



Quality of Life among Tuberculosis Patients in Haryana, India

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INTRODUCTION

Tuberculosis (TB) has remained a public health problem worldwide with greater incidence in low- and middle-income countries.^[1] One out of every 3 persons is expected to be infected with this airborne bacterium viz. *Mycobacterium tuberculosis* (the causative agent for TB), and 5-15% of these persons develop active TB disease in their lifetime.^[2] TB commonly involves the lungs however; it can affect any part of the body and therefore is responsible for a substantial amount of morbidity and mortality among those who are affected.^[2] It has an adverse effect on patients' psychology, and economic and social well-being which ultimately has a negative impact on the quality of life (QoL).^[3] For the control of TB in India, Government of India initiated DOTS program in 1998. DOTS include administration of isoniazid, rifampicin, pyrazinamide and ethambutol are used for 2 months during the intensive phase and followed by administration of isoniazid and rifampicin for 4 months during continuation phase.^[3]

QoL is a multidimensional concept including physical, social, psychological, economic, spiritual and other domains. Its complexity makes it difficult to define and measure but can be broadly described as individuals' perceptions of their position in life in the context of their goals, expectations, standards and concerns in life.^[3] These days QoL has been incorporated as a therapeutic objective to evaluate response to treatment and medical care.^[4] Previous research in other countries and from different parts of India has shown low or the same health-related quality of life among TB patients compared to general population.^[3] However, information from Haryana, India is lacking. Therefore, in the present study, an attempt has been made to assess components of QoL among TB patients undergoing/undergone DOTS therapy in Haryana India.

MATERIAL AND METHODS

Study design, study population, sample size, sampling technique

This cross-sectional study was conducted among TB patients visiting primary health centres in 4 districts of Haryana i.e. Faridabad, Hisar, Palwal and Karnal. The study was initiated after obtaining approval from the Institutional Ethics Committee. The study included 201 adult participants undergoing/undergone DOTS therapy. Only those who were willing to participate were included in the study, an informed consent was obtained from the participants. Participants were included employing the convenience sampling technique.

Method of data collection

Information including age, gender, marital status, presenting symptoms, duration of treatment, any side effects experienced, problems faced in daily life were recorded using a predesigned questionnaire. The information was collected by interview method which was conducted by a trained and calibrated interviewer. An interviewer administered questionnaire was prepared, according to the objectives and after discussion with specialists in the field of tuberculosis and statistics.

Data was entered into the Excel sheet and further analysed using SPSS (Statistical Package for Social Sciences) 25.0 version, IBM, Chicago. Descriptive statistics was performed and association between different variables was assessed using Chi-square test. P-value<.05 was considered statistically significant.

RESULTS

This study included 201 TB patients with male preponderance [male vs female = 139 (69.2%) vs 62 (30.8%)]. Most of the patients belonged to the age group of more than 60 years and majority of the patients were married. [Table 1]. All the participants were on DOTS therapy. Of which 35 (17.4%) had experienced side effects of DOTS. Sixty (29.9%) patients reported to be experiencing problems in daily life. The most common complaint was fatigue [37 (18.4%)] followed by weightless loss [24 (11.9%)]. None of the patients reported to have breathlessness. [Figure 1] Although, majority of the participants reported that they never feel stressed or nervous [138 (68.7%)], they are always confident to handle their daily activities [123 (61.2%)], they can always cope-up with problems in their life [126 (62.7%)], can always control irritation [123 (61.2%)], never feel angry [126 (62.7%)], this disease has never affected their

attendance at work [124 (61.7%)], this disease has never affected their efficiency at work [122 (60.7%)], and they did not have to leave their job because of TB [187 (93.0%)], still remaining large number of patients had faced these difficulties. [Table 2] Chi-square analysis showed that presence of symptoms was significantly associated with the all the components of quality of life (p-value <.05). [Table 2]

On assessing the association between age and components of quality of life, it was found that confidence to handle day to day activities [chi-square value= 14.630, df=6, p-value= .023], ability to cope up with problems in life [chi-square value= 15.518, df=6, p-value= .017], and ability to control irritations in life [chi-square value= 14.665, df=6, p-value= .023] were significantly associated with age of the patients. Confidence to handle daily activities, ability to cope, and control on irritation were significantly better in younger age group (less than 41 years).

Gender was found to be significantly associated with attendance at work place [chi-square value= 12.812, df=2, p-value= .002] and efficiency at work [chi-square value= 7.603, df=2, p-value= .022]. A significantly greater number of males reported that TB always affected efficiency at work place [male vs female = 30.9% vs 12.9%] and always affected their attendance at work place [male vs female= 32.4% vs 9.7%].

Marital status was not found to have significant association with quality of life among TB patients (p-value >.05).

DISCUSSION

Quality of life quality of life is multidimensional and it integrates a broad range of life domains, and individual values.^[5] It is related to psychological domain, environmental conditions, social relationships, and physical conditions.^[6] A few components of quality of life have been studied in this study among the TB patients. TB is a worldwide public health problem with expected incidence of 10.6 million.^[7] Researches have reported negative impact on quality of life among TB patients, however, very few studies have been conducted among Indian population.

We found that most of the patients belonged to the age group of more than 60 years. Previous studies have also reported greater prevalence of TB among elderly age group and increase in notification rate with the increase in age. This has been linked to reactivation of dormant lesions in elderly population owing to immunosenescence,

increased susceptibility due to accumulated co-morbidities, malnutrition, functional dependence, favouring treatments like corticoids or immunosuppressants, and closeness that increases contacts between residents and healthcare staff.^[8]

The results of the present study showed that there was a male preponderance among the TB patients [male vs female = 139 (69.2%) vs 62 (30.8%)]. This finding conforms to the various reports stating Gender differentials in tuberculosis (TB). This high prevalence among males can be explained on the basis of biological differences in disease and disease presentation^{[9][10]} and different access to health care specifically in developing countries^[11]. Additionally, men are more likely to report risk factors associated with TB exposure.^{[12][13]} **Mukherjee A et al.** reported nearly 3 time more males than females among TB patients in India.^[14] **Koju D et al.** also reported male preponderance.^[15]

We found that patients at the time of inclusion in the study, reported to have fatigue (18.4%), weight loss (11.9%), chest pain (8.0%), night sweat (2.5%), fever (4%), loss of appetite (3.0%), sleeplessness (3.5%). **Fatima Na et al.** conducted a study among 3424 patients with clinical presentation of pulmonary and extra pulmonary tuberculosis. In their study, 93.1% cases presented with fever and 80.4% cases had loss of appetite, 64.4% cases had cough, 55.2% had weight loss, 2.5% cases had chest pain, 4.5% patients had lymphadenopathy and 0.9% had diarrhoea.^[16] The higher prevalence of various presenting symptoms in this study compared to our study could be due to the reason that in the study Fatima N et al. symptoms were recorded before imitating DOTS whereas in our study, patients were at different stages of DOTS therapy. None of the patients in our study reported to have the breathlessness and vomiting. This indicated towards the effectiveness of DOTS.

Anti-tubercular treatment has been known to be associated with adverse drug reactions.^[17] This study revealed that 17.4% patients had experienced side effects of DOTS.

Age and gender are important determinants of QoL among TB patients.^[3] In our study also age and gender were found to be associated with few components of QoL. In this study many aspects determining quality of life such as feeling stressed or nervous, feeling confident to handle their daily activities, ability to cope-up with problems in their life ability to control irritation, feeling angry, effect on attendance at work, effect

on efficiency at work, and change of job were found to be affected in many of the patients. Although majority of the patients had no effect on these effects. **Banerjee S et al.** also reported poor quality of life among TB patients at the start of treatment, and also the end of treatment among patients with unfavourable outcome.^[18] **Kastien-Hilka T et al.** in their meta-analysis including 66 studies found that TB has a negative impact on QoL of the patients and many times even microbiologically cured patients showed poor QoL.^[19] We found that confidence to handle day to day activities, ability to cope up with problems in life and ability to control irritations in life were significantly associated with age of the patients and found to be significantly better in younger age group (less than 41 years). Somewhat similar results were reported by **Olufemi AO et al.** In their study to evaluate Health-Related Quality of Life (HRQoL) in pulmonary TB patients during the intensive phase of treatment found that almost all the domains of QoL got affected in TB patients. Least affected was emotional domain which was especially very less impacted in the younger patients.^[20] **Ramkumar S et al.** also reported low HR-QoL among patients with TB. They also found that after completion of DOTS therapy HR-QoL was almost similar to general population.^[21]

Findings of the present study and previous research indicated that TB has significant impact on QoL and thus, among tb patients QoL requires attention and prioritization.^[22]

The findings of this study need to be interpreted in the light of certain limitations. Patients with TB often have concurrent opportunistic infections, which also affect QoL.^[20] In the present study, effect of confounder was not taken into consideration.

In this study patients at various stages of DOTS therapy were included. No comparison was made between the QoL of life before, during and after the therapy.

CONCLUSION

We concluded that a great proportion patients of TB undergoing DOTS therapy have compromised quality of life. There is a great need to monitor QOL among these patients and the treatment of TB should not only emphasize on curing the disease but also on maintaining a good quality of life among TB patients.

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TABLES

Table 1. Demographic details of study participants.

		Number (%) [N=201]
Age (in years)	<21 years	24 (11.9)
	21-40 years	50 (24.9)
	41-60 years	71 (35.3)
	>60 years	56 (27.9)
Gender	Male	139 (69.2)
	Female	62 (30.8)
Marital status	Unmarried	32 (15.9)
	Married	164 (81.6)
	Divorced/Widow	5 (2.5)

Table 2. Components of quality of life.

		Symptoms		Total [N=201]	Chi-square value	df	p-value
		Present	Absent				
Do you feel stressed and nervous?	Always	15 (14.2%)	12 (12.6%)	27 (13.4%)	9.484	2	.009*
	Sometimes	27 (25.5%)	9 (9.5%)	36 (17.9%)			
	Never	64 (60.4%)	74 (77.9%)	138 (68.7%)			
Are you confident enough to handle your personal day-to-day activities?	Always	75 (70.8%)	48 (50.5%)	123 (61.2%)	18.536	2	.001*
	Sometimes	13 (12.3%)	5 (5.3%)	18 (9.0%)			
	Never	18 (17.0%)	42 (44.2%)	60 (29.9%)			
Are you able to cope up with problems in your life?	Always	76 (71.7%)	50 (52.6%)	126 (62.7%)	23.273	2	.001*
	Sometimes	15 (14.2%)	4 (4.2%)	19 (9.5%)			
	Never	15 (14.2%)	41 (43.3%)	56 (27.9%)			
Are you able to control irritations in your life?	Always	74 (69.8%)	49 (51.6%)	123 (61.2%)	25.807	2	.001*
	Sometimes	16 (15.1%)	3 (3.2%)	19 (9.5%)			
	Never	16 (15.1%)	43 (45.3%)	59 (29.4%)			
Do you feel angry because of things that were outside of your control?	Always	22 (20.8%)	8 (8.4%)	30 (14.9%)	13.543	2	.001*
	Sometimes	30 (28.3%)	15 (15.8%)	45 (22.4%)			
	Never	54 (50.9%)	72 (75.8%)	126 (62.7%)			
Does this disease affect your attendance at occupation/work?	Always	32 (30.2%)	19 (20.0%)	51 (25.4%)	15.216	2	.001*
	Sometimes	21 (19.8%)	5 (5.3%)	26 (12.9%)			
	Never	53 (50.0%)	71 (74.7%)	124 (61.7%)			
Does this disease affect your efficiency at occupation/work?	Always	31 (29.2%)	20 (21.1%)	51 (25.4%)	16.046	2	.001*
	Sometimes	23 (21.7%)	5 (5.3%)	28 (13.9%)			
	Never	52 (49.1%)	70 (73.7%)	122 (60.7%)			
Has this disease led you to change your job?	Yes	12 (11.3%)	2 (2.1%)	14 (7.0%)	8.572	2	.014*
	No	92 (86.8%)	93 (97.9%)	187 (93.0%)			

Chi-square test. *p-value <.05 was considered statistically significant.

FIGURE

Figure 1. Presenting symptoms of the TB patients.

