HEALTH RELATED QUALITY OF LIFE (HRQoL) OF PATIENTS WITH MULTIDRUG-RESISTANT TUBERCULOSIS (MDR-TB) IN TAMIL NADU

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ABSTRACT

India has a high prevalence of tuberculosis and multidrug-resistant tuberculosis cases.The COVID-19 pandemic increased the risk and vulnerability of patients across the globe and also added a huge impact on the MDR-TB patients. Health Related Quality of Life is an important parameter which assess the health related aspects of individuals. The study focuses on the Health Related Quality of Life of MDR-TB patients in Chennai and Madurai districts of Tamil Nadu. Chennai was classified into three zones for the study. A cross-sectional design with quantitative research method was used. 620 respondents were selected for the study using census sampling method from the various TB Units in both districts. Eight sub-scales of the HRQoL scale along with a semi-structured interview schedule was used for collecting the data. The data reveals that patients in Chennai and Madurai districts of Tamil Nadu possess moderate levels of HRQoL, energy or fatigue, emotional wellbeing and general heath. And, high levels of physical functioning, role of limitation, social functioning, pain, and emotional problem.

Keywords: Health Related Quality of Life, HRQoL, tuberculosis, MDR-TB

INTRODUCTION

Health is one of the vital aspects for all individuals as well as a global human right. Health Related Quality of Life or HRQoL is an important parameter used to assess the health and allied aspects of an individual. It is a vital component of public health. MDR-TB (Multidrug-Resistant Tuberculosis) is a deadly infectious illness, and India has one of the highest MDR-TB burdens in the world. It is important to assess the HRQoL of MDR-TB patients and it also lays down the impact of the treatment received by the patients. It not only looks into the sicknessbut also all health related aspects.

LITERATURE REVIEW

Tuberculosis or TB is a global health problem. It's the second greatest infectious agent killer, killing almost 2 million people annually, largely in developing countries. Two variables

contribute to the present TB epidemic's morbidity and mortality. Multidrug-Resistant Tuberculosis (MDR-TB) bacteria accumulate mutations in target genes due to anti-TB medication selective pressure. MDR-TB strains are a severe challenge to TB control and management. MDR-TB threatens WHO's goal of eliminating TB by 2050. Early detection is key to managing MDR-TB patients(Ahmad & Mokaddas, 2010).Drug-resistant tuberculosis is caused by ineffective regimen, poor drug quality, irregular drug supply, and poor adherence to therapy. Prevention is better than treatment for MDR-TB. MDR-TB can't be healed as quickly as it was caused by irregular TB management. Inappropriate regimen, low medication quality, inconsistent drug supply, and poor adherence to treatment suggest inability to implement an effective TB control programme(Yew & Chiang, 2010).

DR-TB is spread by inhaling infectious airborne particles from an infected person's lungs. Infected patients are sputum smear- or culture-positive. Droplet nuclei containing mycobacteria occur when TB patients cough, sneeze, or speak loudly. Droplets can float or contaminate dust. Inhaling a nucleus containing 10 mycobacteria can cause infection. Droplet nuclei containing DR-TB cause drug-resistant TB infections. Diabetes, silicosis, cancer, organ transplantation, long-term use of immunosuppressants or corticosteroids, HIV/AIDS, poverty, poor living circumstances, and malnutrition contribute to TB in less developed nations(Xiao, Tang, Sha, Zhang, & Zhao, 2017). In General, the TB awareness can be made while working with individuals, groups, organization, institutions as target population (KP, M. P. & Sathyamurthi, 2017).

Tuberculosis (TB) is a major public health concern worldwide. TB not only shortens a patient's life expectancy, but it also lowers a person's and society's overall quality of life. It is impossible to overlook the significant strain it will have on healthcare resources, as well as the impact it will have on world socioeconomic development(Zhang, Cheng, Luo, & Zhang, 2017).

Health, health-related quality of life (HRQoL), and Quality of Life (QoL) are all concepts that can be used interchangeably.Quality of Life (QoL) describes a person's total happiness and life satisfaction (Oksuz & Malhan, 2006). The perceived physical and mental health of an individual or a community over time is referred to as health-related quality of life (HRQoL)(Mwangala, et al., 2022). HRQoL is currently interpreted in light of the World Health Organization's definition of health as a state of complete physical, mental, and social well-being, rather than simply the absence of sickness. HRQoL can be defined as the ratio of an individual's actual status to their expected status in broad words(Litwin, 2006).Health-related quality of life is a goal for all people at all life stages. HRQoL is a concern of

policymakers, researchers, and health care practitioners. It is dynamic, subjective, and multidimensional, with physical, social, psychological, and spiritual aspects (Bakas, et al., 2012).HRQoL covers physical and mental health views, as well as health risks and conditions, functional status, social support, and socioeconomic status. Perceived physical and mental health and function HRQoL questions are regarded valid indicators of service requirements and intervention outcomes(Oksuz & Malhan, 2006).

Various questionnaires or surveys are used to assess the Health Related Quality of Life of individuals. The Medical Outcomes Study (MOS) 36-Item Short-Form Health Survey (SF-36)(Jr & Sherbourne, 1992), designed by Ware and Sherbourne, is a novel short-form health survey that includes 36 items from long-form measures HRQoL.Physical functioning, role of limitation due to physical health, emotional well-being, emotional problem, pain, energy/fatigue, social functioning, and general healthare the eight health themes explored by the SF-36. It also includes a single item that indicates a change in health perception(Hays, Sherbourne, & Mazel, 1993).

Garber et al. defines physical function as '*the capacity of an individual to carry out the physical activities of daily living. Physical function reflects motor function and control, physical fitness, and habitual physical activity and is an independent predictor of functional independence, disability, morbidity, and mortality*'(Sunde, et al., 2021). Role of limitation due to physical health refers to the limitations in carrying out activities such as vigorous activities (running, lifting heavy objects, participating in strenuoussports etc.) or walking for more than 2 kilometres, bathing or dressing oneself etc. Emotional wellbeing refers to the ability to develop positive emotions, moods, thoughts, and sentiments, as well as the ability to adapt when faced with hardship or stressful events(Melkonian, 2021). Emotional problems include the various emotional distress experienced by the patients. Pain refers to the physical discomfort or ache the patients feel as part of the disease and other associated symptoms.The term "energy/fatigue" refers to a loss of vitality as well as a sense of exhaustion and tiredness that might be associated with the illness(Yoo, et al., 2018).Social functioning is meeting one's own self, the immediate social surroundings, and societal expectations and these functions include addressing fundamental needs and those of dependents and contributing to society. General health.

HRQoL of MDR-TB patients is an area which is largely neglected. Studies which have tried to assess the HRQoL either looked at it in a cross-sectional manner or included small subsets of MDR-TB patients from the drug-susceptible TB population(Jaber & Ibrahim, 2019).

MATERIALS AND METHODS

The aim of the study is to understand the Health-Related Quality of Life (HRQoL) of MDR-TB patients in Chennai and Madurai districts of Tamil Nadu. For the purpose of the study, Chennai is divided into three zones – North, Central and South. A total of 620 respondents were selected for the study. 376 respondents were selected from Chennai (179 from Central Chennai; 113 from North Chennai and 84 patients from South Chennai) and 244 respondents were selected from Madurai. The details of the respondents were collected from 36 TB units in Chennai and 21 TB units in Madurai.

The study adopted a cross-sectional design with quantitative research method.The Census Sampling Method was adopted for the study as all MDR-TB patients registered under Tamil Nadu's RNTCP (NEP) programme in 2018 and 2019. The. The tools used for the study are semi-structured interview schedule along with RAND-36 Health Related Quality of Life (HRQoL) scale.The term Health-Related Quality of Life (HRQoL) refers to a multi-dimensional concept that examines the influence of one's health on one's quality of life. HRQoLis measured by using eight sub-scales or sub-domains namely, physical functioning, role of limitation due to physical health, emotional well-being, emotional problem, pain, energy/fatigue, social functioning, and general health.

RESULTS AND DISCUSSION

The study's objective is to study further about MDR-TB patients' Health-Related Quality of Life (HRQoL) in the Tamil Nadu districts of Chennai and Madurai.

Table 1 –Age and Gender of MDR-TB Patients

Variables	Chennai District			Madurai (%)
	Central Chennai (%)	North Chennai (%)	South Chennai (%)	
Age				
Below20	9 (2.4)	4 (1.1)	3 (0.8)	10(4.1)
21-30	22 (5.9)	17 (4.5)	11 (2.9)	29(11.9)
31-40	35 (9.3)	28(7.4)	17 (4.5)	36(14.8)
41-50	41 (10.9)	25 (6.6)	17 (4.5)	67(27.5)
51-60	46 (12.2)	28 (7.4)	28(7.4)	62(25.4)
61-70	20 (5.3)	10 (2.7)	7 (1.9)	34(13.9)
Above 71	6(1.6)	1 (0.3)	1 (0.3)	6(2.5)
Gender				
Male	129 (34.3)	75 (19.9)	58 (15.4)	170 (69.7)
Female	50 (13.3)	38 (10.1)	26 (6.9)	74 (30.3)

Table 1 illustrates the details of age and gender of MDR-TB patients in Chennai and Madurai districts. Based on the above table, the following characteristics are inferred. More than one-tenth (12.2%) of the MDR-TB patients from Central Chennai belong to the age cohort of 51-60 years. In Madurai, more than quarter (27.5%) of the MDR-TB patients belongs to the age cohort 41–50 years. Representation of both male and female was there in the study. More than one-third (34.3%) of the MDR-TB patients in Central Chennai were male and more than one-tenth (13.3%) were female. More than two-third (69.7%) of the MDR-TB patients were male in Madurai.

Table 2 – Treatment Details of MDR-TB Patients

Variables	Chennai			Madurai
	Central Chennai (%)	North Chennai (%)	South Chennai (%)	
Diagnosed With MDR-TB				
Before Six Months	1 (0.3)	7 (1.9)	2 (0.5)	15 (6.1)
Before 12 months	27 (7.2)	30 (8)	17 (4.5)	35 (14.3)
Before 18 months	50 (13.3)	27 (7.2)	23 (6.1)	89 (36.5)
Before 24 months	101(26.9)	48 (12.8)	42 (11.2)	105 (43)
Recently before three months	0	1 (0.3)	0	0
Duration of TB Treatment				
Less than one year	3 (0.8)	6 (1.6)	3 (0.8)	139 (57)
One to two years	104 (27.7)	79 (21)	16 (17)	33 (13.5)
Two to three years	62 (16.5)	26 (6.9)	16 (4.3)	40 (16.4)
Three to Four Years	6 (1.6)	1 (0.3)	0	26 (10.7)
Four to Five Years	0	0	1 (0.3)	5 (2)
More than five years	4 (1.1)	1 (0.3)	0	1 (0.4)
Receiving Treatment from				
Government	179 (47.6)	112 (29.8)	83 (22.1)	240 (98.4)
Private	0	0	1 (0.3)	2 (0.8)
Public Private	0	1 (0.3)	0	2 (0.8)

Table 2 shows that more than one-fourth (26.9%) of the participants and less than half (43%) of the participants diagnosed with MDR-TB infection for more than 24 months in Central Chennai and Madurai respectively. Above one-fourth (27.7%) of the MDR-TB patients in Central Chennai have undertaken treatment for one to two years. More than half (57%) of the MDR-TB patients in Madurai have taken treatment for less than one year. Nearly half (47.6%) and vast majority (98.4%) of the MDR-TB patients receives treatment from Government hospitals in Central Chennai and Madurai respectively. Meagre percent (0.3%) in Chennai and Madurai (0.8%) gets treatment from private and public-private hospitals.

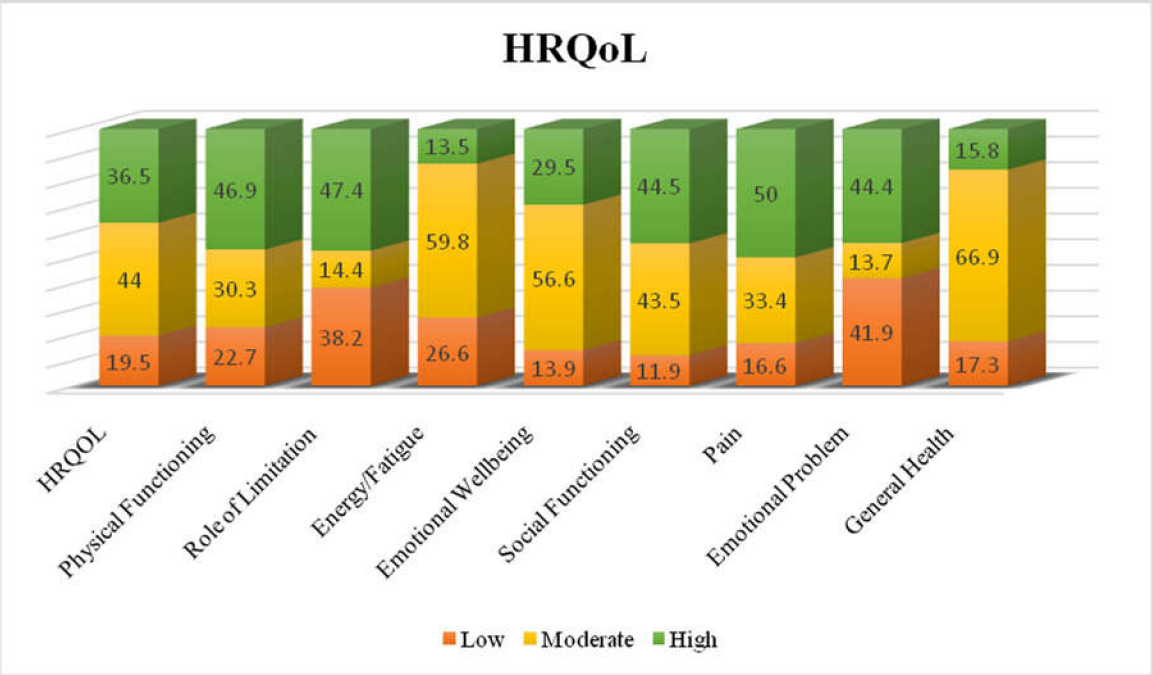

Chart 1 – Health Related Quality of Life and Sub-Domains

Chart 1 portrays the Health Related Quality of Life among MDR-TB patients. It explains the physical functioning, role of limitation of physical health, energy/fatigue, emotional well-being, social functioning, pain, emotional problem, general health. Less than half (44%) of them had health related quality of life in moderate level, while more than one-third (36.5%) of them had health related of quality life in high level. With regard to the physical functioning, less than half (46.9%) were able to physical function in high level however less than one-fourth (22.7%) possess low level of physical functioning, More than half (59.8%) had energy in moderate level while more than one-tenth (13.5%) had low energy among MDR-TB patients. About emotional well-being, more than half (56.6%) had moderate level emotional well-being, more than one-fourth (29.5%) with high emotional well-being. In the title of social functioning, less than half (44.5%) possessed moderate and high level of social functioning. Half (50%) of them experience pain in high, more than one-third (44.4%) of them undergo emotional problem. Regarding general health, less than one-fifth (17.3%) possess the general health in low level.

Table 3 – Health-Related Quality of Life and Sub Domains

Variables	Chennai District									Madurai		
	Central Chennai			North Chennai			South Chennai					
	L	M	H	L	M	H	L	M	H	L	M	H
Physical Functioning	36 (9.6)	54 (14.4)	89 (23.7)	32 (8.5)	24 (6.4)	57 (15.2)	18 (4.8)	15 (4)	51 (13.6)	55 (22.5)	95 (38.9)	94 (38.5)
Role limitations due to Physical Health	62 (16.5)	20 (5.3)	97 (25.8)	41 (10.9)	3 (0.8)	69 (18.4)	17 (4.5)	3 (0.8)	64 (17)	117 (48)	63 (25.8)	64 (26.2)
Emotional Problems	69 (18.4)	25 (7.4)	85 (16.7)	41 (10.9)	16 (4.8)	56 (16.7)	17 (4.5)	7 (2.1)	60 (17.9)	133 (54.5)	37 (15.2)	74 (3.3)
Energy/Fatigue	56 (14.9)	120 (31.9)	3 (0.8)	38 (10.1)	70 (18.6)	5 (1.3)	15 (44)	65 (17.3)	4 (1.1)	56 (23)	116 (47.5)	72 (29.5)
Emotional Well-being	18 (4.8)	116 (30.9)	45 (12)	18 (4.8)	70 (18.6)	25 (6.6)	8 (2.1)	41 (10.9)	35 (9.3)	42 (17.2)	124 (50.8)	78 (32)
Social functioning	31 (8.2)	68 (18.1)	80 (21.3)	26 (6.9)	40 (10.6)	47 (12.5)	5 (1.3)	22 (5.9)	58 (15.2)	12 (4.9)	140 (57.4)	92 (37.7)
Pain	32 (8.5)	49 (13)	98 (26.1)	21 (5.6)	44 (11.7)	48 (12.8)	7 (1.9)	13 (3.5)	64 (17)	43 (17.6)	101 (41.4)	100 (41)
General Health	30 (8)	132 (35.1)	17 (4.5)	22 (5.9)	77 (20.5)	14 (3.7)	5 (1.3)	72 (19.1)	7 (1.9)	50 (20.5)	134 (54.9)	60 (24.6)

Table 3explains the quality of life related to health of MDR-TB patients from Chennai and Madurai districts. Nearly one-fourth (23.7%) in Central Chennai had good physical functioning, more than one-third (38.9%) of the MDR-TB were able to function physically both in moderately and highly in Madurai. Slightly more than one-fourth (25.8%) and (26.2%) possess high role limitations due to physical health in Central Chennai and in Madurai Respectively. Regarding emotional problem, nearly one-fifth (18.4%) in Central Chennai and more than half of them (54.5%) possess. While meagre experience the emotional problem in Chennai and Madurai. Nearly one-third (31.9%) and nearly half (47.5%) have moderate energy/fatigue in Central Chennai and Madurai. Less one-third (30.9%) and half (50.8%) of the MDR-TB were met with emotional well-being in moderate level at Central Chennai and Madurai. More than one-fifth (21.3%) of them moderately possess social functioning and more than half (57.4%) of the respondent moderately possess social functioning. More than one-fourth (26.1%) of respondents in Central Chennai experience no pain and more than one-third (41.4%) of them experience moderate level of pain as well as slight measure of the respondent no pain in Madurai. More than one-third (35.1%) and more than half (54.9%) of them experience with moderate heath in both Central Chennai and Madurai.

The study shows that MDR-TB patients in Chennai and Madurai districts of Tamil Nadu possess moderate levels of HRQoL, energy or fatigue,emotional wellbeingandgeneral heath. And, high levels of physical functioning, role of limitation, social functioning, pain, and emotional problem.

CONCLUSION

With India being the highest MDR-TB and TB burden countries, it is very important to concentrate on their overall health and wellbeing. It's just as vital to focus on the treatment, cure, and wellness of existing patients as it is to focus on preventing illnesses. The study reveals the importance of assessing the Health Related Quality of Life of MDR-TB patients. It is important to focus on both the prevention and treatment of tuberculosis and multidrug-resistant tuberculosis as well as on the wellbeing of the patients. Indicators likeHRQoL assess various aspects of health such as physical functioning, role of limitation, social functioning etc. which is not just limited to the physical health of the patient. These indicators can be used to develop policies and plans for the welfare of MDR-TB patients. Indicators such as emotional wellbeing show the need for supportive resources for the MDR-TB patients. There is a need for recreational facilities and appropriate therapies and treatment services for MDR-TB patients. It should be ensured that all the patients are provided with their right to receive proper treatment and needed medicines on time. Special care and attention need to be provided to those who have additional vulnerabilities, not limiting to physical vulnerabilities but also social or economic etc.

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