



## STUDY OF FACTORS CAUSING HIGH MORTALITY OF CHILDREN IN MELGHAT REGION OF AMRAVATI (M.H.)

**Pritee Singh**

Department of Statistics, Institute of Science Nagpur, India

### Abstract

Melghat region is a part of Amravati District in the North Eastern Maharashtra. This region is hilly and is mostly covered with dense forest. The population of this region is almost rural and tribal and it mainly consists of "Korkus". This region has a severe problem of malnutrition and a large number of children have died and are still dying due to this. To review and understand, as well as suggest some solutions to this problem, which is an urgent need of today. Economic status plays a very important role to understand the economic status of a society. This economic status depends

on the geographical situation and the prosperity is the result of resources available in the region. The economic factors like occupation, annual income, income of husband, income of wife, income of children, their domestic animals and monthly expenditure on various heads and details of government aids etc. have been statistically analyzed in this paper. Hence an attempt is made to provide some solution to this problem of this region on the basis of Economical factors.

**Keywords:** Tribals, Malnutrition, Mortality, Population, Melghat.

### Introduction

The prosperity of the society can be assessed by their economic status. This economic status depends on the geographical situation where a particular society lives. A society where conditions are not favorable, economic prosperity is usually

[2,3]. The area considered for the study, the Melghat region where the population is mainly tribal and primitive. Their level of resources utilization is very poor and overall income generation levels are at their low ebbs.

**Copyright:** © 2018 UPI-JMB. This is an open access article under the CC-BY-NC-ND License (<https://creativecommons.org/licenses/by-nc-nd/4.0/>).

**How to cite:** Pritee Singh. Study of Factors Causing High Mortality of Children in Melghat Region Of Amravati (M.H.). UPI Journal of Mathematics and Biostatistics 2018; 1(1): 76-89.

### Article history:

Received : 09-03-2018, Accepted: 28-03-2018,  
Published: 30-03-2018

**Correspondence to:** Pritee Singh Department of Statistics, Institute of Science Nagpur, India.

Poor economic conditions work against social and economic interest of the individuals. They cannot avail the advantage of technology and convert the techno-educational advancement into social benefits. These results in widening the gap between the advanced and backward societies [6].

For the purpose of the present study regarding economic parameters which affects the nutritional status of the children of Melghat region, the following 10 factors have been considered as basic indicators of the economic conditions of the Tribals [7,8,9,10]. These factors are namely; 1) Occupation, 2) Annual Income, 3) Farming and ownership of land, 4) Animal Husbandry, 5) Income generation from animal rearing, 6) Monthly expenses on various things like food, cloths, medicines, shelter, etc., 7) Gap between Income and Expenses, 8) Subsidiary and financial assistance from government, 9) Nature of subsidiary and financial assistance, and 10) Amount of subsidiary and financial assistance.

Considering these factors the inference regarding income, expenses and economic status of the population in Melghat region has been drawn. With the help of this inference, an attempt is made to understand the basis of Malnutrition as well as infant mortality.

## 2. Need of Present Study

The news papers from 1974 onwards have reported that the highest percentage of severe malnutrition amongst 1 to 5 years old tribal children has been observed in Melghat region in Amravati district which also had the lowest percentage of children with adequate nutrition. This has raised a question to search the problem behind this. It seems, till date, the researchers have not undertaken this

problem of this area for study with this angle. A study can be undertaken which may throw light on the demographical factors of that region which are responsible for the malnutritional status of the children. It must be appropriate in the 21st century that a serious attention must be paid on the problems of tribal people in general and Melghatis in particular, since they are really backward in a number of ways. Most of the tribals are still at the beginning stage of development, socially as well as economically. This present study will bring out the information regarding nutritional problems of the children of Melghat.

Malnutrition being a widespread phenomenon in the tribal area, it is necessary to pay an urgent attention to this grave social ailment. The reasons of malnutrition being diversified in nature and though malnutrition is a global phenomenon, the reasons vary from place to place and region to region. To identify and locate the set of specific reasons is a must for introducing a suitable mechanism. Hence, use of statistical and economical techniques for study of malnutrition and causes thereof in Melghat region is carried out. The present study is a critical analysis of causes of increase in death rate due to malnutrition of infants and children in Melghat region.

## 3. Causing Factors

Melghat region is rich in natural wealth and minerals. But the people are poor and backward. They have little control over the resources of alienation and hopelessness among them. The main economic problems that this area is tackling are the problems of poverty, income – inequalities, unemployment and under employment [11]. Their economic status can be studied with the help of their occupation, earnings, farming, animal

husbandry, expenditure and government support, etc.

### **I) Occupational Composition:**

The pattern of occupation signifies the general structure of economy, level of living, involvement of persons in different activities. In a predominantly agriculture country, Probably, the tribal economy may not be an exception to this rule. Other than, agriculture, the occupation of people of this region are hunting, dairy, forest, labour, fishing, framing farm labor, sheep rearing, collecting wax and honey, vaidh, mantrik, others [12].

### **II) Earning:**

The yearly income is the most important factor to study the economical status of the people of this region. The sources of their income are the occupations discussed above. In fact, they earn through selling their crops in the form of grains, selling milk, selling the products collected from the forest, service, labor charges and animal husbandry, etc. The main sources of income of the families are earnings of husband, wife, children and other close relatives living in the same household. Italian Born, Swiss professor of economics [13]. has suggested an income model, whose probability distributions function is

$$F_p(x) = 1 - \left(\frac{k}{x}\right)^\alpha, k > 0, x \geq k \quad (1)$$

It was felt by Pareto that this law was universal and inevitable – regardless of taxation and social and political conditions.

### **Land Ownership:**

Most of the tribal populations have been found to be dependent on agriculture, but the agriculture conditions among them are viscerally poor. In this region, the farmers are subject to the vagaries of monsoon and the irrigation facilities are almost

absent. Heavy intensity of soil erosion, inhospitable terrain, etc. keeps it below the subsistence level. Since it seems, the main occupation and the major source of income of large majority of population is agriculture thus they are very poor in this area because of;

- 1) Poor quality of land which is usually undulating, hilly and marginal
- 2) Very primitive technology, and
- 3) Almost complete dependence on rains and complete lack of irrigation facilities.

The tribals also have many different ways of getting a farming land. The land on which they are farming may be their own or it may be of the whole families land on which everybody of the family works, or they may have received it from their ancestors, or it may even be a land belonging to the whole clan or they might have a land received from the government. Taking into account the special tribal customs and traditions regarding ownership of land, various laws and statutes enacted by the state government, the question about the ownership of the land becomes important.

### **Forestry:**

Forest is a major source of income to the tribals of this region. Indeed in many areas the whole economy is based on forests. The people collect the medicinal plants, wax, tendu, mohua etc. and sell these to generate livelihood. They use dried parts of the forest trees as fuel for cooking.

### **Animal Husbandry**

Tribal agriculture particularly in the Melghat region continues to be based on primarily on animal power. The people give considerable importance to the animals and the status of the families sometimes is determined in many communities by the number of cattle's owned. The animals are used

mainly for the purpose of agriculture work and for small distance transportation of agriculture products. Besides, being used in agriculture operations, animals have been useful for raising the level of diet and providing adequate protein and also a source of subsidiary income. Improvement in the cattle wealth would also need suitable nutrition support for them, it is also difficult to range for supply on an existence scale of cattle feed in inaccessible regions in Melghat area.

### III) Expenditure:

The people of Melghat region generally spend less money per month. Their expenditure is on food, clothing, maintenance of houses, medicines, farming animals, festival, etc. Their expenditures on purchasing are less compared to others since they have an exchange system of goods. This exchange (give and take) system, make the economic management of this region very simple and also instead of monetary transaction the people here prefer the exchange of commodities. So, these are only necessary and limited things in their households. Here, even, the labor charges are given and taken in the form of grains. But, it seems now knowledge about the outer world i.e. nearly cities, they have started relaying less on this system still this system is in practice. It is important here to study the different heads of expenditure in order to assess their status of living as well as their opinion about the heads for which their income is insufficient.

### IV) Governments financial aids:

The central as well as state governments are running a number of schemes for the benefit of people of this region. For e.g. area volunteers scheme, Honorary medical officers scheme. Financial support scheme for pregnant mothers,

Mid-wife's, refresher sitting scheme, special facilities for serious cases, Boco box facility etc. The state government of Maharashtra also provides financial support. The main type of aid is known as Khauti. Under this scheme, the government provides these people during the rainy season, one sack of food grain at subsidized rate. The government also gives them loans at very low interest rates for difficult purpose such as for buying agriculture land, house, bullocks, bullock- carts, buffalos, etc.

### Economical Data:

The factors affecting the economical status of the people, which have been discussed earlier in this chapter, have been used to frame the various questions which have been asked from the respondents. The response have been summarized and presented in the various tables from table 1 to 8.

### 4. Analysis of Data:

**Table : 4.1. Frequency distributions of different Occupations**

| S. N. | Profession             | Frequency | Percent |
|-------|------------------------|-----------|---------|
| 1     | Hunting                | 0         | 0       |
| 2     | Dairy                  | 11        | 3.66    |
| 3     | Forest Labor           | 33        | 11      |
| 4     | Fishing                | 2         | 0.666   |
| 5     | Farming                | 161       | 53.666  |
| 6     | Farm Labor             | 91        | 30.33   |
| 7     | Sheep raring           | 9         | 3       |
| 8     | Collecting Wax & Honey | 5         | 1.666   |
| 9     | Vaidh                  | 0         | 0       |
| 10    | Mantrik                | 1         | 0.33    |
| 11    | Others                 | 26        | 8.66    |

The data collected regarding profession or occupation is presented in table 4.1 reveals that the majority of people are based on farming business and their percentage is 53.66 percent. Nearly 30 percent are farm labors, which occupation is next to farming. This can be confirmed from the respondents who have answered 'Yes' for their earning source from the farms. It can be seen that 11 percent are forest labors and therefore the total percentage of labors becomes 41 percent. In this region, the percentage of other professions such as dairy business, sheep rearing, collecting wax and honey, fishing, etc. are very normal. It is generally felt that the tribal people are engaged in hunting and as vaidh. But in our samples we could not find any respondent or his family members practicing these two occupations. It is very hard to conclude that the tribals are not in these two professions, but it may be possible that there may be few people doing these. It may be due to very hard government prohibition rule that hunting is restricted. The reason for non-existence or limited number centers and other medical facilities. But one Marntrik has been found in our collected data and this shows that the practice of "Jantra- Mantra" is still in existence in this region, which may also be limited. It has also been noted that some people of this region also been noted supporting occupation other than their main profession.

**Table 4.2. Frequency distribution of Husbands yearly Income (HYI)**

| Interval (Rs.) | Frequency | Percent |
|----------------|-----------|---------|
| 0-1000         | 10        | 3.33    |
| 1000-2000      | 28        | 9.33    |
| 2000-3000      | 79        | 26.33   |
| 3000-4000      | 65        | 21.66   |

|              |    |       |
|--------------|----|-------|
| 4000-5000    | 38 | 12.66 |
| 5000-6000    | 20 | 6.66  |
| 6000-7000    | 10 | 3.33  |
| 7000-8000    | 13 | 4.33  |
| 8000-9000    | 5  | 1.66  |
| 9000-10000   | 16 | 5.33  |
| 10000-15000  | 7  | 2.33  |
| 15000-20000  | 2  | 0.66  |
| 20000-100000 | 7  | 2.33  |

Mean = 5733.00

Max= 96000

S. D. = 8121.2145

Min =0

The incomes from various sources like earning of husband, wife, children and others have been considered to study the economical status of a house hold. This is because a high – earning family may be having better living conditions. The first table that is (4.1) gives the frequency distribution of husband's earning per year. From the table, we can see that the earning is distributed from 0 to 96,000 in a year. In one case, we met a person of service class whose earning was 96,000 whereas in a number of cases the earning was nil due to unemployment. Nearly 26 percent husbands are annually earning between Rs. 2000 to Rs. 3000, 21 percent between 3000 to 4000 and 12 percent between Rs. 4000 to 5000. The average earning is Rs. 5733 per annum with a standard deviation of Rs. 8121.2. The very high value of standard deviation shows that the variation of earning of individuals is very high. The 96 percent of the total population earn less than or equal to Rs. 12000 per year that is Rs. 1000 per month. This shows that most of the families are really poor.

**Table 4.3. Frequency distribution of Wife's yearly Income (WYI)**

| Interval (Rs.) | Frequency | Percent |
|----------------|-----------|---------|
| 0-500          | 35        | 11.66   |
| 500-1000       | 39        | 13      |
| 100-1500       | 20        | 6.66    |
| 1500-2000      | 107       | 35.66   |
| 2000-2500      | 13        | 4.33    |
| 2500-3000      | 58        | 19.33   |
| 3000-3500      | 3         | 1       |
| 3500-4000      | 13        | 4.33    |
| 4000-6000      | 5         | 1.66    |
| 6000-8000      | 4         | 1.33    |
| 8000-10000     | 2         | 0.66    |
| 10000-15000    | 1         | 0.33    |

Mean = 2133.00                      Max. = 13200

S. D. = 1556.4982                      Min = 0

Due to the less earning of the husband, wives also do some work and contribute to the family income as discussed earlier. The table 4.3 presents the summarized data of frequency and percentage of wives earning per year. From the table we can see that nearly 36 percent women earn between Rs. 15000 to 2000 per year. The maximum earning of a woman has been noticed to be Rs. 13200.00 and that too, she was an Anganwadi Sevika that is a service class woman. The mean earning of women is Rs. 2133 with a standard deviation of Rs. 1556.50. It is clear that the earning women are very less and their variation is also high. All the women are earning less than Rs. 1000.00 per month except one. To study the nature of function between total earning (T) and husband's earning (H) as well as

between total earning and wife's earning (W), the regression lines are defined. The regression lines are

$$T = 4079841 + 0.994 H \text{ and}$$

$$T = 7105.966 + 1.252 W$$

The above two lines of regression are the best fitted models with  $R^2$  - 0.815 and 0.048 respectively. With the help of these two lines of regression, the total earning of a family can be predicted if the husband's and wife's earnings are given.

**Table 4.4. Frequency distribution of Children's yearly Income (CYI)**

| Interval (Rs.) | Frequency | Percent |
|----------------|-----------|---------|
| 0-1000         | 209       | 69.66   |
| 100-2000       | 29        | 9.66    |
| 2000-3000      | 30        | 10      |
| 3000-4000      | 11        | 3.66    |
| 4000-6000      | 12        | 4       |
| 6000-8000      | 4         | 1.33    |
| 8000-10000     | 3         | 1       |
| 10000-50000    | 2         | 0.66    |

Mean = 1278.6667                      Max. = 45000

S. D. = 3355.9429                      Min = 0

Since, the earning of husband as well as wives are low, therefore it is a general practice that children also work. Their earning has been summarized in table (4.4). We can see from the table that nearly 70 percent children earn less than 1000 per year. This also includes the percentage of not working children. Also, the number of children earning between Rs. 1000/- to Rs. 2000/- and Rs. 2000/- to Rs. 3000/- per year are 29 and 30 respectively. Total 97 percent of children earn Rs. 6000/- per

year that is Rs. 500/- per month. The average earning of the children is Rs. 1278.67 with a standard deviation of Rs. 3356. This shows that per year income of the children is really very low and also there is high variation.

**Table 4.5.Frequency distribution of total yearly income of other close relatives like father, brother etc. living in the same household ( OYI)**

| Interval (Rs.) | Frequency | Percent |
|----------------|-----------|---------|
| 0              | 231       | 77      |
| 1-1000         | 15        | 5       |
| 1000-2000      | 20        | 6.66    |
| 2000-3000      | 21        | 7       |
| 3000-4000      | 6         | 2       |
| 4000-8000      | 6         | 2       |
| 8000-20000     | 1         | 0.33    |

Mean = 631                      Max. =19000

S. D. = 1645.0206              Min= 0

Families also consists of some very close relatives like old father and mother, younger brother or sister etc, The earning of such family members have also been considered and presented in table 4.5, We have seen that 77 percent of families have no such type of earning source. Total 15 families that is 5 percent have support of less than Rs. 1000 per year. The numbers of families having support of between Rs. 1000 to 2000 and Rs. 2000 to 3000 are 20 and 21 respectively. This makes, nearly 96 percent of families having support of less than Rs. 3000 per year from such other sources. The average of such earning is Rs. 631 per year.

**Table 4.6.Frequency distribution of total yearly earning of the family**

| Interval (Rs.) | Frequency | Percent |
|----------------|-----------|---------|
| 700-1000       | 4         | 1.33    |
| 1000-5000      | 55        | 18.33   |
| 5000-10000     | 172       | 57.33   |
| 10000-20000    | 52        | 17.33   |
| 20000-30000    | 7         | 2.33    |
| 30000-40000    | 3         | 1       |
| 40000-50000    | 4         | 1.33    |
| > 50000        | 3         | 1       |

Mean = 9775.66                      Max. =96000

S. D. = 8936.0179                      Min= 700

The total earning of each family can be obtained by adding the earnings of husband wife, children and others and this has been presented in the tabular form in the table 4.6. The total earning of 172 families that is 57.33 percent families lie between Rs. 5000 to 10,000 per year. The number of families whose earning is between Rs. 1000 to Rs. 10000 and Rs. 10000 to 2000 are 55 and 52 that is 18.33 percent and 17.3 percent respectively. hence, 94.3 percent families are having total earning of less than Rs. 20,000. The average per year earning per family is Rs. 9775.66 with a standard deviation of Rs. 8936. We have also noticed that the minimum and maximum earning are of Rs. 7000 and Rs. 96,000 per year respectively.

**Table 4.7. Correlation matrix of yearly income of house hand wife, children and other close relatives in the family**

|            | <b>HYI</b>    | <b>WYI</b>   | <b>CYI</b>    | <b>OYI</b>    |
|------------|---------------|--------------|---------------|---------------|
| <b>HYI</b> | 1             | 0.062        | -0.024        | <b>-0.042</b> |
| <b>WYI</b> | 0.062         | 1            | -0.047        | <b>0.025</b>  |
| <b>CYI</b> | -0.024        | -0.047       | 1             | <b>-0.116</b> |
| <b>OYI</b> | <b>-0.042</b> | <b>0.025</b> | <b>-0.116</b> | <b>1</b>      |

The correlation coefficient between all the four earnings have been calculated and presented in a correlation matrix table ( see table 4.7). The value of correlation coefficient between husband's and wife's earning is positive but very small that is 0.06. Also, the correlation between the husband's earning and children's as well as others earning are negative and small that is -0.024 and -0.042 respectively. This means in a family as husband's income is high, the children's and others income is low that is children and other members are not working. It is quite logical that if a person's income is sufficient then he won't send his children to work. Similarly, the correlation between wife earning and children's earning is negative that is -0.05. This means that if in a family where females are also earning and their income is good enough then there is no need for children to go for work. The income model given by equation (1) has been fitted on the data of the table 2.5. The estimated value of the parameters are  $K = 700$  and  $\alpha = 0.966$ . The  $\chi^2$  statistic has been calculated and. which yields p-value equal to  $0.86 \times 10^{-50}$ . This shows that the Pareto model of income is not an appropriate model for the total earning of the people of this region. Infact. this model provides a proper fit for larger income i.e. total income is more than 5000 then the p-value is 0.05. but for the income below 5

thousand groups, this model gives very high expected frequencies whereas observed frequencies are very less and therefore the  $\chi^2$  calculated becomes very high ( $= 231.77$  . d.f. = 5) which yields a very small p - value. Thus, for the whole data. Pareto distribution of income cannot be considered as a probability model.

**Table 4.8. Frequency distribution of type of domestic animals they posses**

| <b>Type</b> | <b>Frequency</b> | <b>Percent</b> |
|-------------|------------------|----------------|
| No Animals  | 108              | 36             |
| Cow         | 76               | 25.33          |
| Buffalo     | 48               | 16             |
| Bullock     | 146              | 48.66          |
| Goat/Sheeps | 51               | 17             |
| Chicken     | 37               | 12.33          |
| Pigs        | 1                | 0.33           |

The information of domestic animals which is asked in question number 4 has been summarized in table.4.8. Thirty – six percent that is 108 out of 300 respondents do not posses any domestic animals It can also be seen that one family possesses more than one type of domestic animals. From the table, we can see that bullock is the most preferred pet animal and nearly 49 percent people have this, since approximately the same percent of population are involved in farming. The percentage of cows, goats and buffalos are 25.33, 17.0 and 16.0 respectively. The pig as a domestic animal has been seen in only one family. The chickens are also kept as domestic animals in this region and their percentage is 12.33 percent.

**Table 4.9. Frequency distribution of monthly total expenditure**

| Interval<br>(Rs.) | Frequency | Percent |
|-------------------|-----------|---------|
| 0-300             | 23        | 7.66    |
| 300-600           | 160       | 53.33   |
| 600-900           | 61        | 20.33   |
| 900-1200          | 41        | 13.66   |
| 1200-2100         | 14        | 4.66    |
| 2100-2400         | 1         | 0.33    |

The frequency distribution of the amount of total monthly expenditure is given in table 4.9. The expenditures, the people of Melghat generally do in food (FDE), clothing (CE), Shelter (SE), Medicine (ME), Farming (FRE) animals (AE). Total monthly expenditure of 160 families i.e. 53.33 percent families are making expenditure between Rs. 300 to 600 ( see table 4.1) . From the same table, we can see that, spending between Rs. 600 to 900, between Rs. 900 to 1200, the percentage of families are 20.33 and 13.66 respectively. We can also observe that nearly 8 percent families are spending very meager amount i.e. less than Rs. 3000 and only one family is doing expenditure of Rs. 4000 per month. The average expenditure is of Rs. 668 per month with a standard deviation of Rs. 358.8.

**Table 4.10. Frequency distribution of monthly expenditures on food(FDE), clothing(CE), shelter (SE), medicine(ME) farming(FRE), Animals(AE) and Festivals(FTE)**

| Heads<br>Intervals<br>(Rs.) | FDE |       | CE  |       | SE  |       | ME  |       | FRE |       | AE  |       | FTE |       |
|-----------------------------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
|                             |     | %     |     | %     |     | %     |     | %     |     | %     |     | %     |     | %     |
| 0-100                       | 6   | 2.00  | 270 | 10.00 | 299 | 97.67 | 293 | 97.67 | 292 | 97.33 | 295 | 98.33 | 295 | 98.33 |
| 100-200                     | 51  | 17.00 | 16  | 5.33  | 1   | 0.33  | 7   | 2.33  | 7   | 2.33  | 5   | 1.67  | 4   | 1.33  |
| 200-300                     | 85  | 28.33 | 6   | 2.00  | 0   | 0.00  | 0   | 0     | 1   | 0.33  | 0   | 0.00  | 0   | 0.00  |
| 300-400                     | 73  | 24.33 | 1   | 0.33  | 0   | 0.00  | 0   | 0     | 0   | 0.00  | 0   | 0.00  | 1   | 0.33  |
| 400-500                     | 34  | 11.33 | 1   | 0.33  | 0   | 0.00  | 0   | 0     | 0   | 0.00  | 0   | 0.00  | 0   | 0.00  |
| 500-600                     | 16  | 5.33  | 0   | 0.00  | 0   | 0.00  | 0   | 0     | 0   | 0.00  | 0   | 0.00  | 0   | 0.00  |
| 600-700                     | 18  | 6.00  | 0   | 0.00  | 0   | 0.00  | 0   | 0     | 0   | 0.00  | 0   | 0.00  | 0   | 0.00  |
| 700-800                     | 12  | 4.00  | 0   | 0.00  | 0   | 0.00  | 0   | 0     | 0   | 0.00  | 0   | 0.00  | 0   | 0.00  |
| 800-900                     | 3   | 1.00  | 0   | 0.00  | 0   | 0.00  | 0   | 0     | 0   | 0.00  | 0   | 0.00  | 0   | 0.00  |
| 900-1000                    | 2   | 0.67  | 1   | 0.33  | 0   | 0.00  | 0   | 0     | 0   | 0.00  | 0   | 0.00  | 0   | 0.00  |

Table 4.10 reveals that the percentages of number of families doing expenditures in different intervals are written in parenthesis. From the table 4.10, we find that the variation in expenditure between the families is on food only. Most of the families are spending less than Rs. 100. The expenditures on other heads like clothing (90 percent), shelter (99.66 percent), medicines (97.67 percent), farming (97.33 percent), animals (98.33 percent) and festivals (98.33 percent). The remaining persons are spending on all these heads between Rs. 100 to 200 per month except on clothing. In case of clothing, 6 persons have been seen, spending between Rs. 2000 to 300 and one each between Rs. 300 to 400, Rs. 400 to 500 and Rs. 900 to 1000. The main variation in expenditure between the families is on food. A large number of persons are spending amount ranging from Rs. 100 to 500 on food (28.33 percent spend between Rs. 200 to 300, 24.33 percent spend between Rs. 300 to 400, 17.0 percent spend between Rs. 100 to 200 and 11.33 percent between Rs. 400 to 500). Limited numbers of Persons are having expenditure above Rs. 600 and below Rs. 100. The average expenditure on food is Rs. 389.5 per month with a standard deviation of Rs. 181.9.

**Table 4.11. The minimum and maximum values mean and standard derivation of monthly total expenditure, expenditures on food, clothing, shelter, medicine, farming, animals and festival**

| Heads | Min. | Max. | Mean     | S. D.    |
|-------|------|------|----------|----------|
| MTE   | 50   | 4000 | 668.0667 | 358.8279 |
| FDE   | 0    | 1000 | 389.5    | 181.9113 |
| CE    | 0    | 1000 | 62.83    | 90.5777  |
| SE    | 0    | 200  | 7.00     | 25.2281  |

|     |   |     |       |         |
|-----|---|-----|-------|---------|
| ME  | 0 | 200 | 83.33 | 33.0535 |
| FRE | 0 | 300 | 51.33 | 52.9866 |
| AE  | 0 | 200 | 27.16 | 44.0846 |
| FTE | 0 | 400 | 41.00 | 48.4095 |

The table shows mean value 62.8, 7.0, 83.3, 51.3, 27.2 and 41.0 respectively (see table 4.11). This means that the next three major expenditures after food are medicine, clothing and farming respectively. Hence, we can see that in this region the people are facing various health problems and therefore they spend more money on medicine.

**Table 4.12. Frequency distribution of different needs for which income is not sufficient**

| Needs          | Frequency | Percent |
|----------------|-----------|---------|
| NA             | 88        | 29.33   |
| Medicine       | 170       | 56.66   |
| Food           | 31        | 10.33   |
| Cloths         | 81        | 27      |
| House repairs  | 20        | 6.66    |
| House building | 8         | 2.66    |
| Others         | 13        | 4.33    |

Table 4.12 provides the frequency distribution of different needs for which income is insufficient. Fifty six percents of the population have informed that their income is insufficient for medicine, followed by 27 percent who informed that income is insufficient for cloths. Whereas, 29.33 percent have not answered these questions. A very few persons have answered about insufficiency of their income for repairing or building a new house. Before this question, in the question number 7 of the economic part of our questionnaire, it has been asked whether their income is sufficient for food and clothing.

**Table 4.13. Frequency distribution of the responses in 'Yes' and 'No' in few different matters**

| S.N. | Type | Response |       |     |       |
|------|------|----------|-------|-----|-------|
|      |      | Yes      | %     | No  | %     |
| 1    | FDI  | 171      | 57.00 | 129 | 43.00 |
| 2    | DA   | 192      | 64.00 | 108 | 36.00 |
| 3    | DADI | 72       | 24.00 | 228 | 76.00 |
| 4    | EEFC | 242      | 80.67 | 58  | 19.33 |
| 5    | ESAN | 82       | 27.33 | 218 | 72.67 |
| 6    | GGA  | 75       | 25.00 | 225 | 75.00 |

In response to this, 80.6 percent have answered that earning is sufficient for food and clothing (Table 4.13). In the immediate next question i.e. question number 8 when it has been asked that whether their earning satisfy all needs then 72.6 percent have replied 'No'. Hence, it is obvious that the people of Melghat region can fulfill the requirement of food and clothes only, from their earnings but it is difficult for them to fulfill all their other necessities. Let Z denotes total monthly expenditure and X and Y denote expenditures on food and clothes per month, respectively. The models between total expenditure and food as well as total expenditure and clothes can be easily obtained by applying the method of least square as.  $Z = 105.733 + 1.444 X$  and  $Z = 560.003 - 1.720 Y$ . Thus, the above two models provide an information that how the total monthly expenditure is being affected by food and clothes. It will be quite interesting at this stage to know a model between total annual earning and total annual expenditure and vice-versa. Let TAI and TAE denote the total income and total expenditure per annum. The expenditures are considered as negative values and

income as positive values. The model which provides total income as a function of total expenditure is

$$TAI = 1716.627 - 1.005 TAE$$

and the model which gives total expenditure as a function of total income is

$$TAE = -5735.011 - 0.233 TAI$$

The correlation coefficient between total annual earning and expenditure is 0.484 which shows that the correlation is positive i.e. as income is high, expenditure is also high.

**Table 4.14. Frequency distribution of purpose of government grants received**

| Purpose        | Frequency | Percent |
|----------------|-----------|---------|
| Nil            | 225       | 75      |
| Agriculture    | 11        | 3.66    |
| Bamboo for Hut | 2         | 0.66    |
| Buffalo        | 3         | 1       |
| Bullocks       | 8         | 2.66    |
| Bullock – Cart | 2         | 0.66    |
| Cash           | 2         | 0.66    |
| Chakki         | 1         | 0.33    |
| Cow            | 1         | 0.33    |
| Education      | 1         | 0.33    |
| Farm           | 5         | 1.66    |
| House          | 3         | 1       |
| Khaoti         | 23        | 7.66    |
| Kirana Shop    | 2         | 0.66    |
| Latrin         | 3         | 1       |
| Medicine       | 2         | 0.66    |
| Pump           | 4         | 1.33    |
| Seeds          | 2         | 0.66    |
| Taxi           | 1         | 0.33    |
| Tin            | 2         | 0.66    |

|      |   |      |
|------|---|------|
| Well | 5 | 1.66 |
|------|---|------|

The government is providing financial aid in this region to the needy. These aids are in different forms which have been discussed earlier. Serial number 6 of table 8 reveals that 75 percent of the respondents have never received any government financial support. The 25 percent i.e. 75 persons have received government grants and the detail of different types of aids with number of recipients have been summarized in table (4.14). From this table we can see that 23 persons have received the aid in the form of 'Khauti' followed by 3.66 percent for agriculture. The other types of aids which are received by the people of this region are very few in number and they can be seen in table no. 6 and they are Bamboo for hut, buffalo, bullocks, Bullock – cart, Chakki, Cow, loan for education, farm, house, Kirana-shop, latrine, medicine, well, water pump, seeds, taxi and tin as well as cash support.

**Table 4.15. Frequency of amount of government grant**

| Amount      | Frequency | Percent |
|-------------|-----------|---------|
| 0           | 225       | 75      |
| 1-2000      | 24        | 8       |
| 2000-4000   | 7         | 2.33    |
| 4000-6000   | 16        | 5.33    |
| 6000-8000   | 3         | 1       |
| 8000-10000  | 3         | 1       |
| 10000-15000 | 6         | 2       |
| 15000-20000 | 5         | 1.66    |
| 20000-25000 | 5         | 1.66    |
| 25000-      | 5         | 1.66    |

|             |   |      |
|-------------|---|------|
| 30000       |   |      |
| 30000-35000 | 1 | 0.33 |

Mean – 2188.33, S. D. =6069.5328

Max = 35000, Min = 0

FDI – Farm Dependent Income

DA- Having Domestic Animals

DADI- Domestic Animal Dependent Income

EEFC- Earning Enough for food and clothing

ESAN- Earning sufficient for all needs

GGA – Getting Government Aids

The amount of financial aid has been given in table (4.15). From this table we see that 75 percent of people are not getting any financial support as discussed earlier. Eight percent are getting financial support of less than Rs. 2000. Government has also provided financial support between Rs. 2000 to 4000, Rs. 4000 to 6000, Rs. 6000 to 8000 and Rs. 8000 to 10,000 are 7,16,3 and 3 persons respectively. Twenty two persons that is 7.33 percent have been provided above Rs. 10,000. The maximum financial support is 35,000 and the average financial support is of Rs. 2188.33 with standard deviation of Rs. 6069.53. It is clear here that only 25 percent persons have received financial support.

## 5. Findings

From the analysis of economic data discussed in the previous section, we can conclude that the earning source of majority of people in the Melghat region is farming or labor in farms i.e. agriculture based occupation in the main source of income in this region. To earn the livelihood, all the members of the family i. e. husband, wife, children and other close relatives living in the same household work. The main contribution in the total earning is still of

the husband's. Also, the total earning of the families are less. It is required to increase the productivity of the land by improving irrigation facilities for agriculture development of this area. Apart from agriculture earning, the people possess domestic animals and bullock is the most preferred pet animal as well as the existence of cows, goats and buffalos are also common as pet animals.

The expenditure on daily needs is very less. The main item is their food on which they spend their money. They also spend very little amount on their clothes, shelter, medicine, farming, animals and festivals etc. Most of them feel that their earning is insufficient to meet all their necessities whereas at the same time they feel that they earn sufficient for the requirement of food and clothes. The government is helping them to improve their economic status by providing different type of loans as well as food grains at the subsidized rates.

### Conclusion

Based on the current study, the high mortality rates of children in the Melghat area can be directly linked with the poor socio-economic conditions and not with any single factor. Tribal population are mostly from agricultural backgrounds and farm labor, and has low and sporadic household income. Most families depend on seasonal rainfall and have limited employment opportunities, poor levels of irrigation and agricultural productivity so that the family is unable to be able to sustain a livelihood. Even children and women are part of the household income, a sign of the serious economic crisis in the region.

The study also shows that domestic spending is limited to food purchases, and that domestic

spending on health care, education, housing and other basic necessities is very low. While there are government welfare programs and financial support available, a small percentage of families have taken advantage of them, suggesting there are issues with implementation and access. The vicious cycle of poor nutrition, limited access to health care, poverty and a lack of awareness is a major driver of malnutrition and child deaths.

The Melghat region needs a holistic approach to reduce child mortality, which involves strengthening agricultural productivity, providing sustainable employment opportunities, improving maternal and child health care services, ensuring proper implementation of nutrition and welfare programmes, improving access to education and sanitation and raising awareness on nutrition and child health in the community. The overall quality of life and the healthy growth and survival of children in the Melghat region will depend on a concerted action by the Government, healthcare providers and communities.

### References

1. Rostow WW. *The Stages of Economic Growth*. Cambridge: Cambridge University Press; 1960.
2. Anstey V. *The Economic Development of India*. London: Longmans, Green and Co.; 1942.
3. Simon K. Modern economic growth: findings and reflections. In: Todaro MP, editor. *The Struggle for Economic Development*. New York: Longman; 1983.
4. Gupta R. Poverty and quality of life in tribal area. In: Gupta R, editor. *Planning for Tribal Development*. New Delhi: Ankur Publishers; 1976.

5. Srivastava KC, Chaturvedi MK. *Dependency and Common Property Resources of Tribals and Rural Poor*. Delhi: Commonwealth Publications; 1989.
6. Paul BA. On the political economy of backwardness. In: Agarwal, SP, editor. *Political Economy of Backwardness*. 1952.
7. Berny BJL. A statistical analysis. In: Ginsburg N, editor. *Atlas of Economic Development*. Chicago: University of Chicago Press; 1961. Pt. VIII. Reprinted in: Pryor DW, editor. *World Economic Development*. New York: McGraw-Hill; 1965.
8. Boeke JH. *Economics and Economic Policy of Dual Societies*. New York; 1953. Reprinted in: Meier GM, editor. *Leading Issues in Economic Development*. Oxford: Oxford University Press; 1976.
9. Gerschenkron A. *Economic Backwardness in Historical Perspective*. Cambridge (MA): Harvard University Press; 1962.
10. Clark C. *The Conditions of Economic Progress*. 2nd ed. London: Macmillan; 1951.
11. Mandal GC. *Studies in the Problem of Growth of Rural Economy*. Calcutta: World Press; 1961.
12. Sharma M. *Bonded Labour in India*. New Delhi: Biblia Impex Pvt. Ltd.; 1987.
13. Pareto V. *Cours d'Économie Politique*. Lausanne and Paris: F. Rouge & Cie; 1897.