Women and Child Healthcare Status in Haryana

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Abstract

Health is an important aspect of socio-economic development of a society; and healthcare of a women and child plays the important role in the development of a society. There have been used many indicators which affects to the health of women and child. Present study is based on secondary data which are obtained from many sources. There has been made an attempt to show the trend of the selected data as well as spatial pattern of these indicators. There has been also made an attempt to show the correlation of the institutional delivery with selected indicators. It is found that institutional delivery has significant correlation with general literacy, female literacy and percentage of girl marring before completing 18 years at 0.01 significant levels, while there is significant negative correlation of percentage of girl marring before completing 18 years with institutional delivery. Sex ratio, percentage of house hold with low standard living, percentage of village with any government health facility and area per institution have no correlation with institution delivery. Study found that there is an improvement in almost all indicators in the state after the implementation of NRHM. But the regional variations in the indicators are still exits.

Introduction

Women and child healthcare are the important issues in the development of a society, because if the women and child will not be healthy, how could they contribute to the society as well as economy. It is a 'health' which affects all the economic and social outputs. Women and child in the developing countries are facing many problems and this is also true about India as well as Haryana. There are many factors which affects the women and child healthcare. Some of them are discussed here in this paper. Mother and child health are interrelated to each other. The mother's health status affects not just the child's nutritional status but also the child's survival prospects. The NRHM aims to achieve infant mortality rate (IMR) of 30 per 1000 live births, maternal mortality ratio 100 per lakh live births by the year 2012. But reality is far away from this; in 2010 infant mortality rate in India is 50 and infant mortality rate in Haryana is above than that of the national average 51 (SRS, 2011). While Maternal Mortality Ratio (MMR) in India is 230 per lakh in 2008; which is far away from the set target (WHO, 2010). So,

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target is still neither achieved at national level, nor at state level in Haryana. In India, neonatal mortality (death within 28 days of birth) accounts for 60 per cent of infant mortality, due to partly delivery without medical supervision.

Millennium Developments Goals (MDGs) No. 4 and 5 are also about to improve child and mother health in the world by reducing U5MR, IMR, MMR. According to SRS data, U5MR in 2009 was 64 per 1,000 live births in India compared to 31 in China. It has fallen from 85 per 1,000 live births in 2000. U5MR for both males and females declined over the period 2000–2009 from 84 to 60 and 95 to 69 respectively (SRS 2011). Only Kerala (14), Tamil Nadu (33) Maharashtra (36), Delhi (37), and West Bengal (40) have achieved the all India MDG target for 2015 in respect of U5MR. In the case of Haryana it is 60. MMR in India is 212, which is far away from target. Haryana has 153 MMR which is less than national average but it is still high. Assam has highest MMR in India with 390 MMR (SRS, June, 2011).

Objectives

The present paper has the following objectives;

1. To find out the spatial pattern of healthcare status of women and children in Haryana.
2. To find out the temporal change in healthcare status of women and children in Haryana.

Database and Methodology

Present study is based on secondary data sources. Some of them are published and some are unpublished. Published data are obtained from various sources like; DLHS Reports, NFHS Reports and SRS Bulletin, Haryana Statistical Abstracts, Millennium Development Goal Reports, W.H.O. Reports, and Census of India. Unpublished data are obtained from the NRHM office, Panchkula, Haryana. After collecting data from different sources, the spatial pattern of the selected healthcare indicators are shown on map.

Discussion

There are many factors which affects both women and child healthcare. Some of them are discussed here like; infant mortality rate, maternal mortality ratio, percentage of women registered within first trimester, percentage of Women received 3 ANC Checkups, percentage of institutional delivery, percentage of newborns breast fed within 1 hour of birth, percentage of newborns having weight less than 2.5 kg to total birth.

Infant Mortality Rate (IMR)

It is noted that infant mortality rate decline with 17 points in Haryana from 2001 to 2010. But if we see further break up within it, which reveals that from 2001 to 2005 IMR declined 5 points only; and between 2005 and 2010 it declines with 12 points. It can be concluded that there is an impact of National Rural Health Mission (NRHM) on IMR, because NRHM has been introduce in 2005. Rural infant mortality rate in

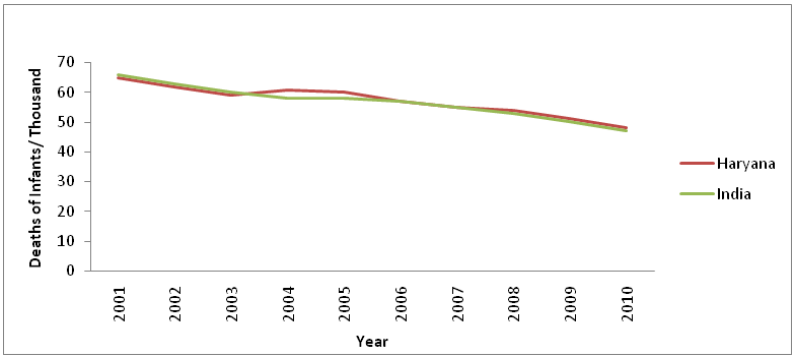
Haryana is also declined with 17 points in this period from 68 to 51. Urban IMR has been declined with 16 points. Female IMR has been declined more than male IMR in Haryana. In the case of female IMR, it was 70 in 2000 and it was also 70 in 2005; so there is no improvement in female IMR in this period. While it decline with 21 points between 2005 and 2010. It shows there is a clear cut impact of NRHM on female IMR. Infant mortality rate in India has been declined from 66 in 2000 to 47 in 2010. It reveals that IMR in India as a whole decline more than Haryana. Infant mortality rate in rural has been declined more than urban areas (Table 1). Fig 1 shows the declining rate of IMR in India and Haryana. It reveals that there is fluctuation in Haryana line but IMR line of India is smoothly declined.

Table 1: Trend of Infant Mortality Rate in Haryana and India, 2001-10

Year	Haryana					India		
	Total	Rural	Urban	Male	Female	Total	Rural	Urban
2001	65	68	54	63	70	66	72	42
2002	62	N.A	N.A	54	73	63	69	40
2003	59	61	49	54	65	60	66	38
2004	61	66	47	55	68	58	64	40
2005	60	64	45	51	70	58	64	40
2006	57	62	45	57	58	57	62	39
2007	55	60	44	55	56	55	61	37
2008	54	58	43	51	57	53	58	36
2009	51	54	41	48	53	50	55	34
2010	48	51	38	46	49	47	51	31

Source: Sample Registration System, Registrar General, India

Figure 1: Trend of Infant Mortality Rate in Haryana and India 2001-10



Institutional Deliveries

Besides reducing maternal and neo-natal mortality, institutional deliveries are also believed to improve health-seeking behaviour and practices in the period following childbirth. Children born at a health facility are more likely to be vaccinated and

breastfed (Odiit and Amuge 2003).Institutional deliveries or facility-based births are often promoted for reducing maternal and neo-natal mortality. Yet, many women in low and middle income countries, including India, continue to deliver babies at home without the presence of a skilled attendant. One-fifth of the 2,87,000 maternal deaths worldwide in 2010 occurred in India (WHO 2012). According to latest data available Maternal Mortality Ratio (MMR) in India is 212 during 2007-09, whereas the country's target in this respect, as per the MDGs, is 109 by 2015. So, India is very likely to miss the Millennium Development Goal (MDG) for maternal mortality. MMR in Haryana is 153 during 2007-09 (SRS, 2009).

It has been noted that during 2005-06 there were 1,68,000 deliveries conducted in health institution in Haryana. These institutional deliveries increased from 1,68,000 to 4,30,784 during 2005-06 and 2011-12. It indicates that within the period of 7 years institutional deliveries increased more than 2.5 times in Haryana (Table 2). Fig. 2 implies that institutional deliveries in Haryana are continuously increasing.

Table 2: Trends of Institutional Deliveries in Haryana from 2005-06 to 2011-12

Year	Institutional Deliveries
2005-06	168000
2006-07	216000
2007-08	275000
2008-09	318000
2009-10	358000
2010-11	402404
2011-12	430784

Source: Compiled by Author based on NRHM Office Haryana, Panchkula

Figure 2: Trend of Institutional Deliveries in Haryana 2005-06 - 2011-12

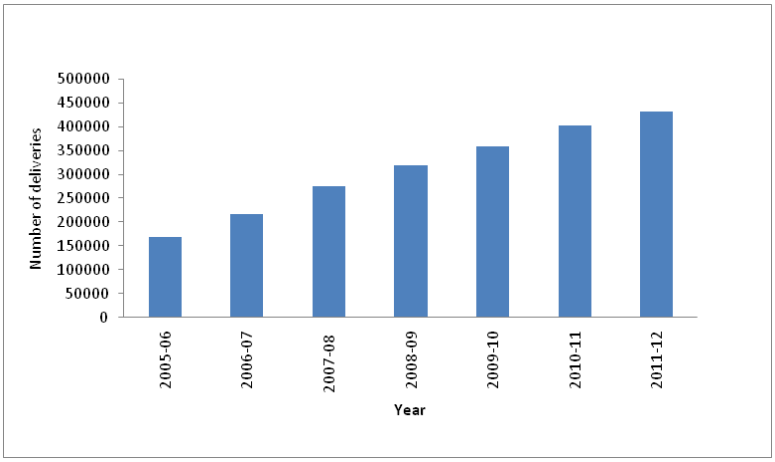
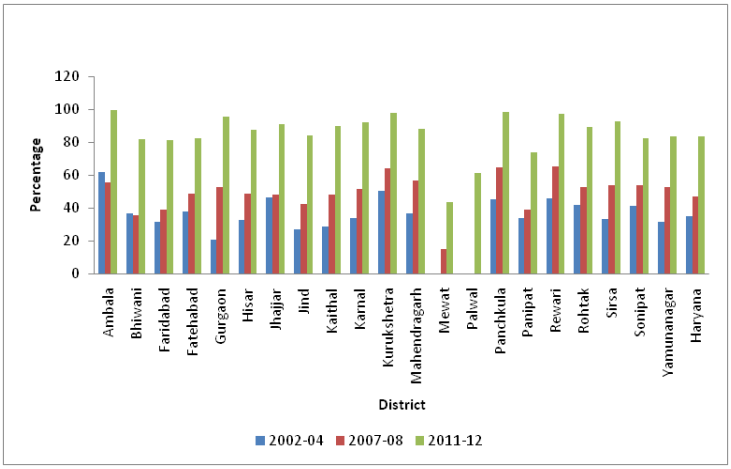


Figure 3: Haryana Institutional Delivery

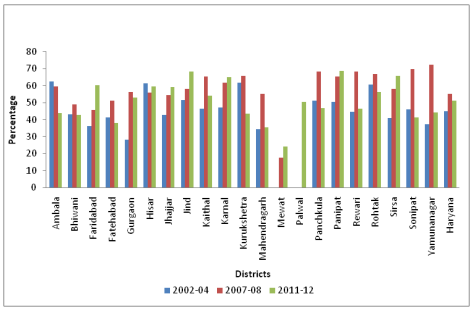


Percentage of Women Registered within First Trimester

The first trimester of pregnancy is very important for women. First trimester of pregnancy is the period from the beginning of the first month of pregnancy to the end of third month of pregnancy. There are many types of physical and emotional changes through which a woman goes during the first trimester of pregnancy. The first trimester is also very important for the development of feutus. The mother requires extra care about taking food, rest, water and many more, not only physically but emotionally and psychologically too. For the baby, the first trimester is the most critical period in terms of its future health. The first 3 months mark the time of implantation, organ development and rapid growth.

Figure 4 shows the percentage of women registered within first trimester in Haryana during 2002-04, 2007-08 and 2011-12. It implies that there is variation within the state. Percentage of women registered within first trimester is increased in many districts and it decreased also in some district.

Figure 4: Haryana Women Registered Within First Trimester



Percentage of Women Received 3 ANC Checkups

Antenatal care is the healthcare received by a woman during pregnancy. WHO defines antenatal care as a dichotomous variable, i.e. a women has one or more visits to a trained person during the pregnancy. (WHO, 1991)

Antenatal care is the systematic supervision of women during pregnancy to monitor the progress of feutal growth and to ascertain the well being of the mother and feutus. A proper antenatal check-up provides necessary care to the mother and helps identify any complications of pregnancy such as anemia, hypertension etc (MHD, 2010).

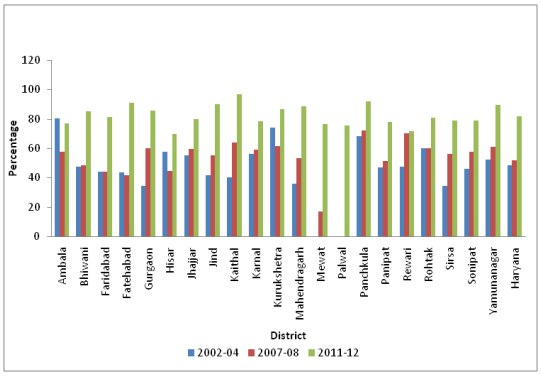
Good care during pregnancy is important for the health of the mother and the development of the unborn baby. It has been estimated that 25 percent of maternal deaths occur during pregnancy, with variability between countries depending on the prevalence of unsafe abortion, violence, and disease in the area. ANC also provides women and their families with appropriate information and advice for a healthy pregnancy, safe childbirth, and postnatal recovery, including care of the newborn, promotion of early, exclusive breastfeeding, and assistance with deciding on future pregnancies in order to improve pregnancy outcomes. (http://www.who.int/pmnch/media/ publications/ aonsectionIII_2.pdf)

ANC improves the survival and health of babies directly by reducing stillbirths and neonatal deaths and indirectly by providing an entry point for health contacts with the woman at a key point in the continuum of care. Sugathan et al (2001) found in their study that receiving one or more antenatal check-ups is the strongest predictor of institutional delivery. Bloom et al (1999) found that there is strong positive association between care obtained during pregnancy and safe delivery and it is also reduced maternal mortality.

Percentage of Newborns Breastfed within 1 Hour of Birth

Early initiation of breastfeeding, within one hour of birth, protects the newborn from acquiring infections and reduces newborn mortality (WHO, 2010).

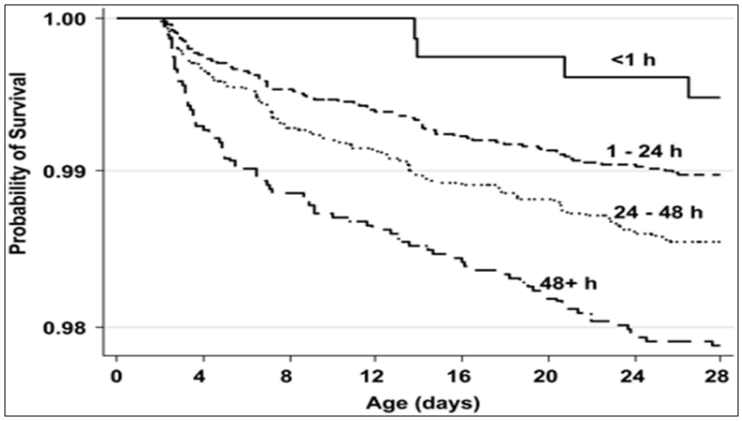
Figure 5: Haryana Women Received 3 ANC Check Ups



Experts recommend that children be breastfed within one hour of birth and exclusively breastfed for the first 6 months. The World Health Organization says infants should be exclusively breastfed for the first six months of life "to achieve optimal growth, development and health."

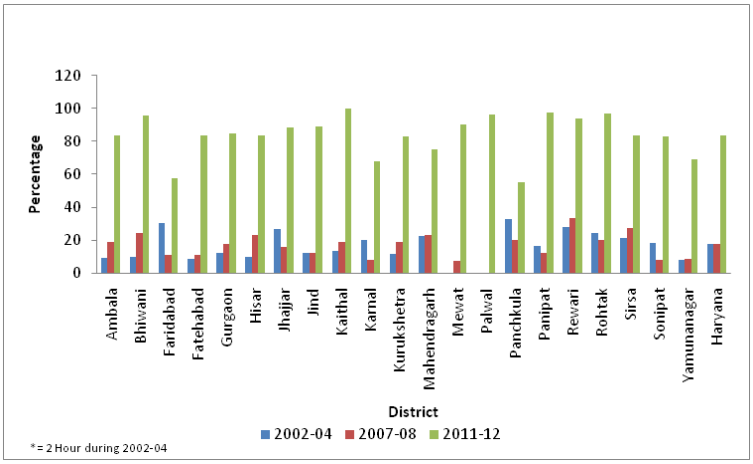
Breast milk has just the right amount of fat, sugar, water, and protein that is needed for a baby's growth and development. Breastfeeding uses an average of 500 calories a day, it helps the mother to lose weight after giving birth. The composition of breast milk changes depending on how long the baby nurses at each session, as well as on the age of the child (Galson, 2008).

Figure 6: Relationship between Survival Probabilities of a Child with the Time of Breastfeeding in Nepal



Source: Mullany L.C.et al (2008)

Figure 7: Haryana Newborns Child Breast Fed Within 1* Hour



Children who are not breastfed are almost six times more likely to die by the age of one month than children who receive atleast some breast milk (WHO, 2002). Breasting also helps to lessen breast cancer (Gartner et al, 2005). Mullany L.C.et al (2008) also found in their study which was conducted in Nepal that there is close relationship between the time of breastfeeding and survival probability. A model in this regard may be seen in figure 6.

Table 3: District wise Selected Indicators of Women and Child Health of Haryana from 2002-04 to 2011-12

	2002-04*				2007-08**				2011-12***			
Districts	A	B	C	D	A	B	C	D	A	B	C	D#
Ambala	62.5	80.5	61.8	9.1	59.5	57.7	55.4	19	43.84	77.03	99.17	83.80
Bhiwani	43.2	47.6	36.3	9.7	48.9	48.3	35.7	24.1	42.59	85.20	81.95	95.53
Faridabad	36.3	43.9	31.2	30.5	45.5	43.8	39.1	10.9	60.15	81.05	81.01	57.87
Fatehabad	41.3	43.5	37.9	8.2	51.2	41.7	48.6	10.8	37.81	90.96	82.09	83.77
Gurgaon	28	34.2	20.4	11.9	56.1	60.1	52.3	17.6	53.00	85.76	95.62	84.65
Hisar	61.2	57.6	32.4	10	56	44.3	48.6	23	59.60	69.71	87.63	83.48
Jhajjar	42.8	55.4	46.2	26.8	54.5	59.7	48	15.7	59.33	80.05	90.94	88.25
Jind	51.5	41.4	27.1	12	58	55.4	42.1	12.1	68.38	89.88	83.74	88.90
Kaithal	46.5	40.4	28.4	13.3	65.3	64	48	18.5	54.13	96.66	89.61	100.00
Karnal	47.3	56.3	33.8	19.8	61.9	58.9	51.3	7.8	65.01	78.24	91.79	67.65
Kurukshetra	61.7	74	50.3	11.8	65.9	61.5	64.2	18.8	43.60	86.46	97.62	83.01
Mahendragarh	34.2	35.9	36.8	22.3	55	53.1	56.8	23.3	35.45	88.77	88.25	75.35
Mewat	N.A	N.A	N.A	N.A	17.4	17	14.8	7.5	24.18	76.40	43.46	90.56
Palwal	N.A	N.A	N.A	N.A	N.A	N.A	N.A	N.A	50.47	75.43	60.93	96.15
Panchkula	51.1	68	45.1	32.7	68.2	72.3	64.3	19.7	46.78	91.91	98.18	54.90
Panipat	50.4	46.7	33.9	16.2	65.3	51.1	39	12.3	68.50	78.01	73.56	97.73
Rewari	44.6	47.2	45.9	27.6	68.4	70	65	33.3	46.22	71.84	96.92	94.04
Rohtak	60.5	60.1	41.9	24	66.7	60.1	52.8	20.3	56.14	80.59	89.34	96.82
Sirsa	40.9	34.5	33.3	21.3	58.1	56	53.5	27.5	65.87	79.05	92.82	83.36
Sonipat	46	46.2	41.1	17.9	69.6	57.7	53.7	8	41.43	78.91	82.32	83.08
Yamunanagar	37.3	52.2	31.6	7.6	72.5	60.8	52.3	8.5	44.28	89.66	83.57	69.31
Haryana	45	48.6	35.1	17.3	55.1	51.9	46.9	17.4	51.15	81.77	83.18	83.62

Source: Compiled by Author based on DLHS-2, DLHS-3 and NRHM office Panchkula, Haryana

*A= Percentage of women registered within first trimester, B= Percentage of Women received 3 ANC Checkups, C= Percentage of institutional delivery, D= Percentage of Newborns breast fed within 1 hour of birth (2 hour in 2002-04), #=Included only which are born in health centers *= DLHS-2, ** DLHS-3, *** NRHM office Panchkula N.A= Data Not Available*

Table 3 shows district wise four selected indicators of women and child health during

pregnancy and after child birth in Haryana. These indicators are; (i) percentage of women registered within first trimester, (ii) percentage of women received 3 ANC checkups, (iii) percentage of institutional delivery, (iv) percentage of newborns breast fed within 1 hour of birth. It reveals that there are 45 percent women registered within first trimester in health institutions during 2002-04, which has increased up to 55.1 percent during 2007-08 and it again decreased with 4 points during 2011-12. It has been noted that 48.6, 55.1 and 81.77 percent women received 3 ANC checkups during 2002-04, 2007-08 and 2011-12 respectively in Haryana. Institutional delivery percentage is continuously increased from 2002-04 to 2011-12 in Haryana. There were 35.1 percent deliveries conducted in health centers during 2002-04 which increased up to 46.9 during 2007-08 and 83.18 during 2011-12. It has also been noted that percentage of new born child breast fed within one hour was 17.3 during 2002-04 and 17.4 during 2007-08 which has been increased up to 83.62 percent during 2011-12. This table also shows district wise differences of these selected indicators in Haryana.

Table 4: Selected Indicators of Women and Child Health of Haryana from 1992-93 to 2011-12

Haryana	Women received 3 ANC Checkups (%)	Institutional Deliveries (%)	Children breastfed within one hour of birth (%)
NFHS-1(1992-93)	45.8	17.4	2.5
NFHS-2 (1998-99)	38.2	22.4	11.7
NFHS-3 (2005-06)	58.8	39.4	22.3
NRHM office Haryana (2011-12)	81.77	83.18	83.62*

*Source: Compiled by Author based on NFHS-1, NFHS-2, NFHS-3 and NRHM Office Panchkula, Haryana, *=Included only which are born in health centers*

Figure 8: Haryana Selected Indicators of Women and Child Health

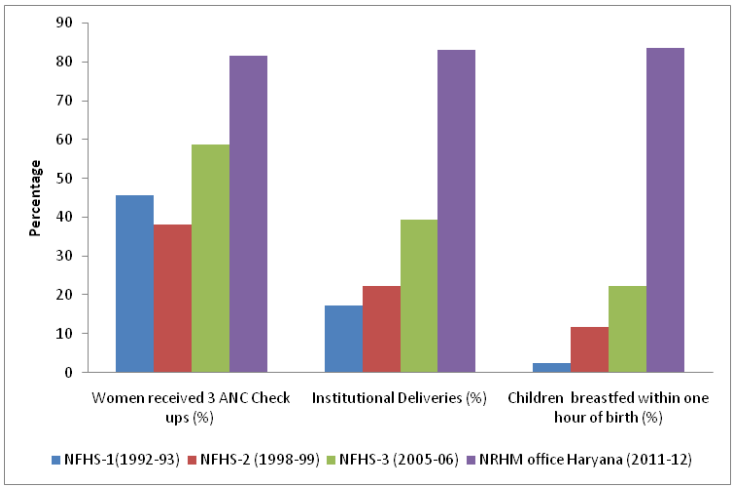


Table 4 explains the state level data of three selected indicators of Haryana from 1992-93 to 2011-12. It is recorded that percentage of those women received 3 ANC check

up is increased continuously i.e. 45.8, 38.2, 58.8 and 81.77 percent during 1992-93, 1998-99, 2005-06 and 2011-12 respectively. It has also been noted that percentage of institutional deliveries has also increased significantly from 17.4 percent during 1992-93 to 83.18 percent during 2011-12. It shows that percentage of institutional deliveries increased only 22 percent between 1992-93 and 2005-06, while it has been increased more than 44 percent in between 2005-06 and 2011-12. This high change is due to implementation of NRHM programme. Similar case may also be seen in the case of children breastfed within one hour of birth, it was only 2.5 percent during 1992-93 which has been increased to 20 percent during 2005-06. After 2005-06 it increased rapidly; within 6 year this increased 61 percent. Finally it is concluded that there is an impact of NRHM on these selected indicators.

Percentage of New Born Children Having Weight Less than 2.5 kg

Across the world, neonatal mortality is 20 times more likely for low birth weight (LBW) child compare to heavier child (≤ 2.5 kg). It is also established as an important risk factor for neonatal morbidity. (UNICEF, 2005) Low birth weight (LBW) has been defined by the World Health Organization (WHO) as weight at birth of less than 2500 g. It may be due to the outcome of either preterm birth (before 37 weeks of gestation) or retarded fetal (intrauterine) growth. The estimated proportion of LBW infants in India is 7.8%. (Balaji et al., 2010)

Child, who have weight less than 2000 gms (2 kgs), need specialized neonatal care for the initial few weeks after birth, until they are much stronger and ready to go home. The pregnant mother should gain a minimum of 10 kg weight during pregnancy period, and then only the new born child will be of 3 kg weight.

Table 5 shows trend of district wise three selected indicators of women health in Haryana from 2008-09 to 2012-13. It reveals that percentage of women received 3 ANC check-ups is continuously increased from 71.57 to 85.50 % between 2008-09 and 2012-13. Percentage of women who registered within first trimester has also been increased with 10 points from 2008-09 to 2011-12 but during 2012-13 it decreased slightly. Institutional deliveries are also increased from 68.62 to 82.50 between 2008-09 and 2012-13 in Haryana. This table also shows district wise variation in these indicators in Haryana.

Table 6 shows new born children health care characteristics in Haryana by taking 2 indicators i.e., (i) percentage of new born children having weight less than 2.5 kg. and (ii) percentage of new born children breastfed within one hour . It has been noted that percentage of new born children having weight less than 2.5 kg. has been decreased from 2008-09 to 2012-13 in Haryana. Bhiwani is the only district which has continuously low percentage of children with low weight. Bhiwani district has lowest percentage of new born children of low weight, while Palwal has the highest percentage. The percentage of new born children breastfed within one hour increased from 72.76 during 2008-09 to 82.19 during 2012-13. Panchkula has lowest percentage of new born children who have breastfed within one hour of birth, while Yamuna Nagar has highest 100 percent.

Table 5: Trend of Selected Indicators of Women Health in Haryana, 2008-09 to 2012-13

	2008-09			2009-10			2010-11			2011-12			2012-13		
District	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Ambala	70.49	34.81	78.49	71.48	36.59	86.67	65.20	40.69	92.58	77.03	43.84	99.17	91.13	44.89	99.55
Bhiwani	91.18	53.81	41.87	93.41	40.84	52.95	90.61	40.82	65.70	85.20	42.59	81.95	87.27	44.57	81.78
Faridabad	56.60	30.47	56.42	69.28	35.16	76.41	74.11	38.58	79.88	81.05	60.15	81.01	87.85	62.00	81.94
Fatehabad	72.51	28.67	65.90	73.68	27.35	73.14	84.31	34.70	76.81	90.96	37.81	82.09	96.09	42.70	88.83
Gurgaon	80.61	32.01	83.06	75.46	39.71	86.95	87.21	36.21	92.94	85.76	53.00	95.62	76.45	48.34	95.59
Hisar	70.09	40.96	59.55	78.85	52.28	72.40	65.19	59.28	83.21	69.71	59.60	87.63	74.66	59.24	88.66
Jhajjar	68.12	46.19	42.22	73.68	52.83	45.87	72.12	39.48	74.22	80.05	59.33	90.94	93.14	56.07	89.55
Jind	69.81	75.81	50.24	63.29	68.88	75.58	69.26	75.63	90.42	89.88	68.38	83.74	103.80	68.63	81.48
Kaithal	88.51	27.25	75.46	81.86	38.63	88.44	92.94	59.80	88.84	96.66	54.13	89.61	90.59	46.38	92.64
Karnal	53.85	51.61	71.39	59.80	60.43	87.32	67.62	59.48	90.45	78.24	65.01	91.79	80.45	61.25	90.74
Kurukshetra	62.22	30.48	63.99	78.65	35.78	88.12	84.78	39.59	95.99	86.46	43.60	97.62	93.09	47.89	97.23
Mahendragarh	92.33	23.21	72.87	89.89	32.73	77.07	97.71	33.58	82.51	88.77	35.45	88.25	110.71	45.71	84.63
Mewat	61.69	29.81	15.21	50.24	23.56	12.15	57.18	20.00	35.23	76.40	24.18	43.46	68.27	25.68	37.52
Palwal	N.A	N.A	N.A	74.20	39.35	37.39	75.21	44.55	54.17	75.43	50.47	60.93	84.07	43.95	58.86
Panchkula	101.5	39.66	91.38	108.29	63.72	98.60	91.88	46.30	98.47	91.91	46.78	98.18	105.15	50.71	98.48
Panipat	81.58	71.87	29.69	88.86	71.75	63.19	89.21	76.63	68.13	78.01	68.50	73.56	59.08	56.59	73.64
Rewari	76.60	43.61	65.44	72.72	36.37	88.79	78.85	47.03	95.17	71.84	46.22	96.92	85.47	50.51	98.72
Rohtak	91.17	56.55	50.98	39.59	34.62	60.89	41.73	51.91	87.04	80.59	56.14	89.34	77.24	59.34	92.64
Sirsa	61.41	48.53	67.47	89.04	68.02	74.04	79.95	68.89	88.44	79.05	65.87	92.82	89.66	63.59	90.74
Sonipat	85.38	24.33	59.26	87.87	30.19	71.24	82.78	28.52	78.73	78.91	41.43	82.32	81.40	44.68	80.11
Yamuna Nagar	37.83	38.70	60.72	65.23	47.90	73.92	101.30	41.30	78.74	89.66	44.28	83.57	98.18	44.26	87.22
Haryana	71.57	41.20	58.62	73.88	44.50	69.90	77.03	46.89	80.26	81.77	51.15	83.18	85.50	50.47	82.50

Source: Compiled by Author based on NRHM Office Haryana, Panchkula

A= Percentage of Women received 3 ANC Checkups, B= Percentage of women registered within first trimester, C= Percentage of Institutional Delivery, N.A= Data Not Available

Table 6: Trend of New Born Children Health Care Characteristics in Haryana, 2008-09 to 2012-13

	2008-09		2009-10		2010-11		2011-12		2012-13	
District	A	B	A	B	A	B	A	B	A	B
Ambala	20.14	79.38	12.63	83.62	17.13	84.96	17.98	83.80	19.31	79.86
Bhiwani	4.93	97.18	5.94	100.00	3.98	97.21	3.11	95.53	8.46	85.98
Faridabad	26.55	27.13	27.72	78.43	23.08	64.14	24.93	57.87	22.08	67.80
Fatehabad	8.92	69.61	9.54	84.89	9.65	86.47	8.81	83.77	12.01	85.54
Gurgaon	32.49	97.77	3.34	96.62	9.05	93.00	2.34	84.65	12.53	87.86
Hisar	40.85	83.24	40.47	89.37	5.45	81.69	16.28	83.48	10.83	62.42
Jhajjar	13.41	77.71	20.64	88.08	14.54	57.95	16.85	88.25	20.37	81.92
Jind	36.36	75.60	24.10	86.04	28.82	89.51	17.30	88.90	18.04	73.50
Kaithal	21.54	93.48	32.81	100.00	32.89	99.52	34.43	100.00	25.01	95.79
Karnal	20.01	63.36	19.42	60.75	27.45	68.71	17.08	67.65	10.90	67.03
Kurukshetra	32.42	60.52	13.53	70.71	11.77	77.17	9.77	83.01	11.53	87.15
Mahendragarh	19.89	84.98	14.58	90.75	16.99	87.31	23.90	75.35	17.96	66.92
Mewat	45.15	94.60	30.54	91.21	20.14	87.02	30.86	90.56	17.73	95.42
Palwal	N.A	N.A	11.63	79.72	20.47	81.86	26.70	96.15	39.95	84.01
Panchkula	15.15	23.02	9.76	93.11	18.24	85.70	12.43	54.90	17.44	59.10
Panipat	28.56	100.00	25.55	100.00	10.47	99.23	6.51	97.73	10.07	78.20
Rewari	15.03	34.44	13.23	72.55	14.94	88.11	11.37	94.04	14.67	93.12
Rohtak	31.39	77.87	21.36	81.62	18.25	84.53	21.44	96.82	25.53	92.67
Sirsa	13.19	51.45	10.84	88.76	13.10	92.38	7.15	83.36	11.18	89.57
Sonepat	13.23	73.71	13.85	49.83	13.36	65.86	14.62	83.08	10.89	93.73
Yamuna Nagar	9.60	94.67	5.88	91.41	8.09	91.96	11.80	69.31	11.99	100.00
Haryana	23.41	72.76	18.48	83.74	16.32	83.18	16.56	83.62	16.91	82.19

Source: Compiled by Author based on NRHM Office Haryana, Panchkula

A= Percentage of Newborns having weight less than 2.5 kg to total birth, B= Percentage of Newborns breast fed within 1 hour, N.A= Data Not Available

Table 7: Selected Indicators for Correlation with Institutional Delivery in Haryana

Districts	A	B	C	D	E	F	G	H	I	J	K	L	M
Ambala	99.55	91.13	44.89	82.89	76.64	882	44.38	2.8	7.4	37.5	78.1	12	11
Bhiwani	81.78	87.27	44.57	76.74	64.4	884	19.8	20.5	20.3	56.1	61	17	17
Faridabad	81.94	87.85	62.00	83.04	75.17	871	79.44	15.2	14.9	25	90	7	6
Fatehabad	88.83	96.09	42.70	69.13	59.29	903	19.06	17.4	20.3	68.3	92.7	19	14
Gurgaon	95.59	76.45	48.34	84.44	77.64	853	68.82	22.4	34.1	25	90.6	13	9
Hisar	88.66	74.66	59.24	73.24	62.31	871	31.73	25	21.4	81.1	86.5	15	14
Jhajjar	89.55	93.14	56.07	80.83	70.96	861	25.39	14.6	20.7	71.8	97.4	12	15
Jind	81.48	103.80	68.63	72.73	61.58	870	22.82	20	24.3	60	87.5	13	14
Kaithal	92.64	90.59	46.38	70.56	60.69	880	21.97	12.9	22.5	60	92.5	13	15
Karnal	90.74	80.45	61.25	76.44	68.29	886	30.27	10.5	11.5	40.5	83.8	14	12
Kurukshetra	97.23	93.09	47.89	76.7	69.18	889	28.93	4.5	6.4	43.2	75.7	11	14
Mahendragarh	84.63	110.71	45.71	78.87	65.25	894	14.43	33.1	30.9	30.2	79.1	14	14
Mewat	37.52	68.27	25.68	56.14	37.58	906	11.36	43.2	N.A	26.1	47.8	14	11
Palwal	58.86	84.07	43.95	70.32	56.4	879	22.62	N.A	N.A	N.A	N.A	14	10
Panchkula	98.48	105.15	50.71	83.44	77.48	870	54.87	3.7	16.2	28.6	78.6	12	14
Panipat	73.64	59.08	56.59	77.46	68.23	861	45.97	8.8	13.3	53.3	90	11	10
Rewari	98.72	85.47	50.51	82.23	70.54	898	25.82	14.3	16.7	43.9	90.2	12	15
Rohtak	92.64	77.24	59.34	80.37	71.19	868	42.02	9.4	17.9	78.1	81.3	11	14
Sirsa	90.74	89.66	63.59	70.35	61.16	896	24.75	10.1	25.1	56.8	91.9	23	14
Sonipat	80.11	81.40	44.68	80.83	70.88	853	30.52	4.4	15.2	64.9	86.5	10	14
Yamuna Nagar	87.22	98.18	44.26	78.93	71.99	877	38.94	4	17.1	12.9	51.6	12	13

*Source: Compiled by Author based on *=NRHM office Panchkula, **=Census of India, 2011, ***=DLHS 3, ****= Haryana Statistical Abstract, 2011-12*

A=Percentage of Institutional Delivery to Total Delivery(2012-13), B= Percentage of Women received 3 ANC Checkups(2012-13)*, C=Percentage of women registered within first trimester(2012-13)*, D=General Literacy (2011)**, E=Female literacy(2011)**, F=Sex Ratio(2011)**, G=Urbanization(2011)**, H=Percentage of girls marrying before completing 18 year (2007-08)***, I=Percentage of households with low standard living (2007-08)***, J=Percentage of Village with Any government health facility(2007-08)***, K=Percentage of Village with ASHA(2007-08)***, L=Area covered per institution in square kilometers(2010-11)****, M=Institutions per 1,00,000 population(2010-11)**** N.A= Data Not Available*

Table 8: Correlation Matrix of Institutional Delivery with Selected indicators

Indicators	A	B	C	D	E	F	G	H	I	J	K	L	M
A	1												
B	0.406	1											
C	.456(*)	0.075	1										
D	.707(**)	0.217	0.373	1									
E	.782(**)	0.227	0.419	.973(**)	1								
F	-0.189	0.207	-0.374	-.573(**)	-.571(**)	1							
G	0.325	-0.154	0.324	.647(**)	.701(**)	-.579(**)	1						
H	-.647(**)	-0.135	-0.329	-.569(**)	-.695(**)	0.351	-0.361	1					
I	-0.127	0.185	0.053	-0.165	-0.286	-0.083	-0.112	.750(**)	1				
J	0.135	-0.189	0.358	-0.147	-0.15	-0.171	-0.365	-0.068	0.04	1			
K	.508(*)	0.017	.614(**)	0.336	0.363	-0.331	0.215	-0.247	0.221	.494(*)	1		
L	-0.029	0.107	-0.03	-.502(*)	-.449(*)	.526(*)	-.528(*)	0.238	0.398	0.26	0.006	1	
M	0.312	0.369	-0.025	-0.081	-0.103	0.221	-.662(**)	-0.063	0.107	.514(*)	-0.052	0.403	1

Source: Based on Table 4.20

Table 7 shows the selected indicators which are selected to find out the correlation with institutional delivery in Haryana.

Table 8 shows that institutional delivery has significant correlation with general literacy, female literacy and percentage of girl marring before

completing 18 years at 0.01 significant levels. It has positive significant correlation with general literacy and female literacy, while there is significant negative correlation of percentage of girl marring before completing 18 years with institutional delivery. Institutional delivery has also significant correlation with percentage of women registered within first trimester and percentage of village with ASHA at 0.05 significant levels. Both, percentage of women registered within first trimester and percentage of village with ASHA have positive significant correlation with institutional delivery. Percentage of women received 3 ANC check-ups, urbanization and institutions per lakh population have also low positive correlation with institutional delivery. While sex ratio, percentage of house hold with low standard living, percentage of village with any government health facility and area per institution have no correlation with institution delivery.

Figure 9 (a) the spatial analysis of distribution of women received 3 ANC check-ups during 2012-13 in Haryana. It indicates that there is no clear cut pattern of this indicator in Haryana. But it has been seen that there are 8 districts has good percentage of this indicator which are adjoining Punjab and Himachal Pradesh.

Figure 9:

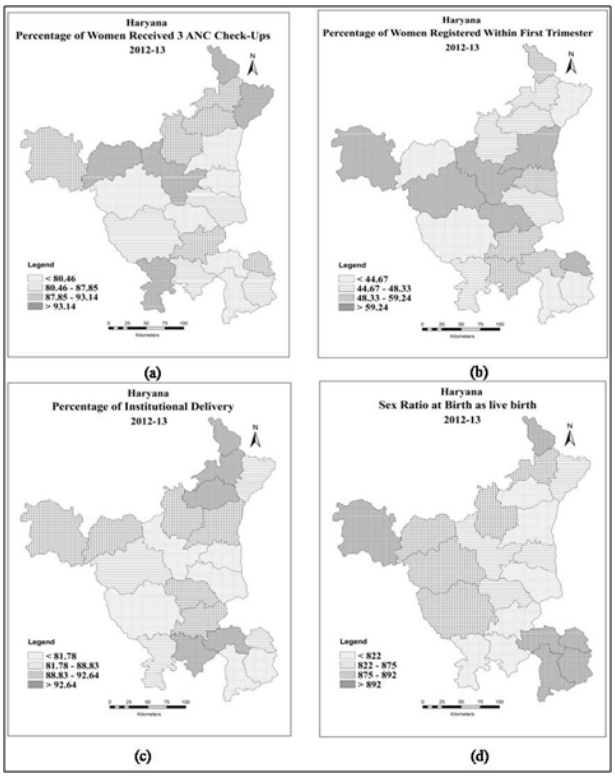


Figure 9 (b) shows the spatial pattern of women registered within first trimester in

Haryana during 2012-13. It reveals that districts of central Haryana are performing better than rest Haryana.

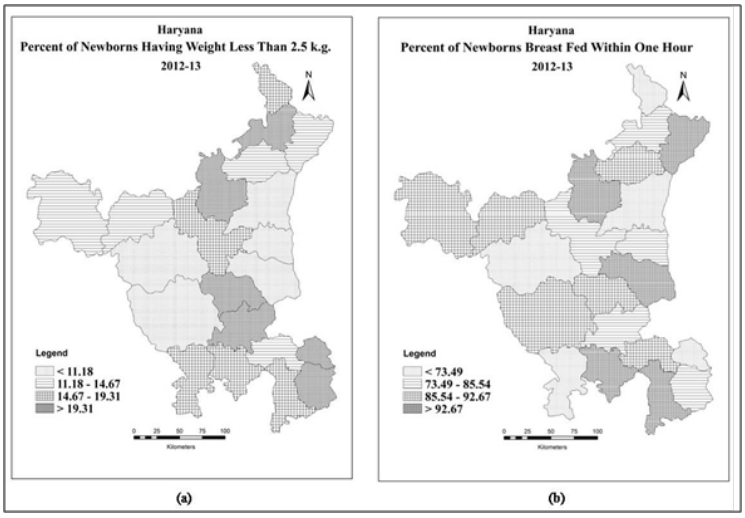
Figure 9 (c) shows the spatial pattern of institutional deliveries in Haryana during 2012-13. There is no clear cut pattern found of institutional deliveries. There are three districts in north and two districts in south Haryana are performing better than other districts. These districts are Ambala, Panchkula, Kurukshetra, Rewari and Gurgaon.

Figure 9 (d) shows the spatial pattern of sex ratio at birth in Haryana during 2012-13. Those districts are located in south-east Haryana shows better picture along with north and north-western districts while districts along Uttar Pradesh (except Faridabad and Palwal) shows the pattern of low sex ratio at birth.

Figure 10 (a) shows the spatial pattern of new born children having weight less than 2.5 kilograms in Haryana during 2012-13. It indicates that there is no regular pattern of this.

Figure 10 (b) shows the spatial pattern of new born breast fed within one hour in Haryana during 2012-13. It is found that there is no clear cut division of districts which have low or high percentage of new born breast fed within one hour. There is a scattered distribution throughout state.

Fig. 10



Conclusion

The government of India has started the National Rural Health Mission programme in April 2005 to improve maternal and child health. After detailed analysis of data, it has been seen that there is impact of NRHM on infant mortality rate especially in rural areas. It is also noticed that female infant mortality rate declined more in comparison to male infant mortality rate in Haryana. There is no improvement in female infant

mortality rate between 2000 and 2005; but after introduction of NRHM in 2005, it has been declined with 21 points between 2005 and 2010. It shows that National Rural Health Mission worked behind this improvement. Maternal Mortality Ratio (MMR) also decline after NRHM program in Haryana which was 186/100000 during 2004-06 but it was 153/100000 during 2007-09. It has also been seen that there are nearly three times increase in institutional deliveries in Haryana from 2005-06 to 2011-12. Janani Suraksha Yojana has been also successful in Haryana. Polio has been completely eradicated from Haryana in 2011. Health infrastructure has also been improved in Haryana after introduction of NRHM. For example, there are only 14 new health center established during 1999-2005, while during 2005-2010, there are 109 new health center established in Haryana. Due to higher number of health center and more infrastructures, the people of Haryana get more opportunity to antenatal care check-ups, institutional deliveries and children breast fed that is why the percentage of under-weight children has been decreased. It is a significant achievement which Haryana state gains after starting NRHM program.

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