

ANALYTICAL STUDY TO COMPARE IMPACT OF STRENGTHENING HEALTH CARE SERVICES ON STILLBIRTH RATE AND MATERNAL MORTALITY RATIO OF SOLAN AND MANDI DISTRICT OF HIMACHAL PRADESH**Dr. Vikas Thakur***, **Dr. Rakesh Thakur¹**, **Dr. Sumit Sharma²**, **Dr. Gurmeet Singh³** and **Dr. Jai Gopal Vohra⁴**

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ABSTRACT**Background:** Strong Maternal and Newborn Care services deep impact on SBR, NMR, IMR, CMR and MMR, which are key indicators that broadly depict social and economic development of a nation. Reduction in these rates directly defines provision of better healthcare facilities by a nation. **Aims & Objectives:** to compare impact of strengthening health care services on maternal and child health in Solan and Mandi district of Himachal Pradesh.**Methods:** cross-sectional analytic study where data HMIS is analyzed to calculate SMR and MMR. **Results:** the SBR of H.P, Solan & Mandi district for the year 2019-20 which is 11, 9 & 9 respectively. Corresponding figures of IMR are 15, 10 & 16 for H.P, District Solan and District Mandi respectively. Status of MMR for 3 years (from 2017-18, 2018-19 & 2019-2020) of H.P, Solan & Mandi District of H.P. calculated on average basis is 72, 93 & 51 for H.P, Solan and Mandi districts respectively. **Conclusions:** Comparing SBR and MMR with national value we are doing better than national average. With further strengthening of health care facilities and frequent trainings of skill development of healthcare professionals we can achieve better results.**KEYWORDS:** HMIS, SBR, IMR, MMR.**INTRODUCTION**

Women and children constitute a large demographic proportion (60%) in India. Like many other developing countries they are most neglected group of community-socially, culturally, economically and availability of health care. The number of women and girls who died each year from complications of pregnancy and childbirth declined from 532,000 in 1990 to 303,000 in 2015. Sub-Saharan Africa and South Asia account for 88 per cent of maternal deaths worldwide.^[1] Of all maternal deaths worldwide in 2015 India is estimated to account for 45000 maternal deaths (15%).^[2] Maternal Mortality Ratio (MMR) of India has declined by 8 points from 130/ 100,000 live births in 2014-16 to 122/ 100,000 live births in 2015-17 (6.2 per cent decline). This translates to 2000 additional mothers saved annually in 2017 as compared to 2015. Total annual deaths declined from 32,000 maternal deaths in 2015 to 30,000 deaths in 2017.^[3] About 17% of girls get married by the age of 18 resulting in teen age risky pregnancy. Every year in India roughly 30 million women experience pregnancy and 26

million have live births. Every year over 46500 pregnancy related maternal deaths occur in our country. Million more suffer pregnancy related ill health. The proportion of women age 15-49 in India who received ANC has raised from 77 percent in National Family Health Survey (NFHS-3) (2005-06) to 84 percent in NFHS-4 (2015-16), and in NFHS-4 79 percent received ANC from a skilled health care professionals.^[4]

Strong Maternal and Newborn Care services have deep impact on Neonatal Mortality Rate (NMR), Infant Mortality Rate (IMR), Child Mortality Rate (CMR) and Maternal Mortality Ratio (MMR) which are key indicators that broadly depict social and economic development of a nation. Reduction in these rates directly defines provision of better healthcare facilities by a nation. Globally in 2017, 4.1 million (75% of all under-5 deaths) occurred within the first year of life. The risk of a child dying before completing the one year of age was highest in the African Region (51 per 1000 live births), over six times higher than that in the European

Region (8 per 1000 live births). Worldwide, the infant mortality rate has decreased from an estimated rate of 65 deaths per 1000 live births in 1990 to 29 deaths per 1000 live births in 2017.^[5] In 2017, neonatal mortality – the probability of dying in the first 28 days of life – was estimated at 18 deaths per 1,000 live births globally. The probability of dying after the first month and before reaching age 1 year was 12 per 1000 live births and the probability of dying after age 1 year and before reaching age 5 years was 10 per 1000 live births. The under-5 mortality rate, including these three age groups above was estimated 39 deaths per 1000 live births.^[6] Every year, 2.6 million babies die before turning one month old. One million of them take their first and last breaths on the day they are born. Another 2.6 million are stillborn. Each of these deaths is a tragedy, especially because the vast majority is preventable. More than 80 per cent of newborn deaths are the result of premature birth, complications during labor and delivery and infections such as sepsis, meningitis and pneumonia. Similar causes, particularly complications during labor, account for a large share of stillbirths.^[7] The first 28 days of life is the most vulnerable time for a child's survival. Children face the highest risk of dying in their first month of life at an average global rate of 18 deaths per 1,000 live births in 2017. In 2017 about 2.5 million children died in the first month of their life worldwide. About 7,000 neonatal deaths occur every day – most of which occurred in the first week with about 1 million dying on the first day and close to 1 million dying within the next six days.^[8] Infant Mortality Rate (IMR) of India is 34 per 1000 live births for year 2016 and IMR of Himachal Pradesh has improved from 40 in 2010 to 25 for year 2016.^[9] Most of these children die due to malnutrition, infections and lack of health care. These deaths can be prevented with available interventions. In earlier decade efforts were made to improve Maternal and Child Health (MCH) care. There were separate programmes for women, newborn, immunization and nutrition etc. There was need for universal MCH care.

Facility Based Newborn Care (FBNBC) operational guidelines 2011 for planning and implementations.^[10] Government of India has launched Janani Shishu Suraksha Karyakram (JSSK) on 1st June, 2011.^[11] Clear

articulation of the reproductive, maternal, newborn, child and adolescent health (RMNCH&A),^[12] Rashtriya Bal Swasthya Karyakram (RBSK).^[13] Training of Medical Officers, Staff Nurses, ANM/MPW under Navjaat Shishu Suraksha Karyakram (NSSK) Impact of trainings of ANM/MPW for giving Injection Dexamethasone in case of pre term labor pains (before 32 weeks of gestation) & giving Injection Gentamycin and Syrup Amoxicillin to sick child before their referral to higher institutions will prove a great step in early interventions. State has started ASHA programme in 2014-15 in Himachal Pradesh^[17] and their role in Antenatal Care and Postnatal Care includes early registration, conducting delivery in emergency conditions, neonatal resuscitation in case of home deliveries, home based post-natal visits, helping ANM/MPW in detection of high risk pregnancy and referral of sick new born to higher facilities, helping in Child Death Review (CDR) & Maternal Death Review (MDR).^[14] Not many studies have been carried out on this topic in the recent past especially in Himachal Pradesh so this research work will prove fruitful so as to assess the gap analysis and recommendations for betterment of delivery of health care services with respect to maternal and new born care. Not many studies have been carried out on this topic especially in Himachal Pradesh so this will prove fruitful.

MATERIAL AND METHODS

Study Area: Solan and Mandi district of Himachal Pradesh.

Study Design: cross-sectional study.

Study Period: 1st January 2019 to 31st August 2020.

Sampling technique: Data to compare dependent variables was collected from HMIS data operators posted at respective office of Medical Officer Health (MOH), Solan and Mandi Districts of Himachal Pradesh (H.P).

Study tools: Secondary data was collected from HMIS Data Operators.

Study variables: Dependent on secondary data, Still Birth Rate (SBR) & Maternal Mortality Ratio (MMR).

Statistical Analysis: Data collected was analyzed with the help of Statistical Methods.

Ethical consideration: After getting the approval from Institutional Ethics Committee, the research work was started.

RESULTS

Table 1: Status of Still Birth Rate (SBR) & Infant Mortality Rate (IMR) of H.P, Solan & Mandi Districts of H.P for the year 2019-20.

Total	H.P	SOLAN	MANDI
Deliveries conducted	89403	8863	9953
Still Births reported	993	79	87
Still Birth Rate	11	9	9
Live births reported	88410	8784	9866
Infant Deaths reported	1363	88	156
Infant Mortality Rate	15	10	16

Table 1/Fig. 1 indicates the SBR of H.P, Solan & Mandi district for the year 2019-20 which is 11, 9 & 9 respectively. Corresponding figures of IMR are 15, 10 & 16 for H.P, District Solan and District Mandi respectively.

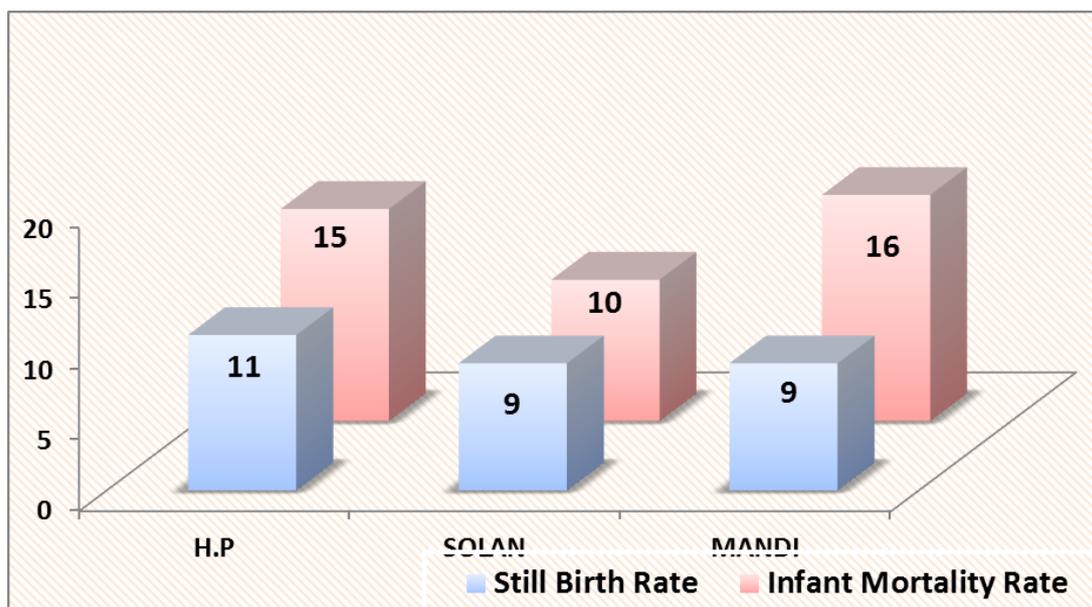


Fig. 1: Status of Still Birth Rate (SBR) & Infant Mortality Rate (IMR) of H.P, Solan & Mandi Districts of H.P for the year 2019-20.

Table 2: Showing status of maternal deaths & Maternal Mortality Ratio (MMR) against total live births in past 3 years (2017-18, 2018-19 & 2019-2020).

Total	H.P	SOLAN	MANDI
Live birth reported in past 3 years (2017-18, 2018-19 & 2019-20)	262331	23736	31154
Maternal deaths reported in past 3 years (2017-18, 2018-19 & 2019-20)	190	22	51
Average MMR based on figures of past 3 years (2017-18, 2018-19 & 2019-20)	72	93	51

Table 2/ Fig. 2 depicts status of maternal deaths against total live births in past 3 years (from 2017-18, 2018-19 & 2019-2020) & Maternal Mortality Ratio (MMR) of H.P, Solan & Mandi Districts of H.P. MMR calculated on average basis for the past 3 years is 72, 93 & 51 for H.P, Solan and Mandi districts respectively.

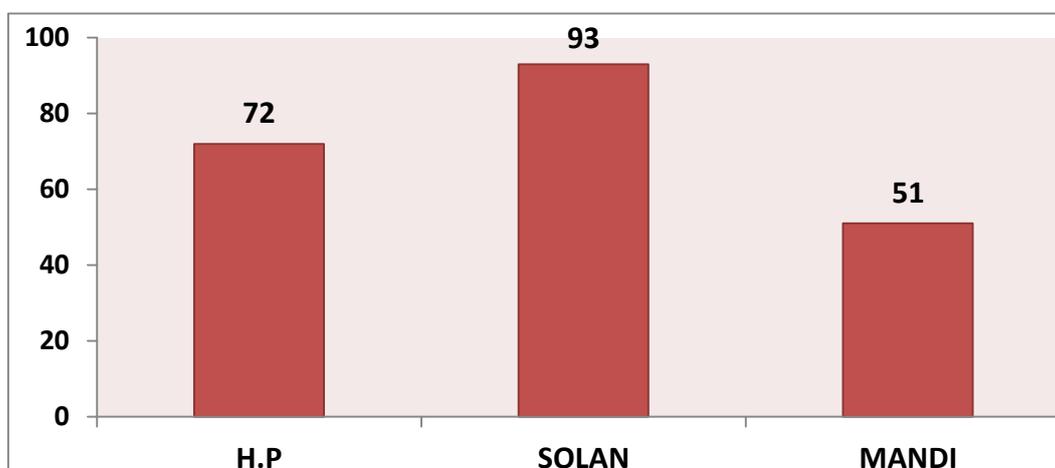


Fig. 2: Showing status of Maternal Mortality Ratio (MMR) against total live births in 3 years (2017-18, 2018-19 & 2019-2020).

DISCUSSION

In our present study IMR of H.P, District Solan & District Mandi is 15, 10 & 16 respectively. In SRS Bulletin; IMR of H.P is 19 which is lesser than national

average 32.^[15] Study was done by Mohapatra and Gomar, *et al*; in city Mumbai situational analysis of the city was done using monthly and annual performance reports and key informant's interviews at city level. They

found that infant mortality rate of Mumbai was 26.72%.^[16] Das, *et al*; impact on newborn care services by capacity building study was done in 2014-2015 three districts Gonda, Aligarh and Raebareli of Uttar Pradesh with high NMR (45–53/1000 live births), higher than the state average. After capacity building marked improvement in newborn service availability, skilled birth attendants, resuscitation and kangaroo mother care was noticed. A multifold rise in newborn resuscitation efforts and documentation with high success rate was observed.^[17]

Our study is data driven from HMIS. A similar study was carried out by J Samal, *et al*; to assess the quality perspectives and challenges among HMIS officials in implementing HMIS at their respective levels, i.e. district and block level. Their pilot qualitative study was done in two districts of Assam. They found that both HMIS and MCTS (Mother and Child Tracking System) formats were considered useful, by the HMIS officials, for data collection, planning at various levels, tracking maternal and neonatal deaths, institutional deliveries. HMIS officials reported that MCTS is useful for monitoring individual health status especially the status of the mother and child and HMIS being helpful as a health facility monitoring tool. Their study used a small sample size, hence similar type of studies are required with large sample size to understand the perspectives and challenges of HMIS officials in the implementation of HMIS.^[18]

MMR calculated on average basis for the 3 years (2017-18, 2018-19 & 2019-2020) is 72, 93 & 51 for H.P, Solan and Mandi districts respectively. Himachal being a smaller state due small sample size and large variations MMR of H.P is neither published in SRS bulletin nor by NITI aayog. In a similar study done by Mohapatra and Gomare, *et al*; in city Mumbai situational analysis of the city current MMR of Mumbai is 88.^[16] Bhadra, *et al*; in their retrospective study on maternal mortality in a rural tertiary hospital of West Bengal to assess the epidemiological aspects of maternal mortality, and to assess the different causes of maternal mortality. In their study they studied maternal deaths occurring in our hospital during the past 6 years from 2009 to 2014. The cause of death and the factors which led to death in each individual case were analyzed. A total of 105 maternal deaths occurred during the study period. The mean maternal mortality ratio in the study period was 233/100,000 live births. Most maternal deaths (37.14%) occurred in the age group of 20–24 years, multiparous women (74.28%) and in women from rural areas (70.47%). Most of the women were unregistered patients (64.76%), and 40.95% cases were referred cases. Direct causes accounted for 90.47% of maternal deaths whereas 9.52% of maternal deaths were due to indirect causes. Hemorrhage (26.6%) and eclampsia (27.6%) were the major direct causes of maternal deaths. They concluded that there is scopes for improvement as a large proportion of the observed deaths are preventable. They

concluded that improving the rural health centers, upgrading the referral centers, and proper transport system is the need of the hour.^[19]

CONCLUSION

In this study we further scrutinized data of 3 years (2017-18, 2018-19 & 2019-2020) & MMR is 72, 93 & 51 for H.P, Solan and Mandi districts respectively. In present study we analyzed that Still Birth Rate (SBR) of Himachal Pradesh is 11 which is better than National value of 12 for the year 2019-20, corresponding figures of both district is 9. In our present study IMR of H.P, District Solan & District Mandi are 15, 10 & 16 for respectively. Comparing all these indicators of MCH we are doing better than national average. With further strengthening of health care facilities and frequent trainings of skill development of healthcare professionals we can achieve better results.

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