

Effectiveness of an Educational Intervention on the Knowledge and Attitude of Patients Attending the DOTS Centre of Selected Hospitals in Mangaluru, Karnataka

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Abstract

Tuberculosis (TB) is still a major cause of mortality and morbidity in India due to widespread ignorance and negligence among the public. The present study evaluated the effectiveness of an educational programme on knowledge and attitude of tuberculosis, as clarity of information among the public can further curb the devastating illness. A pre-experimental design was adopted for the study; 50 patients attending the DOTS Centre of selected hospitals and PHCs at Mangaluru were selected using purposive sampling. The data was collected from Feb till May 2016. A self-administered knowledge questionnaire consisting of 30 items and a 21-item, 5-point attitude scale were the instruments used for the study. A cut off score of > 13 was considered as having average knowledge and a cut off score of > 84 was considered as having negative attitude. An educational talk for 45 minutes was organised for the patients attending the DOTS centres. Among 50 TB patients, only 23 (46%) knew that TB is curable and 31 (62%) knew that it is a communicable disease. 28 (56%) patients didn't know that DOTS is the main treatment for TB; 45 (90%) had negative attitude in the pre-test. No significant association was found between the demographic variables and knowledge and attitude ($p>0.05$). The educational programme was found to be effective in enhancing the knowledge and bringing a change in the attitude ($t_{79}=2$, $p<0.05$). Nurses are powerful agents of change and can utilise education as one of the cost effective intervention for promoting health among tuberculosis patients.

Tuberculosis caused by the bacterium *Mycobacterium Tuberculi* is still a growing concern in India and the second most common cause of death from infectious disease. Most infections, known as Latent TB, do not have symptoms, which progress to active disease; which if left untreated it kills about half of those infected. A WHO report reveals that about 9.4 million (8.9 - 9.9 million) new TB cases occurred in 2008 (Behera, 2010). India had the highest total number of TB cases worldwide in 2010 due to poor disease management within the private and public health sector.

At present about 95 percent of the estimated 8 million new cases of TB occur each year in developing countries, where 80 percent occur among people aged 15-59 years (Agusto, 2009). Hopes of totally controlling the disease have been dramatically dampened because of factors such as difficulty of developing an effective vaccine, the expensive and time consuming diagnostic process, lengthy treatment, the increase in HIV-associated TB and the emergence of drug resistant cases in 1980s.

Though the Directly Observed Treatment Short Course (DOTS) for TB has been found to be one of the most reliable and effective health interventions, central to all TB control strategies is the fact that people are unaware of its importance and use. Nurses have the responsibility to teach the public about it and correct misunderstanding and misconceptions concerning it. Often, delay in seeking medical care in tuberculosis is due to the fear that the disease will lead to social stigma and ignorance that TB is curable if caught early. Nurses can help people understand the importance of getting diagnosed at early stage when symptoms appear. If TB control is to make progress, the nurse will have to assume more and more responsibility as a community citizen. The success of control measures depends on developing a higher awareness, better understanding and a more constructive attitude towards the disease.

Keeping this in mind the investigator explored the effectiveness of an educational intervention on knowledge and attitude of patients suffering from this devastating illness.

Review of Literature

A study by Vidhani M & Vadgam P among 176 pa-

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tients taking treatment of PTB from health centres of Surat District revealed that more than 80 percent of the participants had knowledge about symptomatology of PTB. Almost all (96.7%) patients were aware about spread of TB from one person to other. About half knew that infective organism is the cause of disease and more than a third of patients were aware about the diagnostic studies conducted to confirm PTB. However, only 9 percent of the patients knew that BCG vaccination is given in new-borns for prevention of TB. Most of the participants (95%) believed that TB is curable. This study concluded that although awareness regarding certain basic aspect of TB was adequate, there is a great need to improve awareness in illiterate individuals and a greater need to fight social stigma about TB and its treatment.

Pinto & Udwadia (2010) assessed the levels of awareness and knowledge of private patients about TB and DOTS programme at the PD Hinduja Hospital and Medical Research Centre, Mumbai. A structured interview schedule was administered among 200 patients. The result revealed that only 30 of 200 patients (15%) were aware of the DOTS programme; about 183 patients (91.5%) preferred receiving the drugs themselves to visiting a DOTS centre. The study concluded that samples have poor knowledge and awareness of the DOTS.

Kaur et al (2014) conducted a study to assess the knowledge regarding DOTS therapy among tuberculosis clients at Amritsar; 100 tuberculosis clients were selected by non-probability convenient sampling technique. A structured interview schedule was adopted to collect the data. The results showed that out of 100 samples, majority (66%) had inadequate knowledge, 31 percent had moderately adequate and only 3 percent had adequate knowledge on DOTS therapy. There was a significant association of knowledge with selected socio-demographic variables as occupation ($\chi^2=13.925$), monthly income ($\chi^2=14.186$), education status ($\chi^2=26.74$). The study concluded that patients have inadequate knowledge about the free treatment and facilities and delay in seeking treatment was due to monetary constraints and tough life situations and recommended that the patients already on treatment can be educated regarding treatment compliance so that relapses can be minimised and the psychological concerns of the patients can be addressed.

Objectives

1. To assess the level of knowledge and attitude of patients towards tuberculosis and its treatment strategies.
2. To evaluate the effectiveness of a planned teaching programme on knowledge and attitude to-

wards tuberculosis and treatment strategies.

3. To find the association between knowledge and attitude with selected demographic variables.
4. To determine relationship between knowledge and attitude of patients with tuberculosis

Materials and Methods

A pre-experimental one group pre-test post-test design was used for the study; 50 TB patients aged 30-60 years attending the DOTS centre at Kshema Hospital and Natekal PHCs at Mangaluru formed the subjects of study. Samples were selected based on the convenience of the investigator. Patients on conventional treatment and MDRTB and XDRTB were excluded. The pre-test (O1) was carried out to determine the knowledge and attitude on day 1 followed by the educational programme for 45 minutes. Post-test (O2) was conducted on the seventh day following the pre-test. The study was conducted between Feb

Table: 1 Distribution of tuberculosis patients according to the demographic characteristics (n=50)

Sample Characteristics		f (%)
Age	< 30 years	8 (16)
	30-45 years	36 (72)
	46-60 years	6 (12)
Gender	Male	30 (60)
	Female	20 (40)
Marital status	Married	20 (40)
	Single	20 (40)
	Divorced	--
	Widowed	10 (20)
Educational status	No formal education	--
	Primary education	40 (80)
	High school	10 (20)
	Pre-degree and above	--
Occupation	Unemployed	30 (60)
	Employed	20 (40)
Monthly Income (in rupees)	< 10000	50 (100)
	10001-15000	--
	> 15000	-
Duration of diagnosis	Newly diagnosed	10 (20)
	Within 1 year	19 (38)
	2 year	21 (42)
	> 2 year	--
Follow-up treatment	Regular	30 (60)
	Irregular	20 (40)
Source of information regarding TB and its treatment	Mass Media	20 (40)
	Healthcare facilities	10 (20)
	Family, friends	20 (40)

Table 2: Pre- and post-test knowledge scores (n=50)

Knowledge score	Maximum possible score	Minimum score obtained	Maximum score obtained	Mean x + SD	Mean %
Pre-test	30	4	25	18.36 +1.20	18.40
Post-test	30	16	29	57.94 + 4.18	26.83

Table 3: Frequency of correct responses to the knowledge questionnaire

Item	Pre-test f (%)	Post-test
Q.1 Is tuberculosis curable ?	23 (46)	49 (98)
Q.2 How does TB spread?	34 (68)	27 (54)
Q.3 Tuberculosis is a communicable disease?	31 (62)	37 (74)
Q.4 Which of the following are symptoms of TB?	28 (56)	30 (60)
Q.5 Can a cured patient develop the disease again?	24 (48)	43 (86)
Q.6 Can TB patient breastfeed her infant	30 (60)	44 (88)
Q.7 If you are infected you need to keep your utensils and bedding separate	30 (60)	39 (78)
Q.8 TB medications result in weight gain	23 (46)	40 (80)
Q.9 TB is detected exactly by	27 (54)	37 (74)
Q.10 TB patients can smoke or drink alcohol	23 (46)	50 (100)
Q.11 Who will you consult when you get the disease?	26 (52)	46(92)
Q.12 Dust and dirty surrounding cause TB?	22 (44)	45(90)
Q.13 DOTS refers to?	22 (44)	50(100)
Q.14 Can a TB patient attend school or office?	25 (50)	39 (78)
Q.15 For how long a TB patient spreads the disease?	20 (40)	45 (90)
Q.16 The vaccine given to prevent the occurrence of Tuberculosis is?	27 (54)	57 (94)
Q.17 TB is treated freely?	18 (36)	50 (100)
Q.18 Are you aware that TB Dispensaries are available in your locality?	27 (54)	45 (90)
Q.19 DOTS is the only treatment for tuberculosis?	30 (60)	42 (84)
Q.20 DOTS treatment has to be followed for how long?	33 (66)	38 (76)
Q.21 Medication given for TB has plenty of side effects	24 (48)	41 (82)
Q.22 DOTS is an invasive procedure	29 (58)	37 (74)
Q.23 What should I do if I forget to take drugs on particular day	23 (46)	40 (80)
Q.24 You need to undergo liver test, urine test, eye/ear examination when you are on TB treatment	30 (60)	44 (82)
Q.25 Any part of the human body can be affected by TB, but the major organ is lung	26 (52)	41 (82)
Q.26 Can anyone be affected by TB regardless of age and gender	5 (10)	50 (100)
Q.27 Can medications be stopped once you feel better?	21 (42)	50 (100)
Q.28 Active TB spreads by cough, sneeze and talk	31 (62)	37 (74)
Q.29 People with low body resistance are easier to be affected by TB	34 (68)	46 (92)
Q.30 Non-compliance or taking medicine irregularly will lead to chronic TB	21 (42)	40 (80)

till May 2016.

The tools utilised for the study were a socio-demographic proforma consisting of 9 items which in-

cluded age in years, gender, marital status, educational status, occupation, monthly income, duration of diagnosis, follow-up treatment and source of information. A self-administered knowledge questionnaire consisting of 30 items was also utilised for the study. The respondents were required to place a tick mark against the appropriate response. Every correct response was given a score of 1. The maximum possible score was 30 and the scores were categorised arbitrarily as follows: Good (25-30), Average (13-24) and Poor (1-12). Attitude was evaluated using a 21-item 5-point Likert scale. The maximum score was 105 and the minimum score was 21. The scores were arbitrarily classified as positive attitude (21-62), neutral (63-83) and negative attitude (84-105). Higher scores depicted negative attitude and lower scores depicted a positive attitude. The tools were validated and the reliability of the knowledge questionnaire was found to be 0.82 and attitude scale was 0.70 which indicated that the tools were reliable. The data was analysed using inferential and descriptive statistics. The demographic variables and the level of knowledge was analysed using frequency and percentage. Effectiveness of the intervention was analysed using paired 't' test and the association between knowledge and attitude was analysed using Pearson's Chi square value.

The study proposal was presented to the ethical committee and approval was obtained. Permission was obtained from the concerned authorities and an informed consent was obtained from the respondents after proper explaining the purpose, usefulness of the study and assurance given about the confidentiality of their responses.

Results

Sample characteristics

Table 1 reveals that majority of the TB patients (n=36, 72%) were in the age group of 30-45 years and were males 30 (60%) with 20 (40%) being married. All the subjects (100%) were literate but yet 30 (60%) were unemployed. All 50 patients (100%) had a monthly income of less than Rs. 10,000. Most of the subjects 21 (42%) were diagnosed with TB for more than 2 years and only 10 (20%) were newly diagnosed. Though majority 30 (60%) were on regular follow-up treatment, 20 (40%) of the TB patients were irregular with follow-up treatment. Majority of the patients (n=20, 40%) had information about the treatment from mass media, 10 (20%) from health care facilities and the remaining 10 (20%) had information from family and friends.

Table 4: Pre- and post-test knowledge and attitude scores of TB patients (n=50)

Knowledge scores	Knowledge scores Mean (x + SD)	Attitude scores Mean (x + SD)
Pre-test	18.36 + 1.20	57.94 + 4.18
Post-test	26.84 +1.01	68.12 + 4.65
"t" value	37.32	20.65
p value	<0.001**	<0.001**

t79 = 2.00; p<0.05 level significance

Knowledge of patients regarding tuberculosis and its treatment: In the pre-test all the TB patients (100%) had average knowledge regarding tuberculosis while in the post-test, all (100%) showed enhancement in the knowledge scores and were scored as having good knowledge.

Table 2 and Table 3 show that the mean percentage of post-test (26.83%) knowledge score was higher than the mean percentage of the pre-test (18.40%) knowledge score.

Level of attitude towards tuberculosis and its treatment: In the pre-test majority of the TB patients (n=45, 90%) had a negative attitude regarding tuberculosis and 5 (10%) had a neutral attitude. But in the post-test majority of the TB patients 48 (96%) had a change in attitude towards neutral, and only 1 (2%) of the patient had positive attitude and 1 (2%) still continued with negative attitude regarding tuberculosis.

Effectiveness of intervention on knowledge and attitude of patients with tuberculosis: Table 4 shows that the calculated value "t" ($t_{79}=37.32$) for knowledge scores and attitude scores ($t_{79}=20.65$) was greater than table value ($t_{79}=2$, $p<0.05$). This indicates a significant change in knowledge and attitude at the 5 percent level of significance. Hence it can be concluded that the educational intervention was highly effective in bringing the desired change in the level of knowledge and attitude of TB patients.

Association between knowledge and attitude of TB and its treatment with selected demographic variables: No statistical significant association was found between knowledge scores and selected demographic variables such as age ($p=0.67$, >0.05), gender ($p=0.77$, >0.05), marital status ($p=0.82$, >0.05), education ($p=0.72$, >0.05), occupation ($p=0.77$, >0.05), duration of diagnosis ($p=0.61$, >0.05), treatment follow-up ($p=0.77$, >0.05), source of information ($p=0.42$, >0.05). Similarly no statistical significant association was found between attitude and above demographical variables except source of information ($p=0.48$, <0.05).

Correlation between level of knowledge and attitude scores of tuberculosis patients: No significant

correlation was found between knowledge and attitude ($r=0.089$, $p>0.05$).

Discussion

Majority of the TB patients (n=36, 72%) were of the younger age group of 30-45 years males (n=30, 60%) and 20 (40%) were married. Though all subjects were literate (n=30, 60%) were unemployed. All of the 50 TB patients (100%) were having a monthly income of less than Rs 10,000 which revealed that majority had a low socio-economic background. Most of the TB patients 21 (42%) were chronically ill and diagnosed more than 2 years ago. Most of the patients (n=30, 60%) were on regular follow-up treatment while 20 (40%) were irregular with treatment.

Though majority of the TB patients (n=20, 40%) had got information about the treatment from mass media, 10 (20%) from Health care facilities, 10 (20%) of the TB patients had information from family and friends yet the pre-test level of knowledge of all subjects was average which indicated the prevailing lack of knowledge and ignorance. Similar findings are revealed in studies conducted in Mumbai (Pinto & Udwadia, 2010) and North western Ethiopia (Mekonnen, 2007) which revealed that the overall knowledge of tuberculosis patients was very low. A study by Kaur (2014) also revealed inadequate knowledge about the free treatment and facilities and delay in seeking treatment due to monetary constraints.

The findings of the study revealed that in the pre-test majority of the TB patients (n=45, 90%) had a negative attitude regarding tuberculosis and 5 (10%) had neutral attitude. In the post-test majority of the TB patients (n=48, 96%) had a change in attitude towards neutral and only 1 (2%) had positive attitude and negative attitude regarding tuberculosis. Similar findings were reported in a study carried out among 35 TB patients in South Pacific Ocean (Kerri et al, 2014). They attributed TB to cigarettes, Kava, alcohol, contaminated food sharing eating utensils and custom. 94 percent did not attribute TB to bacterial cause. However, almost all TB patients (89%) thought that TB was best treated at hospitals with antibiotics; 74 percent experienced stigma after their TB diagnosis. Consulting a traditional healer for health care, including seeking a diagnosis for TB symptoms was common and may have delayed diagnosis. This study emphasises that people require better information about TB to correct commonly held misperception about the disease. It recommends the need to include traditional healers with the national TB programme, in order to refer people with signs and symptoms of TB to the nearest health service.

Contrary to the findings of the present study, Koay (2004) revealed that 90 percent of the respondents considered TB as a socially acceptable disease, 41 percent of them expressed that getting TB was embarrassing and only 4 percent said it was a disgrace to the family.

In the study the educational intervention had a significant impact on the knowledge and attitude of subjects with tuberculosis ($t_{79}=2$, $p<0.05$). An enhancement in knowledge followed by change in attitude was also seen. The findings of the study are well supported by Tejashri Ligade (2005) to assess the effectiveness of structured teaching programme regarding knowledge of TB and DOTS therapy among TB patients at Pune. The sample of 60 TB patients attending DOTS centre were selected by purposive sampling technique. In pre-test, more than half (58.3%) of the TB patients had poor knowledge 41.7 percent of them had average knowledge regarding TB and DOTS therapy. The post-test showed an enhancement of knowledge after the structured teaching programme.

The findings of the present study revealed no statistical significant association between knowledge scores and selected demographic variables (age, gender, marital status, education, occupation, monthly income, duration of diagnosis, treatment follow-up, source of information). Similarly no significant association was found between attitude and selected demographic variables except source of information.

Similar findings were found in a study among 50 tuberculosis patients from hospital of Mullana, Ambala, Haryana. No significant association was found between level of knowledge and attitude score of tuberculosis patients with the selected demographic variables such as age, gender, religion, marital status, monthly income, education, formal information and place of residence.

The present study also revealed no significant correlation between knowledge and attitude of tuberculosis patients ($p>0.05$). Contrary to the present study findings a study conducted at Amballa, Haryana among 50 tuberculosis patients revealed a significant positive relationship between level of knowledge and attitude scores of tuberculosis patients indicating that as the level of attitude increases, knowledge level also increases (Sangeeta Devi, 2015).

Recommendations

In the light of the above study findings the following recommendations are put forth: Need-based education can be provided to patients with tuberculosis to avoid relapses; innovative methods and pedagogical tools can be employed to make learning interesting

and lasting, to further strengthen the existing health promotive strategies especially, awareness of tuberculosis through mass media campaigns; and bring about a change in the attitude towards the disease.

Conclusion

Education is the key component and cost effective intervention in promoting healthy practices among public on various aspects including communicable diseases. Nurses need to be adequately empowered to carry this mission of promoting health and preventing illness.

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