Socio-psychological Effects on Tuberculosis Patients from Maharashtra, India

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Abstract Tuberculosis, one of the major diseases has been known to cause 1.5 million deaths globally. Many quantitative studies have investigated risk factors associated with poor adherence to anti-tuberculosis treatment. In the present study, we aimed to identify the relationship between socio-psychological factors and TB patients. The second objective of this study was to determine whether the association differs from treated and untreated persons. After being cured from the disease, patients share clothes or utensils with their family members. For a few patients psychological improvements were observed after some period of treatment whereas as in majority of patients psychological support by their family and friends was not received. This caused increase in emotional stress despite patients got cured off the TB infection. The important point noticed about the cured patients was augmented fighting spirit against this deadly disease. Recovered patients want to live more with the same joy and happiness after treatment.

Keywords: tuberculosis, family support, psychology of patients

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1. Introduction

Tuberculosis (TB) remains a major global health concern, with 10.6 million persons with active disease notified in 2015 [1,2]. One of the main threats to treatment success is patient compliances to antituberculosis treatment (ATT), as poor adherence directly increases the likelihood of developing drug-resistant TB strains and a known risk factor for relapse or death [3,4]. In May 2012 India declared TB to be a noticeable disease. This was done with the aim of improving the collection of patient care information. It meant that in future all private doctors, caregivers and clinics treating a TB patient had to report every case of TB to the government [5]. The RNTCP has tried to involve non public health providers in promoting TB care, but it is believed that many patients continue to seek treatment elsewhere and currently go unreported [6]. There are many reasons why people in India seek care from the private sector [7]. Many quantitative studies have investigated risk factors associated with poor adherence to ATT [8]. However, few studies have examined the relationship between socio-economic determinants of treatment adherence in the field of social epidemiology [9]. Some studies have reported that previous history of TB, including number of previous TB episodes and previous treatment interruptions were the major risk factors for current adherence. However, previous TB history may not be causal but simply an indicator of vulnerability [10]. Conceptually, we may consider treatment-related factors, including previous history, as effect modifiers, and previous TB history may affect the association between social conditions and treatment adherence. In present study, we aimed to identify the relationship between socio psychological factors and TB patients. The second objective of this study was to determine whether this association differs in treated and untreated persons.

2. Methodology

2.1. Population Study and Methods

Data was extracted from Pune City Maharashtra state, India. The original study protocol aimed to identify predictors of unfavorable treatment outcomes among new and previously treated TB cases. Total 104 patient samples were selected from the population; criteria covered age group of 25 to 60 years along with their education and economic background. Trained study nurses then collected baseline information from consenting participants using a questionnaire. The study team collected clinical information by regularly reviewing medical records and/or by phone during the treatment period and follow up was taken for up to 40 months after they get cured.

2.2. Measures

The main outcome variable was poor adherence or loss to follow-up (LTFU), defined as treatment interruption for at least 2 consecutive months and not restarting the same regimen within 6 months. The history of patients was studied by using the variables like history of disease in family, genetic diseases, bad habits (smoking, alcohol) and low diet profile. We analyzed their accommodation types and the variables such as; clean and fresh house, suffocated house situated in the high density population zone as well as home in the high traffic zone of the city. We collected information about the behaviour of relatives, family and friends towards patient during and/ or after treatment. The psychological conditions were studied by using variable like loneliness, social gatherings and phobia.

3. Results and Discussion

Total 104 patients registered for the treatment of tuberculosis. Out of 104 patients, 36 patients were being treated whereas 68 were found to be cured. Patients those were under treatment patients were mainly new infections with multiple drug resistance strains, distribution is shown in (Figure 1). The statistically significant discrepancy was calculated from patient's drug resistance data. The percentage of drug resistance in the cured patients was found higher than the untreated (Figure 1).

Health status of these patients was analyzed. Data shown in (Figure 2) indicate that six patients had genetic diseases; six patients had smoking addiction and twelve with contagious disease. Six patients were found to suffer with infection other than TB. Out of 104 only 28 patients had factors as genetic disease, smoking habit or contagious disease, possibility suggests that in the case of remaining 76 patients infection was due to poor health support depicted in (Figure 2).

Diet plays an important role in the tuberculosis patients' recovery [11]. Among 104 patients 52% patients were vegan while 48% patients followed mixed Vegetarian and non-vegetarian diet. After disease diagnosis, 88% patients were observed strictly prescribed diet plan by the nutritionist. The lack of exercise was found within 48% patient's schedule (p<0.0001) shown in (Figure 3). Earlier studies indicate that incidence of tuberculosis is unusually high among malnourished people [12].
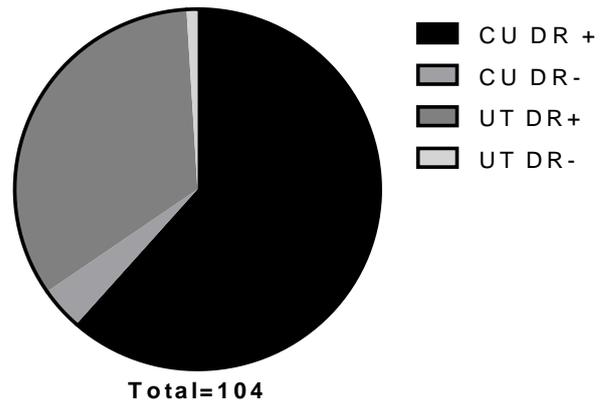

Figure 1. Sample population of Drug resistance TB. The discrepancy is found significant (p<0.05).Where, CU DR+ is cured patients, earlier diagnosed as drug resistance; CU DR- is cured patients, earlier diagnosed as no drug resistance; UT DR + is under treatment TB patients with drug resistance; UT DR- is under treatment TB patients with no drug resistance
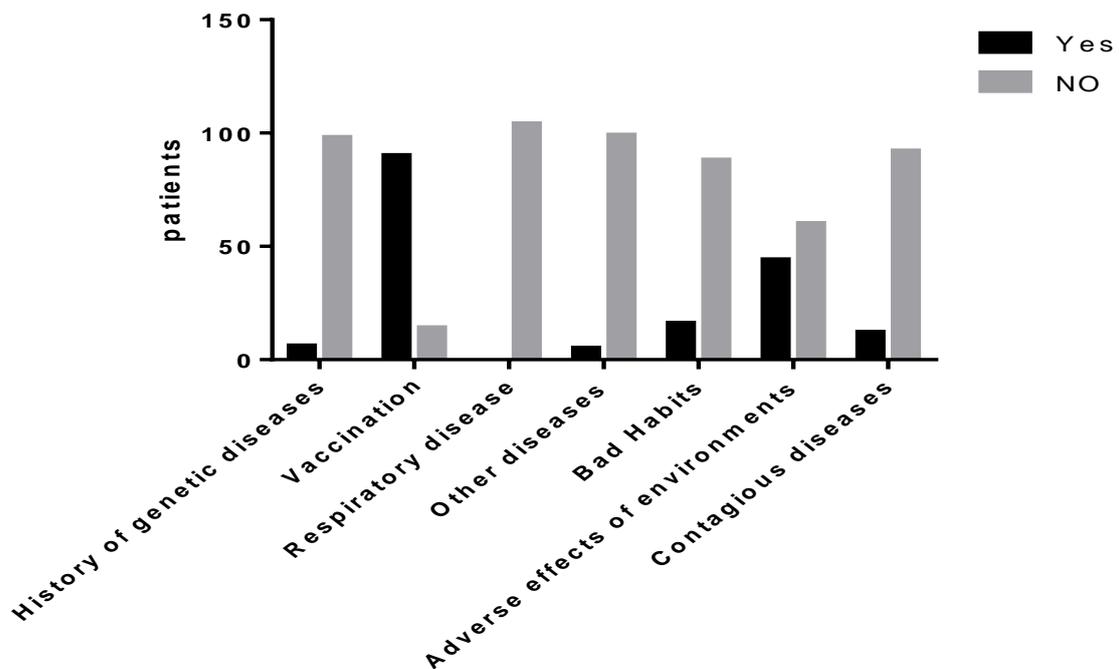

Figure 2. Medical history of TB patients. The discrepancy tested was found to be significant (p<0.05)
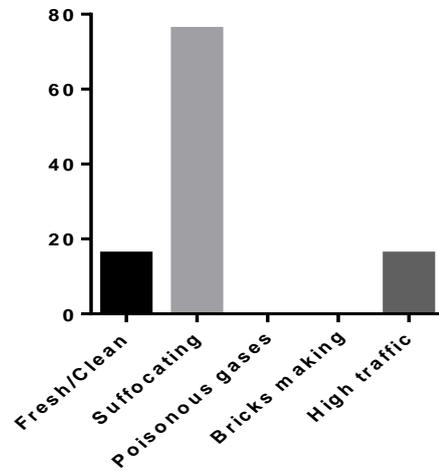
Figure 3. The factors associated with the health of patients. Routine exercise was found in low population. The percentage of patients with factors was considered here . The balanced diet and complete peaceful sleep was found helpful for the psychological encouragements and awareness in patients

We found that 76% patients lived in residential surroundings those were suffocating. About 18% patients resided in area with heavy –shown in (Figure 4). A good very clean and fresh environment observed near 16% patients' residence. Several authors found frequent co-morbidity of TB and common mental disorders [13,14]. Data presented in (Figure 5) shows that about 98% patients reported suffering of unknown fear, while 88 % patients with increased heartbeats. The fear about the any disease was identified in 76% patients, leading to stress among these patients. The psychological conditions of these patients were disturbed and 16% patients expressed desire to live alone and/ or lost their interest in daily routine shown in (Figure 5). Disease phobia was identified in 96% patients.

3.1. Social Relations of Patients

Patients were surveyed to investigate on their social life. About 21% patients were not interested in disclosing about infection within the society whereas majority of them were either neutral or had no issue in disclosing infection. Interestingly, only 23% patients were accepted by society with TB status as depicted in (Figure 6). However, 77% patients suffered discouragement by the society. Perhaps, for the sake of family name and societal pride 21% patients denied for disclosing about infection within society. The patients were found to respond to behavior of their family members. After diagnosed with disease patients experience included hidden stress due to their close relative and family members shown in (Figure 7). Patients were found to be ridiculed and sometime keens, family members and friend started to avoid patients as if they are the infectious agent. The emotional weakness could take a toll on patient psychology, making at times
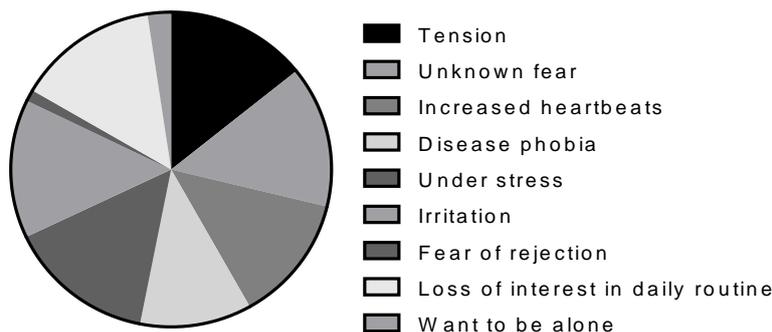
vulnerable to secondary infection. Patients were found to be interrogated by their relatives repeatedly about their medication, repeated questioning on treatment effects was found to be discouraging the patients (30.34%) shown in (Figure 8). The general myths about the treatments and disease persisted in discouragement of patients. Psychological counseling on how to handle such situation was found to be undertaken by only 10% patients. Studies noticed that patients got cured those were complying to prescribed regime, regular health check up along with balanced diet. Even after getting cured about 44% patients were found to avoid by their friends and were kept away from friends gathering while 16% patients were avoided in social gatherings by the society members shown in (Table 1).

Figure 4. The unhealthy surrounding environment at patient residence. Suffocation was found to be highly influential in modulating psycho-physiology of patients

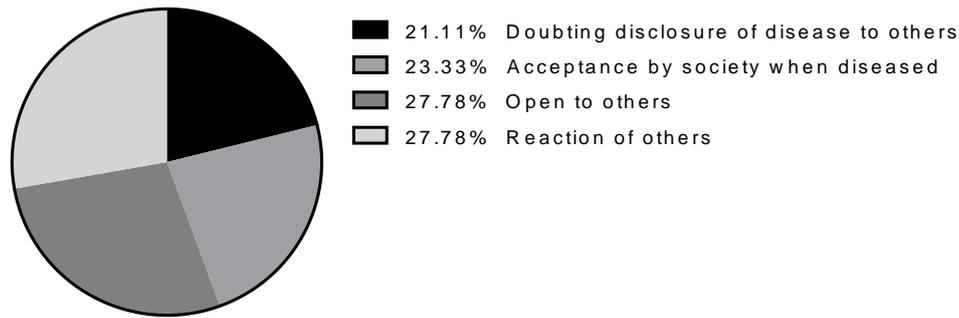**Figure 5.** Psychological conditions of patients in population.

- 21.11% Doubting disclosure of disease to others
- 23.33% Acceptance by society when diseased
- 27.78% Open to others
- 27.78% Reaction of others

Figure 6. Social relations of patients after cure of disease. The socio-psychological effects were found encouraging for patients fight against disease
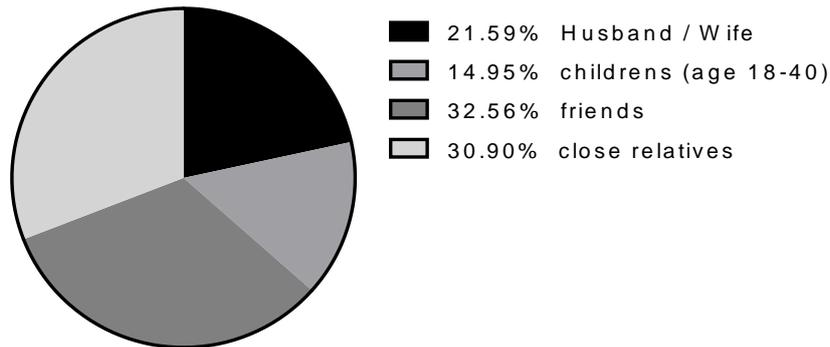

- 21.59% Husband / Wife
- 14.95% childrens (age 18-40)
- 32.56% friends
- 30.90% close relatives

Figure 7. Family members and their relations with patients after cure of disease

- 30.34% Doubting disclosure of cured disease to others
- 22.76% Acceptance by society when cured
- 23.45% Open to others after cure
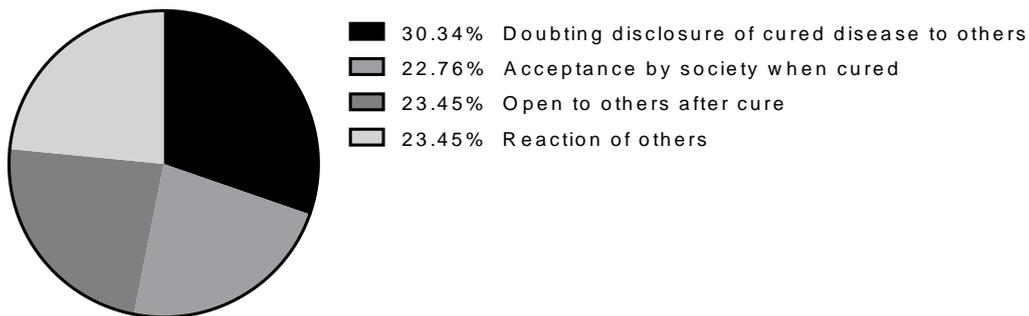- 23.45% Reaction of others

Figure 8. Social acceptance of patients after cure

Table 1. Psychological conditions of patients, the parameters like distance with other close relations were studied

Issue	During diseased condition			After Cure	
Sharing of clothes and utensils etc	Stopped	Continued	Can't say	Started	
	40	12	00	34	
Other issues	Increased	No change	Can't say	Decreased	As usual
Distance with relatives	10	40	02	00	34
Distance with friends	02	20	30	00	34
Distance with colleagues at work place	03	18	34	12	19
Distance with neighbours	02	17	38	13	16

4. Conclusion

As, much efforts have been made to improvise diagnostic methods for the detection of TB. There is a dire need to stress upon societal factors to augment socio-psychology and psycho-physiology of patients, which in turn would impressively impact success rate of ATT. Cured off patients were found to have improved fighting sprit against deadly disease.

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