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Knowledge of Multi Drug Resistance Tuberculosis and its Management among Tuberculosis Patients at Selected DOTS Centre Kolar

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Abstract

Multidrug-resistant tuberculosis (MDR-TB) and Rifampicin-resistant TB (RR-TB) are man-made problems that are rising due to ignorance of MDR-TB and inadequate handling of Tuberculosis, which poses a major threat in reducing TB[1]. So, this study has been conducted to identify the efficacy "of planned health education Programme on patient understanding about MDR-TB & its management at DOTS centres of Kolar. **Methods and Material:** Pre-experimental single group pre-and post-test design was applied for the study. Through Purposive sampling 55 TB cases were selected. Information was gathered using structured knowledge questionnaire via interview schedule, then pre-arranged health education programme was implemented. Following eight days, post-test was given by using same questionnaire. **Statistical analysis:** Data was analysed using Descriptive and Inferential Statistics like mean, standard deviation and chi-square test. **Results:** The study results proved that, with regard to overall pre-test knowledge score, majority (89.10%) of TB patients had inadequate knowledge, 10.90 % of them were having reasonable amount of moderately adequate knowledge and none of them were having enough knowledge. The mean pre-test knowledge score was 4.29 with SD of 2.99, while the mean post-test knowledge score was 12.58 with SD of 1.64 and it was "statistically significant at 0.005 level. **Conclusion:** The results found that, organised health education programme helped Tuberculosis patients in improving knowledge scores. Hence more awareness studies need to be carried out among TB patients in order to prevent multi-drug resistance TB.

Keywords: Effectiveness, Structured teaching programme, Knowledge, Tuberculosis, MDR-TB, TB patients

1 Introduction

Tuberculosis (TB) remains one of the commonest infectious diseases in India, where control is difficult due to the emergence of multi-drug resistant TB (MDR-TB)[1]. The emergence of multidrug-resistant tuberculosis (MDR-TB) is a major threat to public health as well as a challenge to End TB Strategy proposed by the World Health Organization (WHO). The WHO reported 157,000 MDR-TB cases in 2020 worldwide[2].

"Multidrug-resistant tuberculosis" is a type of TB that is resistant to at least the first-line generation of "anti-tuberculosis" medications such as "rifampicin and isoniazid" and it is the largest challenge in the management of TB and its significant risk to human health globally[3]. Quantitative studies on "Multi-Drug Resistance Tuberculosis" and its

challenges around in India reveals that, the rise in MDR-TB is due to follow-up loss, treatment-related death, and the fact that India's extensive public sector program is primarily tiny and frequently limited to single treatment facilities[3].

"A cross-sectional study" conducted on knowledge and practices regarding MDR-TB among health care workers at Maseru revealed that, the degree of knowledge possessed by healthcare workers was insufficient and unsafety practices which are not donning a mask & not recommending patients for the higher centre as per "MDR-TB" protocols were shown to be associated with insufficient knowledge. Hence the study recommended educational intervention is required to all health care providers[4].

Knowledge study on "Multi-Drug Resistance Tuberculosis" among TB Patients at selected "DOTS" Centre, "Gurugram, Haryana" revealed that, majority (64.16%) of TB patients had "below average knowledge, 33.5%" of them had "average knowledge and 3.33%" of them had good knowledge. So, the study concluded that individuals with tuberculosis should be educated about multi-drug resistance TB[5].

A retrospective cross-sectional study conducted to know the impact of educational intervention on non-compliance and risk of MDR-TB among 50 MDR-TB patients at Institute of Disease of the Chest hospital at Dhaka revealed that, there is a 20% reduction in non-compliance rate which contributed in decreasing the risk of MDR-TB. Hence the study concluded that there is a need for educational interventional studies in reducing MDR-TB[6].

"Multi-Drug Resistance tuberculosis" is a life threatening condition which endangers the achievement of "directly observed treatment short course - DOTS" and elimination of tuberculosis,[7] Therefore it is extremely important for a nurse to educate all TB patients regarding management of multi-drug resistance TB so that, we can achieve a nation with no MDR-TB.

The STOP TB Strategy now covers the management and prevention of MDR-TB[7]. In order to have better understanding on impact of "multi-d rug resistance Tuberculosis" and its Management among Tuberculosis patients; researchers thought it is necessary to conduct a study in their own settings.

2 Methodology

The study objective was to know the effectiveness of planned health education Programme on knowledge regarding MDR-TB and its management among Tuberculosis patients. The study was approved by ethical committee with Ref No. SDUCON/IEC/20/2018-19 dated 04/04/2018. We used "Pre-experimental single group pre- and post-test" Research design. Based on the objective of the study, a questionnaire and planned health education content was prepared in English and then translated to Kannada language because patients were from local area whose understanding and communication were in Kannada. The same was validated by seven subject experts. Then a written consent was obtained from District Surgeon, SNR District Hospital, Kolar and Medical Superintendent, "R.L.J. Hospital and Research Centre, Tamaka, Kolar" to conduct a study in their DOTS centers. The inclusion criteria were a TB patient who was interested to participate in the research study and were capable of understanding and speaking in local language. TB Patients who were seriously ill were excluded from study. After obtaining an informed written consent in a form, 55 TB patients, "were included in the study using purposive sampling technique". Then these patients were interviewed for their socio-demographic data which had seven variables such as age, gender, educational status, occupation, income, marital status and family member with TB, followed by they were assed for knowledge on "multi-drug resistance Tuberculosis" and its Management using structured knowledge questionnaire which had 16 multiple choice questionnaire and these questions were distributed under general information on

MDR-TB, causes and signs and symptoms and management of MDR-TB. Soon after this, an organized method of health education was received by TB patients individually as well as in groups for one hour through the use of charts, flash cards and power point presentation. After 08 days of training programme a "post-test" was done by utilizing the same "questionnaire". The data was gathered from "12/11/2022 to 09/12/2022".

3 Results

I. Socio demographic information of TB patients

In relation to socio-demographic information of TB patients, majority (52.8%) of them were in the age group of 50 to 59 years, 78.18% of them were females, all (100%) of them were married, 60% were studied higher primary school, 38.19% of them were self-employed, 36.36% of patient's "monthly earnings" were between Rs.10,000/- to Rs.20,000/- and 10.90% patients family had history of TB.

II. Pre-test knowledge of TB patients on MDR-TB and its management

Regarding to the overall knowledge score, who ever scored correct answer were given one mark and wrong answer got zero mark. The total score was 16. Based on the score, Tuberculosis patients were categorised as "Adequate knowledge" (who scored above 75%), "moderately adequate knowledge" (scored between 50 and 75%), and "inadequate/insufficient knowledge" (scored less than 50%).

The obtained pre-test knowledge score on MDR-TB and its management showed that, 89.10% of TB patients had

insufficient knowledge, 10.90% of them had "moderately adequate knowledge, none of them had adequate knowledge" and the same is presented in Fig. 1.

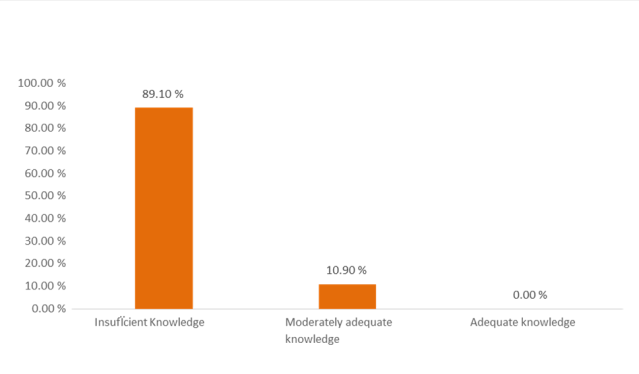

Fig. 1: Distribution of TB patients according to their pre-test knowledge

III. Effectiveness of planned health education programme between pre and post-test

Regarding the success of organised health education programme among TB patients understanding on MDR-TB and its management disclosed that, the "post-test knowledge score" (12.58) "was higher than the pre-test" knowledge score (4.29), this was significant at 0.00 level. This showed that the organized health education program was successful in raising (8.29 points) the knowledge score of TB patients and the same is reflected in Table. 1.

Table 1: Comparison of Pre and Post-test mean Knowledge scores (n=55)

Group	Mean	SD	Paired 't' value	Table value	p value
Pre-test	4.29	2.99	32.32	1.64	0.001** SS
Post-test	12.58	1.64			

** SS: Statistically Significant

IV. Association of knowledge score with selected socio-demographic variables

The association of "post-test knowledge score on multi-drug resistance tuberculosis" and its management with selected socio-demographic variables revealed that, age (x2=4.79) was significant at the 0.05 level, but not with gender (x2=0.02), education (x2=0.13), occupation (x2=0.90) and income (x2=0.23) as shown in Table. 2.

Table 2: Association of Post-test Knowledge Score with selected socio-demographic Variables (n=55)

Sl. No	Variables	Post-test Knowledge score		χ^2	df	P-value
		Below Median <13	Above Median ≥13			
1	**Age group**					
	20-39	6	12	4.79	3.84	0.02 SS
	40-60	25	12			
2	**Gender**					
	Female	24	19	0.02	3.84	0.87 NS
	Male	7	5			
3	**Education of status**					
	Higher primary	24	15	0.13	3.84	0.17 NS
	High school and above	9	7			
4	**Occupation**					
	Daily wages	20	8	0.9	5.99	0.63 NS
	Private employed	14	8			
	Self employed	21	14			
5	**Income**					
	<20.000	18	10	0.23	3.84	0.52 NS
	>20.000	19	8			

SS: Statistically Significant

4 Discussion

The study showed that 52.8% of TB patients were with 50 to 59 years of age group, 78.18% were females, all of them were married, 60% were studied higher primary school, 38.19% were self employees, 36.36% patient's monthly income was between 10,000/- to 20,000/- rupees and 10.90% had family history of TB, which is not in an agreement with the WHO 2019 report on TB[2] because it may be due to limited data that was collected from only two DOTS centers. An extensive review literature on successful completion of TB treatment showed that, patients who received health education during the course of TB had better treatment adherence and lower rates in loss of follow-up[6, 10]. Hence researchers provided health education to TB patients regarding MDR-TB and its management and assessed their knowledge with pre and post-test scores. The findings showed that "post-test knowledge score" (12.58) is more compared to the "pre-test knowledge score" (4.29) and this was "significant" at 0.00 level. Similar finding was obtained in a study done at

Ethiopia[8] which shows inadequate knowledge and also with the study done at Indonesia where results proved that, there was a significant impact of health education on "MDR-TB" among TB patients[9].

Based on patient's selected socio-demographic information which includes age, gender, education, occupation and income, there was no evidence from the study to suggest that there was any statistically significant difference with knowledge on MDR-TB except age and the same was evident in the previous study[5, 8].

Implications:

All levels of Health workers, Anganwadi workers and Asha workers to be equipped with knowledge regarding multi-drug resistance TB and its management in order to conduct regular awareness programmes at hospital, community and public places.

5 Conclusion

The study conducted at two DOTS centers at Kolar, Karnataka on effectiveness of health education regarding MDR-TB and its management among Tuberculosis patients concluded that health education improved the knowledge among TB patients. The knowledge can help patient to develop skill in adhering towards TB treatment as well as identifying causes of MDR-TB. Further it also may help in prevention as well as management of MDR-TB if occurs in the future.

Limitations: The study was limited to only two DOTS centers that are RLJHRC, Tamaka, Kolar and SNR District Hospital, Kolar.

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