Quality of life for multi-drug resistant tuberculosis patients in Bangladesh

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Abstract

Background: *MDR-TB has risen as a significant public health problem due to the emergence of resistance to anti-tubercular therapy (ATT). If this communicable infectious disease is not controlled properly will affect the person's quality of life in all domains.* ***Objectives:*** *This study was conducted to determine MDR-TB patients' quality of life (QOL).* ***Materials and Methods:*** *This cross-sectional study was conducted among 104 MDR-TB with DM patients by purposive sampling from the National Institute of Diseases of the Chest and Hospital (NIDCH) Mohakhali, Dhaka, from 1st January to 31st December 2021. Data were collected through face-to-face interviews with the help of a semi-structured questionnaire made by the FACT-G version -4 scale.* ***Results:*** *The result showed that the quality of life of MDR-TB patients was 56.83, and out of four domains, physical wellbeing (p = 0.000), social/Familial wellbeing (p = 0.000), and functional wellbeing (p = 0.000) were statistically significant. There was no significant difference in the emotional well-being domain (p = 0.799. The majority, i.e. 52 % of MDR-TB patients, were in the age group 30-59 years. The mean (±SD) age for MDR-TB was 34.22 (±15.18) years. A linear association was present between the age of the patients and their quality of life. Both were negatively related when the age of the patients increased total quality of life was lower. (R2= .070). The relation was found statistically significant at 0.01 level (p=.007).* ***Conclusions:*** *MDR-TB patients had lower QOL despite the new treatment strategy and free medicine availability. This highly infectious disease negatively impacts the QOL of MDR-TB patients, particularly in the physical, social, and functional domains.*

Keywords: *Quality of life, MDR-TB*

Introduction

One of the significant public health problems, Tuberculosis, is also one of the world's deadliest infectious diseases. In 2019, an estimated 10.0 million people worldwide had TB and 0.5 million people with MDR-TB and TB. Southeast Asia accounts for 26% of TB cases worldwide. Multidrug-resistant tuberculosis (MDR-TB) is an infectious disease that spreads through nuclei. Multidrug-resistant tuberculosis is a type of tuberculosis that often develops in patients who do not adhere to or do not complete appropriate TB treatment (5). Most strains of Mycobacterium tuberculosis are susceptible to first-line antibiotics. Multidrug-resistant tuberculosis (MDR) is caused by strains resistant to rifampicin and isoniazid, the two leading anti-TB drugs. Patients with drug-sensitive TB require 6-8 months of treatment with less toxic drugs. According to the WHO World Tuberculosis Report (Bangladesh Scenario), in 2019 (1). approximately 357 out of a thousand people in Bangladesh had TB 5.9 out of a thousand had MDR-TB. Drug-resistant TB has been a threat to public health. In 2018, about half a million new cases of rifampicin-resistant TB were reported. Studies have shown that patients with drug-resistant TB face stigma and discrimination in their families, neighbors, and workplace (2). On top of that, they face dire medical costs, lost productive days, and are pushed further into poverty (3). When a woman becomes ill with tuberculosis, the family loses out on activities that the woman does regularly. In some societies, TB patients are considered disabled or unable to marry. The marital impact of a TB diagnosis is well known. It is tough to arrange the marriage of boys and, more commonly, girls with this disease. Often, knowledge of the diagnosis led to divorce or a second marriage. Such discrimination can lead to anxiety, depression, and reduced quality of life. A person diagnosed with MDR-TB has been treated with first-line drugs for 6-8 months, in addition to 2 years of MDR-TB treatment, leading to the worst economic consequences. - society. in patients with MDR-TB. Bangladesh is among the 30 countries hardest hit by MDR-TB (3). In Bangladesh, an estimated 1.6% of new TB patients and 63% of previously treated TB patients have MDR-TB (4). However, the rate of MDR-TB cases remains low due to the high overall burden. MDR cases are large (estimated at 1,900 for new patients and 2,300 for previously treated patients). Bangladesh is unique in that it has the highest population density in the world and is one of the countries hardest hit by tuberculosis. Therefore, the objective of this study was to assess the quality of life of patients with MDR-TB, to gain a deeper understanding of the effects of MDR-TB on different aspects of health.

Materials and Methods

This cross-sectional study was conducted from 1st January to 31st December 2020; purposively A total of 104 subjects both male and female were admitted to the National Institute of Disease of the Chest and Hospital (NIDCH), Mohakhali, Dhaka, to assess the quality of life of MDR-TB patients with diabetes mellitus. Data were collected by the researcher himself through face-to-face interviews with a pretested semi-structured questionnaire (5).

Ethical considerations:

After approval by the Institutional Review Board (IRB) NIPSOM, under the Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh, permission was taken from the director of NIDCH for data collection. The subjects who were willing to participate in this study were asked to sign a consent form. The subjects were assured that they had the right to refuse to participate in the study at any time.

The identities of the subjects were coded in order to keep confidentiality and anonymity.

Results

In Mohakhali, Dhaka's National Institute of Chest and Diseases Hospital (NIDCH), patients with MDR-TB are the subject of this cross-sectional study. The Statistical Package for Social Science (SPSS) version 26 was used to analyze the data, and tables and figures created with Microsoft Office 2010 were used to present the data in this section. The following sections were created by organizing all findings. The sociodemographic details of the respondents are displayed in Table 1. Here, the majority, or 81 (78%) MDR-TB patients, are between the ages of 30 and 59, and 17 (16%) are between the ages of 60 and 75. For MDR-TB, the mean (SD) age was 46.13 (11.18) years. There was another similar study with different findings which showed majority of patients were in the age group of 46-55 years. Another study was conducted in Iran where the Mean age for patients without DM was 55.28±12 years. These discrepancies could be due to variations in the study place. Among those with MDR-TB, 74 (71.2%) men had the disease. 30 (28.8%) of the patients with MDR-TB were women. The majority, or 102 patients with MDR-TB (98.1%), were married. Among MDR-TB patients, 78.8% lived in rural areas, 21.2% in urban areas, and 79 (76.0%) MDR-TB patients lived in semi-pacca houses. In the Pacca House, about 23 (22.1%) patients were housed. 53 (51.0%) MDR-TB patients were illiterate in terms of education. In the case of MDR-TB patients, 28 (16.9%) completed their secondary education while only 24 (23.1%) completed their primary education. Of these 38 (55.19%) were housewives. 18 people, or 39.1%, were employed privately. 56 (51.9%) patients with MDR-TB and had a monthly family income of between 3,000 and 10,000. The monthly family income of 36 (44.4%) MDR-TB patients ranged from 11,000 to 20,000 Tk.

Table 1: Socio-demographic characteristics of the respondents (n=104)

Age(in complete years)	Frequency	Frequency
18-29	43	41
30-59	54	52
6 0-75	7	7
Mean ±SD	34.22±13.18	
Sex		
Male	64	61
Female	40	39
Marital status		
Married	92	88
Unmarried	12	11
Type of residence		
Urban	26.9	26
Rural	73.1	70
House type		
Kacha	1	1.0
Semi-pacca	91	87.5
Pacca	12	11.5
Educational status		
Illiterate	39	37.5
Primary	27	26.0
Secondary	28	26.9
HSC	5	4.8
Graduate and above	5	4.8
Occupation		
Home maker	30	44.1
Business	23	57.5
Govt. Service	0	0.0
Private Service	28	0.9
Retired	3	17.6
Unemployed	10	58.8
Family monthly income		
3000-10000	56	51.9
11000-20000	36	44.4
21000-30000	9	64.3
31000-50000	3	60.0
Number of family members		
1-4	39	(65.0)
5-8	63	(45.0)
9-11	2	(25.0)

Table 2: Correlation among quality of life and selected attributes of MDR-TB patients (n=104)

Attributes	MDR-TB patients	
	r	p
Age	-.264	.007
Number of family members	-.095	.336
Family Monthly income	-.040	.690

In **Table 2,** the quality of life for MDR-TB patients was found to be negatively correlated with patient age, the number of family members, and monthly income. A significant age-quality correlation was discovered. (p=.007).
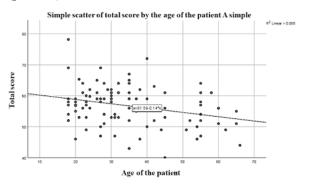

Fig 1. The scatter diagram demonstrates that there was a linear relationship between patient age and quality of life. When a patient's age increased, their overall quality of life decreased, and both were negatively correlated. (R^2= .070). At the 0.01 level (p=.007), the relationship was found to be statistically significant.

Discussion

The majority of the 54 (52 %) MDR-TB patients in this study were in the 30- to 59-year-old age range. Another study was conducted in Iran where the

Mean age for patients was 55.28±12 years. This discrepancy could be due to variations in the study place. It was observed that 56 (51.9%) of the 104 MDR-TB patients were in the income range of 3,000 to 10,000 (BDT). Another study of a similar nature was conducted in Bangladesh, where 34 (13.9%) participants had incomes under 5000 BDT (4). This was a result of the majority of NIDCH patients coming from middle- and low-income socioeconomic backgrounds. The majority, or 102 patients with MDR-TB (98.1%), were married. There was another study with similar findings which showed the majority i.e. 164 (61.6%) of TB patients were married. This may be due to cultural similarities in the study place (6).

A study conducted in India found that the majority patients of TB were 33 (12.4%) Among MDR-TB patients, 78.8% lived in rural areas, 21.2% in urban areas. There was quite a similar study with different findings in Iran where the majority of patients (92.2%) with TB lived in an urban area. This discrepancy could be due to variations in the study place. 79 (76.0%) MDR-TB patients lived in semi-pacca houses. In the Pacca House, about 23 (22.1%) patients were housed. 53 (51.0%) MDR-TB patients were illiterate in terms of education. This may be due to geographical similarities between the two countries both are situated in South East Asian Region (6).

In the case of MDR-TB patients, 28 (16.9%) completed their secondary education while only 24 (23.1%) completed their primary education. Of these 38 (55.19%) were housewives. 18 people, or 39.1%, were employed privately. 52 (48.1%) patients with MDR-TB The monthly family income of 45 (55.6%) MDR-TB patients ranged from 11,000 to 20,000 Tk (4).

The MDR-TB patients in this study had a mean physical well-being score of 17.44±3.478 (p=.000). Statistics showed that this outcome was significant. In the group of MDR-TB patients, the mean score for social and familial well-being was 15.17±2.596 (p=.000). Statistics showed that this

outcome was significant. The study result showed there was no significant association between emotional well-being and socio-demographic variables.

Our study found that the group of MDR-TB patients had 14.06±3.841 emotional well-being scores (p=.799). This outcome lacked statistical significance. Another study conducted in India revealed that the average level of emotional functioning in MDR-TB patients was 19.03±26.509(6). The study's findings demonstrated that there was no meaningful relationship between sociodemographic factors and emotional well-being (7).

In this study, the mean functional well-being score for MDR-TB patients was 9.17± 2.948 (p=.000). Patients with MDR-TB had a mean quality of life of 56.83±6.281 (p=.000). A statistical test revealed this result to be significant. The results of the current study showed a negative relationship between the patient's age, the size of their family, their monthly family income, and their quality of life. The QoL was found to be lower as age increased.

Conclusion

The prevalence of double-burden diseases is currently on the rise in our nation, with MDR-TB being one of these problems. If, MDR-TB is not properly managed, it is an incurable illness that will lower a person's quality of life. The purpose of this study was to evaluate patients with MDR-TB in terms of their quality of life. MDR-TB patients' quality of life was impacted in all four areas, but functional domains were particularly hard hit. The study found that MDR-TB patients, particularly those who are young, have higher QOL when compared to people of other ages. Compared to patients who were not married, married MDR-TB patients had a higher quality of life. Patients from nuclear families and families with fewer than five members had higher quality of life than patients from joint families and also for number of family members.

References

1. World Health Organization. Global tuberculosis report 2019: WHO; 2019 [updated 15 October 2019. Available from: https://www.who.int/publications/i/item/9789241565714].

2. Rajkumar LC, Karibeeran S. Quality of life of multi drug resistant tuberculosis patients in India. Int Multidiscip Res J. 2015;5(2):1-8.

3. Suarez-Garcia I, Rodriguez-Blanco A, Vidal-Perez J, Garcia-Viejo M, Jaras-Hernandez M, Lopez O, et al. Risk factors for multidrug-resistant tuberculosis in a tuberculosis unit in Madrid, Spain. European journal of clinical microbiology & infectious diseases. 2009;28:325-30.

4. Sarker M, Barua M, Guerra F, Saha A, Aftab A, Latif AM, et al. Double trouble: prevalence and factors associated with tuberculosis and diabetes comorbidity in Bangladesh. PloS one. 2016;11(10):e0165396.

5. Salam AA, Ikram A, Fatima M, Awan NJ. Development of Drug Resistance among Comorbid and Non-Comorbid HIV-Negative Relapsed Cases of Tuberculosis in Lahore, Pakistan. 2020.

6. Sharma R, Yadav R, Sharma M, Saini V, Koushal V. Quality of life of multi drug resistant tuberculosis patients: a study of north India. Acta Medica Iranica. 2014:448-53.

7. Shariefuddin WWA, Sari SYI, Pandji TD. Comparison of Life Quality between Diabetic and Diabetic with Tuberculosis Patients. Althea Medical Journal. 2016;3(3):440-5.