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**Original research article**

# A study of quality of life in patients with TB

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**Abstract**

There is an ever-increasing interest in evaluating and improving quality of life among patients with chronic diseases. In this respect, tuberculosis is considered as one of the illnesses that can seriously undermine QOL. The factors that have been cited as most important in influencing QOL in patients affected with TB, have been long-term treatment; multi-drug therapy; toxic reactions and side effects of medications; adherence to drug regimen; social impacts; social support; social acceptance of the illness; family; changes in lifestyle; patients' marital status; extent of access to health care services; socioeconomic status; patients' and their family's knowledge of the illness, treatments; as well as complications of tuberculosis. Currently, tuberculosis management strategy is based on preventing mortality and avoiding morbidity. Quality of life monitoring is the best method for achieving this goal.

**Keywords:** Quality of life, TB, chronic disease

## Introduction

There is an ever-increasing interest in evaluating and improving quality of life among patients with chronic diseases. Stress is "any external event or internal drive which threatens to upset the organismic equilibrium" [1]. Medical illness is one such state where, at times, the person may find it difficult to overcome the stress. Medical illnesses and stress have a bi-directional relationship. Medical illnesses usually lead to an increase in perceived stress of the person and the stress will, in turn, adversely affect the outcome of the illness in some conditions. Hospitalization can lead to a further increase in stress as it can be a very traumatic experience where people have to move their life setting from a familiar to an unfamiliar environment, with the loss of a sense of security and individuality [3]. Quality of life has been defined as "an individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, concerns". It is a broad ranging concept affected in a complex way by the persons' physical health, psychological state, level of independence, social relationships and their relationship to salient features of their environment [4]. Quality of life has been shown to be negatively affected in patients suffering from illnesses like diabetes mellitus, hypertension and tuberculosis and often found to be associated with higher levels of stress and psychological co-morbidities [5, 6]. Quality of life has also been linked to treatment adherence with poor treatment adherence often associated with poor quality of life [7]. In this study, we aimed to examine the relationship between perceived stress levels, quality of life and treatment adherence in patients hospitalized with Tuberculosis. 100 patients admitted in the general medicine ward were approached and, after obtaining informed consent, perceived stress, quality of life and treatment adherence was assessed using the Perceived Stress Scale (PSS-10), World Health Organization Quality of Life scale-Bref version (WHOQOL-BREF) and Morisky Medication Adherence Questionnaire (MMAS-4). Sociodemographic and clinical features were also assessed and relationship between all the variables was studied.

## Objectives

1. To study the levels of perceived stress and the quality of life and their association in TB.

## Materials and Methods

- **Design:** Cross-sectional design.
- **Study population and setting:** 100 patients admitted in the general medicine wards.

**Inclusion criteria**

1. **Age:** 18-80 years.
2. Those who gave written informed consent.
3. Known TB case.

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**Exclusion criteria**

1. Patients unwilling and uncooperative for the study.
2. Patients suffering from dementia, delirium or any psychiatric conditions impairing their competence to understand the procedure and give consent.

- **Sampling method:** Convenience sampling.
- **Study duration:** 6 months.

**Measures**

- Socio-demographic profile sheet.
- **Clinical profile sheet:** Contained contain items like the number of medications, number of hospitalizations and surgeries in the past year.
- **Perceived Stress scale (PSS-10)[31]:** It is the most widely used psychological instrument for the measurement of the perception of stress. It is a 10-item scale with good reliability and validity and has been used in various population samples including people with chronic medical illnesses to assess the levels of perceived stress.
- **World Health Organization Quality of Life-Bref Version (WHOQOL-BREF)[32]:** It places emphasis on subjective evaluation of respondent's health and living conditions. Four domains of QOL are measured-physical health, psychological health, social relationship and environment. The scale has 26 items scored from 1 to 5 with total score range of 26-130. Its psychometric properties have been found to be comparable to those of the full version (WHOQOL-100). The scale has shown good discriminant validity, concurrent validity, internal consistency and test-retest reliability.
- **Morisky Medication Adherence scale (MMAS-4)[33]:** It is a 4 item scale measuring treatment adherence.

Statistical analysis:

- Descriptive analysis was carried out using mean and standard deviation with range for continuous variables of the socio-demographic profile sheet, clinical profile sheet and other scales (mean total scores on the PSS-10, total scores on the domains of WHOQOL-BREF and MMAS-4 mean total score).
- Descriptive analysis was computed in terms of frequency and percentage for discrete variables of the socio-demographic profile sheet, clinical profile sheet and other scales.

**Results**

The results of the study are presented under the following headings:

I. Socio-demographic profile of the patients.
II. Perceived stress scale (PSS-10), Quality of life (WHOQOL-BREF) scores and Treatment adherence (MMAS-4) scores.

I. Socio-demographic profile of patients

**Table 1:** Socio-demographic profile of patients [N = 200]

| Socio-demographic variables | Mean (S.D)/N |
|---|---|
| Age | 44.97(14.41) [range 18-76] |
| Education-number of years | 6.73(4.35) [range 0-15] |
| Gender | |
| Male | 39 |
| Female | 61 |
| Current marital status | |
| Currently married | 47 |
| Currently unmarried | 53 |
| Education | |
| Below Matric | 10 |
| Matric and above | 90 |
| Current employment status | |
| Currently unemployed/retired/student/housewife | 60 |
| Currently employed | 40 |
| Socioeconomic status | |
| Upper | 2 |
| Upper middle | 17 |
| Lower middle | 23 |
| Upper lower | 51 |
| Lower | 7 |
| Socioeconomic status | |
| Upto lower middle | 25 |
| Upper middle and higher | 75 |

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| | |
|---|---|
| Religion | |
| Hindu | 35 |
| Muslim | 62 |
| Christian | 3 |
| Family type | |
| Nuclear | 24 |
| Non-nuclear | 76 |
| Locality | |
| Urban | 60 |
| Rural | 40 |
| Head of the family | |
| Yes/No | 9/91 |

II. Perceived Stress Scale (PSS-10), Quality of Life (WHOQOL-BREF) and Treatment Adherence (MMAS-4) scores.

**Table 2:** Perceived Stress Scale, WHOQOL-BREF and MMAS-4 scores [N=200]

| | **Mean (SD) [range]** |
|---|---|
| Perceived Stress Scale | |
| Total score | 16.34(5.89) [range 4-31] |
| WHOQOL-BREF | |
| Overall quality of life and general health | 7.39 (1.69) [range 2-10] |
| Physical health | 25.68 (4.41) [range 11-35] |
| Psychological health | 22.39 (4.11) [range 9-30] |
| Social relationships | 11.78 (1.75) [range 6-15] |
| Environment | 29.42 (4.67) [range 13-40] |
| MMAS-4 | |
| Total score | 2.03 (1.43) [range 0-4] |

**Discussion**

Stress is a universal phenomenon which is often experienced in day to day life. In milder amounts, it can drive the person to achieve his goals and be beneficial, provided it is acknowledged and there is no imbalance in the person's equilibrium. But higher amounts of stress may often lead to disturbance in day to day functioning and, if not effectively managed, may also lead to development of mental health problems like depression, anxiety, etc. Coping mechanisms usually help the person to manage the stress and return to the state of equilibrium. But major and continuous stressors like medical illnesses put a significant strain on the person's coping resources and the person may be unable to cope with the stress, eventually leading to worsening of the overall condition of the patient. Medical illnesses and stress have a bi-directional relationship, with one significantly affecting the other. Morbidity due to medical illness often leads to restriction of movements, loss of autonomy, inability to work, hospitalization, increased financial burden which worsen the stress. In addition, the medical illness makes it difficult for the person to engage in routine activities which serve as coping mechanisms, thus further worsening the stress. This is especially significant when a person is hospitalized which entails loss of autonomy, security, privacy and additional financial burden on the person which greatly adds to the existing stress level. Stress, in turn, especially in moderate to high levels, has been shown to worsen the morbidity of medical illness. Stress has also been shown to significantly impact the quality of life of the medically ill persons and lead to greater incidence of psychological comorbidities. Stress and quality of life have also been shown to have an impact on adherence to treatment. Quality of life and treatment adherence have often been found to be correlated, with better treatment adherence often associated with a greater quality of life.

In this study, we examined the levels of perceived stress, quality of life and treatment adherence in patients admitted to a general medicine ward with varying ailments. We also attempted to examine the association between the aforementioned factors, along with their association to sociodemographic and clinical variables.

The mean total Perceived Stress Scale (PSS-10) score was found to be 16.34(5.89) [range 4-31] with categorization of the scores into low, moderate and high stress level groups showing 32%, 61.5% and 6.5% of the patients falling into the three groups respectively. This is similar to some of the previous studies done on perceived stress using the PSS-14 scale [8, 9]. Perceived stress was found to be more in patients belonging to lower socioeconomic status, indicating a lack of financial resources increases the stress associated with medical illness and hospitalization.

The total domain scores of the domains of physical health, psychological health, social relationships and environment on the WHOQOL-BREF were found to be 25.68 (4.41) [range 11-35], 22.39 (4.11) [range 9-30], 11.78 (1.75) [range 6-15] and 29.42 (4.67) [range 13-40]. After conversion of the raw scores into transformed scores on a 0-100 scale and categorization into low, moderate and high levels of quality of life, high levels of quality of life was noted in 58.5%, 64%, 87% and 59% in the four domains of WHOQOL-BREF, with less than 10% of the participants reporting low quality of life in each of the

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domains. These scores are much higher than most of the studies reported [5, 10]. One of the possible causes of the high scores can be the lower severity of the illness in the patients interviewed. The patients who were severely ill were often not in a position to provide consent and answer the whole questionnaire. No ICU patients were included in the study and the patients were only chosen from the general medicine wards. Improvement in symptoms after admission and the easy and cheap access to healthcare for most patients may have also played a role in patients subjectively reporting a higher quality of life. Lower socioeconomic status was found to be associated with lower quality of life in all four domains of WHOQOL-BREF. Older age, unemployment with more number of hospitalizations in the past year was found to be significantly associated with lower physical health quality of life, while married patients reported a greater quality of life in the social relationships domain.

Treatment adherence rates were measured using the MMAS-4 and the mean score was found to indicate partial adherence rates on an average [2.03 (S.D-1.43)]. The main reasons for non-adherence were found to be the patients stopping the medicines when they either feel better after taking them or when they feel worse when taking the medicines. This rate of partial adherence to medication is in line with most of the other studies done on treatment adherence [11].

**Conclusions**

This study reflects the stress, quality of life and treatment adherence characteristics of the local population and may not be reflective of the general population in the rest of India.

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