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Review Article

Health Management and Policy Section

Recent Changes in Health Status of Women in Bihar through National Family Health Survey Window

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ABSTRACT

Bihar is one of the states of India having lowest health profile. The accessibility of health facility is very poor and due to dire poverty, people are becoming malnourished. The main objective of this study was to assess the change in health status of women in Bihar through various indicators and compare this with corresponding changes at national level based on NFHS-3 and 4 fact sheets. The selected indicators are divided into three dimensions: nutritional status, maternal health care status and some determinants of women's health. The indicators which were compared under the dimension of nutritional status include BMI, obesity and anaemic status of women in pregnancy and reproductive span period. Under the dimension of maternal health care status, the indicators which were compared includes antenatal care, consumption of iron-folic acid during pregnancy, postnatal care, neonatal tetanus, institutional births, birth assisted by health personnel, birth delivered by caesarean section under private and public health facility both. Whereas under the dimension of some determinant of women's health: women's literacy, child marriage, HIV/AIDS knowledge, uses of contraceptive method and tobacco consumption were compared. Almost all indicators showed some improvement during the reference period except percentage of overweight women and caesarean delivery which have increased to double between the reference period and utilisation of any contraception method which have decreased both at Bihar and national level. There is a need to spread health education for equitable health development and development policies should be framed in accordance with factors prevailing with in the locality.

Keywords: Body mass index, Caesarean delivery, Infant mortality rate, Maternal, Nutrition

INTRODUCTION

There is no single index for measuring the health status of a country or society, as it is a multidimensional concept. In the absence of such an index, we use a number of indicators to represent health status [1]. Therefore, the health status of women in India can be examined in terms of multiple indicators which may be classified into geography, socioeconomic status, culture, level of education and availability of health care services. Health is an important factor that contributes to human well being and economic growth. Women in poor health are more likely to give birth to low weight infants. They are also less likely to be able to provide food and adequate care for their children. Finally, woman's health affects the household economic well being, as a woman in poor health will be less productive in the labour force [2]. In Indian households, women's health is directly linked to the prosperity of family because almost all other members of the family depend directly or indirectly on the women for their daily routine work. Naturally, poor health of women seriously affects themselves as well as their families.

Life expectancy at birth is higher in most of the developed countries and in some of the developing country. In India, women and men have nearly the same life expectancy at birth. The fact that the sound health and better life expectancy of the women is not seen in India suggests that there are systematic problems with women's health [3]. In Indian culture, most of the families expect at least one son, in hope of which sometimes, they take the decision of either more children or female foetus abortion, which affects the women health to a large extent. The prevailing women illiteracy and male supremacy are other causes for their miserable condition. All of these factors exert a negative impact on the health status of Indian women [2]. Despite all odds, women are the backbone of family.

Bihar has the highest population density of 1,102 people/km^2 among states of India excluding union territories [4]. It is the third most populated state of India after Uttar Pradesh and Maharashtra with population of 10,38,04,637 [5]. Nearly 89% of population of Bihar resides in rural area, where accessibility of health facility is very poor [6]. As education holds the key to development, percentage of literacy among women in Bihar is only 49.6 which is lowest among all states of India [6]. They do not get sufficient nutritious diet due to their poverty. Almost every year, Bihar is affected due to recurrent floods in Koshi and other regions. As a result of it, every year people in terai (low land) area of Koshi suffer through unreplenishable loss. Thus, every year, people have to start their new life with precise resources. These situations negatively affect the health of women due to the lack of money, food and assess to health care services. Based on health, education, and infrastructure, the planning commission of India (NITI Aayog) has defined Bihar in third tier states also known as BIMARU states [7]. With this background, it is a great concern to assess the health condition of women in Bihar and compare the corresponding changes at national level.

In the present review, indicators of women health are selected on the basis of availability in both NFHS-3 and NFHS-4 fact sheets. The selected indicators have been categorised into three dimensions: nutritional status of women, maternal health care status of women and some determinants of women's health. One extra indicator Infant Mortality Rate (IMR) has been taken as it is a summary measure of overall health. National Family Health Survey (NFHS) is carried out by International Institute for Population Studies, Mumbai, India. The NFHS fact sheets provide a large number of indicators on family health along with estimates of various demographic parameters.

This paper aimed to analyse the changes in health status of women in Bihar through various indicators between periods of NFHS-3 and NFHS-4 which refer to years 2005 and 2016 respectively and compare these with corresponding change at national level.

REVIEW OF LITERATURE

The required data was collected from relevant NFHS-3 and NFHS-4 fact sheets which were conducted during the year 2004-2005 and 2015-2016 by International Institute for Population Studies, Mumbai, on behalf of Ministry of Health and Family Welfare, Government of India [8]. Indicators for health status of women are selected on the basis of availability of NFHS-3 and NFHS-4 fact sheets. The selected indicators are given in [Table/Fig-1] along with their scores for visualising change and comparison.

These selected indicators are divided into three dimensions: nutritional status of women, maternal health care status of women and some determinants of women's health. Apart from these, the IMR indicates not only the mother's health, but also of mother's nutritional status, natal care and infant's nutritional status. The indicators which are compared under the dimension of nutritional status of women include BMI, overweight or obese women, anaemic pregnant women and anaemic women aged between 15-49 years. Under the dimension, maternal health care status, the indicators which are compared includes antenatal care services, consumption of iron-folic acid by women during pregnancy, postnatal care, neonatal tetanus, institutional births, birth assisted by health personnel, birth delivered by caesarean section and births delivered by caesarean section under private and public health facility both. Under the dimension, some determinant of women's health, the compared indicators are: women literacy, child marriage, HIV/AIDS knowledge, uses of contraceptive method and consumption of tobacco by women. Most of the health indicators are actually negative aspects of health. These negative indicators infact help us in estimating the status of health since a decline in these indicators implies an improvement in the health condition. Such indicators in our study are below normal BMI, presence of anaemia among women, obesity among women, caesarean birth, child marriage, consumption of any kind of tobacco and IMR.

DISCUSSION

A nutrient food increases the body's resistance and helps to fight against infection whereas malnourishment affect pregnancy outcome (e.g., premature births, low birth weight babies) and also increase the health risk of mother in the form of coronary health disease, hypertension, non insulin dependent diabetes mellitus and cancer [2]. The BMI is widely regarded as one of the best measures of nutritional status of women. The percentage of women with below normal BMI has decreased by nearly 15 in the reference period, while this decrease at national level is nearly 12. Thus, in terms of BMI, nutritional status of women in Bihar is improving marginally better than Indian average. However, the percentage of this parameter is second highest in Bihar (30.40) after Jharkhand (31.5) which was part of Bihar before 2001 and even then the difference between the two states is marginal. This shows the poor nutritional condition of women in Bihar [8].

Overweight and obesity are associated with increased risk of non communicable diseases such as metabolic syndrome, high cholesterol, type 2 diabetes mellitus, high blood pressure, and cardiovascular disease, conditions that are already serious public health concerns in rural and urban India alike [9]. Percentage of overweight or obese women (BMI>25 Kg/m^2) has become more than twice (11.70) in the reference period while this trend for India is slightly lower. Percentage of obese women ranges from 41.5 in Chandigarh, being the highest, to 10.3 in Jharkhand, being the lowest. The data of Bihar for this parameter is only higher than Jharkhand (10.3%) but the rate of increment is of serious concern for women [8].

Anaemia is the most common nutritional problem affecting children, adolescents and women. Anaemia during pregnancy is a serious concern because it is associated with low birth weight, premature birth and maternal mortality [10]. In Bihar, the proportion of anaemic pregnant women has decreased by almost 2% in the reference

Sr. No. (Dimension)	Sr. No. (Indicator)	Dimension/ Indicator	Bihar		India	
			NFHS 3	NFHS 4	NFHS 3	NFHS 4
1		**Nutritional status of women**				
	1	Women whose BMI is below normal (%)	45.00	30.40	35.50	22.90
	2	Women who are overweight or obese (%)	4.60	11.70	12.60	20.70
	3	Pregnant women age 15-49 years who are anaemic (<11.0 g/dl) (%)	60.20	58.30	57.90	50.30
	4	All women age 15-49 years who are anaemic (%)	67.40	60.30	55.30	53.00
2		**Health care status**				
	1	Mothers who had at least four antenatal care visits (%)	11.20	14.40	37.00	51.20
	2	Mothers who consumed iron-folic acid for 100 days or more when they were pregnant (%)	6.30	9.70	15.20	30.30
	3	Mothers who received postnatal care from a health personnel within two days of delivery (%)	13.40	42.30	34.60	62.40
	4	Mothers whose last birth was protected against neonatal tetanus (%)	73.20	89.60	76.30	89.00
	5	Institutional births (%)	19.90	63.80	38.70	62.40
	6	Births assisted by a health personnel (%)	29.30	70.00	46.60	81.40
	7	Births delivered by caesarean section (%)	3.10	6.20	8.50	17.20
	8	Births in a private health facility delivered by caesarean section (%)	17.20	31.00	27.70	40.90
	9	Births in a public health facility delivered by caesarean section (%)	7.60	2.60	15.20	11.90
3		**Some determinant of women's health**				
	1	Women who are literate (%)	37.00	49.60	55.10	68.40
	2	Women age 20-24 years married before age 18 years (%)	60.30	39.10	47.40	26.80
	3	Women who have comprehensive knowledge of HIV/AIDS (%)	11.70	10.10	17.30	20.90
	4	Any contraceptive method used (%)	34.10	24.10	56.30	53.50
	5	Women who use any kind of tobacco (%)	8.00	2.80	10.80	6.80
4		**Infant mortality rate**	61	48	57	41

[Table/Fig-1]: Comparative statistic of dimension/indicator.

period, which is still as high as 58.3% whereas the corresponding decrease at national level is nearly 7% but again very high as 50.3%. The data infers that in India, half of the pregnant women are still suffering from anaemia. Though, the percentage has decreased but it is very low [Table/Fig-1]. The corresponding figure for West Bengal, Uttar Pradesh and Jharkhand which are neighborhood state of Bihar are 53.6%, 51%, 62.6% respectively [8]. Again, in Bihar, the percentage of anaemic women in the reproductive age group of 15-49 years has decreased from 67.4 to 60.3 whereas the corresponding decrease at national level is from 55.3 to 53 in the reference period. For this indicator, the corresponding figure of Uttar Pradesh, West Bengal and Jharkhand are 52.4%, 62.4% and 65.2% respectively [8]. Thus, more than half of the women in the reproductive span period including pregnant women, of most of the states of India are still suffering from anaemic problem. To cope with this deficiency, the Ministry of Health and Family Welfare has launched the Weekly Iron and Folic acid Supplementation (WIFS) programme to reduce the prevalence and severity of anaemia in adolescent population (10-19 years) [11]. All pregnant women are provided iron and folic acid tablets during their antenatal visits through the existing network of subcenters and primary health centers and other health facilities as well as through outreach activities at village health and nutrition days [12]. However, above data shows that benefit of such programs is not made available to women in most of the states. Therefore, there is urgent need to focus on those states in which anaemic condition of women are severe and to accelerate such programs on priority basis.

Maternal health refers to the health of women during pregnancy, childbirth and the postpartum period [7]. The health of women before conception, during pregnancy and in the postnatal period can have a profound and long term effect on their own health and that of their children. Antenatal care, neonatal care, consumption of iron and folic acid tablets for 100 days or more during pregnancy, postnatal care, institutional births, births assisted by health personnel and cases of caesarean delivery are taken as indicators for maternal health care status for women in fertility span. Obviously all these indicators are very important for women health care as well as working of government machinery.

Four antenatal care visits are considered optimal for maternal care, as it has impact on maternal health as well as health of the foetus. Risk factors that can be addressed through antenatal care include anaemia, poor nutrition, hypertension, diabetes and genital and urinary tract infection [13]. Antenatal care consists of various routine clinical examinations and investigations for assessing healthy motherhood. In Bihar, the percentage of four antenatal care visits has increased from 11.2 to 14.4 in the reference period and that on national level it has increased from 37 to 51.2. In terms of antenatal care, Bihar (14.4%) has the last position as compared to other states of India. The value of corresponding parameter in Andaman and Nicobar and Kerala has 92.1% and 90.2% respectively, which acquires the first and second position [8]. The Government of India has launched Pradhan Mantri Surakshit Matritva Abhiyan in 2016 which aims to provide assured, comprehensive and quality antenatal care, free of cost, universally to all pregnant women on the 9th of every month [14]. Therefore, there is an urgent need to accelerate this programme in Bihar.

Due to high prevalence of anaemia among women, government is providing free iron and folic acid tablets and the impact of this help can be visualised through NFHS fact sheets. In the reference period, the percentage of mothers who consumed iron and folic acid tablet for 100 days or more in pregnancy has increased from 6.3 to 9.7 in Bihar, whereas the corresponding change at national level is from 15.2 to 30.3. Therefore, In Bihar only one tenth of women are protected against anaemia during pregnancy, which is only higher than Nagaland and Arunachal Pradesh, whose statistic is 4.4% and 8.3% respectively [8]. All pregnant women were provided iron and folic acid tablets by the government during their antenatal visits through the existing network of subcenters and primary health centers and other health facilities, but the above data implies that implementation of this government policy in Bihar is either tardy or not proper [12].

The post-natal period is a critical phase in the mother's lives and new born babies. The baby needs immediate care after birth and the initial days are very much crucial from the child survival point of view. Effective postnatal care could significantly reduce maternal and neonatal mortality [5]. The percentage of mothers who received postnatal care from health personnel within two days of delivery has increased from 13.4 to 42.3 in Bihar in the reference period and that change at national level is from 34.6 to 62.4. This observation is quite positive and satisfactory but still more than half of the women in Bihar deprived from this facility. The rank of Bihar is only higher than Arunachal Pradesh and Nagaland where the corresponding percentages are 28.9 and 22.3 respectively [8]. The corresponding figure of this indicator in Goa, Lakshadweep and Kerala are 92.1%, 92.6% and 88.7% respectively which is quite higher than Bihar [8].

The World Health Organization (WHO) reported that neonatal tetanus kills over 2,00,000 newborns each year; almost all these deaths occur in developing countries while it is very rare in developed nations [15]. In Bihar, the proportion of mothers whose last birth was protected against neonatal tetanus has increased from 73.2% to 89.6 % in the reference period and corresponding change at national level is from 76.3% to 89%. This indicator has almost same trend of increment in Bihar and for entire nation. Value of this indicator ranges from 97.2% in Sikkim, being the highest, to 63.9% in Nagaland, being the lowest [8].

Institutional birth and birth assisted by some health personnel are very important for both mother and child. There are many benefits of institutional delivery and in absence of institutional delivery; it should be accompanied by some health personnel [16]. The percentage of institutional births has increased from 19.9 to 63.8 in Bihar during the reference period and corresponding change at national level is from 38.70 to 78.90. Government of India has launched Janani Suraksha Yojna in 2005 with the objective to reduce maternal mortality and infant mortality through encouraging delivery at health institutions, and focusing at institutional care among women in below poverty line families. It consolidates cash assistance with delivery and post delivery care [17]. The improvement in corresponding figure of Bihar from period of NFHS-3 to NFHS-4 shows the glance of success of this government scheme. Out of 36 states and union territory of India, 14 states have more than 90% institutional births figure and among them four states Kerala, Lakshadweep, Puducherry and Tamil Nadu have attained almost 100% institutional births figure. Again, increasing trend has been seen in Bihar and at national level in percentage of births assisted by health personnel which has increased from 29.3 to 70 in Bihar during the reference period and from 46.6 to 81.4 at national level. In India, out of 36 states and union territory, three states, Kerala, Lakshadweep and Puducherry have attained 100% success to make sure that every new birth is assisted by doctor, nurse, Lady Health Visitor (LHV), Auxillary Nurse Midwife (ANM) and other health personnel. Improvements in the proportion of births attended by skilled health personnel have contributed to decline in maternal mortality and safe delivery [8]. The union territory, Puducherry, which has 100.0% institutional birth and birth assisted by health personnel figure has an accessible medical care for the people within an average distance of 1.18 km through a network of primary health centres, subcentres, disease specific clinics besides eight hospitals. Since more than 99.8% deliveries are conducted in the health institutions, it has been able to achieve the lowest maternal mortality rate of 18 against the national target of less than 100 per one lac live births [18].

Caesarian delivery cases are implication of nutritional deficiency, pregnancy complication and health care negligence [19]. In the

reference period, the percentage of cases of caesarian delivery has almost doubled at Bihar level and national level both which according to NFHS-4 data remains at 6.20 and 17.20 respectively. However, the percentage of caesarian delivery in public health facility has decreased rapidly and that in private health facility has increased dramatically during the period, which is a major concern. The increase in cases of caesarian delivery in private health facility may be due to negligence and ill practices. It may also happen that, there is a lack of competent health workforce in the form of specialists; both obstetricians and the anaesthetists as well in the public health institutions and pregnant women are compelled to move to the private hospitals for delivery, where for the solicitation of money, they are performing caesarian delivery.

Literacy, average age of marriage, knowledge of HIV/AIDS, use of contraception method and consumption of tobacco has been considered as the determinants of women's health [20]. All these indicators are linked to the health of women. Education is an important determinant of health. Education has increased women's willingness and ability to seek health care. Besides the obvious benefits that come with education, like greater employability and more resources in hand, education among girls has led to reduced fertility. This has a direct impact in reducing both maternal mortality and infant mortality. The NFHS data of various states of India reveals the above fact in a concise manner. In Bihar, proportion of literate women has increased to 49.6% in the reference period while the corresponding increase at national level is 68.4%. However, Bihar still has last position where less than half of the women are literate. Kerala continues to occupy the top rank in the country with 97.9% literate women, Mizoram (93.5%) and Lakshadweep (95.7%) closely follow Kerala [8]. Therefore, the association between women education and their health can easily be seen from the above discussion where, these top three states in women literacy also have highest value in all the other indicators of women's health.

The age at which a female marries and enters the reproductive period of life has a great impact on her fertility. The Registrar General of India collected data on fertility on a national scale and found that females who marry before the age of 18 gave birth to a larger number of children than those who married after 18 [21]. The WHO estimates that the risk of death following pregnancy is twice as great for women between 15 and 19 years than for those between the ages of 20 and 24 [20]. The percentage of women age 20-24 years married before age 18 years has decreased from 60.3% to 39.1% in Bihar during the reference period but it is still second highest after Andhra Pradesh (62.9), which is one of the cause of poor health of women in Bihar [8]. At national level, this indicator has decreased from 47.40% to 26.80% between the NFHS-4 and NFHS-3 period. The proportion of women having comprehensive knowledge of HIV/AIDS has been almost stagnant in Bihar during the reference period, but currently as low as 10.1%. Only Mizoram (66.4%) has more than half of the women who have knowledge of HIV/AIDS [8]. At national level this change is from 17.3% to 20.9%, which is again abysmal and alarming. Therefore, there is need to effectively implement national AIDS control programme in all over the country so that women would be more aware about it.

Knowledge about contraceptive methods and access to them is important for reducing the spread of Sexually Transmitted Infections (STIs) and risk of unplanned pregnancies. This is also important since mothering a child at young age is associated with poor social, economic and health outcomes [22]. In Bihar, the percentage of married women using any contraceptive method has decreased 10% in the reference period and corresponding decrease at national level is 2.8% despite a greater awareness of birth control methods and an improvement in family planning services. The largest decrease in the use of any contraception was 25.1%, reported from Manipur while Goa and Mizoram reported 21.9% and 24.6% respectively; Himachal Pradesh reported the largest increase of 15.6% [8]. It may be due to availability of other alternatives such as abortions and emergency pills which have severe side effects. The percentage of women consuming tobacco has decreased from 8 to 2.8 in Bihar during the reference period and corresponding change at national level is from 10.8% to 6.8%. In Mizoram, more than half of the women (59.3%) are using tobacco, while Punjab and Chandigarh have lowest figure of 0.1% and 0.4% respectively.

The IMR is considered as one of the best single social health indicator as it reveals about pregnancy care, delivery care, nutritional status of pregnant women and many other socioeconomic determinant [23]. The IMR in Bihar has decreased from 61 to 48 per 1000 during the reference period and corresponding change at national level is from 57 to 41 per thousand. Among the states of India, IMR ranges from 64 in Uttar Pradesh, being the highest, to six in Kerala, being the lowest [8].

CONCLUSION

The analysis revealed that health status of women in Bihar has shown moderate improvement during the reference period but still below national level. Nutritional condition of Bihar is poor where more than half of the women in pregnancy and reproductive span period are anaemic, percentage of women having below normal BMI is second highest in India and percentage of obese women become double in the reference period. Although, Bihar has shown improvement in maternal health such as antenatal care service, postnatal care, consumption of iron and folic acid, institutional births but still the figures are below the other states and national level. Increasing trend of caesarean delivery is a great concern across the country. Literacy, child marriage, tobacco consumption in women has increased but utilisation of contraception method has declined in several states including Bihar. The IMR, which is considered to be the summary measure of overall health, has significantly decreased in Bihar and at national level, which shows that awareness among women regarding health has increased. In general, it was demonstrated that present health status of women in Bihar is lagging behind national level and other states and it requires a proper attention. Therefore, the government needs to properly implement the currently running health programs with special focus on Bihar so that nutritional and maternal health status of women could improve which is very much related to the family and society.

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