230
Indore	85.7	44.0	90.9	90.2	87.8	592
Jabalpur	92.5	84.0	91.2	96.4	90.9	504
Jhabua	57.7	53.9	100.0	100.0	58.2	450
Katni	78.6	70.5	86.8	96.2	83.2	339
Mandla	83.3	71.7	94.4	100.0	79.8	203
Mandsaur	88.0	93.8	90.4	95.1	91.0	278
Morena	79.8	100.0	75.1	78.9	77.6	380
Narsimhapur	74.4	65.6	79.0	80.0	76.4	225
Neemuch	93.3	90.3	89.6	100.0	92.0	176
Panna	77.1	54.0	73.3	87.2	72.6	274
Raisen	81.6	57.8	74.3	74.1	72.9	340
Rajgarh	84.3	75.0	80.8	89.5	81.8	319
Ratlam	92.9	84.2	94.4	98.4	91.2	283
Rewa	75.6	56.2	76.0	86.5	75.4	520
Sagar	73.7	59.5	84.1	78.1	78.0	601
Satna	25.0	29.8	36.7	64.5	39.7	531
Sehore	78.9	50.0	88.5	96.2	86.6	277
Seoni	94.6	80.0	80.0	72.7	81.5	270
Shahdol	71.7	55.7	76.5	94.4	69.4	431
Shajapur	95.5	71.4	92.7	89.5	91.0	324
Sheopur	69.7	28.6	67.9	78.6	60.1	158
Shivpuri	72.3	80.4	88.7	96.1	86.2	398
Sidhi	25.9	27.5	26.3	54.5	31.6	534
Tikamgarh	69.0	33.3	71.1	93.0	71.0	359
Ujjain	89.4	79.2	95.9	91.2	91.5	447
Umaria	56.3	61.8	78.8	88.6	73.2	157
Vidisha	60.2	54.2	62.6	80.8	64.3	367
West Nimar	87.1	50.0	87.1	90.0	67.7	368
Madhya Pradesh	71.2	61.1	77.1	86.1	74.1	16013

Table 3: Percentage of the women who received full antenatal care by background characteristics of women among social groups in Madhya Pradesh, 2002-04

Background Characteristics	SC	ST	OBC	Other Castes	Total	N
Age-group						
15-19	2.26	2.84	3.89	1.50	2.98	1240
20-34	3.81	3.44	5.16	12.20	5.87	13469
35-44	2.09	1.32	1.52	9.82	2.99	1305
Children ever born						
0-1	6.34	5.67	7.91	18.18	9.46	3817
2	3.79	3.07	4.70	11.69	5.82	3885
3	2.10	3.33	3.89	8.65	4.29	3005
4+	2.39	2.25	2.96	4.63	2.81	5306
Women's education						
Illiterate	1.48	1.92	1.88	2.51	1.84	9757
0-9 years	4.93	8.21	6.84	5.60	6.36	4339
10+ years	21.51	22.41	15.72	24.86	21.38	1918
Residence						
Rural	2.36	2.74	3.36	3.55	3.03	11874
Urban	6.92	10.29	8.95	19.89	12.22	4140
Religion						
Hindu	3.38	3.20	4.61	11.13	5.07	14782
Muslim	10.34	0.00	5.47	10.43	7.06	991
Others	8.00	5.00	50.00	20.53	18.75	240
Standard of living index						
Low	1.92	2.60	2.24	1.95	2.25	9566
Medium	3.95	6.71	4.77	5.52	4.90	3777
High	14.84	16.67	13.24	21.97	17.45	2671
Total	**3.49**	**3.21**	**4.80**	**11.55**	**5.41**	**16014**

Table 4: Percentage of the women who received full antenatal care among social groups in the districts of Madhya Pradesh, 2002-04

Districts	SC	ST	OBC	Other Castes	Total	N
Balaghat	14.3	14.9	9.6	36.4	12.9	303
Barwani	9.4	3.4	14.4	27.5	8.1	430
Betul	16.7	1.3	12.2	0.0	7.3	344
Bhind	1.2	0.0	1.0	2.2	1.2	425
Bhopal	7.6	18.2	14.0	30.1	19.7	345
Chhatarpur	1.2	0.0	0.4	0.0	0.5	400
Chhindwara	7.5	0.9	9.2	4.2	5.8	312
Damoh	0.0	0.0	4.2	7.0	3.2	341
Datia	2.1	**0.0**	2.3	15.4	5.6	266
Dewas	0.0	0.0	3.5	3.4	2.4	409
Dhar	0.0	2.2	8.4	5.9	4.0	450
Dindori	8.7	1.0	4.7	7.0	3.4	356
East Nimar	5.6	6.1	4.1	5.4	4.4	384
Guna	6.5	1.7	1.1	6.3	3.2	465
Gwalior	2.3	7.1	1.9	12.7	4.4	321
Harda	0.0	1.1	5.5	9.7	4.1	317
Hoshangabad	5.9	11.5	5.2	22.9	9.2	273
Indore	6.8	14.3	15.9	17.4	14.0	293
Jabalpur	5.4	5.1	13.3	25.9	12.9	271
Jhabua	6.3	1.2	16.7	22.5	4.7	473
Katni	3.4	0.0	0.6	9.8	2.3	355
Mandla	5.6	1.2	2.2	11.1	2.4	296
Mandsaur	9.1	0.0	7.1	9.3	7.8	322
Morena	1.0	40.0	2.4	7.2	3.7	353
Narsimhapur	0.0	0.0	2.1	11.6	2.6	350
Neemuch	8.3	1.9	9.4	24.5	10.7	289
Panna	1.1	0.0	0.6	1.7	0.5	367
Raisen	1.6	3.7	0.9	8.8	2.7	412
Rajgarh	1.7	2.9	3.7	2.0	3.0	361
Ratlam	2.9	4.1	3.0	9.2	4.9	326
Rewa	0.0	4.0	4.9	7.6	4.3	304
Sagar	5.0	4.2	2.0	12.0	5.4	387
Satna	0.0	0.0	0.6	1.3	0.9	349
Sehore	3.2	0.0	2.7	2.7	2.3	385
Seoni	28.3	15.1	12.6	31.4	17.7	327
Shahdol	2.2	6.6	5.1	26.8	8.3	324
Shajapur	4.8	0.0	4.6	4.5	4.0	324
Sheopur	1.7	0.0	2.7	16.3	5.2	325
Shivpuri	2.5	**0.0**	0.5	5.8	1.6	367
Sidhi	0.0	0.0	0.0	3.2	0.5	372
Tikamgarh	2.0	0.0	0.5	9.3	2.0	354
Ujjain	2.3	5.0	5.6	6.7	4.9	390
Umaria	5.1	1.5	3.7	15.5	6.2	404
Vidisha	0.0	0.0	1.4	9.9	2.6	428
West Nimar	0.0	1.8	11.0	6.1	4.7	342
Madhya Pradesh	3.5	2.9	4.6	11.0	5.1	15991

Table 5: Results of logistic regression (odds ratio) for full antenatal care among social groups in Madhya Pradesh, 2002-2004.

Variables	Odds Ratio				
	SC	ST	OBC	Other Castes	Madhya Pradesh
Age-group					
15-19®					
20-34	3.541***	2.135*	2.307***	7.506*	1.624***
35-44	0.622	0.327*	0.144***	0.935	1.271
Children ever born					
1®					
2	0.820	0.865	0.725*	0.742**	0.613***
3	0.490**	0.885	0.623***	0.696**	0.625***
4+	0.965	0.963	0.819	0.763	0.647***
Education					
Illiterate ®					
0-9 years	2.829***	3.949***	2.550***	1.519*	2.479***
10+years	9.671***	9.561***	3.973***	4.813***	5.710***
Type of residence					
Rural ®					
Urban	2.382***	2.764***	2.357***	4.795***	1.393***
Religion					
Hindu ®					
Muslim	1.940	0.000	0.991	1.263	0.821
Others	0.883	1.001	4.187***	0.830	1.167
Standard of living index					
Low ®					
Medium	1.074	2.006***	1.877***	1.630*	1.212**
High	1.845*	3.218***	4.693***	3.155***	2.280***
Constant	-5.726	-4.995	-5.176	-6.472	-4.162

*<0.10 **<0.05 ***<0.01

Table 6: Percentage of the women who did not received any antenatal care by the main reason for not receiving an antenatal care among social groups in Madhya Pradesh, 2002-04

Reason	SC	ST	OBC	Other Castes	Total
Not necessary	58.1	49.2	58.3	59.9	55.6
Not customary	10.2	6.6	13.8	12.0	10.6
Cost too much	12.5	9.2	10.1	7.1	9.9
Too far/no transport	9.3	11.0	10.5	7.9	10.1
Poor quality service	1.9	1.8	2.9	1.7	2.2
No time to go	6.2	3.6	8.8	7.1	6.5
Family did not allow	6.5	3.8	8.8	6.9	6.6
Lack of knowledge	9.2	15.4	9.0	10.7	11.2
Other reason	7.8	7.4	6.5	7.3	7.1
Number of women	**825**	**1283**	**1496**	**534**	**4138**

Table 7: Percentage of safe delivery by background characteristics of the women among social groups in Madhya Pradesh, 2002-04

Background Characteristics	SC	ST	OBC	Other Castes	Total	N
Age-group						
15-19	32.3	19.6	39.7	53.7	34.2	1240
20-34	29.0	14.7	38.6	60.2	36.4	13469
35-44	18.8	11.9	29.0	59.6	28.0	1305
Children ever born						
0-1	42.9	27.0	52.3	74.5	51.7	3817
2	32.2	16.7	40.1	63.4	40.3	3885
3	26.0	14.3	33.5	55.3	32.5	3005
4+	19.0	9.5	27.6	38.4	22.1	5306
Women education						
Illiterate	19.8	11.7	25.5	33.3	21.2	9757
0-9 years	41.6	27.3	49.5	55.0	47.3	4339
10+ years	75.0	69.0	76.1	86.9	81.8	1918
Place of residence						
Rural	19.2	12.9	28.2	39.2	24.0	11874
Urban	55.6	46.1	66.3	81.5	68.8	4140
Religion of head of household						
Hindu	27.5	14.8	36.6	57.8	33.5	14782
Muslim	69.0	26.7	53.1	62.3	56.6	992
Others	65.4	29.3	77.8	86.1	73.4	241
Standard of living index						
Low	17.7	12.0	23.2	29.7	19.1	9567
Medium	44.0	33.5	43.1	52.5	45.4	3777
High	76.1	79.7	77.5	84.6	80.7	2670
Total	**28.2**	**15.0**	**38.0**	**59.8**	**35.5**	**16014**

Table 8: Percentage of safe delivery among social groups in the districts of Madhya Pradesh, 2002-04

Districts	SC	ST	OBC	Other Castes	Total	N
Balaghat	62.9	27.7	36.4	86.4	41.6	303
Barwani	41.9	10.2	68.5	75.0	30.9	430
Betul	35.4	13.1	48.1	46.2	31.0	345
Bhind	19.8	0.0	25.1	40.0	28.7	425
Bhopal	48.5	13.6	46.7	65.8	53.2	344
Chhatarpur	18.5	16.7	21.8	49.0	24.3	399
Chhindwara	20.0	9.3	42.6	70.8	30.4	312
Damoh	35.5	32.7	34.7	53.5	37.0	341
Datia	34.8	28.6	35.1	61.5	41.0	266
Dewas	23.6	17.9	46.2	51.1	40.1	409
Dhar	30.6	12.8	66.4	62.7	36.2	450
Dindori	34.8	18.6	28.2	37.2	24.2	355
East Nimar	32.4	6.2	40.5	60.7	35.8	383
Guna	31.2	15.3	38.9	70.3	37.5	464
Gwalior	48.3	21.4	43.6	85.9	52.3	321
Harda	18.5	21.8	38.5	65.8	35.8	316
Hoshangabad	35.3	5.8	46.3	63.9	39.0	272
Indore	52.3	14.3	83.2	87.0	76.1	293
Jabalpur	32.4	15.3	47.1	79.6	44.8	270
Jhabua	37.5	17.9	75.6	75.6	29.8	473
Katni	17.2	10.3	28.3	70.0	29.9	355
Mandla	38.9	14.9	36.7	63.2	26.0	296
Mandsaur	29.1	22.2	38.5	62.7	42.2	322
Morena	37.3	50.0	40.9	65.1	45.6	353
Narsimhapur	26.9	26.5	44.7	62.8	40.6	350
Neemuch	44.0	44.2	40.0	71.7	47.1	289
Panna	23.3	26.7	37.5	43.1	33.0	367
Raisen	27.9	20.4	30.1	48.5	31.3	412
Rajgarh	33.9	40.0	47.5	64.6	46.9	360
Ratlam	38.2	21.3	39.0	47.7	34.5	325
Rewa	9.3	12.0	27.0	51.9	27.6	304
Sagar	24.0	25.0	22.5	45.7	28.4	387
Satna	15.3	13.8	26.5	51.9	28.7	348
Sehore	20.2	0.0	42.2	56.0	36.9	385
Seoni	46.7	17.5	41.7	73.5	36.7	327
Shahdol	22.2	6.6	25.3	73.2	22.6	323
Shajapur	34.9	35.0	43.1	52.3	43.5	324
Sheopur	23.7	13.3	39.3	77.2	39.7	325
Shivpuri	31.7	2.2	35.6	58.5	34.3	367
Sidhi	6.5	7.8	10.7	30.2	12.1	372
Tikamgarh	22.0	6.3	28.0	45.5	27.4	354
Ujjain	25.8	30.0	38.1	54.7	37.9	390
Umaria	50.0	38.9	55.1	68.0	52.5	404
Vidisha	21.8	14.3	31.3	53.3	31.5	428
West Nimar	31.3	7.3	43.1	60.6	26.3	342
Madhya Pradesh	28.5	16.5	38.7	59.9	35.9	15980

Table 9: Results of logistic regression (odds ratio) of safe delivery by background characteristics among social groups in Madhya Pradesh, 2002-2004

Variables	Odds Ratio				
	SC	**ST**	**OBC**	**Other Castes**	**Madhya Pradesh**
Age-group					
15-19®					
20-34	1.770***	1.384**	1.823***	1.672***	1.121*
35-44	0.299***	0.369***	0.214***	0.180***	1.435***
Children ever born					
1®					
2	1.149	1.006	0.946	1.076	0.598***
3	0.739***	0.727**	0.646***	0.859*	0.524***
4+	0.737***	0.642***	0.775***	0.847*	0.395**
Education					
Illiterate ®					
0-9 years	1.457***	1.596***	1.456***	1.497***	1.742***
10+years	2.088***	2.836***	1.727***	2.175***	3.388***
Residence					
Rural ®					
Urban	1.811***	1.563***	1.613***	1.619***	2.580***
Religion					
Hindu ®					
Muslim	2.779***	1.197	1.282***	1.339***	1.144*
Others	1.733*	1.289	0.932	0.960	1.426*
Standard of living index					
Low ®					
Medium	1.529***	1.537***	1.349***	1.240**	1.982***
High	1.705***	1.803***	1.905***	1.180*	4.760***
Constant	**-2.593**	**-2.666**	**-2.368**	**-2.256**	**-1.233**

*<0.10 **<0.05 ***<0.01

Table 10: Relationship between any antenatal care and safe delivery among social groups in Madhya Pradesh, 2002-2004

Districts	SC	ST	OBC	Other Castes	Total
Balaghat	HH	HH	HL	HH	HH
Barwani	HH	LL	HH	HH	LL
Betul	HL	LL	HH	HH	LL
Bhind	LL	LL	LL	LH	LL
Bhopal	HH	LL	LH	HH	HH
Chhatarpur	LL	LL	LL	LH	LL
Chhindwara	LL	LL	LH	HH	LL
Damoh	HL	HL	HL	HH	HH
Datia	LH	HL	LL	HH	LH
Dewas	HL	LL	HH	HH	HH
Dhar	HL	LL	HH	HH	HH
Dindori	HL	LL	HL	HH	LL
East Nimar	HL	LL	HH	HH	HL
Guna	LL	LL	LH	HH	LH
Gwalior	LH	LL	SH	HH	HH
Harda	LL	LL	HH	HH	LL
Hoshangabad	HL	LL	HH	HH	HH
Indore	HH	LL	HH	HH	HH
Jabalpur	HL	HL	HH	HH	HH
Jhabua	LH	LL	HH	HH	LL
Katni	HL	LL	HL	HH	HL
Mandla	HH	LL	HH	HH	HL
Mandsaur	HL	HH	HH	HH	HH
Morena	HH	HH	HH	HH	HH
Narsimhapur	HL	LL	HH	HH	HH
Neemuch	HH	HH	HH	HH	HH
Panna	HL	LL	LL	HH	LL
Raisen	HL	LL	HL	SH	LL
Rajgarh	HL	HH	HH	HH	HH
Ratlam	HH	HL	HH	HH	HL
Rewa	HL	LL	HL	HH	HL
Sagar	LL	LL	HL	HH	HL
Satna	LL	LL	LL	LH	LL
Sehore	HL	LL	HH	HH	HL
Seoni	HH	HL	HH	LH	HH
Shahdol	LL	LL	HL	HH	LL
Shajapur	HL	LL	HH	HH	HH
Sheopur	LL	LL	LH	HH	LH
Shivpuri	LL	HL	HL	HH	HL
Sidhi	LL	LL	LL	LH	LL
Tikamgarh	LL	LL	LL	HH	LH
Ujjain	HL	HL	HL	HH	HH
Umaria	LH	LH	HH	HH	LL
Vidisha	LL	LL	LL	HH	LL
West Nimar	HL	LL	HH	HH	LL

Note: HH= High any antenatal care and high mean number of children surviving.

HL= High any antenatal care and low mean number of children surviving.

LH= Low any antenatal care and high mean number of children surviving.

LL= Low any antenatal care and low mean number of children surviving.

SS = Similar value for state and district.

The average state figures of the corresponding variables are considered here as the crossing point of H and L.

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