

Disparity in Health among Women: A comparative study of North Bihar and South Bihar

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Abstract: This paper presents a comparative analysis of North Bihar and South Bihar addressing disparity in terms of health seeking behaviour and health status among women, based on National Family Health Survey (NFHS)-IV (2015-16) data. Descriptive statistics is applied for measuring disparity on the basis of selected indicators. Each indicator is correlated with literacy to trace the association between health disparity and education. The analysis portrayed pronounced inequalities among both the divisions of Bihar, with North Bihar performing poor than the southern half. Correlation coefficients demonstrate high degree of association of women's literacy with. With WHO constitution envisaging Right to Health to every human being, this study would contribute to literatures beneficial for establishing health equity.

Keywords: Disparity, health-seeking behaviour, Health and Nutrition, North Bihar, South Bihar.

Introduction-Bihar is situated on the gangetic plain with river *Ganges* flowing through the middle from west to east, dividing the plain of Bihar in two unequal halves; North Bihar and South Bihar (Bihar State Profile, 2015-16). This division made by *the Ganges* establishes two regions of the state, one being north of *the Ganges* consisting 21 districts and the other located to the south of *the Ganges* comprising remaining 17 districts of the state (ibid). The natural partition is virtually the vital economic division in the state, where the north is agriculturally rich and the southern part characterized by greater urbanization (Jha, 2018). North division is more populated, economically poor with lower per capita income than South but have rich cultural diversity (ibid). This regional, cultural and

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economic inequality among both the divisions has triggered studies over development and disparity. Literatures computing disparity and inequality at national and state level with economic, social and cultural perspective are ample in quantity but one of the most integral components of development; health is missing from most of these researches. The dearth of literature is more for the state of Bihar dealing with disparity in health, which is the by-product of the inequality in education and development, seeking similar attention. Health and health-seeking behaviour in Bihar still lags behind national average with marked disparities in the north and south division of the state (NFHS-IV).

+Double digit economic growth of 11.3 % in 2017-18 (Bihar Economic Survey, 2018-19) is not sufficient to reflect the overall development since human capital is one of the vital determinants of development and health of the population stands of utmost importance for any region. The present study attempts to present inter-regional disparity (North & South) in health among women. Women population is selected for the study since female literacy is second lowest in Bihar among the states in India (Census, 2011) and condition of women have been poor since long due to patriarchal setting of the society. It also seeks to assess the association of literacy with health since education stands as an important social determinants of health (WHO) and social capital creates human capital (Coleman, 1988). This paper seeks to adopt the Radical (Structural) approach, which tries to investigate statistical indicators behind inequality or disparity and attempts to examine social forces responsible for the same (Kumari, 2014).

Data and Methodology-This study utilizes data from National Family Health Survey (NFHS)-IV published in 2015-16 which provides information on population, health, and nutrition for India and each state and union territory. District level estimates published for the first time in NFHS-IV survey formed the basis of this study for analysing the key indicators at district level in Bihar. NFHS-IV fieldwork was conducted in all 38 districts of Bihar and collected information from 36,772 households, 45,812 women age 15-49 and men age 15-54. Thus, as per availability of data women of age group 15-49 is considered for the present study.

Disparity among women in health is investigated on the basis of below mentioned indicators divided in two categories (as per availability of data), with the help of descriptive analysis of NFHS-IV data.

1. Health-seeking behaviour
 - a) Utilization of Antenatal Care (ANC) services (four or more ANC visits)
 - b) Delivery assisted by health personnel
2. Health status
 - a) High blood sugar level (>140 mg/dl)
 - b) Hypertension slightly above normal

Inter-regional disparity in Bihar-Disparity in terms of selected indicators is discussed dividing the indicators in two broad categories of health-seeking behaviour and health status.

Health-seeking behaviour

Mertens, Thomas & Ward (1997) define health seeking behaviour as “any activity undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy”. Table 1 presents data over health-seeking behaviour considered for the study.

Table 1: Health-seeking Behaviour among women (15-49 years) in Bihar

Districts	Percentage who had four or more ANC visits	Percentage of delivery assisted by health personnel
Araria	16.2	61.9
Arwal	11.5	70.6
Aurangabad	16.2	74
Banka	16.8	73
Begusarai	7.9	78.8
Bhagalpur	20.1	75
Bhojpur	16.1	81.3
Buxar	23.3	83.6
Darbhanga	9.4	59.6
Gaya	11.8	69
Gopalganj	20.2	78.5
Jamui	10.4	65.3
Jehanabad	17	83.6
Kaimur (Bhabua)	10.1	82.9
Katihar	8.9	57.2
Khagaria	13.2	77.1
Kishanganj	15.5	58
Lakhisarai	17.9	67.6
Madhepura	9.3	64.2
Madhubani	13.8	62.7
Munger	24.4	85.4
Muzaffarpur	10.9	65.6
Nalanda	9	82.6
Nawada	13.6	72

Pashchim Champaran	14.2	71
Patna	21.7	84.2
Purba Champaran	12.1	57.6
Purnia	12.2	62
Rohtas	13.9	83.2
Saharsa	10.1	63.2
Samastipur	11.6	75.5
Saran	20.5	77
Sheikhpura	13.4	81.6
Sheohar	13.4	59.9
Sitamarhi	16.6	46.3
Siwan	21.4	78.3
Supaul	11	69.3
Vaishali	19.2	82.8
Bihar	14.4	70

Source: National Family Health Survey-IV (2015-16)

Within health seeking behaviour of women, maternal health and reproductive health plays a crucial role and most of the reproductive health indicators for women are poor in Bihar (Raj & Raj, 2004), thus data over utilization of ANC services (women undertaking four or more ANC visits) and delivery assisted by health personnel are taken into consideration. Due to lack of district level data, indicators relating to health-seeking behaviour of women apart from maternal health are not taken into account for the study.

Begusarai has lowest percentage of women availing four or more ANC services that is 7.9% and highest percentage is of Munger district (24.4%). Out of 22 districts having value lower than Bihar (14.4%), 14 districts are of North Bihar region, clearly demonstrating poor performance of northern division. State's capital stands at third position in this regard after Munger and Buxar.

Talking in context to delivery assisted by health personnel, out of 13 most poor performing districts, 12 are of North Bihar, depicting the high degree of negligence in the region. Out of 16 districts performing poor than Bihar, 13 districts are of Northern division. In regard to this indicator, Munger occupies the top position with 85.4% women undertaking delivery under supervision of health personnel. Top five performing districts belong to South Bihar division illustrating better delivery status of southern districts. Both the indicators of health seeking behaviour selected for the study are performing well in southern division with respect to northern part reflecting greater disparity between the two divisions of Bihar.

Health status - Women having high blood sugar level (>140 mg/dl) and women with hypertension slightly above normal are the selected indicators for assessing the health status and examining disparity as shown in table 2. 4.2% of women are having high level of blood sugar in Bihar. 21 districts have greater percentage of women with high blood sugar level with respect to Bihar's value, out of which 14 districts are of northern division portraying poor health status in North Bihar and consequently higher level of inequality among both the divisions. However, on the contrary three districts of North Bihar, that are, Begusarai, Madhubani and Samastipur have lowest percentage of women with high blood sugar level.

13 North Bihar districts and 7 South Bihar districts are having greater percentage of women with hypertension slightly above normal, with respect to Bihar's value. Gaya is having the highest percentage of women with hypertension slightly above normal (5.9%). Nalanda, which possess the lowest percentage, along with Bhagalpur and Banka constitute the top three districts with least percentage of women with hypertension slightly above normal, all belonging to South Bihar. This situation again puts southern division in favourable position with respect to the northern half.

Table 2: Health status among women (15-49 years) in Bihar

Districts	Percentage of women having high blood sugar level (>140 mg/dl)	Percentage of women having hypertension slightly above normal
Araria	4.2	4.4
Arwal	4.3	4.3
Aurangabad	5.4	5.7
Banka	3.8	2.9
Begusarai	2.4	3.7
Bhagalpur	3.9	2.6
Bhojpur	4.2	4.1
Buxar	4	5.5
Darbhanga	4.7	3.9
Gaya	4	5.9
Gopalganj	5.9	5.2
Jamui	2.9	3.6
Jehanabad	5.1	3.1
Kaimur (Bhabua)	6.3	4.7
Katihar	5.2	4
Khagaria	3.2	3
Kishanganj	4.7	5.9
Lakhisarai	2.7	3.8
Madhepura	4.6	4.3
Madhubani	2.4	3.4
Munger	3.9	3.3

Muzaffarpur	3.7	3.1
Nalanda	2.9	2.6
Nawada	5	5.2
Pashchim Champaran	4.2	4.8
Patna	3.9	4.5
Purba Champaran	5.8	5.9
Purnia	4	4.6
Rohtas	5.1	5.3
Saharsa	3.8	3.2
Samastipur	2.4	4.5
Saran	5.6	4.8
Sheikhpura	3.3	3.1
Sheohar	6.2	4.7
Sitamarhi	4.3	5.9
Siwan	4.7	5.5
Supaul	4.2	4.8
Vaishali	4.3	4.4
Bihar	4.2	4.4

Source: National Family Health Survey-IV (2015-16)

Association of health and literacy in Bihar

Education being one of the vital social determinants of health affects health seeking behaviour and overall health by making people capable of adhering to informed choices. Table 3 displays the level of literacy among women in Bihar. It can be figured out from table 3 that condition of North Bihar is quite worse, with all ten lowest literate districts belonging to North Bihar division. Sparring 7 districts, rest 14 districts of North division fall below the state's literacy level along with 5 districts of Southern division. Thus, regional disparity in literacy is much pronounced between North Bihar and South Bihar.

Table 3: Literacy level of women (15-49) in Bihar

Districts	Percentage women who are literate
Araria	38.8
Arwal	54.6
Aurangabad	59.3
Banka	42.7
Begusarai	50.7
Bhagalpur	54.6
Bhojpur	56.4
Buxar	62.9
Darbhanga	43.5
Gaya	50.2
Gopalganj	57

Jamui	44.4
Jehanabad	55.3
Kaimur (Bhabua)	59.7
Katihar	40.2
Khagaria	44.2
Kishanganj	33.7
Lakhisarai	52.4
Madhepura	32.6
Madhubani	40.9
Munger	62.5
Muzaffarpur	53.8
Nalanda	48.8
Nawada	47.5
Pashchim Champaran	44.4
Patna	64.7
Purba Champaran	44.6
Purnia	41.1
Rohtas	64.2
Saharsa	39
Samastipur	50
Saran	57.5
Sheikhpura	49.1
Sheohar	40.9
Sitamarhi	37.6
Siwan	61.6
Supaul	35.9
Vaishali	54.1
Bihar	49.6

Source: National Family Health Survey-IV (2015-16)

Indicators selected for the study are correlated with level of literacy of women to gauge the impact of education on health-seeking behaviour and health status. Table 4 shows correlation coefficient between selected indicators and level of literacy.

Table 4: Correlation coefficients among indicators and level of literacy among women

Indicators	Correlation coefficient (r)
Four or more ANC visits	0.55
Delivery assisted by health personnel	0.78
High blood sugar level	0.12
Hypertension slightly above normal	0.05

Source: Author's calculation from NFHS-IV data.

Utilization of ANC services show high degree of positive association with literacy and the association between delivery assisted by health personnel and literacy is too positive and much stronger with correlation coefficient of 0.78. This suggests that among literate women better health-seeking behaviour is observed. For better representation, degree of association of both these indicators of health-seeking behaviour can be better visualized with the help of scatter diagram 1 and diagram 2.

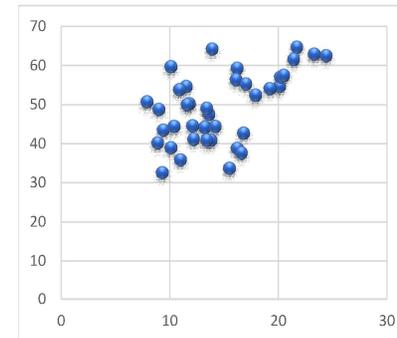


Diagram 1: Correlation between four or more ANC visits and literacy

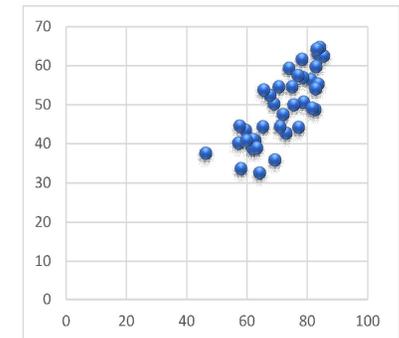


Diagram 2: Correlation between delivery assisted by health personnel and literacy

In context to health status, both the indicators of high blood sugar level and hypertension slightly above normal show weak positive correlation with coefficient being 0.12 and 0.05 respectively which reflects very low degree of association with literacy.

Discussion and Conclusion—As disparity is a relative term, it should be analyzed on the basis on certain selected parameters. Disparity among both the division of Bihar at district level could be better understood by comparing both the North and South regions with respect to Bihar's

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value within all the seven indicators selected for the study. Among the selected indicators, total number of districts performing poor than the state’s average could be considered and within these districts, number of districts belonging to North Bihar and South Bihar can be separated for analyzing disparity. Greater the number of districts with poor performance than state’s average, high would be the level of disparity in that particular division and this can be examined by data presented in table 5.

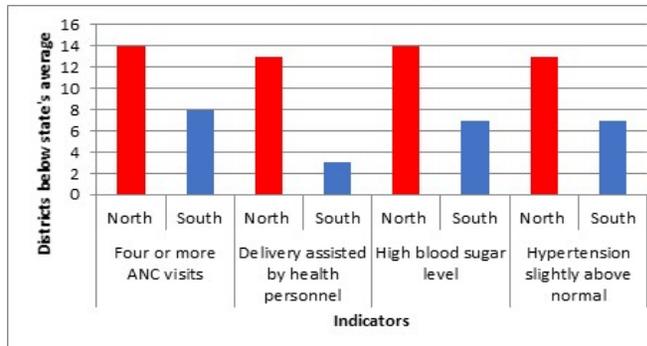
Table 5: Number of districts below state’s average

Indicators	Number of districts below state's average	
	North	South
Four or more ANC visits	North	14
	South	8
Delivery assisted by health personnel	North	13
	South	3
High blood sugar level	North	14
	South	7
Hypertension slightly above normal	North	13
	South	7

Source: Author’s calculation from NFHS-IV data.

Graph 1 clearly portrays that share of North Bihar is higher among the districts performing poor than the state’s value within all the selected indicators. This signifies and strengthens that there exist higher level of disparity in health among women in North Bihar division in comparison to South Bihar. Though North Bihar accounts for greater number of districts than South Bihar, still sparing a few indicators ratio of poor performing districts is much high for North Bihar region.

Graph 1: Number of districts performing poor than state’s average



North Bihar districts
South Bihar districts

Literacy being the common factor catalyzing disparity as illustrated by correlation table 5 but cause for backwardness of North Bihar could be several depending on the type of indicators selected, which need to be researched separately and could be the future scope of this study. In context to delivery assisted by health personnel deprived of status of North division could be due to rudimentary rituals associated with child birth in rural areas, and unavailability of and inaccessibility to health personnel as and when required. Disparity in blood sugar level could be because of no regular monitoring due to resource constraint in rural setting of the north division. However, studies investigating the true causes of inequality or disparity among health is highly solicited. Such studies would further facilitate government and policy-makers in removing health disparities as WHO constitution (1946) envisages “... the highest attainable standard of health as a fundamental right of every human being” and Mahtama Gandhi said “ It is Health that is real wealth and not pieces of gold and silver”.

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