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## ASSESSMENT OF EFFECT OF MDR-TB/TB ON SOCIAL, FUNCTIONAL AND ECONOMIC WELL BEING OF PATIENTS – A CROSS SECTIONAL STUDY

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**ABSTRACT: CONTEXT:** Tuberculosis is a contagious disease with social stigma attached to it. Various problems which are social and economic in nature are faced by TB patient. Therefore, it is essential to explore the overall effect of MDR-TB/TB on health and patients perception of Well-being. **AIMS:** To Document the effect of MDR-TB/TB on social, functional and economic well-being of patients. **SETTINGS AND DESIGN:** A Cross-sectional study, Conveniently Recruited 68 MDR-TB Patients and 136 non - MDR-TB Patients (from Rural as well as urban Area of Surat District) diagnosed by CBNAAT were interviewed for investigating the effect of Tuberculosis. **METHODS AND MATERIAL:** A pre-tested standardized semi-structured questionnaire was used. Data was collected about socio-demographic profile of patients and interpreted in table. Data about effect of MDR-TB/TB was collected on Likert Scale and Frequency was calculated and Data was plotted on multiple bar charts. **RESULTS:** As compared to healthy status in the past, 93% MDR-TB and 82% TB patients have decreased ability to do work, about half of MDR-TB Patients and TB Patients have deteriorated relations with family members, 67% of study participants have developed disharmonious relations with neighbor's, 55% of Study participants have decreased income, 88% of study participants have decreased performance in day to day activities and 78% of study participants have faced discordial and disrespectful behavior from co-workers. **CONCLUSION:** Working ability more deteriorated in MDR-TB patients while rest of the effect on social, functional and economic well-being is same in both TB and Multi Drug Resistant TB patients. This study emphasizes very clearly that social stigma still persist in community about Tuberculosis which needs to be eliminated in community by behavior change communication by health workers at all levels of health care.

**KEYWORDS:** Likert scale, Multi-drug resistant Tuberculosis, Social Stigma, Tuberculosis.

**INTRODUCTION:** Tuberculosis is a major public health problem due to high rates of transmission between diseased and non-diseased, Long duration of treatment, Development of Drug Resistant Tuberculosis, High fatality rate among non-treated MDR-TB Patients which made Tuberculosis a disease with social stigma attached to it in the society. The Revised National Tuberculosis TB Control Programme (RNTCP) with Directly Observed Treatment Short Course (DOTS) as the strategy was introduced in 1997. The programme uses sputum negativity and weight gain as prognostic indicators but does not consider any other dimension of health. It has been seen that apart from physical symptoms, TB patients face various problems that are social and economic in nature. Therefore, for assessment of patients' health status, it is necessary to consider the overall effect of TB on health and patients' perception of well being, besides routine

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clinical, radiological and bacteriological assessments.<sup>1</sup>With this background this study was conducted to document and explore the effect of MDR-TB/TB on the social, functional and economic well-being of the patients. This study compare the effect on TB patients which are responding to first line anti-tubercular drugs with the patients which are resistant to first line anti-tubercular drug mainly-Isoniazid and Rifampicin i. e. Multi-Drug Resistant TB patients.

**AIM:** To Explore the effect of MDR-TB/TB on social, functional and economic well-being of patients

## **OBJECTIVES:**

1. To Document the Socio-demographic profile of the study participants.
2. Comparative assessment of the effect of MDR-TB/TB in various domains i. e. working ability, Relations with Family Members, Neighbours and Co-workers, Income generation and Performance in day to day activities

## **SUBJECTS AND METHODS:**

**Study Design:** Hospital based Cross-Sectional Study.

**Study Setting:** MDR-TB Patients were selected from the indoor ward of the Department of Pulmonary Medicine and TB Patients were selected from the UHCs and PHC of Surat City and District, respectively.

**Study duration:** From October 2013 - June 2014.

**Study Tool:** A Pre-tested Standardized Semi-Structured Questionnaire was used.

**Data Collection:** All the Study Participants were asked about effect of the Tuberculosis in their Working ability, Daily activities, Income, Relationship with the family members, neighbors and co-workers.

**Sampling technique:** Convenient Sampling.

**Selection of MDR-TB Patients and TB Patients:** Drug sensitivity testing was carried out at DTC Surat. CBNAAT method is used in which Rifampicin Drug sensitivity testing is done. Those patients whose sputum was found resistant to Rifampicin sensitivity testing were considered as MDR-TB Patients and those patients whose sputum is found to be sensitive to Rifampicin sensitivity testing were considered as TB Patients if they fulfill selection criteria of our study.

- a) MDR-TB Suspect patient who are found to be Sensitive and Resistant to rifampicin diagnosed by CBNAAT drug Sensitivity testing.
- b) Willing to participate in the study.
- c) Subjects less than 18 years of age were included only if reliable parent (mother or father or guardian) was accompanying with the subject and the parent was willing to participate and willing to give written consent for the subject.

**Assumption:** We assumed that all those patients who were diagnosed to be suffering from MDR-TB (MDR-TB Patients) and admitted at Pulmonary Medicine Department of New Civil Hospital, Surat came from the same source population as that of Non MDR-TB Patient (TB Patients).

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**Data Entry and Analysis:** Data entry was done in MS excel software, Socio demographic profile of patients is illustrated in table. Data regarding effect of disease was taken in likert scale. Frequency was calculated and data is depicted on multiple bar diagram.

**Ethical Consideration:** Study was approved by Human Research Ethics Committee of Government Medical College, Surat.

## RESULTS:

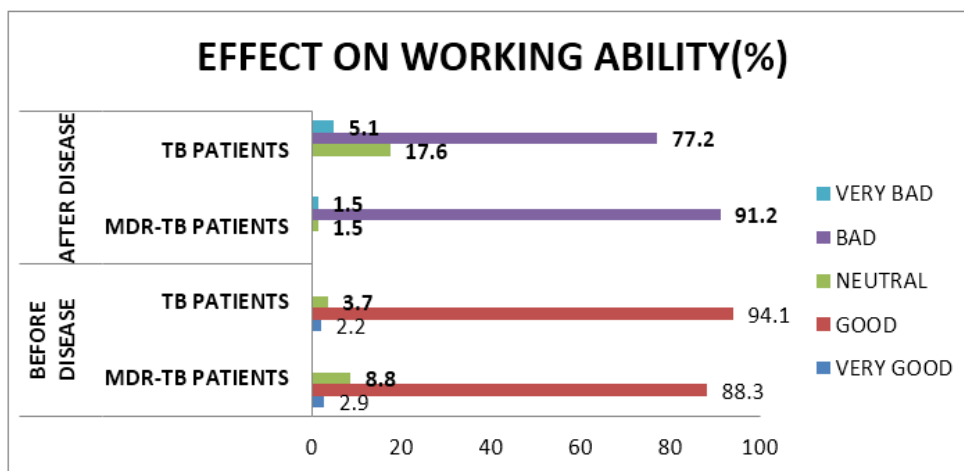
**1. SOCIO DEMOGRAPHIC PROFILE OF STUDY PARTICIPANTS:** Majority of MDR-TB Patients (58.8%) and TB Patients (77.9%) were male. 55.8% of MDR-TB Patients belonged to age group 18-30 years while 47% of TB Patients belonged to age group-30-45 years. Higher Education was achieved by 47.1% MDR-TB Patients compare to 26.5% of TB Patients. Majority (86-88%) of study participants belonged to Socio-Economic class III, IV, and V according to modified Prasad's classification. 82.4% of MDR-TB Patients belonged to Surat Rural while 90% of TB Patients belonged to Surat Municipal Corporation. Majority of MDR-TB Patients (44.1%) were workers in industries while Majority of TB Patients (50.7%) were non-industrial workers like shop keepers or daily wage labourers.

Sl. No	Variables		MDR-TB Patients (n=68) (%)	TB Patients (n=136) (%)
1	Gender	Male Female	40(58.8) 28(41.2)	106(77.9) 30(22.1)
2	Age in Years	18-30 Years 31-45 Years 46-60 Years More than 60	38(55.8) 21(30.9) 8(11.8) 1(1.5)	48(35.3) 64(47.1) 18(13.2) 6(4.4)
3	Education Status	Up to Primary Education Higher than Primary Education	36(52.9) 32(47.1)	100(73.5) 36(26.5)
4	Socio-Economic Status	Class 1 Class 2 Class 3 Class 4 Class 5	01 (1.5) 09 (13.2) 20 (29.4) 20 (29.4) 18 (26.5)	02 (1.5) 15 (11) 31 (22.8) 51 (37.5) 37 (27.2)
5	Present Address	Surat Municipal Corporation Surat Rural	12(17.6) 56(82.4)	123(90.4) 13(9.6)
6	Occupation	Industrial work Non-Industrial work Housewife Student Un-employed	30 (44.1) 4 (5.9) 22 (32.4) 5 (7.4) 7 (9.3)	16 (11.8) 69 (50.7) 23 (16.9) 1 (0.7) 27 (19.9)

**Table 1: Socio-Demographic Profile of Study Participants**

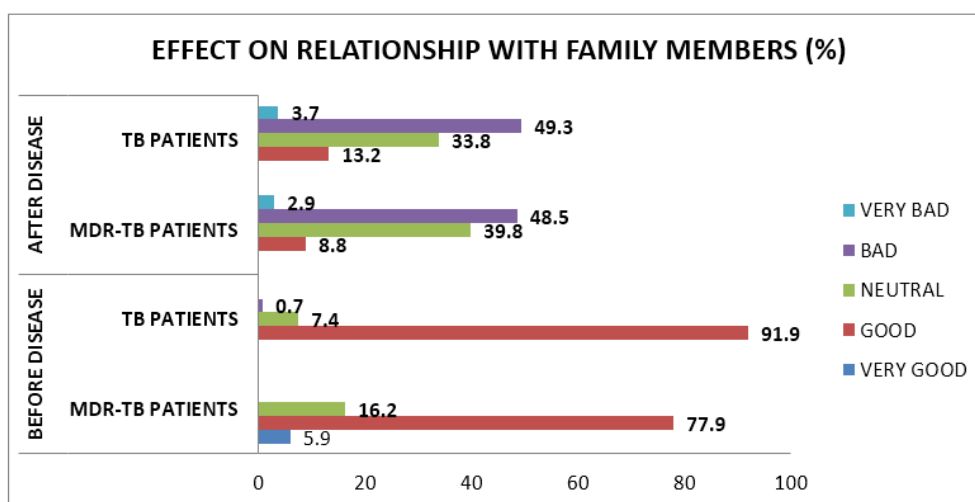
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**2. EFFECT ON WORK ABILITY:** Before suffering from Tuberculosis 91% of MDR-TB Patient and 96% of TB Patients had good and efficient working ability but after getting diseased with Tuberculosis working ability declined and worsened in 92.7% of MDR-TB Patients and 82.3% of TB Patients. So the effect of MDR-TB is more severe on working ability compared to drug sensitive Tuberculosis.



**Graph 1: Effect on working ability of study participants (%)**

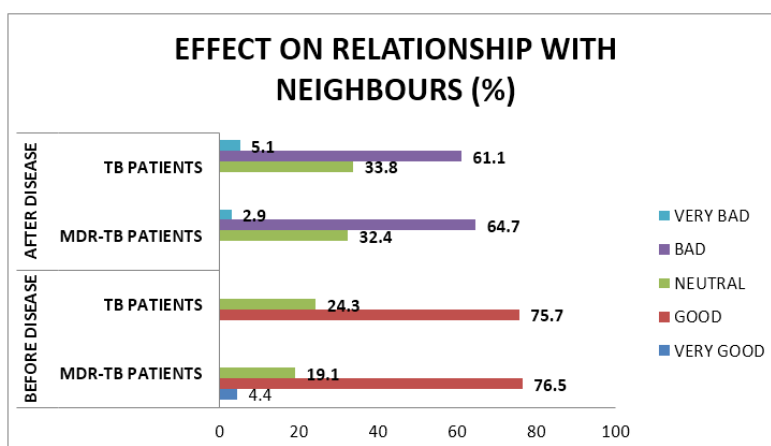
**3. EFFECT ON RELATIONSHIP WITH FAMILY MEMBERS:** 77.9% of MDR-TB Patients and 91.9% of TB Patients had good and harmonious relation with family members before being diagnosed with Tuberculosis. Whereas after being diagnosed with Tuberculosis Approximately 50 % of MDR-TB Patients and TB Patients felt that their relation with family members have declined and became worsened, Tuberculosis is a contagious disease and have social stigma attached to it this is clearly indicated by these observations.



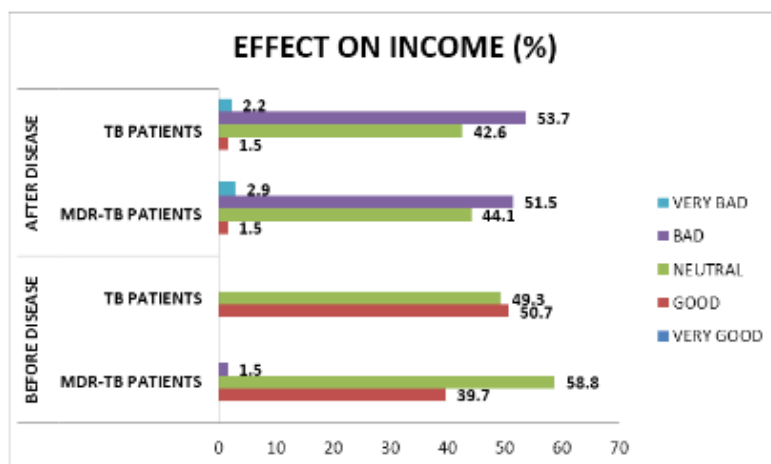
**Graph 2: Effect on relationship of study participants with their family members (%)**

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- 4. EFFECT ON RELATIONSHIP WITH NEIGHBOURS:** Approximately 75% of Study Participants (both MDR-TB Patients & TB Patients) have good relation with their neighbours, when the study participants were healthy. After being diagnosed with Tuberculosis almost 66% of Study Participants (both MDR-TB Patients & TB Patients) relations with neighbours declined and became dis-harmonious. So there is still persistent social stigma attached which leads to disrespect and disregard towards the MDR-TB/TB patients in the community.
- 5. EFFECT ON INCOME:** About 40% of MDR-TB Patients and 50% of TB Patients mentioned that they had good income when they were healthy. After acquiring Tuberculosis approximately 55% of MDR-TB Patients and TB Patients disclosed with sadness that income reduced to very low level due to decreased working potential. These finding indicates decreases income generation of MDR-TB/TB patients. Poverty is one of the main contributory indirect causes of Tuberculosis and Tuberculosis further leads to Poverty thus completes the vicious cycle.



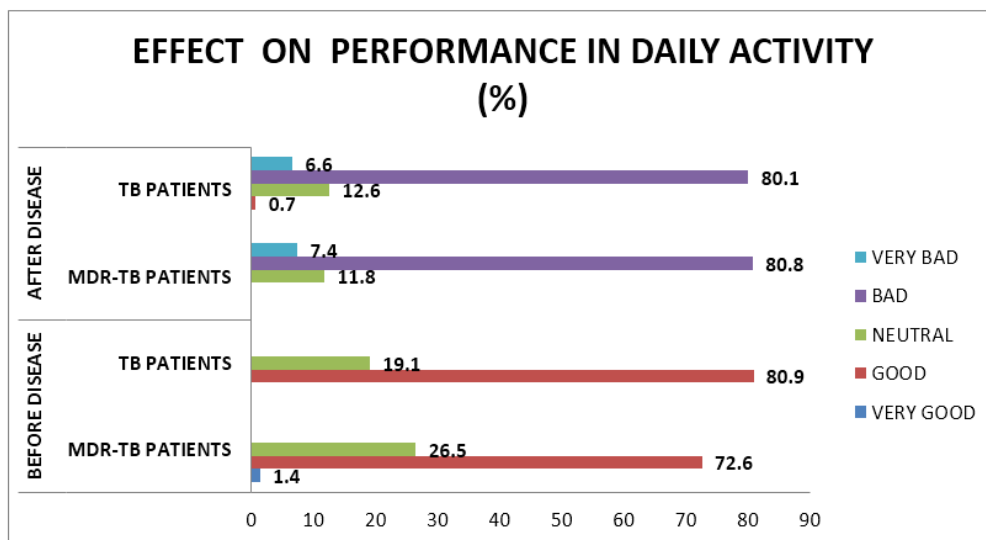
**Graph 3: Effect on relationship of study participants with their neighbours (%)**



**Graph 4: Effect on income of study participants (%)**

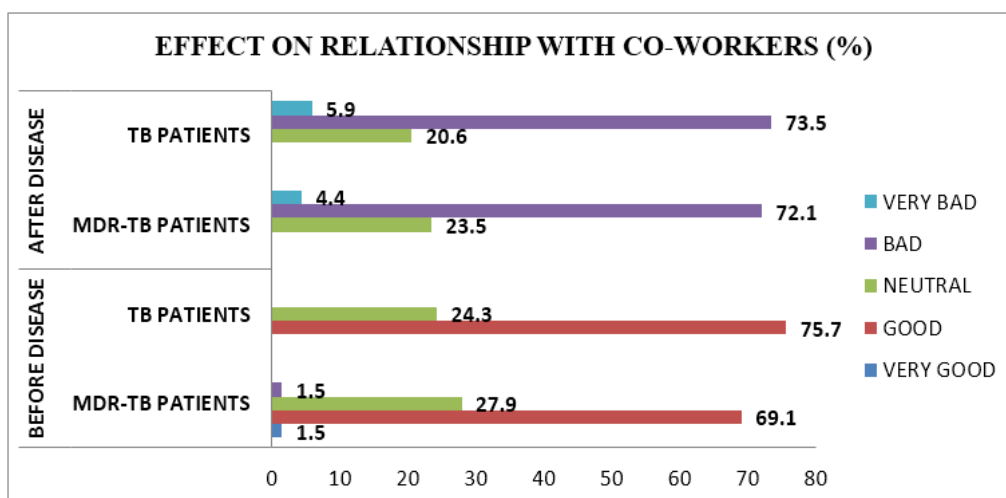
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**6. EFFECT ON PERFORMANCE IN DAILY ACTIVITIES:** About 73% of MDR-TB Patients and 80% of TB Patients concluded that they had good potential to do routine day to day activities when they were healthy. After acquiring Tuberculosis about 88% of MDR-TB Patients and TB Patients had decreased performance in routine day to day activities.



**Graph 5: Effect on performance in daily activities (%)**

**7. EFFECT ON RELATIONSHIP WITH CO-WORKERS:** About 70% of MDR-TB Patients and 75.7% of TB Patients had better and cordial relation with co-workers when they were healthy. After getting illness, 76% of MDR-TB Patients about 79% of TB Patients had developed dis-cordial relation with co-workers. Patients of MDR-TB/TB faces rejection, disrespect at the workplace which further exacerbates the stress on the patients and deteriorates psychological health.



**Graph 6: Effect on relationship with co-workers (%)**

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**DISCUSSION:** Socio-demographic profile of the study participants indicated male are more affected as compared to females which can be attributed to increased exposure to infections among males and decreased health seeking behaviors of Females. These findings are supported by Study by A Faustini et al which showed male dominance over female when Tuberculosis is concerned.<sup>4</sup> Majority of study participants belonged to low socio-economic status, which is supported by study of Gajanan S. Gaude et al who showed significant association of low socio-economic status and Tuberculosis.<sup>5</sup> MDR-TB Patients were more in age group of 18-30 years while TB Patients more in age-group of 31-45 years, Similar study by Neha Deo et al showed that Younger age groups (<40 years) were more likely to develop MDR-TB/TB than older.<sup>6</sup> About 52% of MDR-TB Patients and 73% of TB Patients had education up to primary level which is supported by study by Gajanan S. Gaude et al which proved low Education status ( $P = 0.01$ ) has significant association with Tuberculosis<sup>5</sup>

Work ability declined and worsened in 92.7% of MDR-TB Patients and 82.3% of TB Patients. Decline is more among MDR-TB Patients (MDR-TB patients) than TB Patients (TB Patients), These findings are supported by a prospective study by Dhuria M<sup>1</sup> et al which showed that patients with MDR Tuberculosis had significantly lower mean scores than TB Patients for overall quality of life. The most affected domains were physical and psychological.

About 50% of MDR-TB and TB Patients felt that their relations with family members have deteriorated. These findings are supported by a study of Sharma R et al in which psychological and environmental domains were more affected as compared to physical and social domains in MDRTB and PTB.<sup>7</sup> After illness almost 66% of Study Participants (both MDR-TB Patients & TB Patients) relation with neighbor's declined and became discordial.

About 54% of study participant's income reduced to very low level due to decreased working potential. Decrease in the working potential decreases income generation of TB patients. A study by Sharma R et al found that Financially, MDR-TB patients were worst suffers as compared to PTB, while both groups are affected socially due to social stigma attached with the disease.<sup>7</sup>

After getting illness approx. 88% of MDR-TB Patients and TB Patients had decreased performance in routine day to day activities. These findings are supported by a Study by Fernández-Plata Mdel R et al who showed that active TB patients shown difficulties in activities of daily living and alterations of the psychological state.<sup>8</sup>

About 76% of MDR-TB Patients and 79% of TB Patients had developed discordial relation with co-workers. A study by Kerri A Viney et al showed that 74% of study participants said that they felt that they were treated differently by other people after being diagnosed with TB, resulting in others avoiding or refusing to eat with them. The participants felt that people avoided them due to concerns about TB transmission. Almost 46% said that TB treatment lessened the stigma, but 31% people said that TB-related stigma does not change.<sup>9</sup>

**CONCLUSION AND RECOMMENDATION:** Work ability is decreased more in MDR-TB Patients compared to TB Patients. Apart from this, there is similar detrimental effect on Social, Functional and Economic well-being of study participants was observed. Social stigma about all form of

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Tuberculosis still persists in the community which is Perceived Barrier in case detection and effective treatment of TB patients.

Effective counseling of family members and community by Behaviors Change Communication about preventive steps to stop transmission of TB i.e. Maintenance of proper hygiene, Proper nutrition, complete course of treatment by strict Adherence to DOTs/DOTS Plus, use of mask, cough etiquettes, safe disposal of sputum of the patient.

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