CHAPTER - X
SUMMARY AND CONCLUSIONS

Health, being a basic human right and development issue, has been considered an integral component of the development process and means to improve the quality of life of the people. Health is closely related to socio-economic conditions and education status and cultural behaviour of people. Due to poor socio-economic and low education status of the people, the government services are under-utilized. This results in deprivation of health causing a poverty-ridden life characterized by illness for most people. WHO conference (1987) viewed health as a most important world-wide social goal. Health is essential to building strong societies, with improved health leading to social development, improved quality of life and conditions more conducive to world peace. (A framework for action on health and the environment, WEHAB Working Group, August 2002) Poverty leads to poor health and poor health exacerbates and deepens poverty. People who are poor are more likely to get sick. But now the reverse, is also true: people who are sick are more likely to become poor. Ill health creates and perpetuates poverty, triggering a vicious circle that hampers economic and social development. Poor health continues to be a constraint on development efforts.

Among all the major communicable and non communicable diseases, Tuberculosis (TB) is one of the leading and most destructive diseases. TB was declared a “global emergency” by WHO over a decade ago because of its toll on the health of individuals and its wider social and economic impact on overall development of a country (RNTCP, 2007). One-third of the world's population is infected with TB. Five to ten percent of people who are infected with TB become sick with TB at some time during their life (The Global Fund, 2002). Each year, more than 8 million people become sick with TB (WHO, 2002 a). Tuberculosis (TB) kills about two million people each year, making it one of the world's leading infectious causes of death among young people and adults. Due to a combination of insufficient application of TB control measures, the spread of HIV/AIDS and the emergence of multi-drug-resistant TB (MDR-TB), TB is on the rise in many developing and transitional economies (The Global Fund, 2002).
Southeast Asia with an estimated 3 million new cases of TB each year is the world's hardest-hit region (WHO, 2002a). Between 2000 and 2020, it is estimated that globally:

a) Nearly one billion people will be newly infected with TB;

b) 200 million people will become sick from TB; and

c) TB will claim at least 35 million lives (WHO, 2007).

TB is also a leading cause of death among women of reproductive age and is estimated to cause more deaths among this group than all causes of maternal mortality (WHO, 2001). Over 250,000 children die every year of TB (The Global Fund, 2001). TB and HIV/AIDS form a lethal combination, each speeding the other's progress. HIV promotes rapid progression of primary TB infection to active disease and is the most powerful known risk factor for reactivation of latent TB infection to active disease (UNAIDS, 2000). With 1.8 million cases occurring annually, India accounts for a fifth of the world’s new TB cases and 2/3rd of the cases in South-East Asia. This makes India the highest TB burden country in the world. It has been estimated for the year 2000, that there were about 3.8 million bacteriologically positive TB cases in the country (RNTCP, 2007).

The Problem

Majority of the TB cases occur in the most productive age group inflicting economic hardships at micro and macro level. At micro level, it leads to loss of income, increased medical and non-medical expenses, dissaving, selling of assets, and debt etc. The direct cost of the disease in India is estimated at US$ 300 million annually; the annual indirect cost is US$ 3 billion (RNTCP, 2007).

The vast majority of TB deaths are in the developing world, with more than half of all deaths occurring in Asia (WHO, 2007). Low- and lower-middle-income countries (those with an annual GNP per capita of less than US$2,995) account for more than 90 percent of TB cases and deaths (The Global Fund, 2002). Poverty, lack of basic health services, poor nutrition, and inadequate living conditions all contribute to the spread of TB. In turn, illness and death from TB reinforces and deepens poverty in many communities making it a vicious cycle difficult to come out of (The Global Fund, 2002). TB is estimated to deplete the incomes of the world's poorest communities by a total of US$12 billion (The Global Fund, 2002).
The burden of TB in India is indeed staggering by any measure. In India, over 70 percent of the cases occur in the economically productive age group (15–54 years) and is one of the leading infectious diseases causing death (RNTCP, 2007). It is not just the death figures that are startling, TB causes huge economic loss with about 17 crore workdays lost due to the disease. The annual economic cost of tuberculosis to the Indian economy is at least US$ 3 billion (more than Rs 13,000 crore) (RNTCP, 2007).

The global community woke up to this disease when, in 1993, the WHO declared TB as a global emergency. A WHO (2009) report discloses that in 2008, there were an estimated 8.9-9.9 million incident cases of TB. As elsewhere in India, tuberculosis is a major disease in Punjab. The annual administrative report of 1999-2000 of the Department of Health and Family Welfare, Government of Punjab, acknowledges TB to be the major public health problem of the state. The report estimated that currently there were around 3 lakh persons suffering from TB in Punjab, of which 75,000 cases were “highly infectious”. The report also analyses that “one of the major reasons of the spread of infections is migratory labour who come into the state”

**Rationale of the Study:**

The high economic impact of scourge like TB and HIV/AIDS makes it essential to undertake specific and focused studies to analyse the dimensions of the same at the micro level. This would give a better understanding of the problem and help develop means and methods to enhance the coping strategies and result in larger up-liftment at the societal level. There have been limited number of studies undertaken on this important aspect of poor people’s life in India in general and no such study has been undertaken in the state of Punjab in particular. Hence, the proposed study will be undertake at the district level to examine the economic impact of TB on households especially with reference to direct and indirect costs, impact on household income, and economic coping strategies. This study will help understand the dynamics of the problem at the district level and further bolster efforts to study the phenomenon on a larger scale, thus benefiting larger sections of the population. The study will of course contribute to the body of knowledge towards assessing economic impact of tuberculosis on households. The study would also help the academicians, researchers and policy makers in gaining in-depth knowledge and understanding of the economic impact of TB on households.
Objectives of the Study:

The primary objective of the study is to analyse economic impact of tuberculosis on households.

However, specifically the study aims at:

i. Estimating direct and indirect costs of TB;
ii. Assessing economic burden of tuberculosis by economic stratification of households;
iii. Assessing economic burden of tuberculosis by caste;
iv. Assessing economic burden of tuberculosis by urban and rural area;
v. Estimating economic burden for government and private health care seeking TB patients separately;
vi. Develop understanding of household economic coping strategies for Tuberculosis treatment; and

Database and Methodology

The study, cross-sectional in design is based on secondary as well as primary data collected from the urban and rural areas of the district Amritsar. Secondary data related to government expenditure under Revised National Tuberculosis Control Programme (for each state and Punjab in specific) was obtained from the Central TB Division (CTD), Ministry of Health and Family Welfare, Government of India, Nirman Bhawan, New Delhi. Primary data was collected directly from the disease affected households. 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, treatment post-diagnosis of TB, hospitalization, coping strategies in case of death of the patient and household strategy to meet TB diagnosis and treatment expenses. The questionnaire was pre-tested before data collection.

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 in the year 2006. The study sample included TB patient’s currently taking medicine for more than three months or having completed TB medication within six months prior to the survey. The details of patients were
collected from health facilities at various levels after taking permission from District Tuberculosis Officer (DTO), Amritsar. This was required due to non-availability and sharing of details of tuberculosis by even private health facilities in the district. Details were stratified only by location (urban and rural) to achieve the desired sample and no stratification was done for caste, income, sex or any other factor. Actual cost and wage loss was collected and is presented in the findings. Indirect costs (i.e. wage loss) are calculated only for working patients and attendants as it is very difficult to measure the man-days lost and subsequently wage loss for the non-paid activities (like activities performed by women in the households). The patients themselves were the first choice as the respondents however; head of the household was the preferred respondent in the absence of the patients. In the absence of both the patients and head of the households, any household member aged 21 or more was interviewed in detail provided he/she knew about the expenses incurred.

The sample size of the study was three hundred and seventy six patients. Equal proportion of patients (one hundred and eighty eight) was covered from urban and rural areas.

**Secondary Data:**

The secondary data were collected for the last three financial years (2007-08, 2008-09 and 2009-10) and it pertains to:

3. State wise releases (cash and commodity)
4. Statement of expense for district, Amritsar

The term ‘cash’ means the money disbursed by the Central Tuberculosis Division 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, 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.

Based on the information and details collected directly from patients, direct medical, direct non-medical, indirect cost and total costs were calculated.
Findings

Background Characteristics:

The mean age of the patients was 38.6 years while the median age was 35.0 years. It reflects that this disease affects the patients at a very productive age, hence, inflicting a high economic burden. Mean age of the patients was 37.7, 39.6 and 40.2 years for SC, OBC and general category respectively, while it was 35.1 and 42.1 years for urban and rural patients respectively. The mean age of patients having income below and above per capita state domestic product, was found to be 37.1 and 40.1 years respectively. Sixty percent of the patients were male. Sixty nine percent of the total patients were married. Religion wise analysis reveals that sixty seven percent of the patients were Sikh, 28 percent were Hindus and the remaining were followers of Christianity.

Sixty one percent of the patients belonged to SC category, 11 percent were OBCs and the remaining (28 percent) patients belonged to general category. Sixty and 62 percent of the urban and rural patients respectively were from SC category. Of the patients having income below per capita state domestic product, 76 percent belonged to SC category while for the patients having income above per capita state domestic product, 47 percent were SC patients. Forty six percent of the total patients were illiterate. Of those who were illiterate, 60, 26 and 24 percent belonged to SC, OBC and general category respectively. The percentage of illiterate was 41 and 51 percent for urban and rural patients respectively. Of the patients, who were illiterate, 52 and 40 percent were having income below and above the per capita state domestic product respectively. The number of the patients who had died by the time of the data collection was found to be 9. Of the dead, 3 and 6 patients belonged to general and SC category respectively. Thirty percent each of the patients were unskilled workers and housewives.

Almost half (48.7 percent) of the patient households had monthly income below Rs. 4000. The average monthly income was Rs. 4530, Rs. 7573 and Rs. 8264 for SC, OBC and general category patients respectively. The mean monthly income was found to be Rs. 2730 and Rs. 8929 for the patient households having income below and above state per capita SDP respectively. Around 13 percent of the patient households had BPL card. One important point which emerges from the analysis is that 22 percent of the patient households had at least another TB patient in the household. Twenty six, 17 and 14 percent of SC, OBC and general category households had another TB patient. Twenty and twenty three percent of urban and rural patient
households respectively had another TB patients. Twenty eight and sixteen percent of the patient households having income below and above state per capita SDP respectively had another TB patient. ‘Low fever which rises in the evening’ (85 percent) was the highest reported symptoms followed by ‘Persistent Cough (for more than 3 weeks)’ (79 percent) and ‘Pain in Chest’ (50 percent).

**Total Cost Incurred for All Four Visits:**

The percentage of patients visiting government health facilities increased with each visit (visit 1=26 percent, visit 2=76 percent, visit 3=94 percent and visit 4=100 percent) while it declined in case of other health providers. Mean fare was highest in the first visit (Rs. 209) which decreased in subsequent visits (visit 2=Rs. 92, visit 3= Rs. 89 and visit 4= Rs. 60). Similarly, the median was highest in first visit (Rs. 80) and remained same in the remaining three visits (Rs. 60). The mean and median wage loss for the patients was highest in first visit (mean=Rs. 844, median=Rs. 500) which declined in the remaining visits (visit 2 – mean=Rs. 421, median=Rs. 210), (visit 3 – mean=Rs. 276, median=Rs. 200) and (visit 4 – mean=Rs. 100, median=Rs. 100). The Mean and median wage loss for the attendants accompanying the patients was highest in first visit (mean=Rs. 265, median=Rs. 170) which declined in the second visit (mean=Rs. 205, median=Rs. 150). It increased again in the third visit (mean=Rs. 252, median=Rs. 160) and came down in the final (fourth) visit (mean and median=Rs. 135).

The overall consultation fee was generally low and declined as the number of visits increased (visit 1=Rs. 14, visit 2=Rs. 11, visit 3= Rs. 4 and visit 4= Rs. 2). From visit one to fourth the median fee remained the same at Rs. 2. The mean diagnostic charges were highest in the first visit (Rs. 326) which declined for second (Rs. 239) and third visit (Rs. 108) but increased again for the fourth visit (Rs. 150). The median charges also followed the same pattern and were highest for visit number one (Rs. 150), remained at Rs. 120 for second and third visit and again increased slightly to be Rs. 130 for final visit. The mean medicine charges were highest for the first visit (Rs. 956) and declined for second visit (Rs. 566) but increased again for third visit (Rs. 702) and came down for fourth and final visit (Rs. 150). The median medicine charges were Rs. 580 for first visit and then remained constant at Rs. 200 for the remaining three visits. None of the patients reportedly paid any tips except one patient in the first visit which came out to be Rs. 50. The mean miscellaneous expenses incurred were highest for the first visit (Rs. 152) and declined thereafter for remaining three visits. For second visit it was found to be
Rs. 75 and for third visit it was Rs. 51. For fourth visit, no expense was reported under this head by any of the three patients. Median expense was Rs. 50, 25 and 40 for first, second and third visits respectively.

**Total Cost for All Four Visits by Caste:**

Most of the patients from all the three caste categories approached government health facility in second and third visit. In second visit, 76, 89 and 72 percent of the patients from SC, OBC and general category respectively visited a government health facility. The percentage of patients accessing a government health facility increased to 89 percent for SCs in third visit while it was hundred percent for both OBCs and general category patients. The mean fare paid was highest in the first visit for all the three caste categories (SC=Rs. 197, OBC=Rs. 251, general=Rs. 211). It reduced in the subsequent visits and was found to be Rs. 86, Rs. 113, Rs. 95 for SC, OBC and general patients respectively. The mean fare came out to be Rs. 60 for the fourth visit. Overall, mean and median wage loss for the patients was highest in first visit for all the three categories of the patients (SC=Rs. 733, OBC=Rs. 745, general=Rs. 1279) which decreased for all the categories in the subsequent visits. In second visit it was Rs. 395, Rs. 459 and Rs. 478 for SC, OBC and general patients respectively. In third visit it was Rs. 212 for SCs, Rs. 335 for OBCs and Rs. 413 for general category. For fourth visit (all SC patients) the mean loss was Rs. 100. The mean and median wage loss for the attendants accompanying the patients in the first visit was found to be Rs. 233 for SC, Rs. 188 for OBC and Rs. 394 for general category patients. In the second visit, it was Rs. 168, Rs. 358 and Rs. 265 for SC, OBC and general category patients respectively. In the subsequent visit, the wage loss was Rs. 246 for SCs, Rs. 300 for OBC patients and Rs. 260 for general category patients. In the fourth visit wage loss came out to be Rs. 135 for attendants of SC patients.

In the first visit, the fee paid was found to be Rs. 8 each for SC and OBC patients and Rs. 21 for general category patients. In the second visit, the fee came out to be Rs. 9, Rs. 5 and Rs. 16 for SC, OBC and general category patients respectively. In the third visit, fee paid was Rs. 5 for SCs and Rs. 2 each for general and SC patients. The mean diagnostic charges in the first visit were found to be Rs. 271 for SC, Rs. 547 for OBCs and Rs. 354 for general category patients. In the second visit, the diagnostic charges were Rs. 155, Rs. 158 and Rs. 413 for SC, OBC and general category patients. During the third visit, the diagnostic charges paid were found to be Rs. 118 for SC, Rs. 143 for OBCs and Rs. 89 for general category patients. Mean charges paid were
Rs. 150 for the (SC patients) in the fourth visit. The mean medicine charges were highest in the first visit and then declined in the subsequent visits (except in one case). In the first visit, it was Rs. 912 for SCs, Rs. 841 for OBCs and Rs. 1098 for general category patients. In the second visit, medicine charges declined and came out to be Rs. 520 for SCs, Rs. 474 for OBCs and Rs. 692 for general category. In the third visit, the expenses were found to be Rs. 333 for SC, Rs. 217 for OBCs and Rs. 1359 for general category patients. In the fourth visit, the mean medicine charges were found to be Rs. 150 for SC patients. None of the patients reportedly paid any tips in all the four visits except one SC patient who in the first visit paid Rs. 50. The mean miscellaneous expenses incurred were Rs. 125 for SC, Rs. 325 for OBC and Rs. 147 for general category patients. In the subsequent visit, the expenses declined for all the three caste categories and came out to be Rs. 63 for SCs, Rs. 20 for OBCs and Rs. 113 for general category. In the third visit, the expenses were found to be Rs. 58 for SCs and Rs. 20 each for OBCs and general category patients.

**Total Cost for All Four Visits by Geographic Location:**

The percentage of patients visiting government health facilities increased with each visit for both urban and rural patients. For urban patients, the percentage of patients increased from 22.3 percent to 76.0 percent and then to 90.3 percent and finally was found to be 100.0 percent. In case of rural patients, the share increased from 30.3 percent to 76.7 percent and then increased to 96.9 percent and then reached hundred percent. The mean fare was higher for rural patients for visit number one to three. In first visit, the mean fare for rural patients was Rs. 237 as compared to Rs. 172 for urban patients. In second visit, the mean fare declined to Rs. 103 and Rs. 81 for rural and urban patients respectively. In the third visit, the fare increased for rural patients when compared to second visit and reached Rs. 115 for rural patients while for urban patients it was found to be Rs. 59. In final visit, it was Rs. 40 and Rs. 80 for rural and urban patients respectively. The mean and median wage loss for the patients was highest in first visit for both the categories. In first visit the mean loss was Rs. 951 and Rs. 740 for urban and rural patients respectively. In second visit, the mean loss declined to Rs. 454 for rural patients and Rs. 395 for urban patients. In third visit the loss was found to be Rs. 351 for urban patients and Rs. 210 for rural patients. In final visit, the wage loss came out to be Rs. 100 for urban patients while for rural patients it was nil. The wage loss for the attendants also fluctuated. It declined in second visit but increased again in third visit. In first visit, the loss was found to be Rs. 293 for rural
patients and Rs. 233 for urban patients. In second visit, the mean loss declined to Rs. 212 for urban and Rs. 198 for rural patients. In third visit, the loss increased again and was found to be Rs. 255 and Rs. 250 for urban and rural patients respectively. In fourth visit, the loss was Rs. 170 and Rs. 100 for rural and urban patients respectively.

The consultation fee was generally low and decreased as the number of visits increased. The fee was high for urban patients for all the four visits (visit 1=Rs. 16, visit 2=Rs. 13, visit 3= Rs. 5 and visit 4= Rs. 2) as compared to rural patients (visit 1=Rs. 13, visit 2=Rs. 8, visit 3= Rs. 2 and visit 4= Rs. 2). The mean diagnostic charges declined for both the categories except in the fourth visit. The mean charges were Rs. 381 in first visit which declined to Rs. 270 for second visit and further declined to, Rs. 127 in third visit and rose once again to be Rs. 160 in fourth visit. In case of rural patients, the mean loss was found to be Rs. 286 in first visit which reduced to Rs. 201 in second visit and declined further to Rs. 92 in third visit and increased again to Rs. 130 for fourth visit. The mean medicine charges were generally higher for the urban patients as compared to rural patients except in third visit. The charges were found to be Rs. 977, Rs. 991, Rs. 283 and Rs. 225 in first, second, third and fourth visit respectively for urban patients. For rural patients, the charges came out to be Rs. 934, Rs. 657, Rs. 1107 and Rs. 225 respectively. Only one rural patient paid tip of Rs. 50 in first visit. No other patients paid any tips in the next three visits. The mean miscellaneous expenses incurred were higher for rural patients in the first two visit while it was nil for both the categories in the fourth visit. For rural patients, the expenses incurred were found to be Rs. 160, Rs. 86 and Rs. 45 in first, second and third visit respectively. In case of urban patients, the mean cost incurred was found to be Rs. 126, Rs. 57 and Rs. 59 in visit number one, two and third respectively.

**Total cost all four visits by Economic Stratification of Households:**

The percentage of patients visiting government health facilities increased in each visit for the patients having income below and above per capita state domestic product category patients. For patients below per capita SDP, the percentage increased from 29.7 percent to 80.8 percent and reached to 91.3 percent in third visit. In case of patients having income above per capita SDP, 23 percent visited a government health facility in first visit which increased to 72.4 percent in second visit to touch 95.0 percent in third visit. All patients from both the categories visited government health facility in fourth visit. The mean and median fare was highest in the first visit and was lower for the patients having income below per capita state domestic product (Rs. 193)
than the patients having income above per capita state domestic product (Rs. 223). In the second visit also, the fare was lower for the patients from below per capita state domestic product (Rs. 79) than the patients above per capita state domestic product (Rs. 103). In the next visit, the mean fare for the patients below per capita SDP was slightly higher (Rs. 93) than the patients above per capita SDP (Rs. 87). In the final visit, fare was Rs. 40 and Rs. 80 for the patients below and above per capita SDP respectively. The mean and median wage loss for the patients was highest in first visit for both the income groups and was found to be Rs. 771 and Rs. 919 for the patients below and above per capita SDP category respectively. In next visit, the mean loss declined to Rs. 328 and Rs. 500 for the patients having income below and above per capita SDP respectively. In third visit, the mean wage loss decreased further and was Rs. 224 and Rs. 311 for the patients below and above per capita SDP respectively. In the fourth visit, the wage loss was found to be Rs. 100 for the patient belonging to the above per capita SDP income category. The wage loss for the attendants was also highest in the first visit (below per capita SDP =Rs. 232, above per capita SDP =Rs. 312). The mean wage loss decreased in the second visit (below per capita SDP =Rs. 171, above per capita SDP =Rs. 239) but increased again in third visit (below per capita SDP = Rs. 153, above per capita SDP = Rs. 288). In the final visit, the wage loss worked out to be Rs. 100 and Rs. 170 for the patients below and above per capita SDP category respectively.

The overall consultation fee was low and declined with the number of visits. The fee was found to be Rs. 10.4 and Rs. 17.7 for the below and above per capita SDP category patients respectively. In the next visit, it declined and came out to be Rs. 8.9 for the patients from below per capita SDP category and Rs. 12.3 for the patients from above per capita SDP category. The fee decreased further in third (below per capita SDP = Rs. 2.2, above per capita SDP = Rs. 4.3) and fourth visits (below per capita state domestic product = Rs. 2.0 and above per capita state domestic product = Rs. 1.5). The mean diagnostic charge was highest in the first visit (below per capita SDP = Rs. 172, above per capita SDP =Rs. 491). The charges declined for both the income groups, in the next visit and came out to be Rs. 132 and Rs. 337 for the patients below and above per capita SDP category respectively. In the third visit, it declined further for the patients below per capita SDP to Rs. 102 and Rs. 112 for the patients above per capita SDP. In the final visit, the mean diagnostic charges worked out to be Rs. 130 for the patient below per capita SDP and Rs. 160 for the patients above per capita SDP. The medicine charges were
generally higher and remained so for all the visits. In the first visit, the mean charges worked out to be Rs. 904 and Rs. 1006 for the below and above per capita SDP category patients respectively. In the second visit, the charges declined (below per capita SDP =Rs. 552, above per capita SDP =Rs. 583). In third visit, medicine cost was Rs. 250 for the patients belonging to the below per capita SDP while it increased for the patients above per capita SDP (Rs. 961). During the fourth visit, the patients belonging to the above per capita SDP paid Rs. 225. One patient belonging to below per capita SDP paid a tip of Rs. 50 in the first visit. None of the patients paid any tip in the remaining three visits. The miscellaneous expenses were not very substantial except in first visit by the patients above per capita SDP. The expense incurred was found to be Rs. 35 and Rs. 226 for the patients below and above per capita SDP respectively. In the next visit, it increased for the patients below per capita SDP category (Rs. 57) but came down to Rs. 90 for the patients having income above per capita SDP. In the next visit, the expense worked out to be Rs. 68 and Rs. 45 for the above and below the per capita SDP category patients respectively.

**Post Diagnosis Treatment Cost:**

The total number of patients preferring government health facilities for the treatment after diagnosis of tuberculosis was 359 (out of 376). Rest of the patients went to charitable hospital or private hospital. Ninety six percent each of SC and general category patients and 93 percent of OBCs visited a government health facility. Ninety four percent of urban and ninety seven percent of rural patients initiated TB treatment at a government health facility. Ninety five and ninety six percent of the patient households having income below and above per capita SDP respectively sought TB treatment from a government health facility. Spouse (35 percent) was the main attendant followed by father/mother in 26 percent of the cases. Mean number of visits undertaken during treatment was reported to be 33 visits which were 33, 15 and 30 for government health, private and charitable hospitals respectively.

Mean expense incurred on transportation was found to be Rs. 213. It was reported to be Rs. 203, Rs. 813 and Rs. 233 for patients visiting government, private and charitable institutions respectively. Average transportation cost came out to be Rs. 202, Rs. 171 and Rs. 255 for SC, OBC and general category patients respectively. Mean fare paid was found to be Rs. 232 and Rs. 196 for urban and rural patients respectively. The average transportation cost paid was found to be almost same for patients with income below per capita SDP (Rs. 213) and above per capita
Forty six percent (government patients = 47 percent and charitable patients = 50 percent) of patients reported wage loss due to post-diagnosis treatment of TB. This was stated by 54, 45 and 31 percent of the SC, OBC and general category patients respectively. Wage loss was reported by 44 and 48 percent of urban and rural patients respectively. Forty seven and 46 percent of the patients having income below and above per capita SDP respectively reported wage loss. In monetary terms, the mean wage loss was found to be Rs. 3198 and 3179 for patients belonging to government and charitable institutions respectively. The wage loss came out to be Rs. 2659, Rs. 3512 and Rs. 5077 for SC, OBC and general category patients respectively. The mean wage loss reported for urban and rural patients was Rs. 2537 and Rs. 3799 respectively. The average wage loss came out to be Rs. 3048 and Rs. 3346 for the patient households below and above per capita SDP respectively. Twenty two, fifty and twenty percent of attendants accompanying government, private and charitable institutions respectively reported wage loss. Twenty nine, 12 and 15 percent attendants of SC, OBC and general category patients respectively reported wage loss. Twenty two and 23 percent of urban and rural patient attendants suffered wage loss. Twenty eight and 18 percent of the attendants of patient households having income below and above per capita SDP respectively revealed that they suffered wage loss. The mean wage loss for attendants of patients was found to Rs. 433, Rs. 350 and Rs. 514 for SC, OBC and general category patient attendant’s respectively. The mean wage loss came out to be Rs. 410 for attendants of urban patients and Rs. 473 for attendants of rural patient. The wage loss suffered for attendants of patient households below and above per capita SDP was found to be Rs. 405 and Rs. 503 respectively.

One of major expense head was money spent on ‘special diet’. The mean expense incurred under this head was Rs. 1693. It came out to be Rs. 1685, Rs. 1340 and Rs. 1992 for patients taking treatment from government, private and charitable institutions respectively. Caste wise analysis reveal that Rs. 1553, Rs. 1962 and Rs. 1896 were spent by SC, OBC and general category patients respectively on special diet. The urban and rural patient spent Rs. 1531 and Rs. 1861 respectively on special diet. The mean money spent by patient households having income below and above per capita SDP came out to be Rs. 1557 and Rs. 1831 respectively. Mean of total direct (medical and non-medical) cost, indirect cost and total cost for all four visits and post-diagnosis of TB treatment came out to be Rs. 4231. Direct non-medical cost was Rs. 1799 while indirect cost came out to be Rs. 2092. The mean total cost for SC, OBC and general
category was found to be Rs. 3902, Rs. 4036 and Rs. 5028 respectively. The mean total cost incurred by urban and rural patients came out to be Rs. 3803 and 4696 respectively. The mean total cost incurred was found to be Rs. 3802 and Rs. 4648 for patient households having income below and above per capita SDP respectively.

**Hospitalisation Cost:**

Out of 376 patients, eighty one patients were hospitalised. Of them, 61, 16 and 4 were admitted in a government, private and charitable health facility respectively. Analysis by caste reveals that around three-fifth of the patients belonged to SC category. Location wise examination shows that Out of 81 patients, sixty percent were from rural areas. Of 81 patients, 27 (one-thirds) and 54 (two-thirds) belonged to below and above per capita SDP category respectively. All the patients were found to have incurred transportation cost during hospitalisation. The mean fare was lowest for patients getting admitted in private health facilities as compared to patients preferring government and charitable hospitals. The cost incurred by caste shows that cost incurred by SC patients was relatively lower than general and OBC patients. As expected, the fare paid by rural patients was higher as compared to urban patients. The mean fare paid was found to be higher for patients having income below the state per capita SDP level as compared to patients with income above per capita SDP.

Sixty three percent of the patients reported wage loss which was highest for patients being hospitalised at charitable and government health facilities while it was lowest for private health facilities. This reveals that those who are poor and worst affected prefer charitable or government health facilities rather than private hospitals which are expensive. Highest percentage of SC patients reported wage loss followed by OBC and general category patients. This reveals greater burden on those who are already economically poor and belong to deprived section. Higher percentage of rural patients reported wage loss. Higher percentage of patients having income below the per capita SDP reported wage loss which imposed further burden on already poor households. The average wage loss for patients was Rs. 1912. Wage loss was highest for patients at private health facilities followed by charitable and government institutions. This re-confirms that those with high paying capacity prefer to get treatment at private health facilities. Since, the per day wage loss was low for SC patients hence, in monetary terms, the mean wage loss was lowest for SC patients and highest for OBC patients. Wage loss reported by
urban patients was found to be higher than the rural patients. The mean wage loss reported was higher for patients with income above per capita SDP.

Fifty three percent of the attendants also reported wage loss which was highest for attendants of patients who visited private health facilities while fifty percent of attendants of the patients treated in government and charitable institutions also reported wage loss. Relatively higher percentage of attendants of SC patients reported wage loss as compared to attendants of OBC and general category patients. Higher percentage of attendants of rural patients reported wage loss. The attendants reporting wage loss was higher for patients belonging to below per capita SDP category as compared to attendants of patients with income above the per capita SDP. The mean wage loss was Rs. 874 which was highest for patients being admitted in government health institutions and lowest for private institutions. In line with the monetary loss for patients, wage loss was lowest for attendants of SC patients probably due to low wage. The mean wage loss reported by attendants of rural patients was higher than that reported by urban attendants. The mean loss of attendants of rural and urban patients was almost same with a little higher loss found for attendants of urban patients.

The mean direct medical expenses i.e. doctor fees, diagnosis, medicine, bed/room charges were found to be Rs. 8841. Further, it was found that direct medical expenses were highest for patients getting treatment at private hospitals followed by charitable and then government health facilities. The average direct medical cost was highest for OBC patients while it was lowest for SC patients. This needs to be interpreted with caution as number of OBC patients who were admitted was just seven, nevertheless, of them, 3 sought treatment in private institutions. Total mean direct medical cost was higher for rural patients. The mean direct medical cost was found to be higher for patients of above per capita SDP income category. The expense was almost 25 percent higher than what was incurred by patients of below per capita SDP income category. The mean direct non-medical cost was Rs. 813 which was relatively higher for patients at government health facilities. The average direct non-medical cost was again highest for OBC patients and lowest for SC patients. Mean direct non-medical cost was higher for rural patients as compared to urban patients. The average indirect cost was Rs. 1658 which was higher for patients availing treatment at charitable institutions and government health facilities than the patients at private health facilities. An analysis by caste shows that the average indirect cost was high for OBCs than other two categories. An examination of mean direct cost shows higher cost
burden for urban patients as compared to rural patients. The mean indirect cost incurred was higher for patients with above per capita SDP. Total mean cost was highest for patients seeking treatment at private health facilities. As compared to expense incurred by patients taking treatment at government health institutions, the cost was 50 percent higher in private facilities. Overall analysis reveals that the mean total cost was highest for OBCs followed by general category and SC patients. Total mean cost was slightly higher for rural patients than urban patients. Total mean expense incurred as a result of hospitalisation was higher for patients of above per capita SDP category, which was almost 15 percent higher than patients of below the per capita SDP category.

Effect on Household Income and Household Coping Strategy:

Seventy six and sixty nine percent of the patients below and above per capita SDP category respectively reported that there was decline in their household income. The mean income lost was very high for the patients from above per capita SDP category (Rs. 3994) compared to the patients from below per capita SDP category (Rs. 2981). Sixty one and thirty percent of the patients from above and below per capita SDP respectively managed tuberculosis treatment expenses from their current household income sources. Thirteen patients sold assets and in most of the cases, it was gold. Seventy five and sixty nine percent of the patients below and above per capita SDP category sold gold.

Affect of morbidity on household income was highest for OBCs patients (81 percent) followed by SCs (77 percent) and general category patients (57 percent). The mean wage loss was found to be Rs. 4786, Rs. 3483 and Rs. 3211 for the general category, OBCs and SCs patients respectively. Sixty nine, fifty five and thirty seven percent of the patients belonging to OBC, general and SC category respectively managed treatment expenses from their current household income sources. Thirteen patients sold assets and of them 9 were SCs, 3 belonged to general category and one was OBC patient.

Seventy five and seventy percent of the patients belonging to urban and rural patients respectively reported that morbidity / mortality as a result of tuberculosis affected their household income. The mean income lost worked out to be Rs. 4347 and Rs. 2904 for rural and urban patients respectively. Almost same percentage of urban (46 percent) and rural (45 percent) households met treatment expenses from existing income sources. Five and two percent of the patients from rural and urban areas respectively sold assets to meet expenses.
Of the nine patients who had died, eight were male. Six of them were SC. The mean age at death was 43.2 years while median was as low as 40 years. Mean monthly earning of the patients prior to their death was found to be Rs. 2717. As a result of reduced income due to tuberculosis, there was decline in consumption of food, purchase of new clothes and alcohol consumption. Travel to friends/relatives was also reduced while the worse affect was in terms of withdrawing children from schools.

Analysis of Expenditure under RNTCP:

The RNTCP budget for the years 2007-08, 2008-09 and 2009-10 was Rs. 26,700 lakhs, Rs. 27,500 lakhs and Rs. 31,225 lakhs respectively. The release (cash and commodity combined together) was highest for the state of Uttar Pradesh in all the three years. The state wise releases are in two forms, cash and commodity. The state of Punjab received a sum of Rs. 507.34 lakhs, Rs. 613.93 lakhs and Rs. 679.03 lakhs in 2007-08, 2008-09 and 2009-10 respectively which was 2.01 percent, 2.35 percent and 2.33 percent of the total amount disbursed by the Central Tuberculosis Division for the last three financial years.

In case of Punjab state, out of the total release, the sum received in cash was Rs. 365.00 lakhs, Rs. 432.00 lakhs and Rs. 472.00 lakhs for the year 2007-08, 2008-09 and 2009-10 respectively. It shows that percentage share of commodity increased gradually from 28.1 percent (2007-08) to 29.6 percent (2008-09) and then touched 30.5 percent (2009-10). It is clear that in case of Punjab state there is an increase in the share of commodity as compared to cash. This trend is converse to the trend observed at the all India level. In case of country as a whole, the share of commodity has declined while in case of Punjab it has increased. Statement of expense for the last three financial years for the district, Amritsar shows that the total expenses incurred were Rs. 3,161,665.00, Rs. 4,609,647.00 and Rs. 4,255,724.00 for the year 2007-08, 2008-09 and 2009-10 respectively. The total expense incurred in the district Amritsar was found to be 6.2, 7.5 and 6.3 percent of the total budget of the state Punjab for the year 2007-08, 2008-09 and 2009-10 respectively.
Conclusions

From the above findings it can be concluded that:

1) The number of patients visiting government health facility increased with each visit for all the categories i.e. by caste, location and income. In the first visit itself, higher percentage of SC, rural and below per capita SDP patients directly visited a government health facility as compared to other categories. This indicates greater preference for government health facilities in rural areas and amongst the poor people.

2) Wage loss as a result of health care seeking for patients was highest in the first visit. It was found to be highest amongst the general category, urban location and patients having income above the per capita SDP. This may be is due to low wages of patients from below per capita SDP category. Another probable reason could be high affordability of the patients belonging to above per capita SDP category, in taking more leave for medication and rest, resulting in higher wage loss.

3) Wage loss as a result of health care seeking for attendants of the patients was highest in the first visit. It was found to be highest amongst the patients belonging to general category, from rural location and above per capita SDP category. This is almost in line with the wage loss for the patients except for ‘rural areas’, which is probably due to the reason that since rural area patients come from far-off places, they are expected to be generally accompanied by somebody. In most of the cases, it is the person who is well-versed in dealing with others and is mostly gainfully employed.

4) The overall consultation fee was low and declined with the number of visits. The decline is also due to the fact that most of the patients started visiting a government health facility with each visit. In the first visit, fee was highest for OBC and general category, for urban patients and patients belonging to above per capita SDP category. This also shows that initially the patients with above per capita SDP went to private health providers where they had to spend more money for treatment but later on due to lack of relief from the symptoms and lack of treatment shifted to a government health facility.

5) The mean diagnostic charges were highest in first visit and were higher for OBC patients in the first and third visit. It is important to note that diagnostic charges were higher for patients from above per capita SDP category and the difference in first two visits was quite high. In first and second visit, the charges paid were almost three and more than two times higher for
patients above per capita SDP. This reveals the greater spending power and willingness to spend to get right diagnosis. It may also mean the recommendation of unnecessary tests by private health care providers to those who can afford to pay.

6) The findings reaffirm that burden is relatively higher for patients having income below the per capita SDP of the state and those belonging to SC category. This once again reiterates the need to make Information, Education and Communication (IEC) campaigns stronger and effective.

7) Despite free treatment available under Revised National Tuberculosis Control Program (RNTCP), patients still prefer private health facilities although their number is very small. This needs to be addressed through increased IEC especially in the poorer strata’s of the society.

8) Out of 376 patients, eighty one patients were hospitalised. Of them, 61, 16 and 4 were admitted in a government, private and charitable health facility respectively. The mean direct medical expenses i.e. doctor fees, diagnosis, medicine, bed/room charges were found to be Rs. 8841. The mean direct non-medical cost was Rs. 813. The average indirect cost was found to be Rs. 1658. As compared to expense incurred by patients taking treatment at government health institutions, the cost was 50 percent higher in private facilities.

9) Expense on special diet was very high (as compared to mean monthly income of the patients, especially those having income below the per capita SDP) and was borne by all categories of patients. It was highest for patients visiting charitable hospital, OBC and those having income above the per capita SDP category.

10) There is a need to increase awareness in order to reduce the wage loss during post-diagnosis treatment of TB, which was significant for patients with man-days loss being more than a month. It was substantial and imposes greater burden especially for families where the bread-earner is affected with TB. The wage loss was highest for general category, rural patients and patients with income above per capita SDP.

11) Timely diagnosis, initiation and completion of treatment should be emphasized and promoted to reduce recurrence and transmission of the disease to others in the house and in the vicinity.

12) Awareness should be generated to seek free treatment under RNTCP especially for hospitalisation.
13) There is a need for Government to develop some mechanism to reduce wage loss incurred by patients especially those below per capita SDP category or to compensate the loss in order to ensure correct treatment compliance.

It emerges from the above conclusions that the economic impact of TB adversely affected high percentage the households, irrespective of average income, geographic location and caste representation. Higher percentage of patient households from above per capita SDP managed the treatment expenses from their existing household income sources. In order to meet treatment expenses, thirteen patient households had to sell household assets especially, gold.

Nine patients had died by the time of data collection, of them six were SCs. It was big loss for the households as the mean age at death was just 43.2 years which means not only 15 to 17 years of income loss but also reflects no choice but adoption of other household coping strategies which are further detrimental to the household members. The reduced income and lesser money left with the households during TB treatment adversely affected consumption of food, purchase of clothes, alcohol consumption, travel to friends/relations and even withdrawal of children from schools.

Policy Implication and Suggestions:

Following policy implications emerges from the study:

a) There is a need to sensitize, create awareness and generate prompt health care seeking among general population especially among SC as they are most vulnerable and affected by TB, that too at an early age which results in loss of productivity.

b) Attention needs to be given specifically to illiterate population segment as they are worst affected due to low knowledge base and delayed health care seeking.

c) There is a need to undertake strong Information, Education and Communication (IEC) campaigns especially in rural areas and localities of poor people as those who live in a small single room are more vulnerable to getting infection.

d) There should be a strong coordination with private health providers in order to establish the system of early diagnosis and treatment of TB especially among poor settings.


(http://www.informaworld.com/smpp/content~db=all~content=a902173444)

**Websites consulted:**

- http://www.iuatld.org/index_en.phtml
- http://www.who.int/en/
- http://www.tbcindia.org/
- http://www.who.int/dg/speeches
- http://www.who.int/mediacentre/news/releases
- http://www.who.int/mediacentre/factsheets
- http://timesofindia.indiatimes.com

**Reports:**

- WHO, Stop TB Program Report – Various Issues
IUATLD Reports – Various Issues
IUATLD Online Journal – Various Issues

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