A study to assess the associated factors of improper drug compliances and quality of life among multi drug resistant (MDR) tuberculosis clients in perambakkam

Dr. G Bhuvaneshwari[1]*, Soniya M[2]

[1] Department of Community Health Nursing, Saveetha College of Nursing, SIMATS, Chennai, India
[2] BSc Nursing IV Year Saveetha College of Nursing, SIMATS, Chennai, India

Abstract
Tuberculosis is still one of the leading causes of mortality and morbidity. The emergence of Multi-drug resistant (MDR) tuberculosis has become a significant public problem and an obstacle to effective TB control measure.
Objectives: To identify the associated factors of improper drug compliances Multi drug resistant (MDR) Tuberculosis clients.
Materials and Method: This study "Associated factors of improper drug compliances and quality of life among Multi drug resistant (MDR) Tuberculosis client in Perambakkam" was a descriptive cross -sectional study. The study population consisted of 80 samples Multi drug resistant (MDR) tuberculosis clients. Purposive sampling method was used and data was collected using structured questionnaire through face to face interview. WHOQOL BREF scale used to assess the quality of life.
Results: Shows that out of 80 samples, regarding lack of formal education out of 80 samples, 47(58.75%) were influenced, regarding side effects out of 80 samples, 42(52.5%) were influenced, regarding low monthly income out of 80samples,51(63.7%) were influenced, regarding feeling better than medicine out of 80samples, 58(72.5%) were influenced.22(27.5%) were influenced, regarding previous history of TB treatment out of 80 samples, 64(80%) were influenced, regarding previous history of unfavourable Tb treatment outcome out of 80samples, 71(88.75%) were influenced, regarding alcohol use out of 80 samples, 35(43.7%) were influenced regarding rural residence out of 80 samples, 54(67.5%) were influenced.
Conclusion: Lack of formal education, previous history of unfavourable outcome, side effects, lack of money, feeling better without medicines, financial burden have been observed as the associated factors for Multi drug resistant MDR tuberculosis.

Keywords: associated factors, improper drug compliances MDR-TB

Introduction

Tuberculosis (TB) is an infectious bacterial disease caused by Mycobacterium tuberculosis, which most commonly affects the lungs. One in three people in the world is infected with Mycobacterium tuberculosis [1].

Tuberculosis remains a major public health problem worldwide. Tuberculosis is one of the leading causes of mortality and morbidity around the world, infecting approximately 8 billion people, with an annual death rate of close to 1 million. India shares one third of the global tuberculosis burden and out of type 2 million incident cases approximately, half a million deaths occurs annually [2].

Multi Drug Resistant Tuberculosis (MDR TB) is defined as Tuberculosis caused by strains of Mycobacterium tuberculosis that are resistant to at least Isoniazid and Rifampicin; the most potent anti TB drugs. MDR-TB takes longer to treat with second line drugs, which are more expensive and have more side effects. Multi drug-resistant tuberculosis. It is an emerging threat in the era of antimicrobial warfare because the TB bacterium's unique characteristics give it enormous potential for developing resistance to even the strongest antibiotics. Inadequate TB treatment, lack of adherence linked to a failure to complete TB treatment, and the use of poor quality TB drugs can result in the development of MDR-TB, a form of TB that is resistant to two of the most important first-line drugs, and extensively drug-resistant TB (XDR-TB), which is also resistant to some second-line drugs. On average, 4.1 percent of all new TB cases have MDR/Rifampicin resistant TB. MDR-TB requires additional drugs for treatment and the cost of medications [3].

Tuberculosis patient, in addition to clinical symptoms has, to deal with several physiological, financial, and psychological problems. The symptoms and clinical burden of disease often extend beyond the duration of treatment. Also, the treatment itself may be related with several side-effects. All these aspects of the disease and its management have a huge impact on the overall well-being of the patient and burden of these factors can equal MDR-TB accounts for about 4.1% of new TB cases. Also, about 19% of previously treated TB cases were estimated to have either rifampicin or multi drug resistant TB in 2016 [2].

About 6.2% of MDR-TB cases in 2016 had additional drug resistance, which means that they may have had what is known as extensively drug resistant TB (XDR). This is lower than the figures for previous years (9.5% in 2015, 9.7% in 2014). This decrease is most likely due to improved measurements, rather than an actual decrease and even exceed the physical impact of illness [4].

MDR-TB is essentially made emergence as result of poor Tuberculosis control including poor supply of management and quality of anti-TB drugs, improper/inadequate treatment which is further fuelled by high prevalence of HIV [3].

Quality of Life (QoL) that has several dimensions. Measurement of health-related quality of life is gaining popularity and can be used to demonstrate the importance

that an individual places on certain aspects of their health or disease process. This information may be potentially useful in developing more appropriate therapies and to assist in planning comprehensive strategies of care, which are important objectives in many chronic diseases [3].

Among MDR/RR-TB patients notified in 2016, 39% were tested for resistance to both fluoro quinolones and second line injectable drugs, a slight increase from 36% in 2015. Coverage varied widely among countries [2].

Globally in 2012, an estimated 450000 people developed MDR-TB and there were an estimated 170000 deaths from MDR-TB. Data from drug resistance surveys and continuous surveillance among notified TB cases suggest that the highest levels of MDR-TB. Almost 50% of MDR-TB cases worldwide are estimated to occur in India (Global tuberculosis report 2015) [5].

Tuberculosis is a major public health challenge worldwide. It is the second leading cause of death from infectious diseases next only to human immune deficiency virus (HIV). Above 90% of the global cases and deaths occur in the most economically productive age (15 – 54 years) [5].

Measurement of health-related quality of life is gaining popularity and can be used to demonstrate the importance that an individual places on certain aspects of their health or disease process. This information may be potentially useful in developing more appropriate therapies and to assist in planning comprehensive strategies of care, which are important objectives in many chronic diseases.

The incidence of MDR tuberculosis is progressively increasing in the world. The rapid progress in the incidence need to be halted by timely identifying the risk factor and promptly intervening the preventive and control measures. Failure to control MDR-TB may lead to another era with TB being regarded as a fatal disease. Understanding factors associated with MDR-TB is critical in designing evidence guided intervention strategies [2].

The incidence of MDR tuberculosis is progressively increasing in the world. So the present study was attempt to analysis the associated factors of improper drug compliances and quality of life.

Materials and Methods

Sample are drawn by using purposive sampling technique. Semi- structured questionnaire was used and face to face interview technique was used to collect the data. WHOQOL BREF scale used for quality of life. Validity of the instrument was maintained by developing the research questionnaire on the basis of the objectives of the study, reviewing the related literature and guidance of subject expert. Perambakkam Government Hospital for clarity and feasibility and necessary modification was done. Study was conducted after written permission from concerned authorities i.e. Savetha college of Nursing was conducted after getting ethical approval from Institutional Review Board. Permission was taken from Perambakkam Tuberculosis Centre, The confidentiality of respondent was maintained throughout the study. Privacy was maintained during the course of interview by using the separate area. Respiratory masks were used as per need during the interview. The interviews were conducted in open areas with free circulation of airs to reduce the risk of transmission. Verification of data was done in the field for completeness and consistency in the filled questionnaire. Data was analyzed by using descriptive statistics such as frequency, percentage, mean and standard deviation

Results

Shows that the age out of 80 samples 3(3.75%) samples were under 20 -40 years, 35(43.75%) were under30-40 years, 37(46.1%) were under 40–60 years, 5(6.25%) were more than 60 years. Regarding gender out of 80 samples 60(75%) samples were male, 20(25%) were female.Regarding marital status out of 80 samples 62(77.5%) samples were married, 18(22.5%) samples were single, 0(0%) samples were widowed, 0(0%)samples were separated. Regarding educational level out of 80 samples 49(61.25%) samples were middle school, 29(36.25%) samples were high school, 2(2.5%) samples were under higher secondary, 0(0%) samples were under graduate. Regarding smoking out of 80 samples, 3(3.75%) samples were under frequently, 35(43.5%) samples were under occasional, 33(41.25%) samples were under very rare, 9(11.25%) samples were under no habit. Regarding factors issues while taking TB drugs out of 80 samples, 27(33.75%) samples were under adverse effect, 30(37.5%) samples were under transport,23(28..6%) samples were under does not have money facility.

Table 1: Frequency and percentage distribution of demographic variables of improper drug compliances among Multi drug resistant (MDR) tuberculosis clients. (n=80).

S.no	Demographic variables	Frequency (n)	Percentage (%)
	Age		
1.	a) 20-30years	3	3.75%
	b) 30-40 years	35	43.75%
	c) 40 -60 years	37	46%
	d)above 40 years	5	6.25%
	Gender		
2.	a) Male	60	75%
	b) Female	20	25%
	Educational Level		
	a) Middle school	49	61.25%
3.	b) High school	29	36.25%
	c) Higher secondary	2	2.5%
	d) Graduate	0	0
	Income		
4.	a) <10,000	54	67.5%
	b) 10,000 - 20,000	26	32.5%
	c) 20,000 - 30,000	0	0

	d) >30,000	0	0
5.	Occupation		
	a) Unemployed	38	46.25%
	b) Coolie	35	43.75%
	c) Business	7	10%
	d) Professional	0	0
6.	Marital status		
	a) Married	62	77.5%
	b) single	18	22.5%
	c) separated	0	0
	d) widowed	0	0
7.	Habit of smoking		
	a) Frequently	3	3.75%
	b) Occasionally	35	43.75%
	c) Very rare	3	41.25%
	d) No habit	9	11.25%
8.	Factors issues while taking Multi drug resistant (MDR) tuberculosis		
	a) Adverse effect	27	33.75%
	b) Transport	30	37.5%
	c) Does not have money facility	23	38.5%

Table 2: Frequency and percentage distribution of associated factors of improper drug compliance among Multi drug resistant (MDR) tuberculosis clients

S.no	Associated Factors of Improper Drug Compliances Among Multi Drig Resistant	Frequency (n)	Percentage (%)
1.	Lack of formal education	47	58.75%
2.	Low monthly income	51	63.7%
3.	Side effects	42	52.5%
4.	Feeling better without medicine	58	72.5%
5.	Financial burden	31	38.75%
6.	Unemployment	22	27.5%
7.	Attitude of staffs	27	33.7%
8.	Previous history of TB treatment	64	80%
9.	Previous history of unfavourable TB treatment outcome	71	88.75%
10	Alcohol use	35	43.75%
11.	Rural residences	54	67.5%

Shows that out of 80 samples, Regarding lack of formal education out of 80samples, 47(58.75%) were influenced Regarding side effects out of 80 samples, 42(52.5%) were influenced Regarding low monthly income out of 80samples,51(63.7%) were influenced Regarding feeling better than medicine out of 80samples, 58(72.5%) were influenced Regarding unemployment out of 80samples, 22(27.5%) were influenced Regarding previous history of TB treatment out of 80 samples, 64(80%) were influenced Regarding previous history of unfavourable Tb treatment outcome out of 80samples, 71(88.75%) were influenced Regarding alcohol use out of 80samples, 35(43.7%) were influenced Regarding rural residence out of 80samples, 54(67.5%) were influence.
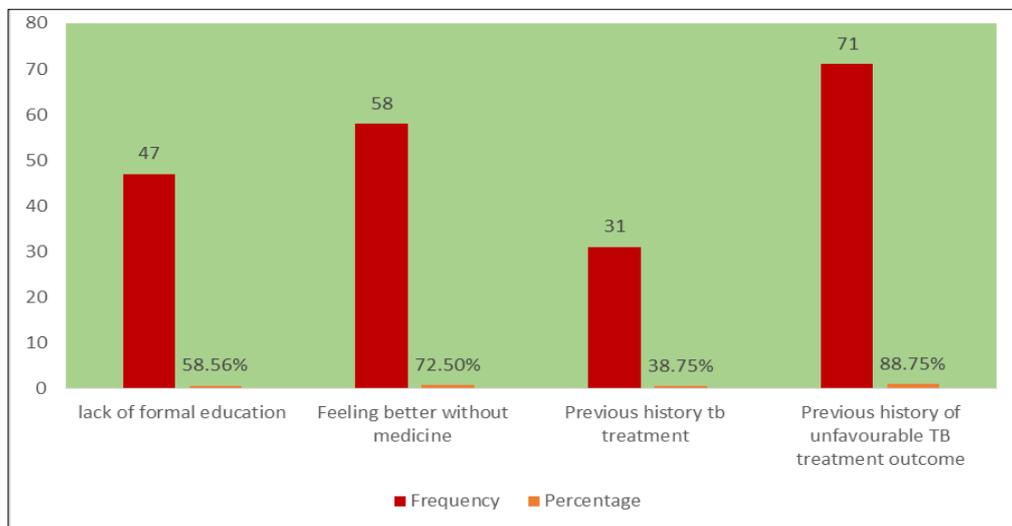

Fig 1: Shows frequency and percentage distribution of associated factors of improper drug of compliance Multi drug resistant (MDR) tuberculosis clients.

Table 3: Mean and standard deviation of quality of life among Multi drug resistant (MDR) tuberculosis clients.

S.no	Quality of life (Domain)	Mean	Standard deviation
1.	Physical domain	3.162	18.75
2.	Physiological domain	3.175	18.32
3.	Social domain	3.401	10.39
4.	Environmental domain	3.710	16.79

Discussion
The present study to identify the associated factors of improper drug compliances and quality of life, lack of formal education, previous history of unfavourable outcome, previous history of tb treatment, unemployment and these are the main factors of improper drug compliances and shows that the well-being of some of the participants was adversely affected through loss of income and health care expenses, and the social functioning was affected through isolation. Clients have reported wide range of psychological reactions and had developed negative feelings, suffering from depression and inability to continue with social and leisure activity.

The present study shows that the associated factors of improper drug compliances and quality of life patients with the history of MDR -TB was worse than healthy subjects as measured by WHOQOL BREF scale.

Malik M. Parmar, (2018)
Unacceptable treatment out comes and associated factors among India's initial cohorts of multidrug-resistant tuberculosis (MDR TB) patients under the revised national TB control programme. Evidence leading to policy enhancement". To evaluate initial sputum culture conversion, culture reversion and final treatment out comes among MDR-TB patients registered in India from2017to early 2011 who were treated with a standard 24-month regimen under daily-observed treatment.Factors significantly associated with either culture non-conversion, culture reversion and/or un favourable treatment out comes were baseline BMI<18;≥seven missed dose sin intensive phase and continuation phase, cavitary disease; prior treatment episodes characterized by re-treatment regimen taken twice, longer duration and more episodes of treatment.

Rajendra Prasad, et al. (2017)
"Extensively drug-resistant tuberculosis in India: Current evidence on diagnosis and management" Mismanagement of MDR-TB cases primarily results in this form of TB duet the following reasons: faulty or improper treatment, non-adherence to treatment guidelines, in appropriate, incomplete or erratic use of SLD sand use of poor-quality SLD s. A study from South Korea reported that factors responsible for XDR-TB were total duration of prior SLD sin take, in accessibility to approach reliable laboratory for DST against first-line drugs as well as SLD s, lack of experience, poor training and skills to manage DR-TB and factor linked to poor control practices. The lack of measures to ensure adherence and monitoring of treatment with prescribed regimens, especially in privates ectors, was considered to be a major risk factor for XDR-TB. The two strongest risk factors for XDR-TB are failure of regimen used for treatment of MDR-TB including SLIDs as well as FQ and close contact with an individual with documented XDR-TB

Maja Stosic (2018)
"Risk factors for multi drug-resistant tuberculosis among tuberculosis patients" a case-control study" Multi drug resistant (MDR) tuberculosis (TB) represents TB which is simultaneous resistant to at least rifampicin and isoniazid. Identifying inadequate therapy as the main cause of this form of the disease and explaining the factors leading to its occurrence, numerous social determinant that affect the risk of developing resistance are highlighted. The objectives of the study was to identify independent factors of MDR-TB among tuberculosis patients. To improve living conditions and reduce the high rate of poverty of the patients by the involvement in programs of social support, retraining programs, and programs of social entrepreneurship. To achieve better adherence to TB treatment and reduce defaulting from treatment MDR-TB case management has to be improved (clinical guidelines updated, continuous training programs, supervision and support of health professional son service delivery level provided) and support to patients and their families provided during treatment. To reduce stigma associated with TB and bad mental health of the MDR-TB patients, it is necessary to include mental health services in to the TB care process. Finally, having in mind immigration as a potential treat to TB control, protocols for TB case detection among migrants has to be developed whose originare from MDR-TB strain dominant countries.

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