

## Socio-Economic Status of Tb Patients Visiting Dots Center of National Medical College Teaching Hospital, Birgunj, Parsa

Shrestha Sarita<sup>1\*</sup> and Shrestha Prakash<sup>1</sup>

<sup>1</sup>Department of Microbiology, Tribhuvan University, Nepal

**\*Corresponding Author:** Sarita Shrestha, Department of Microbiology, Tribhuvan University, Nepal.

**Received:** February 13, 2016; **Published:** March 02, 2016

### Abstract

Tuberculosis (TB) is also one of the most serious public health problems in developing countries leading causes of death and disability among the economically active segment of the world's population [1]. Directly Observed Treatment Short Course (DOTS) is one of the most cost-effective strategies available for the TB control particularly in low income countries and result in substantial reduction in TB incidence [2]. Thus the study was performed to know the socio-economic status of TB patients, to analyze the knowledge about TB among them and to assess the access of DOTS at the center. Information was collected by interviewing using a semi-structured questionnaire among patients, key informants and other relevant secondary sources. In our study TB was most common among the male (81.08%) of economically active age group (20-59 years) and most of them were married (62.16%). The incidence of pulmonary TB was higher (77.03%) and most of the studied population (40.54%) was illiterate followed by primary level education (33.78%), 28.38% had no work or were house wife followed by farm work group (25.67%), and half of the respondents did not respond to the salary per year indicating either they were student or housewife or workless. More than half (66.22%) of the respondents had perception of TB for completely curable. If medicine was taken irregularly, 62.16% thought drugs should be repeated. Around half of the studied population needed more than 1 hour and more than or equal to 20 rupees (63.51%) to reach DOTS center and they used local bus to come. Among the TB patients under study, 62.16% got money from their relatives. To improve the efficacy of DOTS programme along with free medicine, TB control authority should expand DOTS centers, should design effective health education programs and also would be better if the patients get some financial support as the treatment is affected by educational level, knowledge, availability, travelling cost/ time and health education programme. In addition to the direct benefits to the treated patient, TB treatment also reduces onward transmission of the disease in the community.

**Keywords:** Socio-economic status ; TB patients; DOTS; Pars; Nepal

### Introduction

TB is also one of the major health problems in developing countries [3]. Globally it is estimated that there are about 16 million people living with active TB, every year 8 million cases appeared active TB which is increasing in most low and middle income countries [4]. Among the poor population as it is also known as disease of the poor [5,6]. There are 23 countries that are labelled by WHO to carry 80% of the world TB, including Nepal with an estimation of 63,000 infectious cases annually [7]. TB affects the most of the productive age group and is the most common cause of death [8], the resultant economic cost is high [9-11]. As lack of mobility, poverty, and heavy workload (housework, childcare and employment) access to health care facilities is restricted, TB in women may have an adverse effect on families and households, sensibly reducing the economic development of societies [12,13].

World health Organization declared TB as a global emergency in 1993 and recommended DOTS, the strategy for improving treatment outcome by giving drugs to the patients under direct observation of health workers, as one of the most effective strategies available for TB

---

**Citation:** Shrestha Sarita and Shrestha Prakash. "Socio-Economic Status of Tb Patients Visiting Dots Center of National Medical College Teaching Hospital, Birgunj, Parsa". *EC Microbiology* 3.1 (2016). 380-387.

control in 1995 [2] and it is feasible in high burden settings [14] cost effective in low income countries and result in substantial reduction in TB incidence [2]. This study was conducted to identify socioeconomic status of TB patients, accessibility of DOTS center, and the level of knowledge about TB.

### Methodology

The TB patients [111] visiting the DOTs center of NMCTH for 8 months (15<sup>th</sup> May, 2009 to 15<sup>th</sup> January, 2010) were study population. Quantitative data was obtained by using questionnaire, structured interview with selected (TB) patients. The qualitative methods consisted of review of secondary data. The criteria used to select the sample population in the study areas were TB patients who routinely visited DOTS center. The data recorded from interview, questionnaire survey, and key informant interview were coded, categorized and fed for processing and analysis using SPSS (Statistical Packages for Social Science ver.-12.0) and MS Excel software.

### Result

In this study, total population were 111 TB patients belonging to different sex, ethnic groups, age groups, marital status and residence.

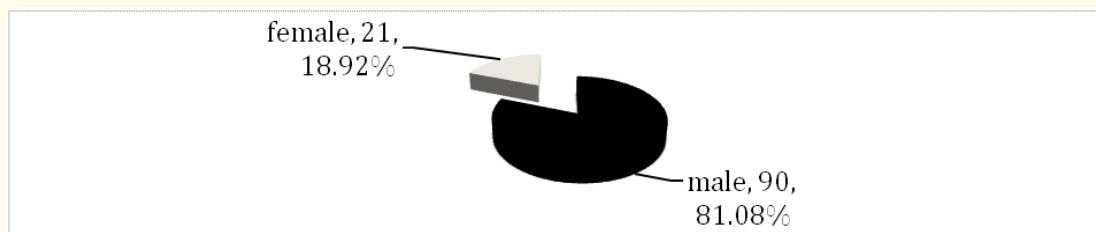


Figure 1: Gender wise distribution of the respondents.

Among them, majority of the total respondents i.e 81.08% were male and 18.92% were female.

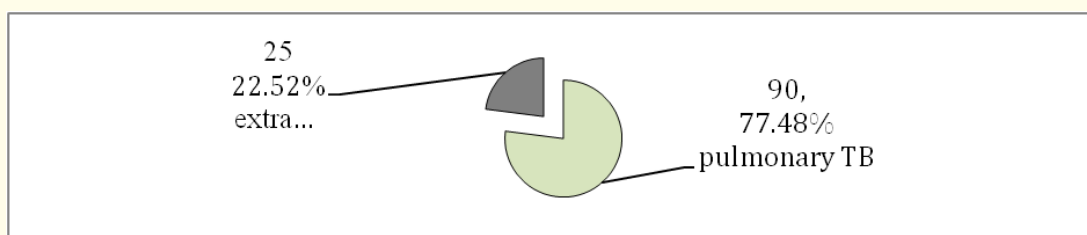


Figure 2: Types of TB in the studied population.

In the study nearly 3/4<sup>th</sup> of the respondents had pulmonary TB (77.48%) and 1/4<sup>th</sup> (22.52%) had extra pulmonary TB.

Most of the respondents (21.62%) were of age group 20-29 years followed by 30-39 years age group (18.02 %), 40-49 years group (14.41%) and 50-59 years group (13.51%) and so on as revealed in table:1.

Age group	Frequency (%)	Male	Female
0-9 yrs	10(9.01)	10	0
10-19 yrs	14 (12.61)	12	2
20-29 yrs	24 (21.62)	15	9
30-39 yrs	20(18.02)	18	2
40-49 yrs	16 (14.41)	13	3
50-59 yrs	15 (13.51)	12	3
60 & more yrs	12(10.81)	10	2
Total	111 (100)	90	21

**Table 1:** Age wise distribution of the TB patients under study.

Marital status	Frequency (%)	Male	Female
Married	69 (62.16)	54	15
Unmarried	30 (27.03)	27	3
Widow	12 (10.81)	9	3
Total	111 (100)	90	21

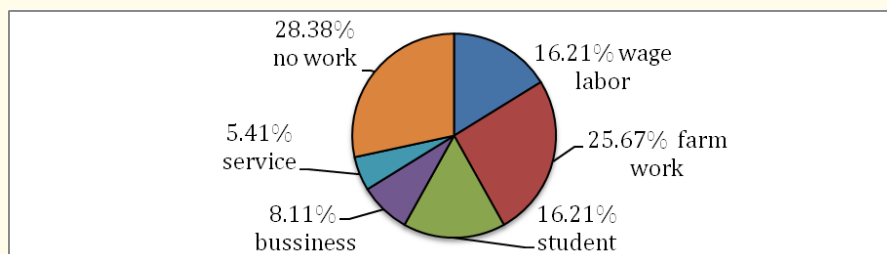
**Table 2:** Marital status of the TB patients under study.

Of the total TB patients under study, 69 (62.16%) of the total respondents were married, 30 (27.03%) unmarried, 12(10.81%) widow and no one were divorced so divorce case is not shown in table.

Education	Frequency (%)	Male	Female
Illiterate	45 (40.54)	43	2
Primary	38 (34.23)	22	16
Secondary	19 (17.12)	17	2
College	9 (8.11)	8	1
Total	111 (100)	90	21

**Table 3:** Educational status of the TB patients under study.

Educational status of the respondents was as revealed in Table:3. Most of the respondents were illiterate (40.54%) followed by primary level education (34.23%), secondary level (17.12%) and college level (8.11%).



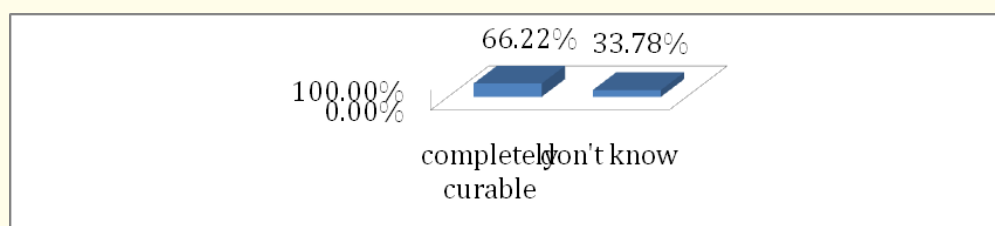
**Figure 3:** Occupation wise distribution of the TB patients under study.

Among total respondents, 28.38% had no work (might be house wife or retired) followed by farm work (25.67%), student (16.21%) and wage labor (16.21%), and so on as in figure 3.

Salary per year	Number	Percentage
1200-10,000	9	8.11
10,001-25,000	15	13.51
25,001-50,000	22	19.82
50,001-100,000	9	8.11
No response	56	50.45

**Table 4:** Income per year of the respondents.

Among the study population, half of the respondents (50.45%) did not respond to the salary per year indicating either they were student or housewife or workless, 19.82% had Rs. 25001-50000, 13.51% had Rs.10,001-25,000 and 8.11% had Rs.1200-10,000 and Rs.50,001-100,000 salary per year.



**Figure 4:** Perception towards TB of the respondents.

More than half (66.22%) of the study population had perception of TB for completely curable and 33.78% didn't know about the curability.

Thought for irregular intake of medicine	Number	Percentage
Disease will worsen	6	5.41
Should take extra dose of Drug	0	0.00
Disease may attack again	3	2.70
Drug should repeat	69	62.16
Develop drug resistant	0	0.00
Person will die	2	1.80
Don't know	31	27.93

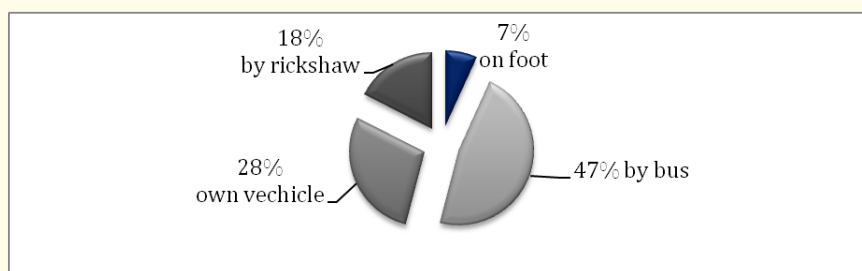
**Table 5:** Knowledge of the respondents towards irregular medication.

As shown in table, 62.16% of TB patients under study thought drugs should repeat if they took medicine irregularly whereas no one said they should take extra dose of drugs and develop drug resistant TB.

Time to reach DOTs center	Number	Percentage
≤15 minutes	30	27.03
16-30 minutes	8	7.21
31-60 minutes	18	16.22
>60 minutes	55	49.55

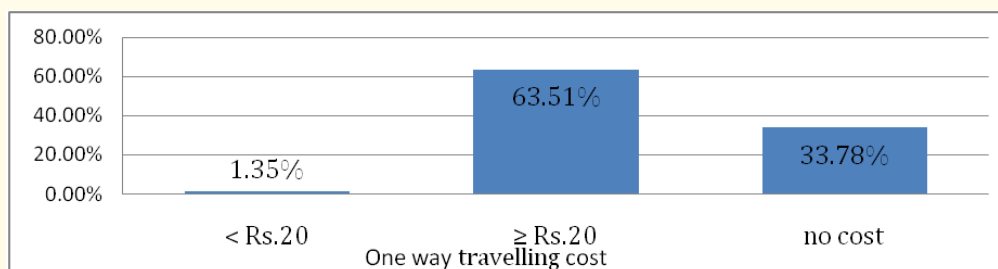
**Table 6:** One way travelling time for the respondents to reach DOTs center.

Nearly half of the respondents (49.55%) took more than 60 minutes to reach the center, 27.03% took less than or equal to 15 minutes, 16.22% took 31-60 minutes, and 6.76% took 16-30 minutes.



**Figure 5:** Means of transportation of the respondents.

In above figure, 47.00% of the respondents used to come to the DOTs center by bus as there were more respondents from other than district Birgunj, Parsa.



**Figure 6:** One way travelling cost for the respondents.

The one way travelling cost of 63.51% of the study population was more than Rs. 20, 33.78% did not required cost and only 1.35% had less than Rs.20 one way travelling cost.

In this study, most of the TB patients (62.16%) under study got money from their relatives, 20.27% from their own saving and very few (17.57%) from their own regular income.

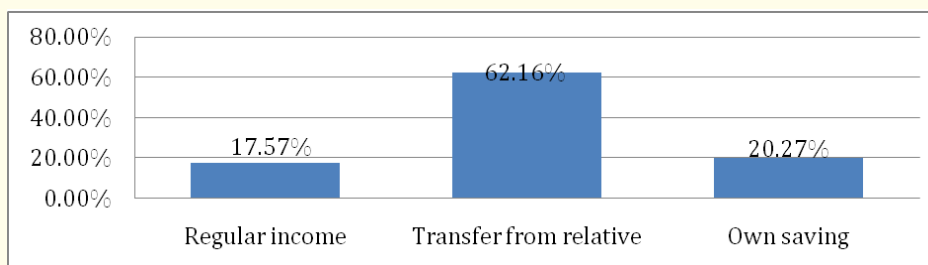


Figure 7: Source of support of the respondents.

Effect of disease on work	Frequency	Percentage
No work	22	19.82
Stopped work	35	31.53
Less work	45	40.54
Changed work	9	8.11

Table 7: Effects of TB on work.

Due to TB, 45 (40.54%) of the respondents had less work, 35 (31.53%) stopped working, 22 (19.82%) had no work and 9 (8.11%) changed work.

The availability of health worker, health education and directly observed treatment in every visit to the DOTs center of NMCTH was satisfactory according to the respondents.

## Discussion

There were altogether 111 respondents in the study. Of the total respondents, more than 3/4<sup>th</sup> of the respondents were male indicating the prevalence of the disease is more in male. The study of Bam, Muniyandi, *et al.* and Rajeswari, *et al.* also found similar result which represents male are more exposed to the environment than female [18,13].

The notification rates are higher in men than women in most countries [12] as lack of mobility, poverty, and heavy workload of women restrict access to health care facilities. The Epidemiological studies showed differences in men and women in the prevalence rate and the progression from infection to disease, incidence, and mortality due to TB [15].

TB in women may have an adverse effect on families and households, sensibly reducing the economic development of families and societies as well. More than 3/4<sup>th</sup> of the study population had pulmonary TB whereas only around 1/4<sup>th</sup> had extra pulmonary TB.

The extra pulmonary TB included gland, pleural fluid, bone and spine TB. This result coincides with Joshi, *et al.* denoting more people used to go for the treatment before they get complicated.

Although TB affects all age group, in our study the productive age (15-49 years) group were mostly affected which coincides with Rajeswari *et al.*, Murray, Subedi *et al.* and Bhatt *et al.* [13,16-18]. It is also known as the adults of the productive age are parents on whom the survival and development of children depend. Thus TB impacts the economic productivity of both individuals and societies.

Among the study population, more than half were married whereas there was not any divorced case. This is similar to Subedi et al and indicated that divorced is not acceptable among people of the country. Most of the respondents were illiterate followed by primary level, secondary level and college level. This result is similar to Subedi et al denoting the education also plays the role for the infection as literates could get information about the disease and its treatment.

In this study, among total respondents more than 1/3<sup>rd</sup> had no work or were house wife followed by farm work, student, wage labour, business and service .This might be either they have lost their work or they might have been weak not being able to work. Similarly, half of the respondents showed no response to the salary per year indicating either they were student or housewife or workless.

In the study, 2/3<sup>rd</sup> of the study population had perception of TB for completely curable which is similar to Subedi et al and there was no one who told that TB is not curable. This gives the positive view towards treatment for TB. The belief was strengthened with the prevention of DOTS program.

Among the TB patients under study, nearly 2/3<sup>rd</sup> of the respondent thought disease may attack again if they take medicine irregularly whereas around 1/3<sup>rd</sup> didn't know about the effect of irregular intake of medicine. No one said they should take extra dose of drugs and develop drug resistant TB. This result clearly shows that they are not getting enough information about the disease.

While dealing with one way distance to reach the DOTS center, the means of transportation and one way cost for reaching the DOTs center, half of the respondent took more than 60 minutes. In rural regions TB centres may be so far apart that populations could find services too difficult to reach the DOTs center which may indirectly result for incomplete medication or irregular medication.

Nearly half of the respondents used to come to the DOTS center by bus, and only few on foot as there were more respondents from other district than Birgunj, Parsa. The one way travelling cost of nearly 2/3<sup>rd</sup> of the study population was more than Rs. 20. This result clearly indicates the access of people to DOTS service is not easy with respect to mode of transportation and cost. Although the direct cost for the diagnosis and treatment is free, there is high indirect cost (travel, food, decrease work etc) for the TB patients [13]. TB patient costs have been shown to lead to reduced food consumption, diversion of resources from other types of healthcare, taking children out of school, and borrowing or selling assets [19-20]. This shows there is need to provide adequate financial support to TB patients and also suggest to decrease the patients costs to prevent poverty due to TB treatment [21]. Free supply of anti-tuberculosis drugs alone may not be sufficient to improve the compliance of TB patients[13].

In this study most of the respondents used to take nutritional diet, tonic in addition to the anti-TB drug. It indicates that the people knew that TB makes somewhat weak so need more nutritional diet while taking anti-TB drugs. Around 2/3<sup>rd</sup> of the TB patients under study got money from their relatives and due to the disease more than 1/3<sup>rd</sup> had less work. The availability of health worker, health education and directly observed treatment in every visit to the DOTs center of NMCTH was satisfactory.

## **Conclusion**

This cross-sectional study of TB patients visiting DOTS center explored their socio-economic status and their perception towards TB. Among the TB patients visiting the DOTs center of NMCTH most were male. Higher proportions of the patients were of the reproductive age group though TB infection is found in all age groups. The pulmonary TB was most common among the respondents than extra pulmonary TB. The married population was more than the unmarried population. The population having good economic condition were least affected by the disease. TB, respiratory infection also affects the work of the person.

## **Bibliography**

1. Bam TS., *et al.* "Factors Responsible for Non-compliance among TB Patients in Kailali District". *Journal of Nepal Health Research Council* 3.2 (2005): 51-57.
2. WHO. "My experience with DOTS, *Southeast Asia Region*". New Delhi. (1999).
3. Kochi A. TB. "Distribution, risk factors and mortality". *Immunobiology* 191.4-5 (1991): 325-336.
4. Pang YK. "Close contact investigation of TB in high-burden, low- and middle-income countries". *Malaysian Family Physician* 9.2 (2014): 11-17.
5. Spence DP., *et al.* "Tuberculosis and poverty". *British Medical Journal* 307.6912 (1993): 750-761.
6. Lonnroth K., *et al.* "Tuberculosis control and elimination 2010–50: cure, care, and social development". *Lancet* 375.9728 (2010): 1814–1829.
7. World Health Organization. "TB". 2007. Retrieved 12 November 2009. Factsheet No 104.
8. Muniyandi M., *et al.* "Socio-economic dimensions of TB control: Review of studies over two decades from TB Research Center". *Journal of Community Health* 38 .3(2006): 204-215.
9. World Health Organization. "TB: a clinical manual for South East Asia. Chapter I: Background information on TB". WHO/TB/96-200 (SEA) (1996).
10. Clark MD. "Tuberculosis: economic factors and social challenges- The case of India". World Bank (1996).
11. World Health Organization Health Report 1995. " Bridging the gaps. The state of world health". Geneva: WHO (1995).
12. Borgdorff and Nagelkerke. "Gender and Health: the economic and social impact of TB ... countries".(2000) ([www.sidint.net/gender-and-health-the-economic-and-social-impact-of-tuberculosis-on-women/](http://www.sidint.net/gender-and-health-the-economic-and-social-impact-of-tuberculosis-on-women/)).
13. Rajeswari R., *et al.* "Socio-economic impact of tuberculosis on patient and family in India". *International Journal of Tuberculosis and Lung Disease* 3.10 (1999): 869-877.
14. STC. "A status paper on gender and sociological issues related to TB". *South Asian Association for Regional Cooperation TB Center*. Thimi Bhaktapur (2000).
15. Diwan V and Thorson A. " Sex, gender and TB". *Lancet* 353.9157 (1999): 1000–1001.
16. Murray C J L. "Social, economic and operational research on TB. Recent studies and some priority questions". *Bulletin of the International Union against Tuberculosis and Lung Disease* 66.4 (1991): 149-156.
17. Subedi LP., *et al.* "Socio-economic Impact of DOTS strategy in Combating TB in the Bhaktapur District of Nepal". *Journal of the national human rights commission* 2.1 (2004): 43-50.
18. Bhatt CP., *et al.* "TB patients opinion for Directly Observed Treatment Short-Course (DOTS) programme of Nepal". *SAARC Journal of Tuberculosis, Lung Diseases and HIV/AIDS* (2009).
19. McIntyre D., *et al.* "What are the economic consequences for households of illness and of paying for health care in low- and middle-income country contexts?" *Social Science & Medicine* 62.4 (2006): 858-865.
20. Leive A and Xu K. "Coping with out-of-pocket health payments: empirical evidence from 15 African countries". *Bull World Health Organ* 86.11(2008): 849-856.
21. Barter DM., *et al.* "Tuberculosis and Poverty: the contribution of Patient costs in sub-Saharan Africa-a systemic review". *BMC Public Health* 12 (2012): 980.

**Volume 3 Issue 1 March 2016**

**© All rights reserved by Sarita Shrestha., et al.**

---

**Citation:** Shrestha Sarita and Shrestha Prakash. "Socio-Economic Status of Tb Patients Visiting Dots Center of National Medical College Teaching Hospital, Birgunj, Parsa". *EC Microbiology* 3.1 (2016). 380-387.