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EMPIRICAL ANALYSIS OF HEALTH STATUS OF WESTERN MAHARASHTRA

¹PROF. (DR.) P. S. KAMBLE & ²MR. AMBEDKAR VISHAL VISHNU / ²MR. OVHAL VISHAL VISHNU

¹Professor, Department of Economics, Shivaji University, Kolhapur

²Research Student, Department of Economics, Shivaji University, Kolhapur

psk_eco@unishivaji.ac.in

ABSTRACT

Present research paper studies the effects of health facilities in the research area. A field study has been done to see whether the existing modern health facilities in the area have a positive impact on the traditional health problems of the society like Infant Mortality, Maternal Mortality and Feticide. Preliminary data have been used for this research article. The formulated hypothesis in the paper is checked with the help of the Z-test. The research found that modern health care facilities have reduced the number of infant deaths and maternal deaths in society. On the other hand, the number of abortions using the same modern equipment has increased in urban as well as rural Maharashtra.

KEYWORDS - *Infant Mortality, Maternal Mortality, Feticide, Health Status and Western Maharashtra*

INTRODUCTION

The holistic development of any country depends on the economic, social, cultural and environmental development of that country. No one can deny the contribution of the social sector to development along with other sectors. The social sector mainly consists of education, health, arts, sports and hygiene (Bang, A., Reddy, M. H etc., 2002). Only when these factors are developed can a conducive environment be created for the development of the country. Therefore, the development of these elements is considered to be the first duty of every country and state. In this comparative type of research paper, the researcher compares the benefits of healthcare facilities in Maharashtra to the families of different social classes such as SC. ST. OBC and General.

ROLE OF THE GOVERNMENT IN HEALTH SECTOR DEVELOPMENT IN MAHARASHTRA

The health-care industry is a vital part of the economy. Its social (health) and welfare significance outweighs its economic significance. It is because the services included in the social sector are essentially social services that meet people's social needs and directly contribute to the promotion of society's overall social welfare. As a result, it is desirable and expected that the government play a key role in the growth of the economy's health sector (Shukla, A., Phadke, A., 2003. P.8). this is not to say that the private sector has no role to play in the development of the social sector. It is acceptable if the health sector produced by the private sector functions similarly to that developed by the public sector, and its aim and intention is to provide service and welfare. However, it is undeniable that the government, whether national, state, or local, should play a critical role in the growth of the health sector in the economy. Against this backdrop, an attempt is made to assess the government's development of the health sector in Maharashtra. The dilemma of converting economic growth into improved skills for all is at the heart of the development challenge that the majority of low-income nations are facing today. In this regard, the involvement of what are known as health sectors in economic terms is considered crucial.

REVIEW OF RESEARCH LITERATURE

Researcher has studies several research articles, monographs, research reports and master and doctoral research work on present article topic. Researcher found that very small so far as their scope is concerned. Hence there is an urgent need to undertake a large scope and in-depth research study on the topic into our consideration. A researcher did not find the more specific health-related study in the social sciences and considered the study area of the present research article. Such type of study is totally lacking in the context of Maharashtra. Hence, the present research study is essential in public economics in order frame public health policies and strategies of rural Maharashtra.

RESEARCH METHODOLOGY

In the research methodology, the researcher discusses the structure and statement of the research problem, setting the right objectives, setting the perfect assumptions and choosing the research model in order to move the research study in the right direction.

STATEMENT OF THE RESEARCH PROBLEM

Today, compared to other states in Maharashtra, it is observed that every sector has developed to a great extent. Despite this, the number of child deaths and female deaths due to starvation, infectious diseases, epidemics, anemia and traditions in Maharashtra is still high. To investigate and evaluate this, researchers have tried to study the real situation by adopting empirical study method. The United Nations estimates that 2.1 million children in India die each year before the age of five. Every minute, four children in India die from preventable diseases such as diarrhea, typhoid, malaria, measles and pneumonia (MCHET, 2018). According to the WHO report, 61 percent of India's deaths are due to non-communicable diseases such as heart disease, cancer and diabetes. A serious matter here is that in 2016, a total of 58 lakh 17 thousand deaths were reported in India due to the above-mentioned non-communicable diseases (Dey, Sushmi 2017).

OBJECTIVES OF THE RESEARCH STUDY

1. To study the demographic health indicators of Maharashtra.

2. To study the social stratification of demographic health status.
3. To study the family health expenditure pattern.

HYPOTHESIS OF THE RESEARCH STUDY

H₀-There is no significantly increase the family monthly health expenditure to family monthly income.

RESEARCH METHOD AND SAMPLE DESIGN

A researcher has used the comparative and analytical research method for present research article. This article is exclusively depends on primary data. Researchers have used the TARO YAMANE formula for sample selection. This formula is used to select the appropriate size of the sample from known populations. Here the same researcher did know the exact population of purposively selected five districts of Western Maharashtra (Pune, Kolhapur, Sangli, Satara and Solapur). The total population of the five districts was 23,449,049. The researcher has used the following TARO YAMANE formula to get the right sample size from this.

$$n = \frac{N}{1 + N(e)^2}$$

Following are some important things that a researcher should consider when using the above formula.

- i. Margin of error is 5 percent
- ii. confidence level is 95 percent

$$n = \frac{23449049}{1 + 23449049(0.05)^2}$$

$$n = \frac{23449049}{1 + 23449049 * 0.0025}$$

$$n = \frac{23449049}{1 + 58622.6225}$$

$$n = \frac{23449049}{58623.6225}$$

Recommended sample size is (n) = 399.9931768

But in actually the researcher has selected 500 respondents which are greater than recommended sample size of 399.9931768 by Prof. Taro Yamane Sample Measurement Formula. If the selected sample size is greater than the recommended sample size of Prof. Yamane then the no problem with data inferences. But if the actual size is smaller than the suggested sample size, the research results may be biased. Hence, in order to give proper representation to each social class and to get good research results, the researcher has selected 500 respondent families instead of recommended 399 for the study. These 500 samples out of 100 selected from each of the selected districts.

STUDY INDICATORS

Researcher has selected following three mortality indicators for measuring health status of research area.

- i. Child Mortality
- ii. Infant Mortality
- iii. Maternal Mortality
- iv. Feticide

RESULTS AND DISCUSSION

The researcher has performed the following empirical analysis using quantitative tools for analysis collected primary data from the research premises through questionnaires.

Table No. 5.1: Status of Child Mortality

Sr. No	Status of Child Mortality	SC	ST	OBC	OPEN	Total
1	Never	46 (77%)	28 (62%)	234 (90%)	121 (90%)	429 (86%)
2	Rarely	12 (20%)	10 (22%)	14 (5%)	7 (5%)	43 (9%)
3	Sometimes	2 (3%)	7 (16%)	12 (5%)	6 (4%)	28 (5%)
4	Often	(0%)	(0%)	(0%)	1 (1%)	0 (0%)
5	Always	(0%)	(0%)	(0%)	(0%)	0 (0%)
	Total	60 (100%)	45 (100%)	260 (100%)	135 (100%)	500 (100%)

Source: Field Survey, 2021-22

Table 5.1 shows statistics to answer the question of whether child mortality is found in your area. It is clear from the statistics that the number of those who say 'Often' and 'Always' Child Mortality is almost zero. Only one family in the general class was found to have 'Frequent' child mortality in their area. About 5 per cent of those who say "Sometimes" child mortality is found. The proportion of those who say 'Rarely' and 'Never' is found to be 9 and 86 per cent respectively.

Table No. 5.2: Status of Infant Mortality

Sr. No	Status of Infant Mortality	SC	ST	OBC	OPEN	Total
1	Never	52 (86%)	34 (76%)	249 (96%)	129 (96%)	464 (92%)

2	Rarely	7 (12%)	7 (16%)	8 (3%)	4 (2%)	26 (5%)
3	Sometimes	1 (2%)	4 (9%)	3 (1%)	1 (1%)	9 (2%)
4	Often	0 (0%)	0 (0%)	0 (0%)	1 (1%)	1 (1%)
5	Always	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Total	60 (100%)	45 (100%)	260 (100%)	135 (100%)	500 (100%)

Source: Field Survey, 2021-22

Table 5.2 shows statistics to answer the question of whether infant mortality is found in your area. It is clear from the statistics that the number of those who say 'Often' and 'Always' Child Mortality is almost zero. Only one family in the general class was found to have 'Often' infant mortality in their area. About only 5 per cent of those who say "Sometimes" infant mortality is found. The proportion of those who say 'Rarely' and 'Never' is found to be 5 and 92 per cent respectively.

Table No. 5.3: Status of Maternal Mortality

Sr. No	Status of Maternal Mortality	SC	ST	OBC	OPEN	Total
1	Never	48 (80%)	28 (62%)	230 (88%)	118 (87%)	424 (85%)
2	Rarely	10 (17%)	10 (22%)	14 (5%)	11 (8%)	45 (9%)
3	Sometimes	2 (3%)	7 (16%)	16 (6%)	6 (4%)	31 (6%)
4	Often	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
5	Always	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
	Total	60 (100%)	45 (100%)	260 (100%)	135 (100%)	500 (100%)

Source: Field Survey, 2021-22

Table 5.3 shows statistics to answer the question of whether maternal mortality is found in your area. It is clear from the statistics that the number of those who say 'Often' and 'Always' maternal mortality is almost zero. About 6 per cent of those who say "Sometimes" maternal mortality is found. The proportion of those who say 'Rarely' and 'Never' is found to be 9 and 85 per cent respectively

Table No. 5.4: Status of Feticide

Sr. No	Status of Feticide	SC	ST	OBC	OPEN	Total
1	Never	44 (73%)	22 (49%)	209 (80%)	106 (79%)	381 (76%)
2	Rarely	12 (20%)	11 (24%)	17 (7%)	11 (8%)	51 (10%)
3	Sometimes	2 (3%)	9 (20%)	21 (8%)	6 (4%)	38 (8%)
4	Often	1 (2%)	2 (4%)	8 (3%)	5 (4%)	16 (3%)
5	Always	1 (2%)	1 (2%)	5 (2%)	7 (5%)	14 (3%)
	Total	60 (100%)	45 (100%)	260 (100%)	135 (100%)	500 (100%)

Source: Field Survey, 2021-22

Table 5.4 offers statistics to answer the question of whether feticide is occur in your area. It is clear from the statistics that the number of those who say 'Often' and 'Always' feticide is found same 3 percent. About 8 per cent of those who say "Sometimes" feticide is found. The proportion of those who say 'Rarely' and 'Never' is found to be 10 and 76 per cent respectively.

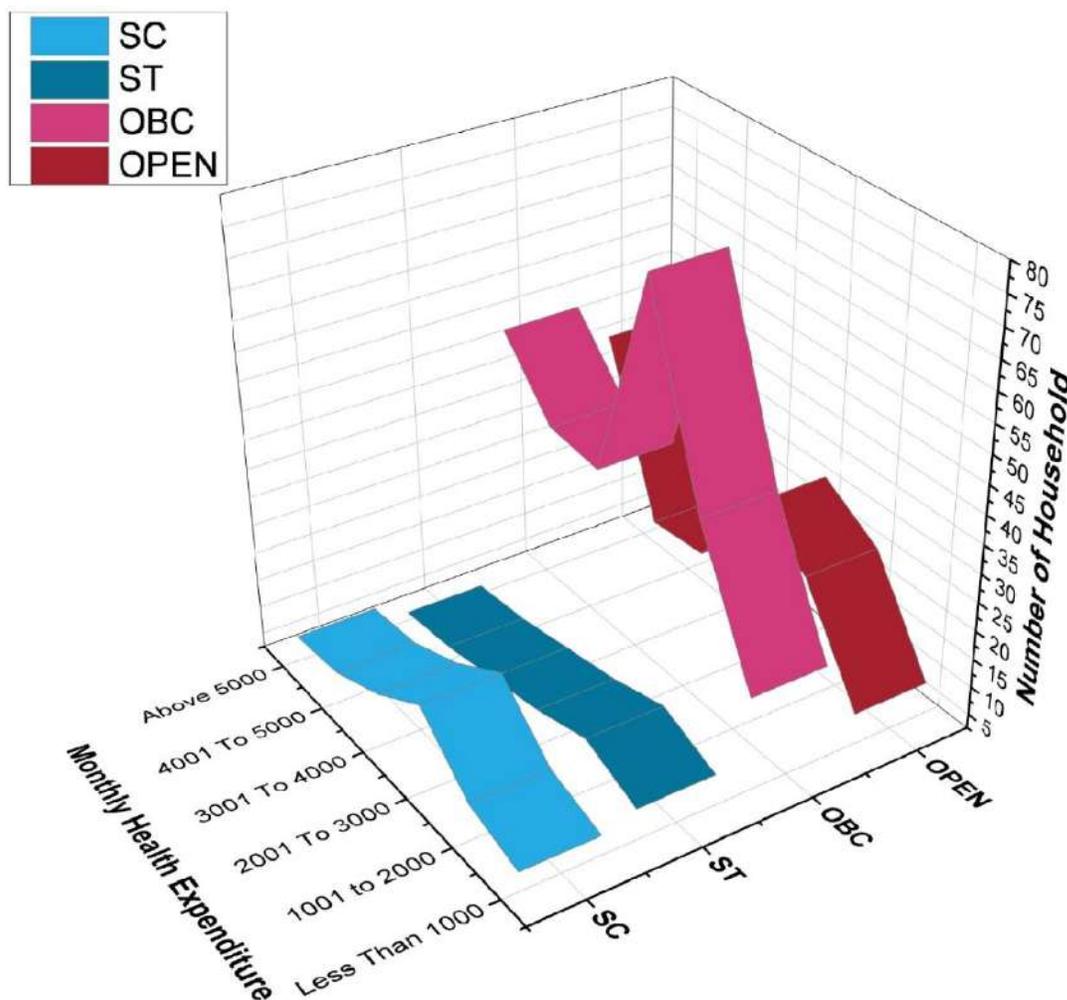
Table No. 5.5: Monthly Family Income Level and Expenditure on Family Health

Sr. No	Monthly Income Level	Number of Families	Monthly Health Expenditure	Number of Families
1	Less Than 3000	19 (4%)	Less Than 1000	41 (8%)
2	3001 To 6000	34 (7%)	1001 to 2000	88 (18%)
3	6001 To 9000	58 (12%)	2001 To 3000	133 (27%)
4	9001 To 12000	159 (32%)	3001 To 4000	71 (14%)
5	12001 To 15000	110 (22%)	4001 To 5000	65 (13%)
6	Above 15000	120 (24%)	Above 5000	102 (20%)
	Total	500 (100%)	Total	500 (100%)

Source: Field Survey, 2021-22.

Table No. 5.5 denotes that the 500 households selected as a sample are classified according to their monthly income group. Out of the total selected families, most of the families were in the group with a monthly income of Rs.9001 to Rs.12000. This was followed by more than 15000 income groups, 12001 to 15000 income groups, 6001 to 9000 income groups and less than 3000 income groups. Their percentages are found to be 24, 22, 12, 7 and 4 respectively. The highest number of SC families falls in the category of 12001 to 15000, while the highest number of ST families falls in the medium income group of 6001 to 9000. The Open and Other Backward Class (OBCs) families belong to the larger income group which is found to be 42 per cent and 28 per cent respectively. On the other hand, the highest number of ST families (13%) in the low-income group shows.

Graph No. 5.1: Monthly family health expenditure

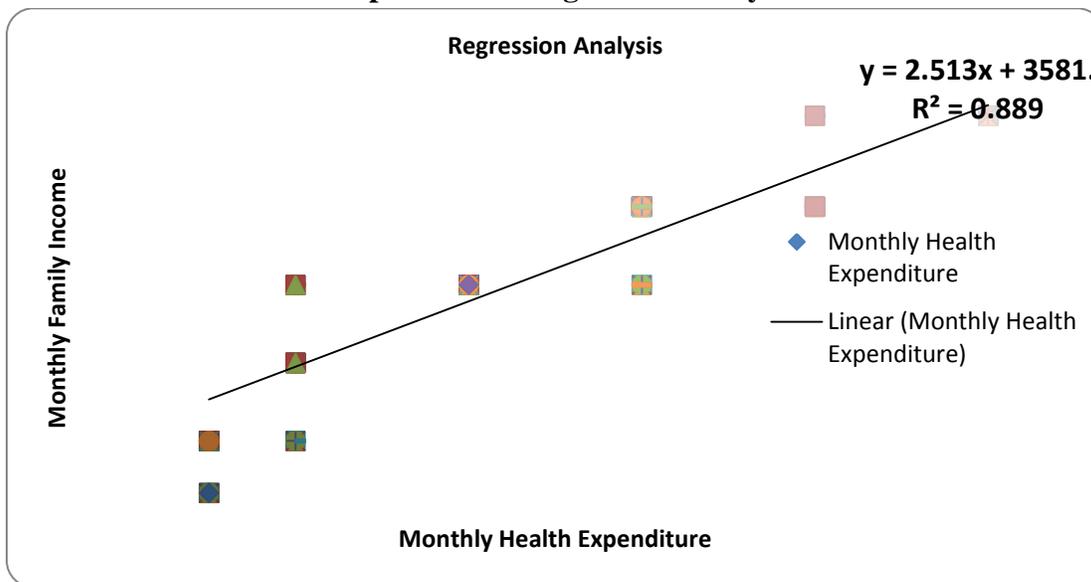


The above graph no.5.1 and table No. 5.5 shows that the selected 500 households are classified according to their monthly family health expenditure group. Out of the total selected families, most of the families were in the group with a monthly family health expenditure group of 2001 to 3000 (27%). This was followed by higher health expenditure groups of above 5000 rupees, 1001 to 2000 rupees health expenditure groups, 3001 to 4000 health expenditure groups, 4001 to 5000 and less than 1000 health expenditure group. Their percentages are found to be 20, 18, 14, 13 and 8 respectively. The highest number of SC families falls in the group of 2001 to 3000 rupees and ST found in the monthly health expenditure group of 2001 to 3000 rupees which is less than other category families.

CORRELATION-REGRESSION ANALYSIS

In the following graph, researcher has made the regression analysis of monthly family income of respondents and monthly family expenditure on family health. Here, the researcher wants to find out how much a family spends minimum amount on their health. Moreover, what kind of correlation is between a family's income and that family's health expenses? Researcher has used the following linear regression equation for find out the minimum spending family amount on health.

Graph No. 6.1: Regression Analysis



The above graph shows the monthly health expenditure on the X-axis and the monthly income of the family on the Y-axis. These two variables have been used by the researcher for regression analysis. A graph no. 6.1 shows that the regression analysis of monthly family income and health expenditure on their family. Here, graphical presentation shows that the high positive correlation ($R^2=0.88$) has between family income and expenditure on health. An alpha α value of regression (2.513) shows the positive slope of regression curve. Means, rising family monthly health expenditure with family monthly income. A beta β value of regression (3581) shows that minimum spending of families. This means that no matter how low the income of the family is (even if it is zero), the family spends at least Rs. 3581 on their health. Surveyed families need to spend Rs 3581 on health.

HYPOTHESIS TESTING

- i. H_0 -There is no significantly increase the family monthly health expenditure to family monthly income.
- H_1 -There is significantly increasing the family monthly health expenditure to family monthly income.

A researcher has used the z-test for testing whether family monthly health expenditure is increased in proportion to family monthly income. For that researcher has used the field data regarding income and health expenditure of sampled families.

Table No. 7.1: z-Test: Two Sample for Means

	<i>Monthly Family Income</i>	<i>Monthly Health Expenditure</i>
Mean	3214	11660
Known Variance	2355916	16731864
Observations	500	500
Hypothesized Mean Difference	0	
z	43.22732575	
P(Z<=z) two-tail	0	
z Critical two-tail	1.959963985	

Above table no. 7.1 shows that z-statistics of respective hypothesis. A statistics show that z-calculated value (43.23) is greater than the z-Critical (1.96) along with P-value (000) is lesser than the 0.05 percent significant level for 500 observations. In such a situation, the researcher can reject the null hypothesis and accept the alternative hypothesis. This means that households in the research area are increasing their health spending significantly along with their income. That is why people seem to have overcome traditional health problems. On the other hand, people are also committing to abortion using the same rising health expenditure.

MAJOR CONCLUSIONS

The child mortality rate appears to be declining; the comparative proportion of those who claim to have 'Rarely' and 'Sometimes' child mortality is highest among the Scheduled Castes and Scheduled Tribes. The infant mortality rate appears to be declining, the comparatively 'Rarely' and 'Sometimes' infant mortality is found in the Scheduled Castes and Scheduled Tribes. Moreover, the maternal mortality rate is comparatively higher in SCs and STs followed by other backward classes and general classes. The government does not have statistics on registered feticide (abortions), the preliminary survey shows that abortions still occur in society. There is a huge income disparity found not only between categories but in the internal category also. The majority of selected households for the study were found to be spending between Rs 2001 to Rs 3000 per month on health. This is far less than the World Health Organization's guidelines. Moreover, scheduled Tribes' families are spends less on health than others. There was a high positive correlation between family income and household spending on their health. There is no matter how low the income of the family (even if it is zero), the family spends at least Rs. 3581 on their health. The survived households in the research area are increasing their health spending significantly along with their income. The surveyed households in the research area are increasing their health spending significantly along with their income.

POLICY SUGGESTIONS

The Department of Health needs to organize focused group programs to reduce the relatively high child mortality rate, infant mortality rate and maternal mortality rate among the Scheduled Castes and Scheduled Tribes. In order to reduce the various mortality rates, it is necessary for the government and NGOs to spread education in the society and create awareness about various deaths. Abortion statistics need to be positively preserved and this requires training of doctors and raising awareness among doctors at the government level. To increase spending on health, the government needs to increase employment in the organized sector of the economy.

CONCLUDING REMARK

The current research study plays an important role in formulating policies for health care and infrastructure in the state and how much budgetary provision should be made. Similarly, this research paper is also useful for understanding the current state of health facilities and infrastructure. This study can help in understanding the status of backward classes in terms of access to health services in the state. This study will guide the Government of Maharashtra and local self-governing bodies in Maharashtra to provide health infrastructure in remote areas.

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