CHAPTER - III

DATA SOURCES AND METHODOLOGY

In this chapter, we present study design, sampling frame, sampling and sample size, source of secondary data, list of variables, cost calculations, data management and analyses of data. This study pertains to the year 2008.

3.1 Study Design

The study entitled, “Economic Impact of Tuberculosis on Households: A Study of Amritsar District (Punjab)” is cross-sectional in design. The study is based on secondary data and primary data were collected from the urban and rural areas of the district Amritsar. Secondary data were obtained from the Central TB Division (CTD), Ministry of Health and Family Welfare, Government of India, Nirman Bhawan, New Delhi. In the build-up steps for the synopsis preparation and finalization of research objectives and preparation of questionnaire, in-depth details and understanding of the disease was gained. The process included review of previous studies undertaken at international and national level to understand treatment seeking path, right from the emergence of the symptoms, visits to various health providers for diagnosis of TB and medication etc to assess costs incurred by the patients.

A semi-structured questionnaire was developed for data collection from the patients. The questionnaire for TB patients was divided into eight broad sections. The sections included identification, background characteristics, symptoms, health care seeking for diagnosis of TB, post-diagnosis treatment of TB, hospitalization, coping strategies in case of death of the patient and household strategy to meet TB diagnosis and treatment expenses. The questionnaire included the following indicators:

a) Wage loss for the patients;
b) Wage loss of the attendants (accompanying persons);
c) Transportation cost and other miscellaneous expenses (food, refreshment expenses, if incurred for self and accompanying person);
d) Cost of consultation fees, diagnosis and medicines charges;
e) Expenses made on special diet/food;
f) Impact of the morbidity on household’s total income;

g) Change in consumption pattern of households owing to ailment (food, clothes, education, travel, entertainment); and

h) Source of financing care seeking (Mortgage / loan due to morbidity, selling of land / assets due to morbidity).

The questionnaire was pre-tested before data collection.

3.2 Sampling Frame, Sampling and Sample Size

The sampling universe was the old district of Amritsar (including the present Tarn Taran district) of Punjab state. Amritsar was selected due to the fact that within Punjab, the highest numbers of tuberculosis patients were registered in district Amritsar\textsuperscript{12} in the year 2006. Within the selected district, initially attempts were made to collect details of TB patients directly from hospitals (both government and private health facilities) but the permission was not granted by the institutions. Finally, approval was taken from the District TB Officer (DTO) to access the TB patients and list of patients with them was procured. There were a total of approximate five thousand patients in the list. Of these patients, TB patient’s currently taking medicine for more than three months or having completed TB medication within six months prior to the survey were identified. The study adopted this approach to be able to focus on prolonged TB cases, as they were the worst affected with greater probability of severe economic impact. In line with the study objectives, only adult TB patients (both men and women) were included in the sample as they were main income generating source and their morbidity or mortality was more likely to have severe and direct economic impact. Thus, in all there were approximately Four thousand patients which constitute the universe of the study. The sample of three hundred and seventy six patients was selected from with the help of random table – by dividing the list into two parts i.e. urban and rural patients.

\textsuperscript{12}Rajya Sabha Unstarred Question No. 4061, dated 11.05.2007
Equal proportion of patients (one hundred and eighty eight) was covered from urban and rural areas. It is important to mention that, there were no refusals and all the patients who were approached willingly shared the required details. Verbal consent was taken from the patients before commencing in-depth interviews. Confidentiality of their identity and information shared was assured in order to repose full confidence during interview.

The patients themselves were first choice as the respondent; however, head of the household was the preferred respondent in the absence of the patients. In the absence of both patient and head of the household, any household member aged 21 or more was interviewed in detail provided he/she knew about the expenses incurred.
3.3 **Secondary Data:**

The data were collected for last three financial years viz 2007-08, 2008-09 and 2009-10 from the Central Tuberculosis Division (CTD) and it pertains to:

1. State wise releases (cash and commodity)
2. Statement of expenses for district, Amritsar

The term ‘cash’ means the money disbursed by the CTD to states/union territories (UTs) to meet expenses like: honorarium for contractual services and counseling activities, training, expenses incurred for Information, Education and Communication (IEC) and NGO activities, purchase of laboratory materials, civil works, office equipment, equipment maintenance, vehicle purchase, vehicle maintenance, vehicle hiring charges, printing, salary for regular staff, medical colleges, research studies, miscellaneous office expenses and drugs. While, expense under the head ‘commodity’ mean, the amount of money spent by the CTD to purchase medicine under DOTS for that particular state.

3.4 **Primary Data:**

A semi-structured questionnaire was developed for data collection from the TB patients.

3.4.1 **List of Variables:**

The section-wise variables and information details included in the questionnaire is mentioned below.

**Section I: Identification**

1. Name of the patient;
2. Details of the village/area of the patient; and

**Section II: Background Characteristics of the Patients**

1. Age;
2. Sex;
3. Religion;
4. Caste;
5. Marital Status;
6. Educational level;
8. Occupation;
9. Land-holding;
10. Ownership of household assets;
11. Type, ownership and number of rooms of the dwelling;
12. Total household members (greater than 18 years and less than 18 years);
13. Household total income;
14. Possession of BPL Card; and
15. Household having any other member suffering from TB/HIV/AIDS (other than the interviewed patient).

Section III: Symptoms of TB and Health Seeking
1. Symptoms reported;
2. How long did they wait to access the first health provider; and

Section IV: Health Care Seeking for Diagnosis of TB
In section IV, information was collected for all the health providers visited till the disease was diagnosed and treatment initiated. This section information was gathered separately for each health provider visited. The information collected included:
1. Health provider visited;
2. Consultation fee paid;
3. Advice given by the doctor;
4. Money paid for diagnostic tests and result of the test(s);
5. Did the patient take complete medicines and cost incurred;
6. Attendant accompanying the patients at the time of visit to the health provider by relationship;
7. Mode of transportation and fare;
8. Wage loss in terms of man-days lost and monetary loss of the patients and the attendants; and
9. Tip and other miscellaneous expenses;

Section V: Post-Diagnosis Treatment of TB
1. Category of health facility where the treatment was initiated;
2. Number of visits undertaken to take medicines;
3. Number of times accompanied by an attendant by relationship;
4. Mode of transportation and fare;
5. Man-days loss and wage loss for the patients and the attendants;
6. Tip and other miscellaneous expenses; and
7. Expenses incurred on special supplementary diet.

Section VI: Hospitalization Details

In this section, detailed information was collected from those patients, who were ever admitted for the treatment of TB. The information collected included:
1. Category of health facility;
2. Attendant(s) by relationship;
3. Mode of transportation and fare paid;
4. Total number of days of hospitalization;
5. Man-days loss and wage loss for the patients and the attendants; and
6. Tip and other miscellaneous expenses.

Section VII: Coping Strategy In-Case TB Patient Has Died

1. Age of the patient at the time of death;
2. Earning at the time of death; and
3. Household coping strategies (post-death of the household member).

Section VIII: Household Coping Strategies for TB Diagnosis and Treatment

1. Reduction in household total income, as a result of the TB treatment;
2. How did they cover the expenses for diagnosis and treatment; and
3. Effect of reduced income on other activities.

3.4.2 Cost Calculations:

Based on the information and details collected, direct medical, direct non-medical, indirect cost and total costs were calculated. The sub-components of the each head are explained below.

- **Direct medical costs** include consultation fees and money spent on investigations and drugs.
- Money spent on travel, tip and other miscellaneous expenses (tea and food) were classified as **direct non-medical expenditure**.
• **Indirect costs** include wage loss due to illness for the patients and the attendants accompanying the patients. Wage loss is calculated only for those who were gainfully employed and were receiving money in return for their services.

• The direct medical cost, direct non-medical cost and indirect cost were summed up and presented as **total cost**.

**Costs were calculated at three stages:**

1. **Visits to various health providers for diagnosis of TB:** After emergence of the symptoms, patients visited pharmacies, private practitioners, private health facilities, charitable hospitals and government health facilities for diagnosis of TB. Direct medical cost, direct non-medical cost, indirect cost and total cost were estimated.

2. **Post-diagnosis Cost of TB:** Post-diagnosis of TB, patients started taking medication and incurred costs like direct non-medical cost and indirect cost resulting in total cost. Since, most of the patients took medication from government health facilities (under the free, Revised National TB Control Programme (RNTCP)) thus, no direct medical costs were incurred at this stage.

3. **Hospitalization Cost:** Some of the patients were hospitalized for the treatment of TB and consequently, suffered greater economic loss. The costs incurred included direct medical cost, direct non-medical cost and indirect cost leading to total cost incurred.

The total cost incurred as a result of visits to various health providers and post-diagnosis of TB was also calculated. Hospitalization cost and expenses incurred at the time of visits to various health providers and post-diagnosis of TB for the patients who were hospitalised, were also calculated.

**3.4.3 Data Management**

The primary data were collected in the last quarter of the year 2008. Questionnaires were reviewed on the spot for any discrepancies or errors or omissions. Data was entered in Excel 2002 and analyzed using SPSS 18.0 software package. The data analysis plan broadly focused on the following to draw estimates for:

1. Direct and indirect economic burden of TB on household;
2. Change in household total income due to TB;
3. Economic impact of death of TB patient on household;
4. Treatment cost differentials for those seeking treatment from government and private health care providers;
5. Treatment cost differentials for urban and rural populations;
6. Economic impact of TB on different income categories of households i.e. one above, per capita state domestic product and second below, per capita state domestic product; and

3.4.4 Analyses of Data:

3.4.4.1 Tabular Analysis:

Tabular analysis technique was used to present the findings. Percentages and averages (mean and median) were worked out to present the economic burden imposed by type of health facility, economic stratification of households (based on per capita state domestic product of Punjab, 2008-09), caste and location. In addition to this, pie chart and bar diagrams were also drawn.

Economic stratification of households was done on the basis of per capita state domestic product (SDP) of Punjab. The per capita SDP of Punjab (2008-09) was preferred against the national figure due to the reason that Punjab is one of the prosperous states of the country and its per capita SDP is above many other states and much above the national figure. The per capita SDP of Punjab was taken as Rs. 50,558\textsuperscript{13}.

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\textsuperscript{13}Handbook of the Statistics on the Indian Economy, Reserve Bank of India, 2008-09 (pp 35 and 36)