Original Article

ROLE OF SOCIAL SUPPORT FOR MULTI-DRUG RESISTANT TUBERCULOSIS PATIENTS' TREATMENT ADHERENCE IN A SPECIALIZED HOSPITAL

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ABSTRACT

Background: Multi-drug resistant tuberculosis (MDRTB) is an emerging major public health problem globally and an obstacle for effective global TB control. Social support for MDRTB patients is important drivers for the successful treatment adherence of the patients. The objective of this study was to assess the role of social support for MDRTB patient's treatment adherence in a specialized hospital.

Methods: This descriptive type of cross-sectional study was carried out among MDRTB patients within the period of January to December 2017 in National Institute of Diseases of the Chest & Hospital (NIDCH) Mohakhali, Dhaka. A total of 120 respondents MDRTB patients were selected purposively. Data was collected by face to face interview of respondents using semi structured questionnaire and Social Support Rating Scale (SSRS) and treatment record review. Data was analyzed by using SPSS (Statistical Package for Social Science) software version 20.

Results: The most prevailing 40% patients were in age group from 21-30 years. The mean age of the respondent was 31.6 years. The respondents 4.5% (n=3) were separated from their spouse due to MDR TB. The average social support score of each MDR-TB patient was 26.82±4.02. The respondents who were elderly, low family income and male respondents, had received lower social support (P=0.043, P=0.032 and 25.90>28.16, P=0.002 respectively) from their surroundings. Many respondents had not received higher social support in this study.

Conclusion: In this study MDR TB patients were found to have a low level social support. Patients' self-isolation may contribute to a decrease in the amount of support they receive from their surroundings. There is need to formulate strategy that includes motivational counseling and social support mobilization for treatment adherence.

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INTRODUCTION

Tuberculosis (TB) drug resistance is a major public health problem that threatens the progress made in TB care and control worldwide. According to WHO global TB report Bangladesh is one of the high Multi-drug resistant (MDR)TB burden countries and has an estimated MDR TB incidence of 2/100,000 populations. In 2019, there were an estimated 3,300 MDR/RR cases. An estimated 0.7% of new TB cases and 11% of previously treated cases had MDR TB. Tuberculosis usually strikes vulnerable members of the population, such as the poor, homeless, undernourished, or migrant population. Moreover, the infectious nature of TB may generate social isolation and stigma in the community, which can have a negative psychological impact on TB patients. It is important to note, the ongoing transmission of infection from MDRTB cases in a population contributes to new primary drug resistant cases. In fact, most people who have MDR TB got it from someone else, and it is not because they did not take any TB drugs adequately. The situation is even worse among MDR-TB patients because the treatment is more complicated, the regimen is much longer, the results of infection are more severe, and the cost is much higher[1]. The treatment for MDR-TB characterized by rigorous treatment regimen for long duration, higher incidence of adverse side effects, lower cure rate, and high treatment costs. This could lead to number of psychosocial problems that influence treatment adherence. Conventional treatment of MDR TB requires up to 2 years of therapy, with expensive and toxic medicines, and adherence to these medical regimens is difficult.

Almost MDR-TB patients had a negative impact on their livelihood. Many patients had stopped work or education due to their poor physical health. As a result, patients could become financially dependent on their families and those without family support struggled to survive. The need for daily injections in the initial intensive phase of MDR-TB treatment (usually 8 months in 20-month regimen and 4 months for 9 months' regimen). The drug (injectable & oral) intake is very important for MDRTB patients. Successfully complete of MDRTB treatment need strong family support, financial support, adequate housing, necessary information, good communication, wider social networks and belief in cure & future. Social support of TB patients helps to mitigate existing barriers in receiving TB care[10]. Despite the condition in which TB patients find themselves, they report almost nonexistent social support from families and community members. Social support refers to the resources provided to an individual from institutional centers, community centers, and economic benefits;[11] where they are made to believe that they are loved, cared for, esteemed, and members of a network of mutual obligations.[12] It is for this reason the present study aims was to assess the role of social support for multi drug resistant tuberculosis patient's treatment adherence in NIDCH, Mohakhali, Dhaka.

METHODS

This descriptive type of cross sectional study was carried out among of all diagnosed multi-drug resistant tuberculosis (MDRTB) patients who attending in MDR control room for follow up visit in National Institute of Diseases of the Chest & Hospital (NIDCH), Mohakhali, Dhaka. Study was conducted from January to December, 2017. **The inclusion criteria:** 1) Patients who started their treatment from January 2016 including pulmonary and extra pulmonary multi -drug resistant tuberculosis (MDRTB) patients at least four month. 2) Patients who had received long treatment regimen (20 months) & short treatment regimen (9 months) of MDRTB. 3) MDR TB patients who are under supervision of National Tuberculosis Control Programme (NTP) in BD. 4) Patients who had voluntarily given consent. The estimated sample size was 384. But due to time constrain 120 samples were included purposively within the data collection period and total study population were 150. Data were collected by face to face interview and treatment record review.

A Chinese social support rating scale was used to scoring of social support of MDR TB patients. This scale received from author in Chinese version through gmail.com. Then the scale is translated into English and Bengali version, and adopted in our country by pretesting on MDR TB patients. The scale was first designed and introduced by Xiao sir in 1994[8]. The scale consists three domains of social support: subjective support, objective support and support-seeking behavior. Subjective support refers to the social relationships that the individual believes he or she can rely on, and the perceived level of support from surrounding persons including family members, neighbors, friends, colleagues, and other people. Objective support refers to the actual support gained from social surroundings. Support-seeking behavior reflects the pattern of behavior utilized by an individual when he or she seeks support. The scores of the items were added together, and the total score ranged from 11 to 62, within which the subjective score ranged from 7 to 28, the objective score from 1 to 22, and the support availability from 3 to 12. A higher score reflects stronger social support. Chi square was carried out to find out the association of MDRTB with qualitative data and Independent sample 't' test and correlation for quantitative data. Statistical significance was defined as $p<0.05$. Data analysis was performed SPSS version 20.

RESULTS

Among respondents 40% (n=48) respondents were most prevailing age group from 21–30 years. The mean age of the respondent was 31.6 years. The respondents 59.2% (n=71) were male. Majority of the respondents 90 % (n= 108) were Muslim and 45.8% (n=55) respondents had primary level education. Most common occupation of the respondents was service holder 37.5% (n= 45) and 20.8% home maker. Majority of the respondents 54.2 % (n= 65) were married & 4.5% (n=3) respondents separated from their spouse due to MDRTB. Most of the respondents 73.3% (n=88) family members were 2-5 members and 74.2% belong in nuclear family & their 67.5% (n=81) residence was tin shed. Majority respondent's monthly family income from 5000-10000 taka (in BDT). The mean of monthly family income of the respondents was 13845.9 and SD ± 8612.28. (Table.1).

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Table 1: Socio-demographic characteristics of the respondents

Characteristics		f (%)	Mean ±SD
Age group in years	11- 20 21-30 31-40 41-50 >50	26(21.7) 48 (40.0) 15(12.5) 17 (14.2) 14(11.7)	31.6±13.2
Gender	Male Female	71(59.2) 49(40.8)	
Religion	Islam Hindu & Christian	108(90) 12(10)	
Level of education	Illiterate Primary Passed S.S.C Passed H.S.C Passed Graduation/ above	25(20.8) 55(45.8) 12(10.0) 14(11.7) 14(11.7)	
Occupation	Service Home maker Students Others	45(37.5) 25(20.8) 20(16.7) 30(25)	
Marital status	Married Single Divorced/Separation	65(54.2) 44(36.7) 11(9.2)	
Marital relation with spouse under MDRTB treatment	Good relation Separation due MDRTB	65(95.5) 3(4.5)	
Monthly income (in taka)	5000-10000 11000-15000 16000-20000 >20000	59(49.2) 30(25.0) 19(15.8) 12(10.0)	13845.9± 8594.0
Residence	Tin shed Semi pucca Pucca Others	81(67.5) 18(15.0) 17(14.2) 4(3.3)	

Patients who feared social stigma are more likely to lack support from their family, friends or colleagues. Family members are often best suited to offer emotional and financial support to patients. The mean & SD of Social support score 26.82±4.02. In this study the respondents had received lower and average social support and there was no higher social support. The results of the current study showed that 100% (120) respondents were belonged lower social support regarding objective support (score 1 to 7) with the mean score 4.23 and SD ±1.6. Majority of the respondents i.e. 69.2 % (n=83) had average social support regarding subjective support with the mean score 16.03 and SD ±2.6. 59.2 % (n=71) had average social support regarding support seeking behavior with the mean score 6.57and SD±1.76 (table 2).

Table 2. Social support scores of the respondents regarding three domains (Objective support, Subjective support, support seeking behavior) n=120

Characteristics		Frequency (%)	Mean ± SD
Objective support	lower social support	120(100)	4.23±1.6
Subjective support	Lower social support	34(28.3)	16.03±2.6
	Average social support	83(69.2)	
	Higher social support,	3(2.5)	
support seeking behavior	Lower social support	47(39.2)	6.57±1.76
	Average social support	71(59.2)	
	Higher social support	2 (1.7)	

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The social support received by patients was associated with the monthly family income of the patients (Table-3).

Table 3. Association between monthly family income and social support score of the respondents

Characteristics	Income in BDT / month	Lower social support	Average social support	Total	χ^2	P value
Monthly family income of the respondents	<10000/month	46 (76.7%)	14 (23.3%)	120 (100%)	4.596	0.032
	>10000/month	35(58.3%)	25(41.7%)	120 (100%)		

Among all, 76.7% (n=46) respondents received lower social support who had lower monthly family income (<10000 in BDT). This test reveals that it is statistically significant, where p=<0.05 (Figure:1)

Figure 1. Relationship between age and social support scores (n= 120)

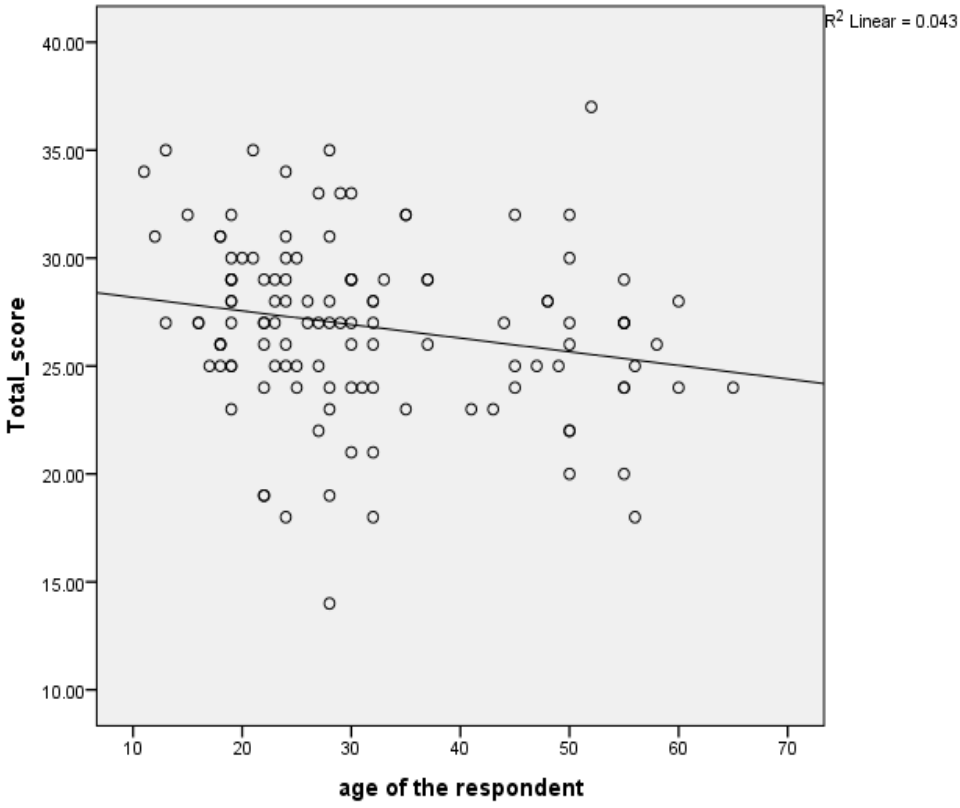

Table 4 shows that the frequency of social support scores among female respondents is 28.16 more than the male respondents. Independent 't' test had done and the independent 't' test reveals that it is statistically significant. Where t=-3.137, n=120, df=118, p=0.02. P value is <0.05.

Table 4. Association between sex of the respondents and social support scores

Sex of the respondents	Frequency	Mean ±SD	df, t	P value
Male	71	25.90±4.08	118, -3.137	0.002
Female	49	28.16±3.57		

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Multiple logistic regression models were constructed. The full model was found statistically significant. Social support and sex of the respondents is statistically significant (P=0.01, OR=.28, 95% C.I. for OR .93 to 3.74 and monthly family income of the respondents is statistically significant (P=0.34, OR=.187, 95% C.I. for OR .11 to 2.88) controlling the other variables in the model (Table 5).

Table 5: Multiple logistic regression between the socio-demographic variables and social support scores (sex and monthly family income).

Attributes	Unstandardized coefficient		Standardized coefficient	t	P-value	95% C.I. for OR	
	B	Std. Error	Beta			Lower	Upper
Sex	2.33	0.71	0.28	3.28	0.001	0.93	3.74
Monthly family income	1.5	0.69	0.18	2.14	0.034	0.11	2.88
Constant	25.12	0.58		43.15	0.00	23.96	26.27

DISCUSSION

Drug- resistant TB continues to be a public health crisis. MDR TB remains are essentially a man-made phenomenon. This study was conducted to assess the state of social support to multi drug- resistant tuberculosis (MDR TB) patient's treatment in a tertiary level specialized hospital. This study revealed that most prevailing age group from 21 – 30 years and mean age of the respondent was 31.6 years. The respondents 59.2% (n=71) were male. Majority of the respondents 54.2 % (n= 65) were married and 45.8% (n=55) respondents had primary level education. Recent studies showed that majority of the participants (56.1%) were in the age group of 16 - 30 years. Married participants constituted 64.2% of the study subjects and illiterates constituted 18.9%.[6] Most common occupation of the respondents were service holder 37.5% (n= 45). 4.5% (n=3) respondents separated from their spouse due to MDRTB. Most of the respondents 73.3% (n=88) family members were 2-5 members and 74.2% belong in nuclear family & their 67.5% (n=81) residence was tin shed. The mean of monthly family income of the respondents was 13845.9 and SD ± 8612.28. Previously a case control study conducted in Bangladesh and revealed that a number of occupations of MDR TB such as those associated with services and business were more likely to be linked with MDR-TB compared to non-working individuals. Patients with some educational qualification were more likely to develop MDR-TB than patients with no formal education or from the highest educational group.[5]

Family is a reliable shelter for the MDR-TB patients, upon which they can depend during treatment. Family members are often best suited to offer emotional and financial support to patients [9, 11,12]. The results of the current study showed that 100% (120) respondents were belonged lower social support regarding objective support with the mean score 4.23 and SD ±1.6. Financial assistance is essential for MDR TB patients to successfully finish the treatment. Patients in families who earned more income per month tended to receive more support. 76.7% (n=46) respondents received lower social support who had monthly family income <10000(in BDT) statistically significant (P=<0.05). The aged person received less social support in this study. Bivariate Pearson correlation test had done. The test shows that there is a negative correlation (r= -.208; n= 120) between age of the respondents and social support scores. The relation is statistically significant P=<0.05.

A similar study was done in China, the average social support score of each MDR-TB patient was 32.56±7.86. Participants who were single, widowed or divorced, retired, and had fewer family members and lower family income were found to have lower social support scores. Participants unwilling to disclose their disease tended to have less social support (31.59, 34.23, *P*=0.010). Participants who perceived great help from health care workers reported higher social support rating scale scores than those who perceived no help (35.36.29.89, *P*=0.014)[1].

Our study revealed that male patients received less social support from their family and society than female. Means frequency of social support scores among female respondents is 28.16 more than the male respondents. An Independent 't' test had done. Statistically significant (P=0.05). Social support and sex of the respondents is statistically significant (P=0.01, OR=.287, 95% C.I. for OR .931 to 3.748 and monthly family income of the respondents is statistically significant (P=0.34, OR=.187, 95% C.I. for OR .116 to 2.885) controlling the other variables in the model.

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Multi-drug resistant TB (MDR-TB) and its long and arduous treatment can lead to major disruptions in physical and mental health in patients and depression and poor mental. Wives and mothers give crucial family support to their husbands and children with MDR-TB, but are sometimes denied even basic support from husbands/wives and family when they are the patient[10]. In this study patients had separated from their spouse due to MDR TB. The support of wives and mothers was a common theme for male patients and, in particular, married men often had very strong support from their wives. Many patients had stopped work or education due to their poor physical health and the need for daily visits to the treatment centre[3]. So, this study strongly highlighted that social support crucial role in adherence of MDR TB treatment. No such study has been conducted on his specific issue in Bangladesh.

CONCLUSION

In spite of the diagnosis and treatment of MDR TB are given free of charge in Bangladesh, many patients were unable to adhere to their treatment because lack of sufficient social support to complete their treatment regimen. Family harmony could be an important source of social support. Health care workers were found to play an important role in supporting MDR-TB patients and helping them to finish their finish treatment. From this study strategy should be develop for MDR TB patients' social support to adhere treatment, improve geriatric care in the family, society and nationally.

Ethical Approval

Before starting data collection, consent was requested and obtained from all participants. The study was approved by the Institutional Review Board of NIPSOM and number was IRB-NIPSOM/IRB/2017/264.

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