

Original article

Socio-Demographic Factors affecting the utilization of Maternal Health Care Services in India

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ABSTRACT

The objective of the present study was to understand the influence of socio-demographic factors on the utilization of maternal health care services (antenatal care, TT vaccination, Institutional delivery, and postnatal checkups). Statistical analysis was done to test the association between socio-demographic variables and maternal health care services using NFHS 4(2015-2016). The study explores that socio-demographic factors have a significant influence on maternal health care services. The study concluded that women's education is one of the most fundamental strategies to promote maternal health care services.

Key words: Antenatal care, TT vaccination, Institutional delivery, Postnatal care, Socio-demography

INTRODUCTION

Maternal health is defined as the health of women during pregnancy, childbirth and the postpartum period. In developing countries, pregnancy and childbirth-related complications are the leading causes of death of mother and child (WHO 2019) and these deaths are attributed to the fact that women do not get the proper care. According to WHO (2015), an estimated 303000 women worldwide died due to maternal causes. Most of these deaths (99%) occurred in low and middle-income countries, with almost two thirds (64%) occurring in the WHO African Region. However, India accounts for the maximum number of maternal deaths in the world-17 percent or nearly 50,000 of the 2.89 lakh women who died as a result of a complication during pregnancy and childbirth.

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Maternal healthcare services are important for pregnant women during pregnancy and delivery as it is important for the health of both the mother and the newborn baby. However, most pregnant women do not receive the minimum number of antenatal care services as recommended by WHO (2010). In developing countries, proper antenatal care helps in reducing maternal and child morbidity and mortality rate. Maternal and child health services play an important role in the overall development of human society and its advancement. Women and her child are the foremost priority for developing countries (Banerjee, 2019). WHO commends groundbreaking progress in India by reducing the maternal mortality ratio by 77%, from 556 per 100,000 live births in 1990 to 130 per 1000 live births in 2016. This progress helps India to achieve Sustainable Development Goal target of MMR below 70 by 2030. The latest initiative by the Harvard University and partners based on NFHS-4 has mapped that high burden of maternal health in West Bengal, Madhya Pradesh, Uttar Pradesh, and Bihar. Anemia is a known cause of maternal deaths and low birth weight. The study also pointed out that antenatal care and institutional delivery play key health interventions to reduce maternal and child deaths (Health Express). A study conducted by Kaur *et. al* (2018) pointed out that the age and educational status of the mother plays a significant relation with the knowledge regarding antenatal care. 96% of mothers started ANC in the first trimester. 79.5% of mothers had regular ANC visits during pregnancy. Regarding the postnatal visit, 86.5% of the mother visited for the same. The study of Javali *et. al* (2014) depicts that the socio-demographic factors like literacy status, occupation, socioeconomic status, and parity were found to influence the pattern of utilization of antenatal health care services.

Acharaya (2016) examines the likelihood of utilization of ANC services 4 or more times about women's demographic, social and economic status in Nepal. The study shows that large variations and the gap in utilization of ANC care based on the demographic, social and economic status of women.

Sabiti (2014) concluded that urban women are more likely to use antenatal services, TT vaccination, deliver their babies in public health care facilities services compared to rural women. The positive association observed between a women's educational attainment and visit or antenatal care clinic, place of delivery and TT vaccination. Pandey and Singh had done an impressive study in India with the help of the National Family Health Survey 2005-2006. Educational attainments of a mother, household wealth, Place of residence, birth order of the child and educational and occupational status of a husband were found to be strong indicators of utilization in the total sample of women.

Study of Banerjee (2019) included that wealth Index is associated with antenatal care, where women with richer wealth index go for antenatal care much more than women with poorer wealth Index. In the study of Dagne (2010) pointed out that women reside in rural areas had a 69% fewer odds of delivering assistance from health professionals when compared to urban women.

METHODS

The area of the present study is India. All the states of India and Delhi, NCT were included in this study and all the Union Territories except Delhi were excluded. In 1991 the constitution 69th amendment act considered Delhi a special Union Territory known as National Capital Territory and it has both the feature of a state and/or union territory. The present study is based on the unit level data extracted from National Family Health Survey (NFHS-4) conducted by IIPS during 2015-16. It is a cross-sectional as well as Ex post facto research. The present study considered only those women who conceived a baby within the last five years. All the study, women's age range was 15-49 years. The total sample size consists of 256671 of such women. For maternal health care services, the study considered antenatal, postnatal and delivery care (covering indicators like tetanus injections, Antenatal and postnatal checkup and Institutional delivery). Statistical analysis has been carried out using the statistical software package SPSS (18.0) and the significance levels of $p < 0.05$ is considered as statistically significant.

RESULTS

Table 1. Percentage distribution and association of maternal health care services by age

| Respondent's Age | Maternal Health Care Services | | | | | | | | | | | |
|------------------|-------------------------------|-----------------|------------------|-----------------|-----------------|------------------|-------------------|-----------------|------------------|--------------------|-----------------|------------------|
| | Antenatal Checkups | | | TT Vaccination | | | Place of delivery | | | Postnatal Checkups | | |
| | Yes | No | Total | Yes | No | Total | Institutional | Home | Total | Yes | No | Total |
| 15-19 | 3602 (61.6) | 2248 (38.4) | 5850 (100.0) | 4829 (82.5) | 1021 (17.5) | 5850 (100.0) | 5311 (80.0) | 1330 (20.0) | 6641 (100.0) | 3855 (65.9) | 1994 (34.1) | 5849 (100.0) |
| 20-24 | 35288 (63.5) | 20327 (36.5) | 55615 (100.0) | 46349 (83.3) | 9266 (16.7) | 55615 (100.0) | 61458 (79.4) | 15961 (20.6) | 77419 (100.0) | 38145 (68.6) | 17468 (31.4) | 55613 (100.0) |
| 25-29 | 44290 (63.9) | 24999 (36.1) | 69289 (100.0) | 57332 (82.7) | 11957 (17.3) | 69289 (100.0) | 75031 (76.3) | 23245 (23.7) | 98276 (100.0) | 47745 (68.9) | 21537 (31.1) | 69282 (100.0) |
| 30-34 | 22653 (61.7) | 14083 (38.3) | 36736 (100.0) | 29974 (81.6) | 6762 (18.4) | 36736 (100.0) | 35167 (72.9) | 13089 (27.1) | 48256 (100.0) | 24697 (67.3) | 12017 (32.7) | 36714 (100.0) |
| 35 and above | 11058 (52.6) | 9958 (47.4) | 21016 (100.0) | 16000 (76.1) | 5016 (23.9) | 21016 (100.0) | 16212 (62.5) | 9710 (37.5) | 25922 (100.0) | 12515 (59.7) | 8432 (40.3) | 20947 (100.0) |
| Total | 71615 (62.0) | 71615 (38.0) | 18850 (100.0) | 15448 (82.0) | 34022 (18.0) | 18850 (100.0) | 193179 (75.3) | 63335 (24.7) | 25651 (100.0) | 12695 (67.4) | 61448 (32.6) | 18840 (100.0) |
| χ^2 | 945.782** | | | 587.480** | | | 3252.030** | | | 672.649** | | |
| Cramer's V | 0.071 | | | 0.056 | | | 0.113 | | | 0.060 | | |

Source: Data Extracted from NFHS 4, 2015-2016; **p<0.01

The relationship between the utilization of maternal health care services and the respondent's age is shown in Table 1. Higher Utilization of complete antenatal checkups (63.9 %) and TT Vaccination (63.9%) are observed among 25-29 years age group. It is observed that more women aged between 20-29 years are utilizing complete antenatal check-ups and TT vaccination. But in higher (30-34) and lower (15-19) age groups, utilization of complete antenatal checkups and TT vaccination decreases and lowest utilization is observed in 35 and the above age group. It is evident from the study that Institutional delivery (75.3%) is more preferable among women compared to home delivery (24.7%). The highest percentage of women from 15-19 years gave institutional delivery and then followed by 20-24 years women (79.4%). Lowest percentage (62.5%) of Institutional delivery is observed among 35 and above the age group of women. After birth postnatal checkups also play a very important role for both mother and child. Highest postnatal checkups (68.9%) observed among aged group 25-29 and lowest (59.7%) in 35 and above age group. The study explores that more than 30 percent of women in each age group never visit for postnatal checkups, which is alarming. Antenatal checkups, TT vaccination, Institutional delivery, and postnatal checkups

have a significant association with the respondent's age group. This table also shows the strength of the association between the above mention variables. The study revealed that the strength of the association is moderate in between the place of delivery and respondent's age. Antenatal, TT vaccination and postnatal checkups showing the weak level of association.

Table 2. Percentage distribution and association of maternal health care services by Residence

| Residence | Antenatal Checkups | | | TT Vaccination | | | Place of delivery | | | Postnatal Checkups | | |
|------------|--------------------|-----------------|-------------------|------------------|-----------------|-------------------|-------------------|-----------------|-------------------|--------------------|-----------------|-------------------|
| | Yes | No | Total | Yes | No | Total | Institutional | Home | Total | Yes | No | Total |
| Urban | 34790 (75.0) | 11600 (25.0) | 46390 (100.0) | 39548 (85.3) | 6842 (14.7) | 46390 (100.0) | 51490 (86.4) | 8105 (13.6) | 59595 (100.0) | 34901 (75.3) | 11470 (24.7) | 46371 (100.0) |
| Rural | 82101 (57.8) | 60015 (42.2) | 142116 (100.0) | 114936 (80.9) | 27180 (19.1) | 142116 (100.0) | 141689 (72.0) | 55230 (28.0) | 196919 (100.0) | 92056 (64.8) | 49978 (35.2) | 142034 (100.0) |
| Total | 116891 (62.0) | 71615 (38.0) | 188506 (100.0) | 154484 (82.0) | 34022 (18.0) | 188506 (100.0) | 193179 (75.3) | 63335 (24.7) | 256514 (100.0) | 126957 (67.4) | 61448 (32.6) | 188405 (100.0) |
| χ^2 | 4404.387** | | | 452.870 | | | 5135.184** | | | 1737.684** | | |
| Cramer's V | 0.153 | | | 0.049 | | | 0.141 | | | 0.096 | | |

Source: Data Extracted from NFHS 4, 2015-2016; **p<0.01

Women reside in the urban area enjoy better maternal health care services in all the indicators (antenatal checkups, TT vaccination, Place of delivery and postnatal checkups) compared to rural women as shown in Table 2. 75 percent of women reside in urban are used to visit for antenatal checkups whereas 57.8 percent of women reside in rural counterpart used to visit antenatal checkups. The study also pointed out that more than 80 percent of women reside in both rural and urban area used to visit for TT vaccination, but urban women (85.3%) are more conscious of TT vaccination compared to rural women (80.9%). The highest percentage of women resides in an urban area practicing Institutional delivery compared to rural women (72.0%). Result also confined that 75.3 percent of urban women visits for postnatal checkups whereas in a rural area only 67.4 percent of women visits for postnatal checkups. Study confined that women reside in the rural area are alarming regarding maternal health care services. Statistically, the significant relationship found between antenatal checkups and residential patterns, it is evident from the study that a strong level of association found regarding antenatal care and residential pattern. Result confined that residential pattern has no

significant relationship regarding TT vaccination. The study also explores that residential pattern has a significant influence on the place of delivery and postnatal checkups. Women reside in the urban area getting the advantage of the institution and postnatal checkups and it is a statistically significant but moderate level of association found with the place of delivery and postnatal checkups.

Table 3. Percentage distribution and association of maternal health care services by Religion

| Religion | Antenatal Checkups | | | TT Vaccination | | | Place of delivery | | | Postnatal Checkups | | |
|------------|--------------------|-----------------|-------------------|------------------|-----------------|-------------------|-------------------|-----------------|-------------------|--------------------|-----------------|-------------------|
| | Yes | No | Total | Yes | No | Total | Institutional | Home | Total | Yes | No | Total |
| Hindu | 84570 (61.9) | 52075 (38.1) | 136645 (100.0) | 114245 (83.6) | 22400 (16.4) | 136645 (100.0) | 146203 (78.9) | 39135 (21.1) | 185338 (100.0) | 94279 (69.0) | 42286 (31.0) | 136565 (100.0) |
| Muslim | 17835 (61.8) | 11046 (38.2) | 28881 (100.0) | 23306 (80.7) | 5575 (19.3) | 28881 (100.0) | 27653 (68.4) | 12771 (31.6) | 40424 (100.0) | 18402 (63.7) | 10470 (36.3) | 28872 (100.0) |
| Others | 14486 (63.0) | 8494 (37.0) | 22980 (100.0) | 16933 (73.7) | 6047 (26.3) | 22980 (100.0) | 19323 (62.8) | 11429 (37.2) | 30752 (100.0) | 14276 (62.2) | 8692 (37.8) | 22968 (100.0) |
| Total | 116891 (62.0) | 71615 (38.0) | 188506 (100.0) | 154484 (82.0) | 34022 (18.0) | 188506 (100.0) | 193179 (75.3) | 63335 (24.7) | 256514 (100.0) | 126957 (67.4) | 61448 (32.6) | 188405 (100.0) |
| χ^2 | 11.935** | | | 1345.48** | | | 4883.198** | | | 629.992** | | |
| Cramer's V | 0.008 | | | 0.084 | | | 0.138 | | | 0.058 | | |

Source: Data Extracted from NFHS 4, 2015-2016; **p<0.01

The study tries to evaluate religious influences on the utilization of maternal health care services in India (Table 3). More than 60 percent of women from all the religious group visit for antenatal checkups. Highest percentages of women (63.0%) from other religion used to take antenatal checkups. Study finds that Hindu and Muslim women have very little differences regarding the antenatal visit, though 61.9 percent to Hindu women visits for antenatal checkups compared to Muslims (61.8%). More than 80% of women visit for TT vaccination. the highest percentage of Hindu women (83.6%) take TT vaccination and then followed by Muslim(80.7%). Other religions have the Lowest percentage (73.7%) regarding TT vaccination. The study confines that the highest percentages of Hindu women (78.9%) practicing Institutional delivery and follow up by Muslim (68.4%). The lowest percentage of women from other religions (62.8%) practicing Institutional delivery. Study shows significant association regarding the relationship between religious groups and maternal health care services. But the result shows a weak level of the association regarding religion with the

antenatal visit, TT vaccination, and postnatal checkups. Antenatal care ensures safe delivery and the health of the newborn. The study shows moderate association regarding Place of delivery and religion.

Table 4. Percentage distribution and association of maternal health care services by Marital Status

| Marital Status | Antenatal Checkups | | | TT Vaccination | | | Place of delivery | | | Postnatal Checkups | | |
|-------------------|--------------------|-----------------|-------------------|------------------|-----------------|-------------------|-------------------|-----------------|-------------------|--------------------|-----------------|-------------------|
| | Yes | No | Total | Yes | No | Total | Institutional | Home | Total | Yes | No | Total |
| Never Married | 176 (56.4) | 136 (43.6) | 312 (100.0) | 232 (74.4) | 80 (25.6) | 312 (100.0) | 286 (74.3) | 99 (25.7) | 385 (100.0) | 176 (56.4) | 136 (43.6) | 312 (100.0) |
| Currently married | 114897 (62.0) | 70369 (38.0) | 185266 (100.0) | 151981 (82.0) | 33285 (18.0) | 185266 (100.0) | 190372 (75.3) | 62288 (24.7) | 252660 (100.0) | 124839 (63.7) | 60339 (32.6) | 185178 (100.0) |
| Widowed | 805 (57.5) | 594 (42.5) | 1399 (100.0) | 1096 (78.3) | 303 (23.1) | 1383 (100.0) | 1164 (70.3) | 492 (29.7) | 1656 (100.0) | 884 (63.7) | 504 (36.3) | 1388 (100.0) |
| Divorced | 937 (67.8) | 446 (32.2) | 1383 (100.0) | 1063 (76.9) | 320 (23.1) | 1383 (100.0) | 1231 (75.2) | 407 (24.8) | 1638 (100.0) | 966 (69.9) | 415 (30.1) | 1381 (100.0) |
| Total | 116815 (62.0) | 71545 (38.0) | 188360 (100.0) | 154372 (82.0) | 33988 (18.0) | 188360 (100.0) | 193053 (75.3) | 63286 (24.7) | 256339 (100.0) | 126865 (67.4) | 61394 (32.6) | 188259 (100.0) |
| χ^2 | 35.367** | | | 49.564** | | | 22.872** | | | 29.939** | | |
| Cramer's V | 0.216 | | | 0.016 | | | 0.009 | | | 0.013 | | |

Source: Data Extracted from NFHS 4, 2015-2016; **p<0.01

The percentage distribution and association between utilization of maternal health care services and marital status are shown in Table 4. Study confined that 43.6 percent of never-married women never visits for antenatal checkups. 57.5 percent of widow uses to prefer antenatal care. The highest percent of Divorced (67.8%) and currently married women (62.0%) enjoying antenatal care. The study reflected that the highest percent of currently married women (82.0%) visit for TT vaccination and then follow up by 78.3 percent of the widow. Lowest percent found in never-married women (74.4%) regarding TT vaccination. More than 70 percent of women used to prefer Institutional delivery by marital status. The highest percentages of currently married women (75.3%) visit for Institutional delivery and then followed by divorced (75.2%) and never-married women (74.3%). The study finds that the lowest percentage observed in never-married women (56.4%) regarding postnatal checkups. The highest percent of postnatal visit observed among divorced women (69.9%). No difference was found between currently and widowed women regarding postnatal checkups. Study shows significant relation regarding maternal health care services and

marital status. The study confined the strong level of association between marital status with antenatal care, TT vaccination. The very weak level of association found regarding the place of delivery and postnatal checkups with marital status.

Table 5. Percentage distribution and association of maternal health care services by Birth Order

| Birth Order | Antenatal Checkups | | | TT Vaccination | | | Place of delivery | | | Postnatal Checkups | | |
|-------------|--------------------|-----------------|-------------------|------------------|-----------------|-------------------|-------------------|-----------------|-------------------|--------------------|-----------------|-------------------|
| | Yes | No | Total | Yes | No | Total | Institutional | Home | Total | Yes | No | Total |
| 1 | 43605 (71.7) | 17204 (28.3) | 60809 (100.0) | 52827 (86.9) | 7982 (13.1) | 60809 (100.0) | 81061 (85.5) | 13747 (14.5) | 94808 (100.0) | 45421 (74.7) | 15384 (25.3) | 60805 (100.0) |
| 2-3 | 59379 (63.0) | 34926 (37.0) | 94305 (100.0) | 77106 (81.8) | 77106 (81.8) | 94305 (100.0) | 89263 (74.5) | 30551 (25.5) | 119814 (100.0) | 63861 (67.7) | 30405 (32.3) | 94266 (100.0) |
| 4-5 | 11121 (44.9) | 13622 (55.1) | 24743 (100.0) | 18763 (75.8) | 5980 (24.2) | 24743 (100.0) | 17902 (57.6) | 13159 (42.4) | 31061 (100.0) | 13624 (55.1) | 11088 (44.9) | 24712 (100.0) |
| 5+ | 2786 (32.2) | 5863 (67.8) | 8649 (100.0) | 5788 (66.9) | 2861 (33.1) | 8649 (100.0) | 4953 (45.7) | 5878 (54.3) | 10831 (100.0) | 4051 (47.0) | 4571 (53.0) | 8622 (100.0) |
| Total | 116891 (62.0) | 71615 (38.0) | 188506 (100.0) | 154484 (82.0) | 34022 (18.0) | 188506 (100.0) | 193179 (75.3) | 63335 (24.7) | 256514 (100.0) | 126957 (67.4) | 61448 (32.6) | 188405 (100.0) |
| χ^2 | 8782.507** | | | 2945.936** | | | 15651.938** | | | 4806.908** | | |
| Cramer's V | 0.216 | | | 0.125 | | | 0.247 | | | 0.160 | | |

Source: Data Extracted from NFHS 4, 2015-2016; **p<0.01

Overall, women tend to make low investments in maternal health services and wellbeing for higher births compared to first as shown in Table 5. The highest percent of antenatal visits observed (71.7%) among mothers of first birth order then followed by 2-3 birth order (63.0%) and 4-5 birth order (44.9%). The mother of birth order of more than 5 shows the lowest antenatal visit. More than 80 percent of mothers of 1 -3 birth order visit for TT vaccination. 75.8 percent mother of 4-5 birth order likely to visit for TT vaccination and mother of more than 5 birth order less likely to visit for TT vaccination. Result explore that with increasing birth order, the mother of children less likely prefers TT vaccination. In the same way in case of Institutional delivery also. The mother of 1 birth order shows the highest percent of practicing institutional delivery then followed by 2-3 birth order (74.5%). 57.6 percent mother of 4-5 birth order prefer Institutional delivery. Lowest preference for institutional delivery observed among mothers of more than 5 birth order. The highest percent of the mother of 1 birth order shows conscious about postnatal checkups then followed by 2-3 (67.7%), 4-5 (55.1%). Result confined statistically significant relationships exist between

maternal health care services and birth order. Study shows a strong level of association regarding birth order and maternal health care service. Only TT vaccination shows a moderate level of association with birth order.

Table 6. Percentage distribution and association of maternal health care services by Education

| Educational status | Antenatal Checkups | | | TT Vaccination | | | Place of delivery | | | Postnatal Checkups | | |
|--------------------|--------------------|-----------------|-------------------|------------------|-----------------|-------------------|-------------------|-----------------|-------------------|--------------------|-----------------|-------------------|
| | Yes | No | Total | Yes | No | Total | Institutional | Home | Total | Yes | No | Total |
| No Education | 23165 (42.2) | 31785 (57.8) | 54950 (100.0) | 41819 (76.1) | 13131 (23.9) | 54950 (100.0) | 48200 (59.7) | 32503 (40.3) | 80703 (100.0) | 29881 (54.4) | 25009 (45.6) | 54890 (100.0) |
| Primary | 15251 (57.5) | 11286 (42.5) | 26537 (100.0) | 21385 (80.6) | 5152 (19.4) | 26537 (100.0) | 26174 (69.4) | 11514 (30.6) | 37688 (100.0) | 16768 (63.2) | 9753 (36.8) | 26521 (100.0) |
| Secondary | 62292 (71.3) | 25107 (28.7) | 87399 (100.0) | 73993 (84.7) | 13406 (15.3) | 87399 (100.0) | 96598 (84.2) | 18183 (15.8) | 114781 (100.0) | 64038 (73.3) | 23337 (17.1) | 87375 (100.0) |
| Higher | 16183 (82.5) | 3437 (17.5) | 19620 (100.0) | 17287 (88.1) | 2333 (11.9) | 19620 (100.0) | 22207 (95.1) | 1135 (4.9) | 23342 (100.0) | 16270 (82.9) | 3349 (17.1) | 19619 (100.0) |
| Total | 116891 (62.0) | 71615 (38.0) | 188506 (100.0) | 154484 (82.0) | 34022 (18.0) | 188506 (100.0) | 193179 (75.3) | 63335 (24.7) | 256514 (100.0) | 126957 (67.4) | 61448 (32.6) | 188405 (100.0) |
| χ^2 | 16100.062** | | | 2240.71** | | | 21006.180** | | | 7939.147** | | |
| Cramer's V | 0.292 | | | 0.109 | | | 0.286 | | | 0.205 | | |

Source: Data Extracted from NFHS 4, 2015-2016; **p<0.01

The study examines the relationship between maternal education and maternal health care services as shown in Table 6. The study shows that maternal education has a very strong influence on maternal health care services. The highest percent of an antenatal visit is found among higher education (82.5%) then followed by 71.3 percent of women from secondary education and primary education (57.5%) and lowest antenatal visits (42.2%) found in women with no education. Women with secondary and higher educated women show the highest visit for TT vaccination. 80.6 percent of women from primary educated prefer TT vaccination. 76.1 percent of no educated women prefer the TT vaccine. The highest percentage of institutional delivery observed among women with highly educated and then followed by secondary educated women (84.2%) and primary educate (69.54%). The lowest percentage found among women with no education (59.7%). The highest percentage of women from no education never prefers postnatal checkups, which is very alarming. Highest percent of highly educated women prefer postnatal checkups (82.9%) and then followed by the secondary and primary levels of education. The study finds a statistically significant

relation with maternal health care services and educational attainment. The study also confined the very strong level of relation between antenatal care, place of delivery with educational attainment. Postnatal checkups show a strong level of association with education. TT vaccination has a moderate level of association with education.

Table 7. Percentage distribution and association of maternal health care services by Wealth Index

| Wealth Index | Antenatal Checkups | | | TT Vaccination | | | Place of delivery | | | Postnatal Checkups | | |
|--------------|--------------------|-----------------|-------------------|------------------|-----------------|-------------------|-------------------|-----------------|-------------------|--------------------|-----------------|-------------------|
| | Yes | No | Total | Yes | No | Total | Institutional | Home | Total | Yes | No | Total |
| Poor | 43525 (52.1) | 40003 (47.9) | 83528 (100.0) | 64449 (77.2) | 19079 (22.8) | 83528 (100.0) | 77703 (65.1) | 41668 (34.9) | 119371 (100.0) | 49689 (59.5) | 33772 (40.5) | 83470 (100.0) |
| Middle | 24151 (62.8) | 14294 (37.2) | 38445 (100.0) | 32040 (83.3) | 6405 (16.7) | 38445 (100.0) | 41236 (78.7) | 11161 (21.3) | 52397 (100.0) | 26345 (68.6) | 12083 (31.4) | 38428 (100.0) |
| Rich | 49215 (74.0) | 17318 (26.0) | 66533 (100.0) | 57995 (87.2) | 8538 (12.8) | 66533 (100.0) | 74240 (87.6) | 10506 (12.4) | 84746 (100.0) | 50914 (76.6) | 15593 (23.4) | 66507 (100.0) |
| Total | 116891 (62.0) | 71615 (38.0) | 188506 (100.0) | 154484 (82.0) | 34022 (18.0) | 188506 (100.0) | 193179 (75.3) | 63335 (24.7) | 256514 (100.0) | 12695 (76.4) | 61448 (32.6) | 188405 (100.0) |
| χ^2 | 7527.405** | | | 3571.126** | | | 13911.455** | | | 4905.734** | | |
| Cramer's V | 0.200 | | | 0.117 | | | 0.233 | | | 0.161 | | |

Data Extracted from NFHS 4, 2015-2016; **p<0.01

Wealth Index plays a significant role in achieving various maternal health care services as shown in Table 7. The study highlights that the wealth Index has a strong influence on maternal health care service and it is statistically significant. Antenatal checkups, place of delivery and postnatal checkups show a strong level of association with wealth index. The weak level of association found regarding the TT vaccination and Wealth index. The study explores that women from a wealthy background (richer) prefer to visit for antenatal checkups (74.0%), conscious about TT vaccination (87.2%), Institutional delivery (87.6%) and postnatal checkups (76.6%). Women belonging from middle Wealth index used to visit antenatal checkups(62.8%), TT vaccination (83.3%), Institutional delivery (78.7%) and postnatal checkups (68.6%). Women belonging from poor wealth Index are showing the lowest percentage regarding maternal health care services.

DISCUSSION

Maternal health is essential to ensure the health of the mother as well as the health of children. Still, in developing countries, many mothers suffer from lack of access to health, poor economy. The present study revealed that different socio-demographic factors influence the use of maternal health care services. Studies have confined the lowest percentages of maternal health care services that are observed among 35 and above the age group of women. Cremer V test confined the strength of the association is moderate between the place of delivery and respondent's age. Antenatal checkups, TT vaccination and postnatal checkups showing weak association regarding respondent's age. The present study also explores Women, who have taken at least two TT Vaccination, were considered to have a complete TT Vaccination course. Since two TT vaccinations were sufficient to have complete TT vaccination. Urban women are taking advantage of maternal health care services compared to rural women. The residential pattern has a significant influence on maternal health care services (antenatal checkups, TT Vaccination, institutional delivery, and postnatal checkups). Though Moderate level of association is observed regarding Institutional delivery and postnatal checkups with the residential pattern. Women who reside in rural areas are in an alarming condition regarding maternal health care services. The study finds moderate association regarding Place of delivery and religion. The study confined the strong level of association between marital statuses with antenatal care, TT vaccination. The very weak level of association found regarding the place of delivery and postnatal checkups with marital status. More than 60% of women are conscious of their postnatal checkups in all the religions, but still, Hindu women are much conscious about their postnatal checkups compared to other religions. Result confined statistically significant relationships exist between maternal health care services and birth order. Though the strong level of association regarding birth order and maternal health care service. Only TT vaccination shows a moderate level of association. The result finds that higher educated and secondary educated mother is conscious about maternal health care services compared to no education and primary educated mother. The study finds a statistically significant relation with maternal health care services and educational attainment. The study also confined the very strong level of association found with antenatal care, place of delivery with educational attainment.

Postnatal checkups find a strong level of association with education. TT vaccination has a moderate level of association with education. Study of Kifle *et al.* (2017) find that the educational status of women and religion of women was found to be significantly associated with antenatal health care, delivery, and postnatal health care services. An impressive study conducted by Jeyashree *et al.* (2018) in Chandigarh. The study finds that low family income, living in slums, illiteracy of mother, early age of marriage, higher parity and no previous childbirth in an institution favored home delivery. In the present study, residential patterns have also influenced maternal health care services. Women belonging from poor wealth Index are showing the lowest percentage regarding maternal health care services.

CONCLUSION

The study showed that certain socio-demography determinants influence maternal health care services. Socio-demographic determinants like Wealth index, education, birth order residence, marital status, have a significant influence on maternal health care services. Women should be conscious about maternal health care services which are only possible if women are educated.

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