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# Health Related Quality of Life among the Patients with Tuberculosis in Chitradurga District

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**Abstract**

*Introduction:* The Revised National Tuberculosis Control Programme (RNTCP) uses sputum negativity as prognostic indicator but does not consider any other dimension of health. Apart from physical symptoms, TB patients face social and economic problems. Therefore, the overall impact of TB on health and patients' perception of well being should be considered. This can be performed by measuring the Quality of Life (QoL). *Methodology:* A cross sectional study was undertaken in the Chalalkere Tuberculosis Unit of Chitradurga district for a period of two months between February and March, 2017. About 60 patients who are treatment for tuberculosis attending the tuberculosis unit were included as the study samples. The patients thus selected were obtained an informed, bilingual and written consent. *Results:* The mean score of the physical component summary (PCS) was 54.1, mental component summary (MCS) was 48.6, physical functioning (PH) was 62.1, role limitation due to physical health (RP) was 52.2, body pain was 60.2, general health was 41.7, role limitation due to emotional problem was 54, energy/fatigue was 44.4, mental health was 46.7 and social functioning was 49.2. *Conclusion:* The mean value of physical component summary, mental component summary, physical health and mental health were higher for class III of SES, RP, MH and VT were higher for Class V of SES and BP was higher for class I of SES.

**Keywords:** Quality of Life; Tuberculosis; SES.

## Introduction

The World Health Organization has defined the Quality of Life as 'individual's perceptions of their position in the life in the context of culture and value systems in which they live and in relation to their goals, standards, expectations and concerns. The different dimensions of health related quality of life are Physical dimensions, Psychological health, Level of independence, Social relationships, Environment and personal values and beliefs [1].

Tuberculosis remains a major public health problem worldwide. Tuberculosis is one of the leading causes of mortality and morbidity around the world, infecting approximately 8 billion people, with an annual death rate of close to 1 million. India shares one third of the global tuberculosis burden and out of the 2 million incident cases approximately, half a million deaths occurs annually. Henceforth, tuberculosis is certainly an enormous public health problem in this country. Tuberculosis in India also carries a social stigma due to the perceived consequences of infection [2,3].

The Revised National Tuberculosis Control Programme (RNTCP) uses sputum negativity as prognostic indicator but does not consider any other dimension of health. Apart from physical symptoms, TB patients face social and economic problems. Therefore, the overall impact of TB on health and patients' perception of well being should be considered. This can be performed by measuring the Quality of Life (QoL) [4].

At present, much of the attention within tuberculosis (TB) management is spent on microbiological cure, and its impact on health-related quality of life (HRQoL) is either undervalued or seldom considered [5]. Even, the most recent guidelines on the management of TB are silent on this critical aspect [6]. Existing literature shows that TB has substantial and encompassing impact on HRQoL of infected patients. For example, studies showed that as compared with the general population, TB patients reported deficits in their physical and mental well-being [7-11].

With regard to the impact of TB treatment on HRQoL, only two longitudinal studies from Asia are available in medical literature [12,13], although none used widely acceptable HRQoL assessment tool. Likewise, published literature shows that, amongst the TB patients in the population, there is a paucity of research with regard to HRQoL. With these voids in literature, this study was undertaken to evaluate the impact of TB treatment on HRQoL of smear positive pulmonary PTB patients. The main aim of study was to determine whether the selected socio-demographic and clinical characteristics were predictive of variability in the HRQoL scores.

## Methodology

A cross sectional study was undertaken in the Chalalkere Tuberculosis Unit of Chitradurga district for a period of two months between February and March, 2017. About 60 patients who are treatment for tuberculosis attending the tuberculosis unit were included as the study samples. The patients thus selected were obtained an informed, bilingual and written consent.

*Inclusion Criteria*

1. All the patients irrespective of resistant on non resistant TB who attended the tuberculosis unit during the study period.
2. Patients who are on treatment with all categories of treatment

*Exclusion Criteria*

1. Pregnant TB women of all trimester.
2. Pediatric TB.

About 60 patients thus selected were subjected for the thorough history and clinical examination was conducted. The patients thus selected were administered with the questionnaire. The study tool consists of Variables pertaining to Socio Demographic characteristics. WHO QoL SF 36questionnaire. It had eight domains viz: Physical functioning (PH), Role limitation due to Physical health (RP), Body Pain (BP), General health (GH), Role limitation due to emotional problem (RE), Energy/fatigue (VT), Emotional well being or Mental Health (MH), and Social functioning (SF). Physical Component Summary (PCS) was calculated by average of PH, RP, BP and GH and Mental Component Summary contained RE, VT, MH and SF. Data was collected after explaining the purpose of the study and informed verbal consent was obtained from each patient. The scoring scale ranged between 0 (minimum) and 100 (maximum).

The data thus obtained was entered in a excel spreadsheet and compiled and analysed using Statistical Package for Social Services (SPSS vs 20). The categorical data was presented as frequencies and percentages and quantitative variable were presented as mean and standard deviation. Chi square test was used as the test of significance for categorical variables and independent sample t test and Analysis of variance (ANOVA) was used as test of significance for the quantitative variables. A p value of less than 0.05 is considered as statistically significant.

## Results

The table 1 shows that, the mean age of the males was 39.3 years and females was 36.8 years which was not statistically significant between the males and females. Among males most of the patients were aged between 31 – 40 years and among females 38.1% were aged between 21 – 30 years.

The distribution of the study group according to socio economic status had shown that, about 46.2% of the males and 85.7% of the females belonged to class II of socio economic status. There was a statistically significant difference between the socio economic status of the males and females (Table 2).

The mean score of the physical component summary (PCS) was 54.1, mental component summary (MCS) was 48.6, physical functioning (PH) was 62.1, role limitation due to physical health (RP) was 52.2, body pain was 60.2, general health was 41.7, role limitation due to emotional problem was 54, energy/ fatigue was 44.4, mental health was 46.7 and social functioning was 49.2 (Table 3).

The mean value of mental component summary, role limitation to physical health, body pain, general health, role limitation due to emotional problem were higher for males and physical component summary, physical functioning and social functioning were higher for females. The energy/ fatigue and mental health were equal for both males and females (Table 4).

The mean value of physical component summary, mental component summary, physical health and mental health were higher for class III of SES, RP, MH and VT were higher for Class V of SES and BP was higher for class I of SES (Table 5).

**Table 1:** Distribution of the study group according to age

| Age in years | Male N (%) | Female N (%) |
|---|---|---|
| Less than 20 years | 1 (2.6) | 0 |
| 21 – 30 years | 8 (20.5) | 8 (38.1) |
| 31 – 40 years | 15 (38.5) | 6 (28.6) |
| 41 – 50 years | 7 (17.9) | 4 (19.0) |
| 51 – 60 years | 4 (10.3) | 2 (9.5) |
| More than 60 years | 4 (10.3) | 1 (4.8) |
| Total | 39 (100) | 21 (100) |
| Mean ± SD | 39.3 ± 13.1 | 36.8 ± 12.5 |
| T value | 0.731 | |
| P value, Sig | 0.468, NS | |

**Table 2:** Distribution of the study group according to Socio economic status

| SES | Male N (%) | Female N (%) |
|---|---|---|
| Class I | 8 (20.5) | 1 (4.8) |
| Class II | 18 (46.2) | 18 (85.7) |
| Class III | 8 (20.5) | 1 (4.8) |
| Class IV | 3 (7.7) | 0 |
| Class V | 2 (5.1) | 1 (4.8) |
| Total | 39 (10) | 21 (100) |

$\chi^2$ Value=9.695 df=4 p value=0.046, Sig

**Table 3:** Distribution of the study group according to mean value of different dimensions of Quality of Life

| QOL | Mean | Std deviation |
|---|---|---|
| PCS | 54.1 | 4.2 |
| MCS | 48.6 | 4.2 |
| PH | 62.1 | 10.9 |
| RP | 52.2 | 6.6 |
| BP | 60.2 | 9.7 |
| GH | 41.7 | 6.6 |
| RE | 54.0 | 11.1 |
| VT | 44.4 | 6.7 |
| MH | 46.7 | 10.4 |
| SF | 49.2 | 8.7 |

**Table 4:** Distribution of the study group according to different dimensions of Quality of Life and sex

| Sex | PCS | MCS | PH | RP | BP | GH | RE | VT | MH | SF |
|---|---|---|---|---|---|---|---|---|---|---|
| Male | 54.0 (± 3.9) | 49.3 (± 3.9) | 61.2 (±9.6) | 52.6 (± 6.6) | 60.4 (± 10.0) | 41.8 (± 6.9) | 55.2 (± 13.2) | 44.0 (± 7.1) | 44.8 (± 9.1) | 44.8 (± 7.1) |
| Female | 54.2 (±4.9) | 47.2 (±4.7) | 63.8 (± 13.1) | 51.4 (± 6.5) | 59.8 (±9.3) | 41.6 (±6.2) | 51.9 (±7.1) | 44.0 (± 7.1) | 44.8 (± 9.1) | 51.6 (±8.6) |

**Table 5:** Distribution of the study group according to different dimensions of Quality of Life and socio economic status

| SES | PCS | MCS | PH | RP | BP | GH | RE | VT | MH | SF |
|---|---|---|---|---|---|---|---|---|---|---|
| Class I | 53.5 (± 4.6) | 48.5 (± 5.0) | 57.5 (±9.8) | 48.5 (± 6.5) | 65.9 (± 10.9) | 42.0 (± 7.4) | 54.8 (± 9.1) | 42.3 (± 5.0) | 47.1 (± 13.9) | 49.8 (± 9.3) |
| Class II | 54.2 (± 4.7) | 48.2 (± 4.2) | 62.4 (±11.3) | 52.9 (± 6.3) | 59.2 (± 10.3) | 42.2 (± 6.7) | 53.4 (± 10.3) | 45.4 (± 6.4) | 45.1 (± 9.3) | 48.8 (± 9.7) |
| Class III | 54.5 (±3.2) | 49.6 (±3.3) | 64.5 (± 8.7) | 52.8 (± 8.1) | 62.5 (±4.1) | 38.0 (±4.7) | 54.3 (±13.4) | 43.8 (± 8.5) | 50.0 (± 11.8) | 50.4 (±7.5) |
| Class IV | 53.4 (± 2.5) | 48.6 (± 3.5) | 61.0 (±12.3) | 54.0 (± 5.3) | 52.3 (± 6.7) | 47.7 (± 3.8) | 54.0 (± 12.2) | 46.3 (± 7.6) | 46.0 (± 3.5) | 48.0 (± 3.5) |
| Class V | 53.4 (± 2.5) | 50.7 (± 6.9) | 67.3 (±16.1) | 50.7 (± 6.4) | 55.7 (± 2.5) | 39.7 (± 7.2) | 58.3 (± 23.2) | 38.7 (± 8.3) | 55.0 (± 11.5) | 50.7 (± 3.2) |

## Discussion

Tuberculosis remains a major public health problem worldwide. Tuberculosis is one of the leading causes of mortality and morbidity around the world, infecting approximately 8 billion people, with an annual death rate of close to 1 million. The Revised National Tuberculosis Control Programme (RNTCP) uses sputum negativity as prognostic indicator but does not consider any other dimension of health. Apart from physical symptoms, TB patients face social and economic problems.

At present, much of the attention within tuberculosis (TB) management is spent on microbiological cure, and its impact on health-related quality of life (HRQoL) is either undervalued or seldom considered [5]. Even, the most recent guidelines on the management of TB are silent on this critical aspect [6]. Existing literature shows that TB has substantial and encompassing impact on HRQoL of infected patients. For example, studies showed that as compared with the general population, TB patients reported deficits in their physical and mental well-being [7-11].

The mean age of the males was 39.3 years and females was 36.8 years which was not statistically significant between the males and females. Majority of the males were aged between 31–40 years and 38.1% of the females were aged between 21–30 years. In a study by Atif et al, majority of the patients were aged above 45 years unlike this study and males outnumbered females [15]. In a similar study by Patel PG et al, the mean age of the males was 34.12 years abd females was 32.9 years [16].

The education of the study group had shown that, about 35.9% of the males were illiterates and 52.4% of the females were educated up to 1–10th. In a similar study by Atif et al, majority had primary level of education [15]. Similar results were also obtained by Patel et al [16].

About 46.2% of the males and 85.7% of the females belonged to class II of socio economic status. In a study by Atif et al, majority of the patients had income of more than 1000 [15]. In a study by Patel et al, most of the patients belonged to lower socio economic status [16].

Majority of the males and females were married. In a similar study by Atif et al, 62% of the patients were married [15]. Similar results were also obtained by Patel et al [16].

About 25.6% of the males and 42.9% of the females were consuming tobacco in this study. In a similar study by Atif et al, half of the patients were using tobacco [15]. Patel et al have observed that 71% of the males and 44.6% of the females were addicted to tobacco [16].

The mean score of the physical component summary (PCS) was 54.1, mental component summary (MCS) was 48.6, physical functioning (PH) was 62.1, role limitation due to physical health (RP) was 52.2, body pain was 60.2, general health was 41.7, role limitation due to emotional problem was 54, energy/fatigue was 44.4, mental health was 46.7 and social functioning was 49.2. In study by Atif et al, the PF, RP, BP, GH, VT, SF, RE and MH improved upon the treatment with ATT [15]. In a similar study by Patel et al, the mean score of QoL was 53.46, 56.43 (PCS), 50.49 (MCS), 68.53 (PH), 50.97 (RP), 58.74 (BP), 47.5 (GH), 55.37 (RE), 44.67 (VT), 47.7 (MH) and 54.24 (SF). The most affected domains were vitality, general health and emotional well being [16].

The mean scores of PCS were higher for 41–50 years of age group, MCS was higher for the less than 20 years of age group, PH was higher for 41 – 50 years of age group, RP was higher for 51– 60 years, BP was higher for 21–30 years,

the mean GH was higher for 31–40 years of age group, RE was higher for 51–60 years of age group, VT was higher for 21– 30 years of age group, MH was higher for 21–30 years of age group and SF was higher was higher for 21–30 years. Similar results were also noted by Patel et al. [16].

The mean value of mental component summary, role limitation to physical health, body pain, general health, role limitation due to emotional problem were higher for males and physical component summary, physical functioning and social functioning were higher for females. The energy/ fatigue and mental health were equal for both males and females. Patel et al. also obtained similar results [16].

The physical component summary and role limitation due to physical health (RP) were higher for the patients who had education above 10$^{th}$ standard. Mental component summary, boy pain and social functioning were higher for those who were educated up to 10$^{th}$, physical health, general health, role limitation due to emotional problem and mental health were higher for illiterates. Patel et al in a similar study also obtained similar results [16].

The mean value of physical component summary, mental component summary, physical health and mental health were higher for class III of SES, RP, MH and VT were higher for Class V of SES and BP was higher for class I of SES. Similar results were also obtained by Patel et al. [16].

The mean value of physical component summary, physical health, role physical functioning, Bodily pain, general health, Role emotional and energy/ fatigue was higher for widow/widower. Mental component summary, physical health and social functioning were higher for married patients. Mean value of mental health was higher for unmarried patients. Patel et al also obtained similar results [16].

## Conclusion

The general public needs to be educated about the early diagnosis and prompt treatment of the tuberculosis may cure the disease and hence improve the quality of life of the patients. The tuberculosis patients need a strong social support from the family and society in order to improve the Quality of life. The depression and social stigma can be reduced by health education during diagnosis especially to the female patients. Lower QoL of patients can be associated to high side effects of drugs and concerned authorities can focus the attention to control these side effects.

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