BURDEN BEYOND THE DISEASE: QUALITY OF LIFE ASSESSMENT AMONG TUBERCULOSIS PATIENTS AT MAYO HOSPITAL, LAHORE

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Abstract
Background: *Tuberculosis symptoms especially loss of weight, loss of appetite, fever, fatigue and body pain can adversely affect the patient's role in a society. With regard to pulmonary tuberculosis (PTB), the patients usually present themselves with a history of chest symptoms such as cough (productive or non-productive), chest pain and hemoptysis.*

Objectives: *To assess the health-related quality of life (HRQoL) among patients diagnosed with tuberculosis and to identify the physical, psychological, social, and environmental factors influencing their quality of life during treatment.*

Method: *A descriptive cross sectional study design was conducted at Mayo hospital Lahore, Punjab. Data were collected with help of close ended survey questionnaire regarding assessment of health related quality of life among tuberculosis patient. Data were analyzed with help of SPSS using mean   standard deviation and chi square test with a p less than 0.05*

Results: *Out of 117 patients 41% of the Tuberculosis were male and 59.0% female. Age distribution revealed that 54.7% were aged between 55 and 65 years. According health-related quality of life among TB patients, revealing that 3.4% had poor quality of life, 69.2% had average quality of life, and 27.4% had good quality of life in Pakistan.*

Conclusion: *The study emphasized the importance of addressing environmental and psychological health factors influencing quality of life. Gender and age emerged as significant demographic factors, with females and individuals over 55 showing poorer quality of life. These findings highlight the need for targeted interventions to improve the well-being of tuberculosis patients.*

INTRODUCTION

Tuberculosis symptoms especially loss of weight, loss of appetite, fever, fatigue and body pain can adversely affect the patient's role in a society. With regard to pulmonary tuberculosis (PTB), the patients usually present themselves with a history of chest symptoms such as cough (productive or non-productive), chest pain and hemoptysis. These PTB-specific symptoms can further limit the patient's role in work and social activities. In some communities, TB patients have to face social rejection and isolation because they are considered to be a source of infection for the healthy individuals (1, 2).

Social stigma about TB can also affect mental states of the patients. Individual perception regarding the

impact of the diseases on their daily activities and functioning is known as health-related quality of life (HRQOL). It is important to evaluate HRQOL in patients, particularly in chronic disease like TB who's physical, mental, and social health is affected by the diseases and its treatment in the long term. Understanding HRQOL of patients will enable better design of a patient-oriented TB intervention that can improve health status and HRQOL of patients (3).

Quality of life as a person's perception of his or her physical and mental health (4)It covers broad domains including physical, psychological, economical, spiritual and social wellbeing (5)According to WHO ,Health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (6).

The importance of patient perceived health status has gained increased recognition in the treatment of disease and disease outcomes. A study found that people with chronic health conditions valued mental and social health nearly as much as they valued physical health outcomes (7). QOL has become an accepted outcome measure in clinical research, and advances have been made in assessing the impact of many diseases on QOL (8). The few studies of QOL in TB suggest a substantial burden on patients' QOL. International studies show that TB patients experience stigma and social isolation from acquaintances, friends and family members (9-12).

Social isolation associated with Tuberculosis and burden of treatment subsequently have an effect on patient's health related quality of life (1). Knowing patients' health related quality of life would enable program managers and clinicians to understand the functioning and wellbeing of Tuberculosis patients so that individual patient-specific needs are addressed to attain the best clinical or treatment outcome, and thus increasing the likelihood of adequate case management in Tuberculosis programs (13).

Tuberculosis has been one of the leading causes of mortality and morbidity in the world especially in the developing countries like Pakistan. Tuberculosis impact the health-related quality of life that perceived health status reduced can lead to depression and medication non adherence which

can further leading causes of medical condition (14). Tuberculosis interferes with various aspects of patients' health and well-being, including physical, psychological, financial, and social domains. This disease itself adversely affect patients' ability to perform daily living activities. Besides, prolonged duration of therapy with multiple drugs can lead to concerns about adverse drug reaction and economic problem (15). Very few studies have been carried out to focus on quality of life among tuberculosis patients (16). Very limited data is available regarding health-related quality of life of tuberculosis patients in developing countries especially in Pakistan. The purpose of this study was to identify areas of quality of life affected by. We used focus groups and individual interviews with patients with a history of active tuberculosis and clinicians who treat Tuberculosis patients, to identify domains of quality of life most salient to these patients.

Material and Method
The study employed a descriptive cross-sectional design, focusing on patients admitted to Mayo Hospital Lahore over a duration of four months following the approval of the data collection permission letter. The sample size was calculated using Taro Yamane's formula, which resulted in a desired sample size of 157 patients. After accounting for a 40% dropout rate, the final sample size was adjusted to 117 patients. Inclusion criteria specified that participants must be aged 42 to 65 years, regardless of gender, while exclusion criteria ruled out patients admitted to the private side, those in non-critical areas, and individuals unwilling to participate. Data collection utilized a close-ended survey questionnaire tailored to assess health-related quality of life among tuberculosis patients. The questionnaires were distributed alongside consent forms to eligible patients in the tuberculosis ward at Mayo Hospital Lahore. After collection, the completed questionnaires were digitized for analysis, with participants assured that their data would remain confidential. Data analysis was conducted using SPSS version 25 and Excel, employing descriptive statistics to generate frequencies and bar charts, and inferential statistics utilizing chi-square tests with a significance level of $p < 0.05$ to assess

health-related quality of life among tuberculosis patients.

Results

Table 1: Demographic variables of the T.B patients			
Variables		Frequency	Percent
Gender	Male	48	41.0
	Female	69	59.0
	Total	117	100.0
Analyzed by frequency and percentage			

Table 1 shows that there were 117 participants with tuberculosis (TB). According to gender, 48 (41%) were male and 69 (59%) were female. Regarding age, 53 (45.3%) participants were between 42–54 years, and 64 (54.7%) were between 55–65 years. The total number of participants aged 42–65 years was 117 (100%). This indicates that the majority of the study participants were female [69 (59%)] and most were older adults aged 55–65 years 64 (54.7%).

Table 2: Health related Quality of life among T.B Patients				
	n	%	X	S.D
Poor Quality of Life 22-50	4	3.4	72.13	10.523
Average Quality of Life 51-79	81	69.2		
Good Quality of Life 80-110	32	27.4		
Total	117	100.0		
Analyzed by frequency, percentage, mean and standard deviation				

Table 2 presents the analysis of health-related quality of life among TB patients using frequency, percentage, mean, and standard deviation. Among the participants, 4 (3.4%) had poor quality of life, 81 (69.2%) had average quality of life, and 32 (27.4%) had good quality of life. The mean score was 72.13 with a standard deviation of 10.523.

Table 3: Quality of life analyzed by X and SD among T.B patient		
Sub heading	Mean	Standard deviation
General Health of T.B patents	5.8803	1.49229
Physical Health of T.B patient	16.5214	4.34622
Psychological Health of T.B patient	16.1709	4.00924
Social relationship of T.B patient	10.0094	2.51884
Environment of T.B patient	23.4615	4.69324
Analyzed by frequency, percentage, mean and standard deviation		

Table 3 presents the mean and standard deviation of various factors affecting the quality of life among tuberculosis (TB) patients. The general health of TB patients had a mean score of 5.8803 with a standard deviation of 1.49229. Physical health had a mean of 16.5214 (SD = 4.34622), psychological health had a mean of 16.1709 (SD = 4.00924), social relationships had a mean of 10.0940 (SD = 2.51884), and environmental health showed the highest mean score of 23.4615 (SD = 4.69324). It can be concluded that the most affected domain of quality of life was general health, followed by social relationships, psychological health, and physical health. Environmental health was the least affected, indicating relatively better outcomes in this domain. Moreover, environmental health was significantly

associated with improved health-related quality of life among TB patients, while physical health was found to have a negative impact on their overall quality of life.

Table 4: Factors affecting the quality of life among T.B patients.				
		Quality of life of T.B patients		Total	P-Value
		22-50 Poor Quality of Life	**51-79** Average Quality of Life		
Gender	**Male**	29	19	48	
	Female	38	31	69	0.000
Age	**42-54**	30	23	53	
	55-65	37	27	64	0.000
Total		67	50	117	
Analyzed by frequency, percentage, mean and standard deviation					

Table 4 presents the significance of factors affecting the quality of life among tuberculosis (TB) patients, specifically focusing on two demographic factors: age and gender. The analysis shows a significant association between gender and quality of life, as well as between age and quality of life. Female participants were found to have a poorer quality of life compared to male participants, with a p-value of 0.000, which is statistically significant ($p < 0.05$). Similarly, participants aged over 55 years showed poorer quality of life compared to those under 55 years, also with a p-value less than 0.05. Therefore, it is concluded that gender and age are significantly associated with the quality of life among TB patients. Female gender is more adversely affected than male, and increasing age is negatively associated with quality of life indicating that as age increases, quality of life tends to decrease.

Discussion
The study examined the factors influencing the quality of life among individuals with tuberculosis (TB). It involved 117 participants diagnosed with TB, with 48 (41%) being male and 69 (59.0%) female. In terms of age distribution, 53 (45.3%) participants were aged between 42-54 years, while 64 (54.7%) were aged between 55-65 years, making a total of 117 (100%) participants falling between the ages of 42-65 years. These findings suggest a predominance of female participants (59.0%) and a higher representation of older individuals aged 55-64 (54.7%) in the study cohort.

Similarly, in a study conducted by Asuquo and colleague in Akwa Ibom State, Nigeria, participants were predominantly aged between 25 and 44 years, with an average age of 38.9 years. Within this group, there were more females (35, 32.4%) than males (24, 22.2%). These findings align with our study's results, indicating that the female gender is more affected compared to males, and with a p-value of 0.000, which is below the significance threshold of 0.05. Furthermore, an increase in age is negatively correlated with the quality of life, suggesting that as age increases, there is a decline in quality of life (17). Additionally, Sartika and colleague conducted a cross-sectional study in Osun State, Nigeria, in 2018. The findings revealed that the mean age of participants was 36.7 years. The initial mean health-related quality of life score recorded upon enrollment was 43.18, which increased to 60.22 after 2 months. This finding is comparable to our study, where the majority of participants were in the older age bracket of 55-64 years Sartika, Insani (18).

However, according to a study conducted by Falah in 2018 the results revealed that the mean age of tuberculosis (TB) patients was 27.4 years, ranging from 18 to 84 years old. The male-to-female ratio was 1.96:1, indicating a higher proportion of males (66.3%) compared to females (52.4%). Our study concluded that TB patients were most affected in terms of general health, with a mean score of 5.8803, followed by social relationships with a mean score of 10.0094, psychological health with a mean score of 16.1709, physical health with a mean score of

16.5214, and environmental health with a mean score of 23.4615 (19).

Similarly, the findings from Yasobant and Colleague study revealed a total mean score of 45.35 across all domains. Specifically, the mean scores for the physical domain were 20.5 (with a standard deviation of 9.9), for the physiological domain 76.4 (with a standard deviation of 11.9), for social relationships 36.9 (±9.2), and for environmental health domains 46.9 (±10.4). Importantly, there was a significant association observed between improved health-related quality of life and the environmental health domain. The study provided evidence of negative impacts on patients' health-related quality of life, with the physical domain being the most affected (1). Similarly, study of jaber and colleague conducted a prospective study in Yemen. The study findings indicated a final dropout rate of 16.2%. The initial physical component score and mental component scores at the onset of treatment were notably low, reflecting the poor health condition of tuberculosis patients. The mean physical component scores at the beginning, end of induction phase, and end of treatment were recorded as 36.1, 44.9, and 48 respectively. Similarly, the mean mental component score at the beginning, end of induction phase, and end of treatment were 35.1, 42.2, and 44.3 respectively (20).

The present research revealed that the physical domains have a negative influence on the health-related quality of life of tuberculosis patients, indicating a lower quality of life among them. Similarly a study conducted by sule and colleague in Kara state, Nigeria, revealing mean scores of 11.10 for environmental health and 11.44 for psychological health domains, indicating considerable challenges in these areas (21). The study also explored the associations between the health-related quality of life and the patients' educational status, age, gender, and occupational class. Despite a minimum of two months of treatment with anti-tuberculosis drugs, the study suggested that the health-related quality of life among pulmonary tuberculosis patients remained significantly impaired across all health domains. Both environmental and psychological health factors notably impacted the quality of life of TB patients, which corresponds with our study's findings regarding the factors influencing the quality of life of

tuberculosis patients. It was concluded that among TB patients, the most affected aspect of quality of life was general health, followed by social relationships, psychological health, physical health, and lastly, environmental health.

Conclusion: The study concludes that tuberculosis predominantly affects older adults, with a higher proportion of female patients experiencing poorer health-related quality of life. Gender and age were identified as significant factors influencing quality of life, with females and individuals over 55 years showing notably lower scores. These results underscore the importance of targeted interventions addressing environmental and psychological aspects to improve the overall well-being of TB patients.

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