RESEARCH REVIEW JOURNALS
Volume-04
Issue-06
June-2019

ISSN: 2455-3085 (Online)
RESEARCH REVIEW International Journal of Multidisciplinary
www.rrjournals.com[UGC Listed Journal]

Comparison of Maternal Health Care Utilization between Kerala and Haryana: An Evidence from DLHS-IV

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ARTICLE DETAILS

Article History
Published Online: 10 June 2019

Keywords
Antenatal care, Delivery care, Post-natal care, Maternal health care.

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ABSTRACT

Maternal health is a challenging issue in health development because females, especially those are in the reproductive age group are regarded as one of the weakest parts of the population in a situation of diseases and physical condition. Every one minute, one woman dies from complications of pregnancy to childbirth. Maternal mortality and morbidity represent one of the broadest health gaps between developed and developing nations. A comparative analysis of the maternal health care utilization has been done between Kerala and Haryana to identify the effect of different socio-demographic variables. In this paper, antenatal care, delivery care and post-natal care as a dependent variable and various socio-demographic indicators as an independent variable have been used. And data from the fourth round of District Level Household Survey (DLHS IV) conducted during 2012-13 has been used. For the statistical analysis bivariate analysis and chi-square test have been used. This paper found that determinants of maternal health care services are not the same across two states, and women education has the strongest significant positive factors among another background factor for enhancing the maternal health care utilization.

1. Introduction

The magnitude of maternal health care services problems in India is a serious matter of concern. “Maternal health mentions the health of women during pregnancy, after childbirth and the postpartum period. While maternity is often a positive and fulfilling experience, for too many women, it is associated with suffering, ill-health and even death”. Among maternal health care services parameters, Antenatal care (ANC), safe delivery and full vaccinations have the essential situation as these are directly associated with maternal morbidity and mortality, loss of fetus etc., (WHO). ANC refers to pregnancy-related health care provided by a medic or a health worker at a medical facility or home. Safe maternity initiative proclaims that all pregnant women must have necessary, professional ANC. In the realm of socio-economic, cultural and demographic influence, factors like religion, caste, education, residence background, age, age at marriage, children ever born, the standard of living etc., have significant importance on the reproductive health care of women in general and on ANC and safe delivery in particular. WHO estimations that every year, 3,58,000 women die due to complications correlated to pregnancy and childbirth, ninety-nine percent of these deaths. Around eighty percent of the maternal deaths worldwide occur due to illness, sepsis, unsafe induced abortion, hypertensive disorder of pregnancy (WHO, 2005).

Women’s education retains a net effect on maternal health service use because she will able to take care herself and her baby also, self-determining of other women’s background characteristics, household’s socioeconomic status and access to healthcare services. The study shows a strong influence of mother’s education on the utilization of health care services. This factor also affected the utilization of the health facility. In India, we can see that the intrastate variation in usage of maternal health care services. The majority of the states in India are urbanised and the not fully formed in context in health facility and utilization of maternal health care. This paper examines maternal natal care services among pregnant mothers in Kerala and Haryana. Here it also shows how the changes occur in the uptake of ANC among pregnant women during DLHS-3 to DLHS-4 in Kerala and Haryana. Component of antenatal check-up such as (Weight, Height, Blood pressure, Blood, Urine, Breast, Abdomen test and Sonography) has also been observed based on their importance during pregnancy. These services play a vital role in safe motherhood. Even some services cannot take at home and women needs to move a hospital for clinical or surgical check-up such as blood test, blood pressure.

2. Components of antenatal delivery and postnatal care

Antenatal Care

Focused Antenatal Care Visits referral: 1st visit before 16 weeks of gestation, 2nd visit from 20 to 24 weeks of pregnancy, 3rd visit: from 28 to 32 weeks of pregnancy& 4th visit: from 36 to 40 weeks of pregnancy, referral and follow-up should be given to pregnant women with complications.

- Early detection and diagnosis of disease/abnormality, i.e. quick check, history taking, physical examination, laboratory investigation and decision making.
- Components of ANC includes Height measured, Weight measured, Blood pressure checked, Blood tested, Breast examined, Urine tested, Abdomen examined, Sonography/ultrasound need to be examined.

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- At least two doses of tetanus toxoid vaccination, consumption of at least 100+ iron-folic acid (tablets/syrup).
- Counselling on health promotion: personal hygiene, diet and nutrition, danger signs.
- **Delivery Care**
- Birth and emergency preparedness: Identify the place of birth, preparing essential items, identify danger sigh of delivery
- Institutional Delivery, safe delivery withheld of trained ANM, ASHA or Doctor at household.

Postnatal Care

- Promotion of healthy behaviors, danger sign recognition and family planning.
- Promotion of healthy behaviors - hygiene, warmth, breastfeeding, danger sign recognition and immunizations.
- Extra care for low birth weight babies or babies born to HIV-positive mothers and babies with other special needs.
- Check up by doctors within 48 hours of delivery.

3. Review of literature

Promotion of maternal health care has been one of the most important objectives of the family welfare program in India. The GOI took steps to strengthen maternal care services as early as the First and Second Five-Year Plans (1951-56 and 1956-61). The Indian government has done many programs on maternal and child health. The second phase of the RCH program, i.e. RCH2nd, has been commenced from 1st April 2005, the five-year file 2010. The main objective of that program is to bring about a change in three critical health indicators that are reducing total fertility rate, infant mortality rate and maternal mortality rate intending to realize the outcomes envisioned in the Millennium DevelopmentGoals, the **National Population Policy 2000 (Ministry of Health and Family 2000)**. In 1992-93, the Child Survival and Safe Mother Program continued the process of combination by bringing composed crucial several child survival interventions with safe mother and family planning activities **(MoHFW,1992).**

Safe motherhood and child health services were merged into the Reproductive and Child Health program. This new program seeks to put together maternal health, child health, and fertility Regulation interventions with reproductive health program for both women and men concerning maternal and reproductive health **(MoHFW, 1979, 1989).**

According to **Lubbock et al. (2008)** highlights in their study that logistical and socio-cultural barriers impeding, women's utilization of maternal health services in rural areas. In their study, researchers depict that some parts of India's population deprived of the many benefits associated with full antenatal care services in a considerable proportion, especially in those regions where accessibility become a problem.

The differential in the approach of health care facilities between rural areas is an essential factor for poorer utilization of maternal health care services, mainly for Any ANC, Full ANC, institutional delivery and immunization by health personnel in the rural areas of the three southern states **(Navaneetham, 2000).** India's Child Survival and Safe Motherhood Programs (CSSMP), launched in 1992, involved training of physicians and traditional birth attendants, provision of aseptic delivery kits and expansion of existing rural health services to include facilities for institutional delivery. The initiative designed to improve the proportion of pregnant women receiving three antenatal visits, and the ratio of births conducted by trained helpers. In remote areas, facilities such as improvement of home-based new-born care via auxiliary nurse-midwives are envisaged **(MoHFW 1997-98).** To increase the accessibility of and access to the quality health care system, especially for those living in rural areas, the poor, women, and children, the government recently launched the National Rural Health Mission for the 2005-2012 periods. One of the essential goals of the NRHM is to provide access to developed health care at the household base through female Accredited Social Health Activists (ASHA), who acts as a border between the public and the public health system. The ASHA acts as a channel between the ANM and the villages, and she is accountable to the Panchayatlevel. She helps promote referrals for universal immunization, services for RCH, the building of household toilets, and other health care related delivery programs**(MoHFW,2006)**. A health professional attends only 53 percent of deliveries in developing nations, and only 40 percent take place in a hospital or health center. According to the **World Health Organization (WHO),** training skilled attendants who can prevent, detect and manage obstetric complication as well as provide equipment, drugs and other supplies is the single most crucial factor in preventing maternal death.

One in four maternal deaths could be prevented by family planning. Access to family planning has a high impact on maternal mortality. An estimated one hundred fifty million women in developing countries want to delay or stop childbearing and control their fertility. It results fromreducing the induced abortion rate. Rural people are using a traditional method in fertility reduction Kerala and Haryana. In mortality reduction, however, the state is ahead of all the states except Kerala, a better level of economic development has contributed to the mortality reduction. However, the fact that maternal and child health programs also have contributed to the mortality decline in the state. **NFHS - III** shows some gap in the utilization of maternal and child health services. In the wake of the targets fixed for the decline in maternal and child mortality and the targets of 100 coverage of MCH services, it is necessary to highlight the utilization of these services in Kerala compared to the Haryana state.

One of the essential functions of ANC is to offer health statistics and facilities that can significantly improve the health of the mother and their children **(WHO & UNICEF 2003)**. Pregnancy complication and infant birth is the major cause of death and disability among women in developing countries, Millions of women in developing countries lack access to proper and adequate maternal care during pregnancy, inadequate access and lack of modern health care services are prominent reason for maternal death in the developing countries **(Amin et al. 1989)**.

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The DLHS round (2012-13) data indicates that the utilization of private hospitals is higher than government hospitals in Kerala compared to the Haryana. The pattern of higher utilization of urban government health services compared to rural services in similar to the all in India. This utilization pattern is closely related to the availability of services and movement of rural patients to the urban hospital. Access and availability being better in urban areas & private medical care for inpatient care being exorbitant in general, the utilization of urban public health services are higher **(Kerala Haryana State Commission for Women 1997).**

4. Rationale of the study

Application of maternal and child health care services is inferior in India because of some custom, tradition, believes are behind that, and the second thing is that women's right to use access is less because women's health problem is given a low priority by the family members, women's access to resources a decision-making power. The reason for not using health facility in India was unavailability of transport, indifferent attitudes of health staff, and non-availability of doctor's especially female doctors at the referral centers, earlier negative experiences, and expense and only superior caste women only use antenatal and postnatal care more than those belonging to lower caste women. The reason behind the choice of these two states is their socio-demographic profile, which plays a significant role in utilization of maternal health care services. In Kerala maternal mortality rate is very low, education status is very high, and sex ratio is in favor of women while in Haryana, education status of women is inferior, MMR is high, and sex ratio is unfavorable for women. So, this is very necessary to know to do the comparative analysis of these two states to identify the intense effect of specified socio-demographic variables.

5. Objectives:

1. To compare the utilization of maternal health care services between Haryana and Kerala.
2. To analyses the utilization of maternal health care services with background characteristics in Kerala and Haryana.

6. Methodology

Data Source

In the present study, data from the fourth round of District Level Household Survey (DLHS IV) Conducted during 2012-13and (DLHS-III) has been used. The DLHSis a national representative and one of the most significant demographic survey conducted in India and provides the district-level estimate of the demographic and socio-economic characteristic of the population. For the present study, the total number of ever-married women from Kerala and Haryana have been used as the primary unit of analysis.

Methods

In the present study, 'antenatal care', 'delivery care' and 'postnatal care' have been used as the dependent variable for maternal healthcare utilization and different socio-demographic predictors such as woman's education, a number of living children, religion, caste and region of residence have been used as the independent variable.

We used bivariate analyses to identify factors associated with maternal healthcare utilization with urban, rural differentials in Kerala and Haryana. And we also used the Chi-square test to determine the difference in proportions of the service utilization across selected socioeconomic and demographic characteristics. The formula of the Chi-Square statistic is quite straight-forward and intuitive: -

$$x^2 = \sum \frac{(f_0 - f_e)^2}{f_e}$$

Where

f_o = the observed frequency.

f_e = the expected frequency if NO association existed between the variables.

7. RESULTS

Comparison of maternal health care utilization between Kerala and Haryana

Table No.1, Shows the maternal health care indicators and status of women in Kerala and Haryana by their residence. In Kerala, women have received more than 95 percent 'any ANC' in both rural and urban areas. While it is 67.2 percent in rural areas and 77.7percent in urban areas for women belonging to Haryana. In Kerala, 86 percent women have visited for 'ANC check-up more than three times' (visit) during pregnancy. Whereas in Haryana it is 40.9 percent in rural and 52.3 percent in urban areas. Seventy percent of women has received 'Full ANC' in Kerala while Haryana women have received full ANC below 20percent. 'Institutional delivery' is almost 100 percent in Kerala. Whereas in Haryana, institutional delivery is 74.4percent in rural and 81.9percent in urban areas. Comparatively 'Delivery at Home' is the highest 23 percent in Haryana and less than 1percent in Kerala. In Kerala, more than 90 percent to 97 percent of women have received 'PNC within 48 hours'. Whereas in Haryana, 67percent of women has received 'PNC within 48 hours. In Kerala, women received almost 54percent 'ANC' from government health facilities, whereas in Haryana women utilize government health facilities 69percent from rural and 55 percent urban areas. Women are facing many 'complications during pregnancy' and 'post-delivery'. Women of Kerala have reported that they have got 'treatment for pregnancy complication' is 41 percent in rural and 33 percent women have reported regarding 'treatment of pregnancy complication' in government health facilities. Kerala's women have reported that the utilization of government health facilities for 'treatment PNC complication' that contributing 40 percent in rural and 54percent in urban areas in Kerala. Whereas 43 percent in rural and 32percent of urban women have utilized government health facilities in Haryana.

Andtable – 1 also shows the maternal health care indicators and status among women in Kerala and Haryana by residence according to the DLHS-3. In Kerala, women have received all most 100 percent 'any ANC' in both rural and urban areas. In compare to women belong to Haryana who received 85.2 percent in rural areas and 93.8 percent in urban areas. In Kerala, 95 percent women have visited for 'ANC check-up more than three times' during pregnancy. Whereas in Haryana,

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women have visited only 47.2percent in rural and 66.1 percent in urban areas. Seventy-twopercent of women have received 'Full ANC' in Kerala, but in comparison, Haryana women have received 'full ANC' below 20percent. 'Institutional delivery' more than 99percent in Kerala. Whereas in Haryana 'institutional delivery' is 42.2 percent in rural and 61.4 percent in urban areas. Comparatively Delivery at Home is highest 52percent in Haryana and less than 1percent in Kerala. In Kerala, more than 99 percent of women have received 'PNC within 48 hours'. Whereas in Haryana, 51 percent of women has received 'PNC within 48 hours'. In Kerala, women received all most 39.3 percent 'ANC' from government health facilities. Whereas in Haryana women utilize 'government health facilities' 44.4 percent in rural and 49 percent in urban areas. Women are facing many 'complications during pregnancy and post-delivery'. Women of Kerala have reported that they have got 'treatment for pregnancy complication' is 38 percent in rural and 25percent women of Haryana have reported regarding 'treatment of pregnancy complication' in government health facilities. Kerala's women have reported that the utilization of government health facilities for 'treatment PNC complication' that contributing 40percent in rural and 38.4 percent in urban areas in Kerala, whereas 16.2 percent in rural and 21.5 percent in urban women have utilize 'government health facilities' in Haryana.

Table No: 1 Maternal health care indicators among women in Kerala and Haryana (in percent), DLHS-4 and DLHS-3

	DLHS-4 (2012-13)						DLHS-3 (2007-08)					
	Total		Rural		Urban		Total		Rural		Urban	
ANCreceived by Women	Kerala	Haryana	Kerala	Haryana	Kerala	Haryana	Kerala	Haryana	Kerala	Haryana	Kerala	Haryana
Any ANC	96.2	70.8	95.3	67.2	97	77.7	99.8	87.3	99.8	85.2	100	93.8
ANC visits 3+	86	44.8	84.7	40.9	87.4	52.3	95.3	51.9	95.2	47.2	95.4	66.1
full ANC	70.3	15	70	12.5	70.7	19.6	72.3	13.3	72.5	10.2	71.4	22.6
Delivery Care												
Institutional delivery	99.6	77	99.4	74.4	99.8	81.9	99.4	46.9	99.2	42.2	99.8	61.4
Delivery at home	0.2	22.5	0.3	25	0.1	17.8	0.6	52.6	0.7	57.4	0.1	38
Delivery by skilled health personnel	99.7	91.1	99.5	89.5	99.9	94	99.4	53.4	99.3	48	99.9	69.6
PNC within 48 hours of Institutional delivery	95.5	67.2	97.2	66.8	93.7	68	99.1	51.4	99	48.6	99.5	60.2
PNC within two weeks of Institutional delivery	95.9	69	96.7	68.5	95.1	70	99.5	52.2	99.3	49.2	99.9	61.2
Utilization of Government Health Services												
Antenatal care	54.4	63.7	52.5	69	56.4	55	39.3	45.7	40.9	44.4	33.9	49
Treatment for pregnancy complications	43.1	38.9	40.9	42.8	46.2	32.9	36.1	25.5	37.9	25.6	30.5	25.1
Treatment for post-delivery complications	45.9	38.8	40.2	42.7	53.6	31.7	39.9	17.4	40.4	16.2	38.4	21.5

Note: ANC: Antenatal Care, PNC: Postnatal Care

Utilization of maternal health care services in Kerala

Table No: 2, shows that the women of age group 15-19 years have received more (100percent) any ANC than the women of age group 25-29 years (93.5percent) in Kerala. These cases are similar for full ANC received by women, where women of age group 15-19 years have received 76 percent and age group 35 and more years have received 66.3percent. The women of age group 15-19 years (100 percent) have gone for Institutional Delivery more than the women of age group 35 and more years(99.3percent). The women (100 percent) who have no children have received more any ANC than the women (86.5percent) who are living with more than four children. These cases are similar for full ANC received by women, where women (100 percent) have received who have on children and who are living with more than four children has received 70 percent. The women (100 percent) who have on children have gone for Institutional delivery more than the women (86.5 percent) that are living with more than four children. Any ANC received among the non-literate are 48.5 percent as against 96percent among the women educated for 10 or more years. These cases are similar for full ANC received among the 5-9 years are 58.3 percent as against 72.1 percent among the women educated for 10 or more years. The 10 or more year's educated women (100percent) have gone for Institutional delivery than the women (72.3percent) non-literate. The women (96.6 percent) belong to the Christian community have received more any ANC than the women (94.7 percent) belong to Hindu community. These cases are similar for full ANC received by women, where women belong to Muslim community have received 74.7percent, and Hindu women have received only for 68 percent. The Hindu women (99.7 percent) have gone for Institutional delivery more than the Christian women (99.5 percent). The women belong to others castes 96.8percent have received any ANC than the scheduled tribeswomen (70.7 percent). These cases are similar for full ANC received by women, where women for belonging to others castes have received 74.2percent, and scheduled tribe's women have received 52.4 percent. The others castes women (100 percent)

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have gone for Institutional delivery more the scheduled castes women (99.2 percent).

Table No:2 percentage of currently married women of aged 15-49 years, going for Any ANC, Full ANC and Institutional delivery by Background Characteristics in Kerala, India DLHS-4 (2012-13)

Background characteristics	Any ANC	P-value	Full ANC	P-value	Institutional delivery	P-Value
Age group						
15-19	100.0		75.9		100.0	
20-24	95.5		69.9		100.0	
25-29	93.5	.098	69.2	0.64	99.6	.814
30-34	97.9		72.7		99.7	
35+	95.5		66.3		99.3	
No. of Living Children						
0	100.0		100.0		100.0	
1	95.1		68.0		99.8	
2	95.7	.686	71.9	.593	99.8	.000
3	95.9		69.9		100.0	
4+	86.5		70.2		86.5	
Education						
Non literate	48.5		-		72.3	
Less than 5 years	77.9	.000	-	.000	100.0	.000
5-9 years	92.2		58.3		99.4	
10 or more years	96.0		72.1		99.8	
Religion						
Hindu	94.7		67.9		99.7	
Muslim	95.9	.338	74.7	.133	99.7	.815
Christian	96.6		68.5		99.5	
Others	-		-		-	
Castes/tribes						
Scheduled castes	95.4		61.3		99.2	
Scheduled tribes	70.7	.000	52.4	.067	100.0	.286
Other backward classes	95.3		70.3		100.0	
Others	96.8		74.2		99.7	
Total	95.3		69.9		99.7	

Note:P value for chi-square test.

Utilization of maternal health care services in Haryana

Table No: 3, shows that the women (70.8 percent) of age group 20-24 years have received more 'any ANC' than the women (54.6percent) of age group 35 and more years in Haryana. These cases are similar for 'full ANC' received by women, where women of the age group 20-24 years have received 13 percent and age group 35 and more years have received 9.8 percent. The women (79.4 percent) of age group 20-24 years have gone for 'Institutional Delivery' more than the women (63.1 percent) of age group 35 and more years. The women (80.5 percent) who have no children have received more 'any ANC' than the women (52.5 percent) who are living with more than four children. These cases are similar for 'full ANC' received by women, where women (15.1 percent) have received who have one child and who is living with more than four children has received 7.5percent. The women (83.4percent) who have one child have gone for 'Institutional delivery' more than the women (54.3percent) who are living with more than four children. 'Any ANC' received among the non-literate are 49.5 percent as against 77.5 percent among the women educated for 10 or more years. These cases are similar for 'full ANC' received among the non-literate are 6.1 percent as against 17.4 percent among the women educated for 10 or more years. The 10 or more year's educated women (85.5 percent) have gone for 'Institutional delivery' than the women (58.2 percent) non-literate. The women (100 percent) belong to the Christian community have received more 'any ANC' than the women (39.7percent) belong to the Muslim community. These cases are similar for 'full ANC' received by women, where women of belonging to Christian community have received 100percent, and Muslim women have received only for 4.5 percent. The Christian women (100 percent) have

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gone for 'Institutional delivery' more than the Muslim women (43.3percent). The women belong to others castes 73.3 percent have received 'any ANC' than the scheduled tribeswomen (55.5 percent). These cases are similar for 'full ANC' received by women, where women for belonging to others castes have received 14 percent and scheduled tribe's women have received 9.3 percent. The others castes women (81.4 percent) have gone for 'Institutional delivery' more than the scheduled tribeswomen (69.1 percent).

Table No: 3

Utilization of maternal health care with Background Characteristics in Haryana, India DLHS-4 (2012-13)

Background characteristics	Any ANC	P*-Value	Full ANC	P*-Value	Institutional delivery	P*-Value
Age group						
15-19	67.0		12.0		76.9	
20-24	70.8		13.0		79.4	
25-29	67.9	.000	12.9	.362	73.6	.000
30-34	62.5		11.4		69.1	
35+	54.6		9.8		63.1	
No. of Living Children						
0	80.5		12.6		69.9	
1	73.6		15.1		83.4	
2	69.3	.000	13.4	.000	76.8	.000
3	60.2		8.9		65.8	
4+	52.5		7.5		54.3	
Education						
Non literate	49.5		6.1		58.2	
Less than 5 years	63.4	.000	11.0	.000	71.9	.000
5-9 years	68.4		11.6		73.5	
10 or more years	77.5		17.4		85.5	
Religion						
Hindu	69.2		13.0		76.8	
Muslim	39.7	.000	4.5	.000	43.3	.000
Christian	100.0		100.0		100.0	
Others	78.7		17.8		83.5	
Castes/tribes						
Scheduled castes	63.6		11.4		70.9	
Scheduled tribes	55.5	.000	9.3	.076	69.1	.000
Other backward classes	67.2		12.5		72.0	
Others	73.3		13.9		81.4	
Total	67.2		12.5		74.3	`

Note:P value for chi-square test.

8. Summary

The coverage of any ANC was inferior in the Haryana. The situation of at least one ANC received by women in Kerala may be said to be satisfactory. Overall, 96percent of women received at least one ANC at Kerala in DLHS-4. This figure ranges from as low as 70 percent in Haryana to as highest as 96.2 percent in Kerala. It has been found that both states have consistently improved their performance in terms of any ANC services taken by pregnant women. However, in Kerala condition of any ANC is not improving significantly during two DLHS. Receiving of the any ANC among pregnant women in Kerala and Haryana varies by age, parity, education, place of residence, cast and religion in DLHS-3 and DLHS-4. It is interesting to show that the highest consumption of full ANC taken by pregnant women is observed for first parity (70.3percent). Fifteen percent of full ANC received by pregnant women is gradually decreasing as parity increasing due to awareness. In a state like Kerala. When first childbirths, everyone father, mother, family give more importance. And this is decreasing when the number of children is increasing.

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9. Conclusions

The various studies over the past decade have found a nearly universal and positive association between mother's education and child survival. This relationship has persisted even when other socioeconomic influences have been held constant. This study provides useful insights into how mother health care services could influence child health-care behavior. In common, the utilization of maternal health care services (antenatal check-up, institutional delivery care, PNC) is higher in Kerala than in the Haryana. The availability and accessibility of health-related services are better in Kerala as compared to Haryana. Health care facilities are least accessible in the states of Haryana. Utilization of maternal health care in Kerala (receiving antenatal care, institutional delivery and PNC) is almost higher than in Haryana after controlling for individual and other characteristics of women. But women in Haryana are about less to use maternal health care services than women in Kerala. That is likely to be due to disparities in the availability and accessibility of maternal health-related services in these states. For instance, in Kerala. The people served per hospital (includes both government and private hospitals) is around 14 thousand. The state-level characteristics such as the accessibility and availability of health care amenities and program factors could also improve the utilization of maternal health care services even among the illiterate women. For instance, illiterate women in Kerala have higher utilization of all the maternal health care services than the uneducated women in Haryana.

This study also concludes that determinants of maternal health care services are not the same across two states. Only women education and exposure to mass media have emerged as the strongest significant positive factors in Kerala for all indicators of maternal health services as compared to Haryana.

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