

Abstract

Tuberculosis is a common contagious disease prevalent in Sri Lanka for many decades and places an enormous economic burden on households of economically vulnerable people and causes a significant reduction in quality of life of patients.

This study was carried out to assess the direct and indirect cost of treatment and the disease associated household economic burden of families and the quality of life of adult tuberculosis patients undergoing two alternative treatment models in the district of Colombo.

The study consisted of three components. Component 1 of the study was a qualitative study carried out to identify factors influencing the costs associated with tuberculosis treatment in the district of Colombo. Component 2 of the study was a cross sectional follow up study undertaken to assess the disease associated economic cost and household economic burden of tuberculosis patients and their families and to assess the quality of life (QOL) of those who are currently on treatment in the district of Colombo. Component 3 of the study was a cross sectional comparison study carried out to compare direct and indirect costs associated with treatment between patients practicing Directly Observed Treatment Short course, daily (Daily DOTS) and home based weekly treatment and also to compare programme costs associated with these 2 models of treatment.

Component 1 consisted of in-depth interviews. Twenty one patients, both males and females were purposively selected for in-depth interviews representing all three ethnic groups. Component 2A and 2B consisted of a prospective follow up study where the respondents were interviewed at the time of registration, at the end of 2 and 6 months (end of intensive and continuation phases respectively) of the study. Component 3 of the study was a prospective comparison study, of those who were assigned to daily DOTS and weekly DOTS (weekly collection of drugs ingested under supervision). Convenient samples of patients who fulfil the eligible criteria were selected for both component 2 and 3.

The study findings revealed that the mean overall total costs incurred by a patient with tuberculosis at completion of treatment was Rs.23, 244.52 (median Rs. 14156.00). Fifty

percent (50.8%) of the total cost (mean – Rs.15, 838.03, median – Rs.8333) was due to indirect costs and 49.2% was due to mean direct cost (Rs.6267.77, median Rs 3690).

It was revealed that 65.4% of the patients had a cost burden of more than 10% of their monthly household income which in economic terms considered catastrophic for the households. Among them, 9.3% of the respondents had a cost burden more than 100% of their total household income.

On an average, Rs.8405.55 (median Rs. 3278) has been spent by patients in seeking treatment for the symptoms before he or she was properly diagnosed as suffering from tuberculosis. Of this pre-diagnosis cost, 76.8% (mean-Rs.6480.59, median-Rs.3333.33) had been due to direct costs.

In spite of the free services provided during intensive phase of treatment, patients spend an average 5988.89 rupees (median Rs.1968) out of their own pockets. Of the total cost during intensive phase of treatment 66.6% of the total cost was due to loss of earnings as a result of the disease. A mean of Rs.1240.67 (median-Rs.768), (19.7% of the total cost during this period) have been spent as transport expenses to seek treatment.

Among the study population, an average of 12.9 working days has been lost due to illness even before it was diagnosed. At the end of the intensive phase of treatment, an average 30.2 working days was lost by a patient. Thus, during total period of illness, an average 41.5 working days had been lost by a patient. Only 3.8% of the respondents had received any form of governmental or nongovernmental sickness assistance during treatment. By the end of treatment period 31% of the respondents have borrowed money (mean of 27,549.00 rupees) to spend for their illness related activities.

Quality of Life (QOL) assessment revealed that patients with TB have poor mean scores for all four domains of QOL namely physical, psychological, social relationships and environment at the commencement of treatment. By comparing the mean scores for each domain of QOL, it can be shown that domains of physical health, social support and psychology achieved significant improvements as the patient passed through different phases of the treatment process. However, such a change could not be shown for the environment domain. The following were found to be significantly associated with poor QOL after controlling for the confounding effects through multivariate analysis: domain

of poor physical health with increasing age ($p=0.01$); poor psychological health and social relationships with the lower level of education and employment status ($p<0.001$) and poor environment with lower monthly household income ($p=0.003$) and male sex ($p<0.023$) in addition to lower level of education ($p<0.001$) and employment status ($p=0.001$).

Cost comparisons between these two modes of treatment during the intensive phase of tuberculosis treatment, demonstrated that home based weekly treatment is more cost beneficial than the daily DOTS treatment. By shifting to weekly DOTS, a significant lower cost ($p<0.001$) could be achieved in relation to both direct and overall costs. In addition, healthcare providers could save an average of 88.7 minutes per patient per month (RS. 241.18) which could be utilized for providing better attention to patients.

The results of this study may be used to develop new strategies and policies to improve the overall quality of patient care for tuberculosis by providing adequate financial support for needy patients in the community. Weekly issuing of drugs could be an alternative to reduce patient cost during intensive phase of treatment.