"AN ANALYSIS OF HEALTH DEVELOPMENT: A COMPARATIVE STUDY OF WESTERN MAHARASHTRA"

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ABSTRACT

The present research study made and attempts on existent scenario of district health development through modified health development index of Western Maharashtra across five districts. This study made and attempts that district based health development which is most important for Human Development. The existent study principally highlighting that the core issue of Women health of Human Development and their minimum needs during the pregnancy viz. 3ANC checkup, 100IFA tablet, TT2/Buster dose, institutional deliveries and precarious disease 'Anemia', it has negative impacting on pregnant women health and her fetus. Besides, it study also focused on Public health and child health and its important dimensions like IMR, children born Underweight, weighted children. All indicators illustrate existing condition of child health and their nutritional position across the districts in Western Maharashtra region of Maharashtra state.

KEYWORDS*: Health development index, IMR, 3ANC, 100IFA, TT2/Busters, Anemia, Institutional deliveries, Underweight children, etc.*

1. INTRODUCTION

The concept of health development is very comprehensive and it is a crucial aspect of each and every human life. Without good health every human can't any social-economic activities in their life. Concept of health is the level of functional and metabolic efficiency of a living organism. In humans it is the capability of individuals or community to adjust and self-manage when facing physical, mental, psychological and social changes with environment. According to WHO, the terms of health, in their broader sense in its 1948 constitution as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (WHO, 1946). Therefore, measurement and innocent planning of health development, it is most important requirement of each district, state, region and nation. Because,

healthy people are a crucial aspect and backbone of accomplish sustainable Human Development and it is a mainstay of the upcoming humanity.

Present research study, focused on an assessment of district wise condition of health development of Western Maharashtra. It also highlights the central disputes of women and child health which is barricaders to human development along with whole development process of each state, region and nations. Generally, this study examines that various measures of women health i.e. 3ANC Checkup, 100IFA tablet, institutional deliveries and women with Anemia. These are basic need to each women health and it played a dynamic role in pregnant women health and their fetus. Women prevalence with anemia when it is used with other measurements of iron status the hemoglobin

concentration can provide information about the severity of iron deficiency.

Child health and its nutrition is second huge obstacle in front of today's human development and development process. In present study researcher has focusing on child health and its nutritional position through some important indicators of the child health such as children born Underweight, infant mortality rate and share of weighted children

availability and liquidity of health facility it is basic need to every human. The PHCs is first contact point between the village community and the medical officer. PHCs were envisaged to provide an integrated curative and preventive health care to rural population with emphasis on preventive and promotive aspects of health care. Similarly, HSCs is most peripheral and first contact point between the primary health care system and the community.

have usually used to evaluate child health. The underweight birth is characterized as a baby who is born weighting less than 2,500 gm.; it is viewer of malnutrition, lack of healthy food and calories. Also, the IMR is frequently indicating to lack of health facility.

Further, the average population served by per primary Health Centers (PHCs) and Health Sub-Centers (HSCs), which is indicates that the Both, most important to develop rural health and it is backbones of rural healthcare system of India.

2. OBJECTIVES

The objectives of the present studies are as fallows;
1. To study district wise health development position of the Western Maharashtra.
2. To comparative analysis of intra-district health development of Western Maharashtra.
3. To suggest measures for improvement if
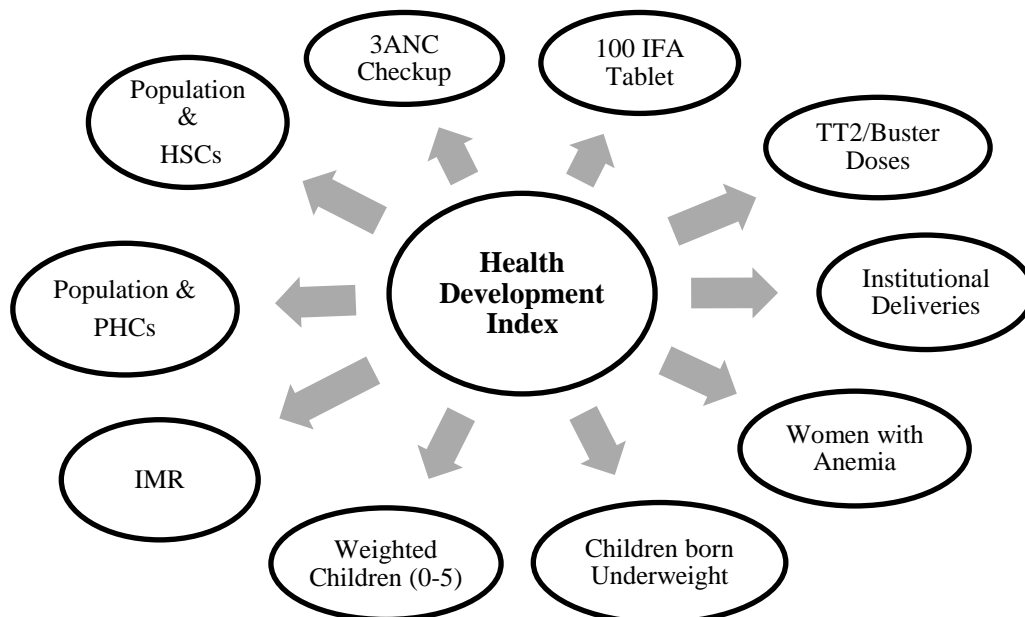
3. DATA COLLECTION AND METHODOLOGY

✓ **Data Collection:**

This present research study based on only secondary data has been collected from mostly NRHM, ICDS, Census of India and District economic and social report published by Government of India as well as Maharashtra state during the period of 2016-17. However, this study research has been used study related Books, Journals, Gazetteer, Newspaper, etc.

✓ **Indicators of Health Development Index**

The present study depends on ten basic health indicators and it is also evaluating district based position of health development of Western Maharashtra

necessary.

region. The main indicators of health development index are as fallows;

✓ **Steps to Calculate Health Development Index:**

The data collected from 10 indicators of health; it has been converted into the index values by standard method of normalization assumed by UNDP. (UNDP, 2017) The district health development index is depends on ten basic health indicators related to women, child, public and individual health includes five positive and five negative. Five positive indicators viz. pregnant women receiving 3ANC Checkups, 100 IFA tablets, TT2/ Booster dose, institutional deliveries and Children weighed normal to total weighed children (Age 0-5).

Similarly, five negative indicators of health i.e. pregnant women with Anemia, Children born underweight, average population and health SCs, average population and PHCs, HSCs as well as infant mortality rate. Both positive and negative indicators have shown the average status of health progress of each district of Western Maharashtra region in Maharashtra state.

Step – I: Creating the Health Indicators Index

The index values of Health Development Index and its each indicator would range between 0 and 1; 0 indicates the lowest development and 1 indicates the highest development respectively. Each index is the arithmetic mean of normalized indicators of the entire health index in that sector. An arithmetic mean of all indicators index of health, to given equal weightage in Health Development index. To avoid absolute Zero or One as an index value; minimum value have been taken as 10 percent less than the observed minimum value and maximum value should be taken as 10 percent more than observed maximum value.

A) Positive indicators:
Above mentioned positive indicators which have a positive impact on the development, i.e. 3ANC Checkups. The index value of positive indicators is calculated using the formula:

$$\textbf{Positive Indicator Value} = \frac{\text{(Actual Value – Min.Value)}}{\text{(Max.Value – Min.Value)}} \quad \text{------ Equ. No. 1}$$

i.e. Kolhapur District 3ANC Checkups Index

Minimum Value $= 70.2 \times 0.9$ **= 63.1**   **3ANC Checkups** $= \frac{(98.8 - 63.1)}{(109.0 - 63.1)} = \frac{35.2}{45.9}$
Maximum Value $= 99.1 \times 1.1$ **= 109.0**   **Index**

$$\boxed{\textbf{Index Value = 0.766}}$$

B) Negative indicators:
Above mentioned negative indicators which have a negative impact on the development, i. e. Infant Mortality Rate. The index value of negative indicators is calculated by using the following formula-

$$\textbf{Negative Indicator Value} = \frac{\textbf{(Max.Value – Actual Value)}}{\textbf{(Max. Value – Min.Value)}} \quad \text{------ Equ. No. 2}$$

i.e. Kolhapur District Infant Mortality Rate Index

Minimum Value $= 3.4 \times 0.9$ **= 3.0**   **IMR Index** $= \frac{(13.6 - 8.9)}{(13.6 - 3.0)} = \frac{4.7}{10.6}$
Maximum Value $= 12.4 \times 1.1$ **= 13.6**

$$\boxed{\textbf{Index Value = 0.443}}$$

Step – II: Creating the Health Development Index:
There are ten indicators of Health Development Index; it has been used in calculating the District Health Development Index of Western Maharashtra region.
The Health Development Index is calculated by using the following formula-

$$\textbf{Health Index} = (HD_1{}^I + HD_2{}^I + HD_3{}^I + HD_4{}^I + HD_5{}^I + HD_6{}^I + HD_7{}^I + HD_8{}^I + HD_9{}^I + HD_{10}{}^I) / {}^1/_{10}$$

Whereas; HD = Health Dimension

$HD_1{}^I$ = *3 ANC Checkups* $HD_6{}^I$ = *Child born Underweight*
$HD_2{}^I$ = *100 IFA Tablets* $HD_7{}^I$ = *Population and Health Sub-Centers*
$HD_3{}^I$ = *TT2/Busters Doses* $HD_8{}^I$ = *Population and PHCs*
$HD_4{}^I$ = *Women with Anemia* $HD_9{}^I$ = *Infant Mortality Rate (IMR)*
$HD_5{}^I$ = *Institutional deliveries* $HD_{10}{}^I$ = *Weighed children rate (0-5*

i.e. Kolhapur District Health Development Index

$$\textbf{HI} = (0.777 + 0.735 + 0.646 + 0.971 + 0.502 + 0.522 + 0.836 + 0.677 + 0.448 + 0.536) / {}^1/_{10}$$

$$\textbf{HI} = \frac{6.651}{{}^1/_{10}}$$

$$\boxed{\textbf{HI = 0.665}}$$

4. LIMITATIONS OF THE STUDY

The major limitation of the present research study, it is only related to assessment of Health Development condition of Western Maharashtra. It also depends on secondary data and help of this data has been calculated modified health development index of each district in Western Maharashtra region. However, the period of the research study is only limited 2016-2017.

5. DATA ANALYSIS AND DISCUSSION

Table - 1.1 provides information about basic health indicators, which is related to women, child, and public health of Western Maharashtra region across five districts. Each indicators of health which is shows that average achievements of health development of each district. The major observation of related to health dimensions, it is clear that the need 3ANC Checkups, 100IFA tablets and TT2/ booster doses are important to every pregnant women for maintain her and their fetus. The values of these indicators of Pune district was reported lowest 70.2%, 50.3%, and 73.3% respectively, it was also both lower than an average of Western Maharashtra in 2017.

The pregnant women receiving 3ANC Checkup of the Kolhapur district was recorded highest 98.8%. As well 100IFA tablets and TT2/ Booster doses of Satara district was recorded highest 68.9 and 96.6% respectively as compare to five districts in 2017. The Western Maharashtra region in terms of pregnant women receiving 3ANC Checkup, 100IFA tablets and TT2/ Booster doses was an average of 89.9, 61.6 and 86.9% individually in 2017.

Table No. 1.1: District wise Performance of Health Development Indicators of Western Maharashtra: 2017

Sr. No.	District/ Health Indicators	Type	Kolhapur	Pune	Sangli	Satara	Solapur	Western Maharashtra	Observed Value Min	Observed Value Max	Converted Value Min	Converted Value Max
1.	Pregnant women receiving 3ANC Checkups	+ ve	98.8	70.2	96.8	99.1	84.8	**89.9**	70.2	99.1	**63.1**	**109.0**
2.	Pregnant women receiving 100IFA tablets	+ ve	67.7	50.3	60.9	68.9	60.2	**61.6**	50.3	68.9	**45.2**	**75.7**
3.	Pregnant women receiving TT2/ Booster	+ ve	92	73.3	95.4	96.6	77.4	**86.9**	73.3	96.6	**65.9**	**106.2**
4.	Pregnant women with Anemia	- ve	0.2	0.8	0.2	0.6	0.4	**0.4**	0.2	0.8	**0.18**	**0.8**
5.	Institutional deliveries	+ ve	100	100	100	100	99.9	**99.9**	99.9	100	**89.9**	**110**
6.	Children born Underweight	- ve	12.3	13.2	7.6	16.6	8.3	**11.6**	7.6	16.6	**6.84**	**18.2**
7.	Average Population served by Per HSCs	- ve	6909	7940	9927	6955	6800	**7706**	6800	9927	**6120**	**10919**
8.	Average Population served by per PHCs	- ve	35663	43520	39624	40326	33166	**38460**	33166	43520	**29849**	**47872**
9.	Infant Mortality Rate (IMR)	- ve	8.9	3.4	12.4	6.2	7.1	**7.6**	3.4	12.4	**3.0**	**13.6**
10.	Children weighted normal to total weighted children (0-5)	+ ve	95.0	92.1	95.9	94.2	93.8	**94.2**	92.1	95.9	**82.8**	**105.4**

Source: Compiled by Researcher form Statistical Data from @: National Rural health Mission, Gov. of India (NRHM) Maharashtra State Report/2016-201., $: ICDS Gov.in, Report Maharashtra/2016-17, #: DES, Gov. of Maharashtra, Socio-Economic Report Maharashtra Repot/2016-2017.

Further, Anemia is an important series difficulty in front of Women and young girl's health and it have negative impact on their health. The situation of pregnant women with Anemia of Kolhapur and Sangli districts were reported lowest i.e. 0.2% respectively. As well the Pune district was marked highest 0.8%; it was also higher than an average of Western Maharashtra. The IMR of Sangli district was counted higher 12.4% and Pune district was calculated lower 3.4% as compare to five districts in Western Maharashtra region in 2017. Further, Anemia is an important series difficulty in front of Women and young girl's health and it have negative impact on their health. The situation of pregnant women with Anemia of Kolhapur and Sangli districts were reported lowest i.e. 0.2% respectively. As well the Pune district was marked highest 0.8%; it was also higher than an average of Western Maharashtra.

The IMR of Sangli district was counted higher 12.4% and Pune district was calculated lower 3.4% as compare to five districts in Western Maharashtra region in 2017.

Similarly, the position of institutional deliveries of Kolhapur, Pune, Sangli and Satara districts increased up to 100 % respectively. As well institutional deliveries of Western Maharashtra region was recorded an average of 99.9% during the study period. The circumstances about Children born underweight in Satara was reported higher 16.6% and Sangli district was lower 7.6% individually as compare to five districts in Western Maharashtra region. Also, the children weighed normal to total weighed children (Age 0-5) Kolhapur and Sangli districts were nearby 95.0 and 95.9 % respectively, it was higher than the average of the Western Maharashtra region. While, the Western Maharashtra region was count an average 94.2% for the period of 2017.

Further, the district wise position of average population served by per HSCs and PHCs of the Solapur district was stood lowest that is 6800 and 33166 in the Western Maharashtra region. The average population served by per HSCs of the Sangli district was reported highest 9927 and the population served by per PHCs of the Pune district was highest 43520, it was both higher than the average of Western Maharashtra region for the period of 2017.

District wise Health Development Index of Western Maharashtra:

The Health Index is an important part of the Human Development Index. The blameless health is essential to each and every human to attain their wellbeing. The first Human Development Index was introduced and developed by United Nations Development Programme (UNDP) under the supervision of Pakistani great economist Mahbub-Ul-Haq in 1990 (UNDP, 1990). In the same way the Health Development Index has examining health development through various indicators of the health development in the one basket. Based on above observation the district wise health development index has shown that the actual picture of the human health. It also reveals that the disparities between intra-district and intra-dimensions of health in Western Maharashtra region of Maharashtra state.

Table - 1.2 and figure - 1.1 provides information about district wise Health Development Index of the Western Maharashtra region. Health Development Index of the Kolhapur district was calculated highest that is 0.665, under the category of medium development as compare to five districts.

Table No. 1.2: District wise Status of Health Development Index of Western Maharashtra: 2017

Sr. No.	District/ Health Indicators	Type	Kolhapur	Pune	Sangli	Satara	Solapur	Western Maharashtra
1.	Pregnant women receiving 3ANC Checkups	+ ve	0.777	0.153	0.734	0.784	0.472	**0.584**
2.	Pregnant women receiving 100IFA tablets	+ ve	0.735	0.165	0.512	0.774	0.489	**0.535**
3.	Pregnant women receiving TT2/ Booster	+ ve	0.646	0.182	0.730	0.760	0.284	**0.520**
4.	Pregnant women with Anemia	- ve	0.971	0.114	0.971	0.400	0.686	**0.629**
5.	Institutional deliveries	+ ve	0.502	0.502	0.502	0.502	0.497	**0.501**
6.	Children born Underweight	- ve	0.522	0.443	0.933	0.145	0.872	**0.583**
7.	Average Population served by Per HSCs	- ve	0.836	0.621	0.207	0.826	0.858	**0.670**
8.	Average Population served by per PHCs	- ve	0.677	0.241	0.458	0.419	0.816	**0.522**
9.	Infant Mortality Rate (IMR)	- ve	0.448	0.968	0.117	0.703	0.618	**0.571**
10.	Children weighted normal to total weighted children (0-5)	+ ve	0.536	0.408	0.576	0.500	0.483	**0.500**
	Health Development Index		**0.665**	**0.380**	**0.574**	**0.581**	**0.607**	**0.562**
	Rank		**1**	**5**	**4**	**3**	**2**	**-**

Source: Compiled by Researcher statistical data from Table No. 1.1

The Health Development Index of the Pune district was recorded lower 0.380 falls under the category of low development as compare to other districts of the Western Maharashtra in 2017. Moreover, the status of Health Development Index of the Sangli, Satara and Solapur districts were counted in between 0.574 to 0.607, comes under the category of medium development in Western Maharashtra region. As well Health Development Index of the Western Maharashtra region was reported 0.562, falls under the category of medium development in Maharashtra state during the period of 2017.

Figure No. 1.1: District wise Health Development Index of Western Maharashtra: 2017
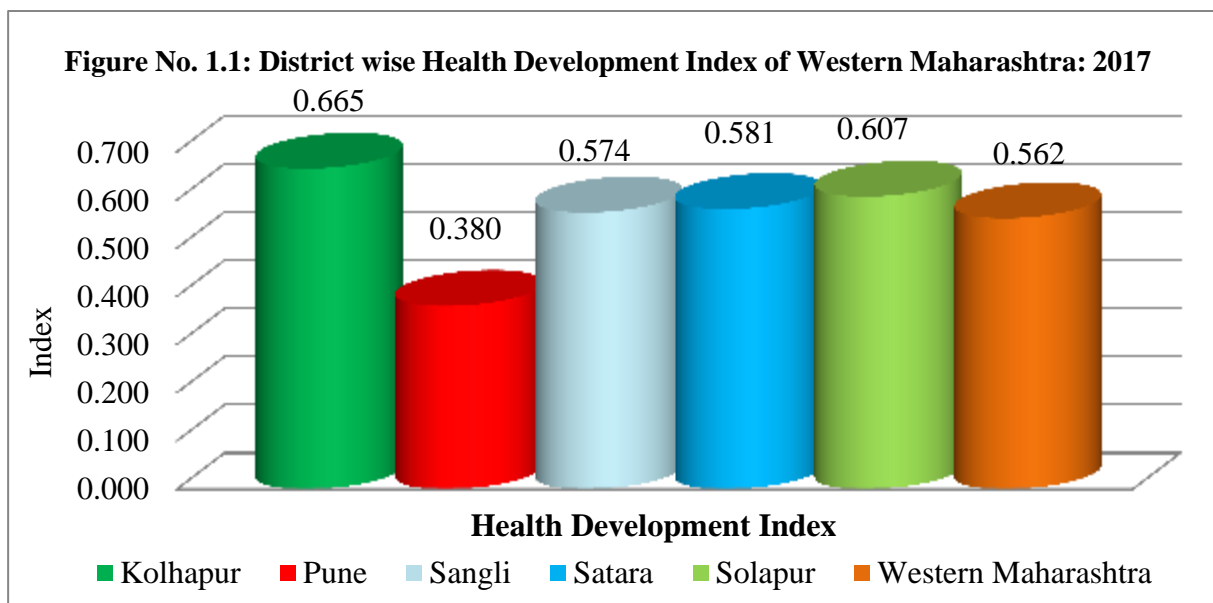
Briefly, except Pune all these entire districts were recorded medium development in Health Development Index and also it is higher than the average Health Development Index of Western Maharashtra region for the study period.

6. FINDINGS

This present research studies major findings are as fellow-

1. The IMR of the Sangli district was recorded highest i.e. 12.4% and Pune district was lowest 3.4% respectively in 2017.
2. It is observed that the Pune district was lower in pregnant women receiving 3ANC checkup (70.2%), 100IFA tablet (50.3%) and TT2/Buster doses (73.3%) respectively as compare to five districts in the Western Maharashtra in 2017.
3. It is found that in case institutional deliveries majority; four districts out of five i.e. Kolhapur, Pune, Sangli and Satara district were reported 100.0% individually, in given period
4. It was observed that an average population served by per HSCs and PHCs in Solapur district was higher that is 6800 and 33166 respectively, as compare to five district of Western Maharashtra region in 2017.
5. Present study found that Health Development Index of Kolhapur district was higher 0.665 and Pune district was lower 0.380 as compare to five districts in the Western Maharashtra region during the period of 2017.
6. The Health Development Index of the Western Maharashtra region was recorded 0.562, under the category of medium development in 2017.

7. SUGGESTIONS

1. Based on study, Pune district was found low health development. Because of the position of pregnant women receiving 3ANC checkup, 100IFA tablet, TT2/Buster doses and share of children weighted normal was depraved. Hence, government should focused on provide minimum medical facility to women and nutritional food to children in concern district.
2. The IMR and proportion of average population served by per HSCs of the Sangli district was higher as compare to other district, government should focused reduce IMR and increase quantity of HSCs in said district. Therefore, increasing easily access and mobility of basic health facility to people.
3. The Health Development Index of the Western Maharashtra region was reported medium development category. Because, pregnant women receiving 3ANC checkup, 100IFA tablet, TT2/Buster doses and share of children weighted normal was lower and unsatisfactory. Hence, government should provide such facility i.e. 3ANC checkup, 100IFA tablet, TT2/Buster doses to women of Western Maharashtra region.

8. CONCLUSION

The present research study concluded that the good health is crucial aspect of the each and every human. Healthful life has positive impact on each peoples productivity and welding. Therefore, health development is prime need of every district, region, state, and nation. It present study also concluded that the Kolhapur district was rank first and the Pune district was put lowest as compare to five districts in Health Development Index in Western Maharashtra

region. Briefly, except Pune, all districts were comes under medium development in Health Development Index of the Western Maharashtra region of Maharashtra state for the study period.

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