



A STUDY OF LEPROSY AFFECTED HOUSEHOLDS: AN INVESTIGATION OF A VILLAGE IN PURULIA DISTRICT

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Abstract

According to the World Health Organization today about 180,000 people worldwide are suffer from leprosy, most of them in Africa and Asia. According to the World Health Organization near about 66% of the world’s leprosy patients are in India. We know healthy labour is necessary in the production process. Leprosy affects the nerves of the extremities, the skin, the lining of the nose, and the upper respiratory tract. So the individual cannot be part of the labour force. It is important to know the status, lifestyle, earning sources of this leprosy affected people. The specific objective of our study is to examine some general aspects of the leprosy affected individuals and to analyse the health expenditure aspect of the leprosy affected households. We have visited the Manipur village in purulia district and surveyed fifty households having at least one leprosy affected member. To prepare the report we have used the simple statistical tools like mean, median, mode, coefficient of variation. We have also used pie chart, bar diagram for the pictorial exposition of the data and also do regression analysis. From our results part we came to know that Most of the leprosy affected households depend on plastic-picking and begging as main source of their livelihood. The incidence of leprosy is reducing over the generations and the present generation reports a very less level of leprosy incidence. We got 12 primary symptoms of leprosy and white spot (in anywhere) is major symptoms that incised the leprosy patient to take medical help. Leprosy is not a gender specific problem. Male and female both can be affected. Leprosy patient faces two types of cost direct cost and indirect cost. Their direct cost is fully carried by government; they only bear the indirect cost.

Keywords:Leprosy, Indirect Cost, Purulia.

1. Introduction

According to world health organization Leprosy is a caused by bacteria called as Mycobacterium leprae. Leprosy is known as Hansen’s disease because in 1873 Hansen discovered Mycobacterium leprae. It affects the nerves of the extremities, the skin, the lining of the nose, and the upper respiratory tract. Leprosy can occur in people of any age, from early infancy to very old age. If it is treated in the first stage, a lot of damage can be prevented and there is possibility of recovery. Leprosy is spread through contact with the mucosal secretions, sneezes or coughs of the infected person. Leprosy is not highly contagious and has an average incubation period of years, sometimes Symptoms may not appear for as long as 20 years. According to the World Health Organization today about 180,000 people worldwide are suffer from leprosy, most of them in Africa and Asia. We collect data from Lok Sabha Unstarred Question No. 673, dated on 20.07.2018 and Lok Sabha Unstarred Question No. 3229, dated on 12.07.2019.

Number of Leprosy Cases on Record in West Bengal (2016-2017 to 2019-2020*)				
State	2016-2017	2017-2018	2018-2019	2019-2020*
West Bengal	8578	9175	7936	8185
India	88166	90709	85898	120334

According to the World Health Organization near about 66% of the world’s leprosy patients are in India. It is important to know the status, lifestyle, earning sources of this leprosy affected people. We know healthy labour is necessary in the production process. Leprosy affects the nerves of the extremities, the skin, the lining of the nose, and the upper respiratory tract. So, the individual cannot be part of the labour force. Moreover, the leprosy individuals and his family still face social negligence in many areas and are being considered as untouchable by many others. Due to these facts their scope of occupation-opportunity has been reduced. Even the next generations also face this social exclusion. We have done our study based on a household survey conducted in a Manipur village of Purulia district, West Bengal. We have already mentioned our motivation of the present study. The specific objective of our study is to examine some general aspects of the leprosy affected individuals and to analyse the health expenditure aspect of the leprosy affected households. The selected review of the literature on intra-household resource allocation is dictated by the scope of this study. In 2008 Raju MS, Rao PS and Mutatkar RK were introducing a paper “A study on community-based approaches to reduce leprosy stigma in India”. In 2011 Sachin Ramchandra Atre, Sheela Girish Rangan, Vanaja Prabhakar Shetty, Nilesh Gaikwad and Nerges Furdoon Mistry were published a joint paper namely “Perceptions, health seeking behaviour and access to diagnosis and treatment initiation among previously undetected leprosy cases in rural Maharashtra, India”. No such work done regarding the aspects of leprosy affected households in west Bengal and also in our purulia district. We have already mentioned our motivation of the present study. The specific objectives of our study are to examine some general aspects of the leprosy affected individuals and to analyse the health expenditure aspect of the leprosy affected households.



The paper is organized as follows. In the next section we mention the profile of study area. Section3 gives the research methodology. The results and analysis are mentioned in section4. Finally, we draw conclusions.

2. Profile of the Study Area

Manipur is located at Purulia district of West Bengal. Manipur is a part of Adra, and comes under Adra post office. Pin code of Manipur is 723121 and situated under Para sub-district. Adra is a census town city in Purulia district, West Bengal. The Adra census town has population of 14,956 of which 7,596 are males while 7360 are females as per report released by census India 2011.

3. Research Methodology

We have visited the Manipur village and surveyed fifty households having at least one leprosy affected member. We get 245 individuals as a whole in 50 households out of which 87 individuals are leprosy affected. We have surveyed the village using a constructed questionnaire. The questions were primarily on three aspects- (i) household head's details, (ii) food, non-food and healthcare related expenditure details and (iii) leprosy individuals' details like age, education status, occupation, marital status, symptoms motivated for care seeking, place of treatment etc. Using the data, we figure out our methodologies to analyse our research questions. The present study used the simple statistical tools like mean, median, mode, coefficient of variation. We have also used pie chart, bar diagram for the pictorial exposition of the data and also do regression analysis.

4. Result & Analysis

4.1 In the survey we have asked the respondent regarding the occupation type of the household head. To be noted out of 50 households we surveyed, 43 households head has leprosy. The types of occupations we got are: plastic collector, beggar, vender, puller, Govt service. We also got 3 female head households and they are all housewife. In the following figure we present the data of household heads' occupations.

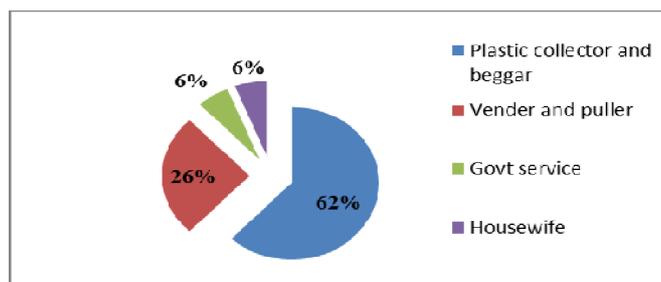


Figure1- Occupation distribution of Household head
 (Source: Field survey, December 2019)

As the figure shows, more than 60 per cent of the leprosy affected households depend on plastic-picking and begging as main source of their livelihood. Very few households head are connected with government service. During the visit we came to know that people doing Government services, got that due to their leprosy. However, only around 6 per cent of the household heads having leprosy is (was) attached with the Government job in our sample. The respondents mentioned that they still face social negligence in many occasions and are being considered as untouchable by many others. Due to these facts their scope of occupation-sources has been reduced.

4.2 We have taken the age data of 87 leprosy members of 50 households in our survey. We want to check the age-specific incidence of individuals having leprosy. In the following figure we present the age group specific segregate data of leprosy patients.

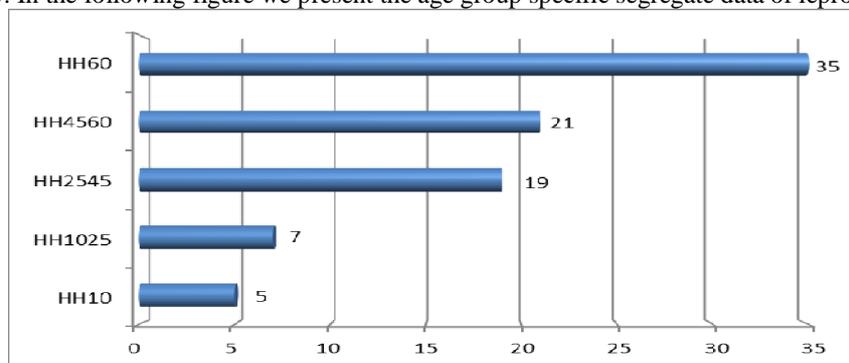


Figure 2: Age Specific Distribution of Leprosy



(Source: Field survey, December 2019)

The Figure 2 shows, most of the leprosy patients in our sample are above 60 years and as a whole, incidence is the maximum in the (clubbed) age group 25 to below 60 years. The most important fact comes out that infants, children and adolescences and also adults below 25 are comparatively less affected. The incidence of leprosy is reducing over the generations and the present generation reports a meagre level of leprosy incidence. This is directly shows the success of healthcentres and leprosy missions. From our interactions with the respondents, we got the present generation peoples are more concern about the illness of leprosy.

4.3 We want to check the sex-specific incidence of individuals having leprosy of 87 leprosy members. In the following table we present the sex group specific segregate data of leprosy patients.

Table1: Sex specific distribution of Leprosy affected individuals

Age group (in years)	No of Male	No of Female
Below 10	5	1
10 to 25	2	5
25 to 45	10	10
45 to 60	13	8
Above 60	16	17
Total	46	41
In per cent	53	47

(Source: Field survey, December 2019)

Table1 shows that there are no such differences in the sex-specific incidence of male and female leprosy across age groups. From our sample we can say that leprosy is not a gender specific problem. In general Male and female are affected more or less in a same number both.

4.4 During our visit we have asked the 87 Leprosy affected individuals regarding their material status. We got all the three cases in our survey viz. married, widowed, single. We have also depicted the material Status of Leprosy Individuals with the help of pie chart.

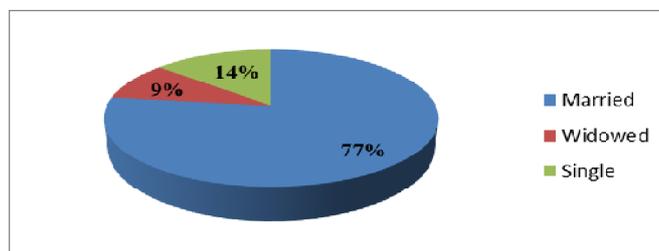


Figure3 (Source: Field survey, December 2019)

We found most of the leprosy patients are married and those who are single either child or teenagers. In result 4.1 we found that problem of leprosy is reducing day by day. If we combined the findings of result 4.1 and 4.4, we can say that the future generations may overcome the leprosy under some conditions like early treatment and full cure of leprosy before marriage

4.5 In the survey we asked the respondents about their views regarding the cause of having leprosy. We found three main perceived causes of leprosy. According to their responses we create a table.

Table 2- Distribution of perceived causes of leprosy according to respondents

Genetic	Negligence in first stage	Superstition (due to curse)	Others
29	13	5	3

(Source: Field survey, December 2019)

Table2 shows that near about 60% of the respondents think that they have leprosy due to heredity reason and 26% reported that they used to neglect the symptoms in early stages which results into their disease. We also found that some individuals believe that they bear some curse of their so-called "previous -birth" which makes them leprosy affected in this life. The column 'Others' indicates those leprosy individuals who where the first person suffered from his family.



4.6 After interaction, we got 12 primary Symptoms that motivated the leprosy patients for medical help seeking. Those are i) White marks in hand, ii) Infection in leg \ hand, iii) White marks in leg, iv) White marks in both hand & leg, v) Infection in fingers (hand\ leg), vi) Infection in cheek, vii) White spot in whole body, viii) White spot in throat, ix) Numbness of hands & legs, x) Boils, xii) Whit spot in forehead, xii) Burning sensation. In the following table we present the symptoms that motivated a leprosy patient for seeking medical help.

Table: 3 Symptoms that motivated leprosy affected individuals for seeking medical advice

Symptoms	Leprosy affected individuals having particular symptoms (in %)	
	Among all Leprosy patients	Among all individuals in the sample
White marks in hand	15.38	5.41
Infection in leg \ hand	15.38	5.41
White marks in leg	11.54	4.05
White marks in both hand & leg	7.69	2.70
Infection in fingers (hand\ leg)	9.62	3.38
Infection in cheek	3.85	1.35
White spot in whole body	19.23	6.76
White spot in throat	5.77	2.03
Numbness of hands & legs	3.85	1.35
Boils	3.85	1.35
Whit spot in forehead	1.92	0.68
Burning sensation	1.92	0.68

In the table 6, we found the leprosy individuals per symptom and also calculate its percentage. Now to make the fact clear we draw a pie diagram.

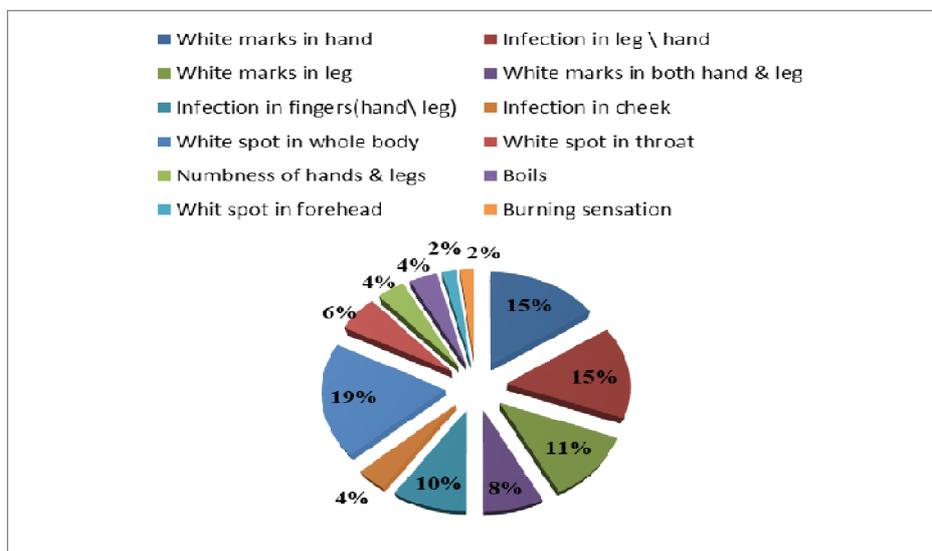


Figure4 (Source: Field survey, December 2019)

In figure4 we observe that the prime symptom which motivates the maximum individuals to seek medical help is white spot (in leg or hand or elsewhere). More than 60 per cent of the leprosy affected individuals seek for medical help with the primary symptom of white spot in any part of their body. We present this data in a much compact form in the next bar diagram.

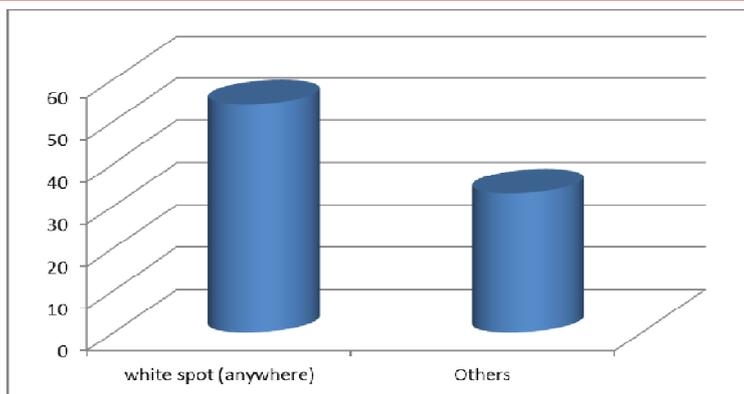


Figure5 - White spot in whole body vs other symptoms

(Source: Field survey, December 2019)

This figure shows that white spot is the major symptom that insisted the leprosy patient to take medical help.

6.7 It is important to know whether and from where the leprosy affected individuals are taking medical help, in the survey we have asked the leprosy patients from where they are seeking medical help or not if yes then from where? 85 leprosy patients are seeking medical help out of 87. In the following table we present the treatment status of leprosy patients.

Table 4: Treatment status of leprosy patient

No. Of individuals seeking medical help	Leprosy Mission	NGO
85	78	7

2019 Source: Field survey, December

This table reflects that all the patients are taking medical help either from Leprosy Mission or NGO. It's a very good sign and helps to make a leprosy free family. 78 leprosy patients are seeking medical help in govt leprosy mission namely: 1. Purulia leprosy mission 2. Gouripur leprosy hospital 3. Raghunathpur leprosy hospital. ICDS (integrated child development services) centre in the locality also making them aware and taking initiatives for medical help in case any children do have such symptoms. Rest seven individuals are taking medical help from NGO like German camp.

4.8 Now we present the descriptive statistics of the sample households in the table 5 and try to analyse the basic nature of some of the relevant variable.

Table 5- Descriptive Statistics of the sample households in Manipur village

Households' characteristics	Mean	Median	Mode	CV	Max	Min
Size	4.933333	4.5	4	48.76888	10	1
Head age	61.13333	60	70	20.52417	95	32
Relative size of Leprosy	0.43746	0.33333	0.5	64.07047	1	0.1
Average monthly food expenditure	2232.467	1830	1000	0.551536	4000	583
Average monthly nonfood expenditure	1523.133	1250	1000	0.640904	4166	250
Average monthly expenditure on leprosy treatment	231.6667	175	150	54.50724	500	100

Source: Calculated on the basis of field survey

Now we briefly discuss this table, we found that mean of the family size is 4.93 near about 5 and mode is 4 which show most of families has 4 members. coefficient of variation is 49 which shows family size fluctuates for every household. Maximum and minimum family sizes are 10 and 1 in our sample. Average age of households head is 61 years. It is clear from table age 70 years occurs more frequently than any other ages. Coefficient of variation is more than 20 which indicates there is a high deviation of households' head age in our sample. Maximum age of household head is 95 who is suffered from leprosy. So, we make a comment that a person can live a long with leprosy. When we take the ratio of leprosy member and total family size it's come near about 0.44 which is very high. If we say it in terms of percentage 44 individuals has leprosy out of 100. In many families this ratio becomes 50%. Coefficient of variation is (64) very high which denotes this ratio is fluctuates over the families. We found that the maximum value of this ratio is 1 that means 100% incidence of leprosy. Average monthly food expenditure (AMFEXP) is 2232 in our sample. Coefficient of variation



of AMFEXP is 0.55. So, we told that all the families' average monthly food expenditure is near about same if there is some deviation only because of their family size. In our sample maximum AMFEXP is 4000 and minimum AMFEXP is 583. Average monthly nonfood expenditure (AMNFEXP) is 1523. It is comparatively low in respect to AMFEXP. The coefficient of variation is not very high (0.64). Maximum value of AMNFEXP is 4166 and minimum value is 250. The mode value is 4000 in both AMFEXP and AMNFEXP. Now we discuss about the most important fact average monthly expenditure on leprosy treatment (AMLEXP), leprosy individual faces two types of cost 1. Direct cost 2. Indirect cost. Seeking medical treatment is under direct cost on the other hand transport and dressing cost is under indirect cost. During the visit we came to know that direct costs are zero because government provides free medical treatment for leprosy patient. Government provided dressing cost also but they can't go for dressing because this will incur an indirect cost of transportation. In our above table AMLEXP is 231 which show the indirect cost of leprosy patients per month. Maximum value of AMLEXP is 500 in our sample. Coefficient of variation of this average monthly expenditure on leprosy treatment is very high 54. AMLEXP is directly depends on the number of leprosy patient in a house hold. Up to this point, in the current section we have examined some aspects of our sample households and target group (leprosy patients). We have intended to do some deeper analysis on the target group. In specific we are interested into the health expenditure aspect of the households of our sample. To do so we have used simple regression model.

4.9 Econometric Analysis

To examine the impact of out-of-pocket expenditure for leprosy (HLEXP) on the total expenditure on healthcare (THEXP) of the household we fit a double-log regression model. We have already mentioned the direct and indirect cost components of leprosy treatment. HLEXP certainly comprises indirect cost incurred from leprosy.

The regression result we got is:

$$\begin{aligned} \widehat{\text{LOGTHEXP}} &= 37.48 + 1.19 \text{LOGHLEXP} \\ t &= (1.73) \quad (1.78) \\ r^2 &= 0.58, n = 50 \end{aligned}$$

Clearly, the total healthcare expenditure is moderately elastic in expenditure for leprosy and the estimated slope parameter is significant. The r^2 value is moderate.

5. Conclusion

Present statistics of leprosy affected people motivate us to know their status, lifestyle, occupation. So, we select leprosy affected village Manipur as our survey area. We surveyed 50 households and got 87 leprosy affected individuals. The respondents mentioned that they still face social negligence in many occasions and are being considered as untouchable by many others. Due to these facts their scope of occupation-sources has been reduced. Most of the leprosy affected households depend on plastic-picking and begging as main source of their livelihood. The incidence of leprosy is reducing over the generations and the present generation reports a very less level of leprosy incidence. They believe on health centres and leprosy missions and takes regular treatment. Maximum number of leprosy patients taking medical help. Leprosy missions are doing their job very well. ICDS also contribute his hands to make leprosy free country. ICDS thought Childs about the illness of leprosy. Leprosy is not a gender specific problem. Male and female both can be affected. In Manipur village all the family's average monthly food expenditure is near about same if there is some deviation only because of their family size. We got 12 primary symptoms of leprosy and white spot (in anywhere) is major symptoms that incised the leprosy patient to take medical help. When we take the ratio of leprosy member and total family size it's come near about 0.44 which is very high. We found that the maximum value of this ratio is 1 that means 100% incidence of leprosy. Leprosy patient faces two types of cost direct cost and indirect cost. Their direct cost is fully carried by government; they only bear the indirect cost. Maximum age of household head is 95 who is suffered from leprosy, so a person can live a long with leprosy. Near about 60% of therespondents think that they have leprosy due to heredity reason and 26% reported that they used to neglect the symptoms in early stages which results into their disease. Some individuals believe in Superstation.

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