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Hospitalization of pulmonary TB patients

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Abstract
Present study was carried out to explore the predictors of hospitalization among Pulmonary TB patients. Non-experimental, quantitative research approach with retrospective cross sectional design was used and 200 patients were selected by purposive sampling technique (100 from inpatient department and 100 from outpatients department). Tools used for data collection included Performa for socio-demographic variables and Predictor assessment questionnaire. Statistical measures used were Chi square and regression analysis. The results showed that majority of the hospitalized patients were non-literate, Hindu, married, having family income between Rs.3000-8000, had their own house, vegetarian and having previous history of hospitalization. Predictors for hospitalization were sedentary activity (OR=6.6;CI=1.9-20, $P<0.05$), kucha house type (OR=4;CI=0.36-0.51, $P<0.05$), not covering mouth while others are coughing (OR=3.3; CI=1.1-9, $P<0.05$), absence of window in room (OR=4.7;CI=1.6-12, $P<0.05$), nonavailability of separate space for the patient (OR=2;CI =1.8-2.4, $P<0.05$), not taking daily bath (OR= 4.75; CI=1.63-12, $P>0.05$), Discarding sputum in open place (OR=6.9;CI=1.6-29, $P<0.05$) and bilateral lung involvement (OR=3.2;CI=1.1-9.1, $P<0.05$). Nurses can help to reduce hospitalization by educating the patients about predictors of hospitalization.

Keywords: predictors, pulmonary TB patients, hospitalization

Introduction

TB is 7th killer disease in the world [1]. In India, economic burden due to TB is a major health concern and due to this, there is a great loss of work days, lives and money [2]. Every year 2 Lakh people of suspected tuberculosis are found in Haryana from which 40,000 diagnosed with TB [3]. It was found that hospitalization rate of tuberculosis patients increased upto 18% from 1990 to 2010 and it also increases the total cost during hospital stay [4]. Late diagnosis and treatment of TB patients lead to hospitalization. Hospitalization in some patients is advisable not only for the confirmation of diagnosis but also if it is diagnosed, the patient can get the treatment under the supervision of a health professional. For hospitalization negative consequences are high cost, family structure disruption and loss of work [5]. Sometimes, the hospitalization of TB patients is due to any other condition and not due to TB. In case of hospitalization in TB patient, it may be due to non-compliance to DOTS and suffering from the complications of non-compliance to treatment [6]. Hospitalization of TB/HIV cases are due to compromise in the general health condition of the patient [7]. Although there are many studies to assess the knowledge and compliance of Pulmonary tuberculosis patients but there are very few studies which shows the factors responsible for hospitalization of TB patients.

2. Methodology

A quantitative approach with Retrospective cross sectional design was adopted. The study was conducted in TB and Chest ward and O.P.D of MMIMS & R Hospital, Mullana and TB and Chest hospital, Ambala City. Two hundred Pulmonary TB patients were chosen by purposive sampling and interviewed. Two tools were used to collect the data. Semi structured interview was done to collect data. Demographic information was collected using demographic sheet and predictor assessment questionnaire was used to assess the predictors. Predictor assessment questionnaire was further subdivided into lifestyle, socio economic and clinical predictors. Techniques used were interview technique, previous records of the patients and bio physiological measurement. Tool was validated and reliability was established using cronbach alpha which was in acceptable range.

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Maximum score in the tool was 51 and minimum score was zero. Maximum score in the tool indicate unhealthy practices of the patients and minimum score indicate healthy practices of the patient.

3. Results

The data was analyzed using descriptive and inferential statistics. Frequency and percentage distribution was used to calculate the demographic variables. Chi square was used to find out the association between predictor of hospitalization and demographic variables. Regression analysis was used to find out the predictors of hospitalization.

Data regarding distribution of predictors among inpatients and outpatients showed that, among inpatients, 83% were having sedentary activity, 81% were not performing incentive spirometry, 95% were not performing deep breathing exercises, 57% were former smoker, 76%were living in Pucca house, 53% were having window in the room, 91% were not having separate space for the patient, 66% not covering their mouth while coughing, 78% were discarding sputum in open place, 75% were not covering their mouth while others were coughing, 60% were having bilateral lung involvement.

Table 1.1: Chi square value showing comparison of inpatients and outpatients in terms of demographic variables N=200

Demographic variables	Inpatients n=100 F (%)	Outpatients n=100 F (%)	df	X^2	P value
1. Age(years)					
1.1. 18-40	33	71			
1.2. 41-60	34	17	2	29.35	0.001*
1.3. Above 60	33	12			
2. Gender					
2.1. Male	72	49			
2.2. Female	28	51	1	11.06	0.001*
3. Religion					
3.1. Hindu	56	68			
3.2. Muslim	23	4	2	15.53	0.001*
3.3. Sikh	21	28			
4. Educational status					
4.1. Non-literate	56	27			
4.2. Primary	11	20			
4.3. Secondary	23	28	4	19.99	0.001*
4.4. Senior secondary	7	20			
4.5. Graduate	3	5			
5. Occupation of the patient					
5.1. Farmer	13	4			
5.2. Home maker	26	36			
5.3. Self employed	35	34	3	6.39	0.09 NS
5.4. Unemployed	26	26			
6. Type of family					
6.1. Nuclear	52	71			
6.2. Joint	48	29	1	7.62	0.006*
7. Income per month					
7.1. 3,000-8,000	32	32			
7.2. 8001-13,000	31	29			
7.3. 13001-18,000	8	44	4	2.37	0.66 NS
7.4. 18001-23,000	25	20			
7.5. >23,000	4	5			
8. Area of residence					
8.1. Urban	48	66			
8.2. Rural	52	34	1	6.61	0.01*
9. Number of rooms					
9.1. 1-2	30	38			
9.2. 3-4	65	59	2	1.73	0.42 NS
9.3. More than 4	5	3			
10. Food habits					
10.1 Vegetarian	57	77			
10.2 Non-vegetarian	32	16	2	9.2	0.01*
10.3 Eggetarian	11	7			
11. Previous hospitalization					
11.1. Yes	51	13			
11.2. No	49	87	1	33.18	0.001*

*significant ($p<0.05$)   NS- not significant ($p>0.05$)
$X^2(1) = 3.84$
$X^2(2) = 5.99$
$X^2(3) = 7.82$
$X^2(4) = 9.49$

Among outpatients, 65% were having moderate activity, 75% not performing incentive spirometry, 83% were not performing deep breathing exercises, 99 66% were never smoker, all were living in Pucca house, 83% having window in the room, 100% were not having separate space for the patient, 59% not covering their mouth while coughing, 62% were discarding sputum in open place, 57% were covering their mouth while others were coughing, 57% unilateral lung involvement.
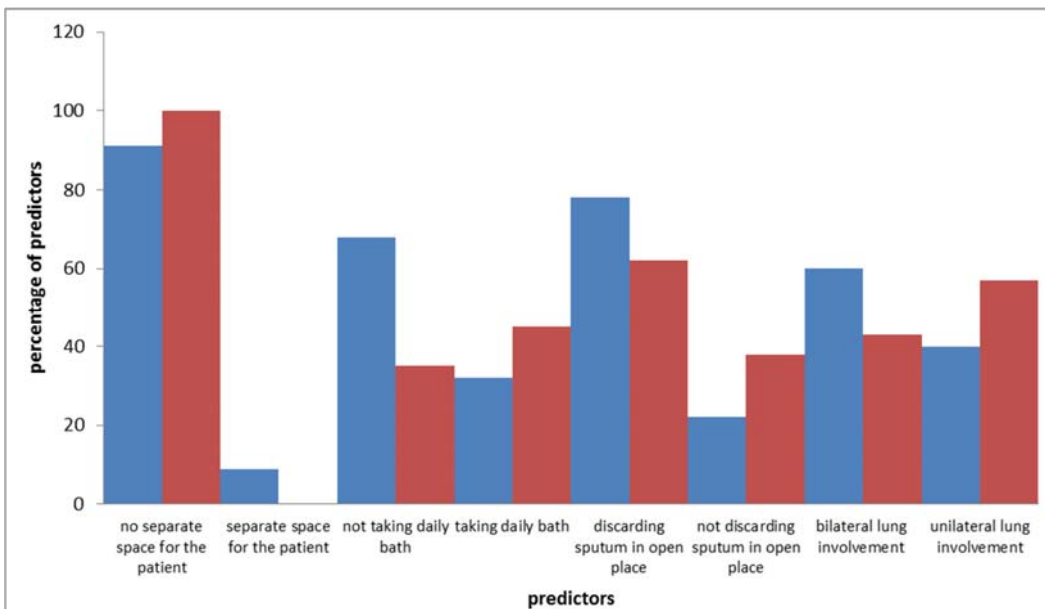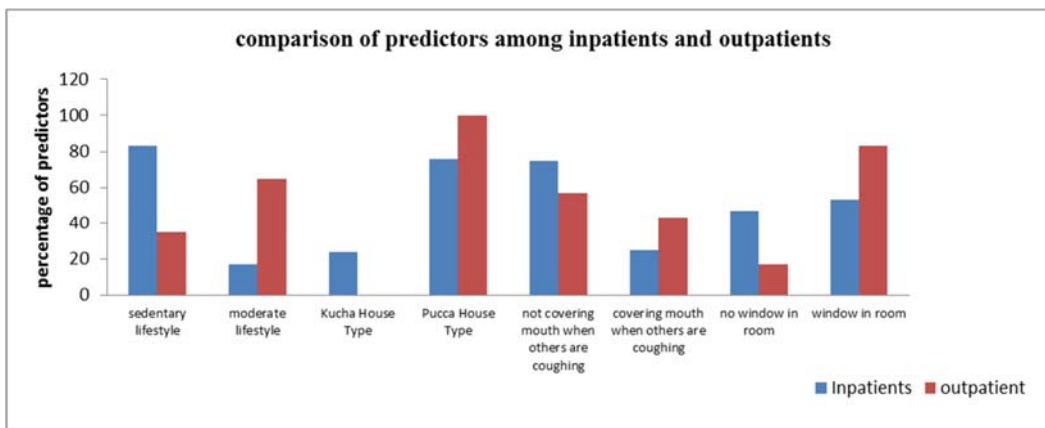
Predictors of hospitalization includes Sedentary activity with 6.3 times more risk of hospitalization (OR=6.3; CI=1.9-20), kucha house type with 4 times more risk (OR=4; CI=0.36-0.51). Those who were not covering mouth when others were coughing were 3.3 times more likely to get hospitalized (OR=3.3; CI=1.1-9) and those who were having no window in room were 4.7 times more likely to get hospitalized (OR=4.7; CI=1.6-12). Those who were not having any separate space for patient at home, risk was 2 times more (OR=2; CI=1.8-2.4) and for those who were not taking daily bath risk was 4.75 times more risk of hospitalization(OR=4.75; CI=1.63-12). Those who were discarding the sputum in open place risk were 6.9 times more (OR=6.9; CI=1.6-29) and for bilateral lung involvement, risk was 3.2 times more to get hospitalized (OR=3.2; CI=1.1-9.1).

Table- 1.2 Univariate analysis to assess the predictors of hospitalization among inpatient and outpatient group.

Table 1.2: Univariate analysis for identifying predictors of hospitalization among inpatient and outpatient group N=200

Predictors	Odd ratio	df	P value	95% confidence interval	
				Lower	Upper
Discarding the sputum in open place	6.9	1	0.008	1.6	29
Sedentary Activity	6.3	1	0.002	1.9	20
Not taking daily bath	4.75	1	0.004	1.63	12
Absence of window in room	4.7	1	0.004	1.6	12
Kucha house type	4	1	0.9	0.36	0.51
Not covering mouth when others are coughing	3.3	1	0.003	1.1	9
Bilateral lung involvement	3.2	1	0.024	1.1	9.1
No separate space for patient	2	1	0.9	1.8	2.4

4. Discussion

In present study, housing, presence of window per room, availability of space for the patient, daily bath by patient, discarding sputum in open place, cover mouth when others are coughing, lifestyle and lung involvement were the predictors that were found. odd ratio for housing was 4 means there was 4 times increased risk to tuberculosis patients for hospitalization in present study which was consistent with results of Gupta Dheeraj which found housing as predictor and odd ratio for housing was 3.71 means risk of hospitalization was 3.71 times more.

Rebeiro Aparecida Sandra *et al.* found that 28% were smokers and 22% of the patients were experiencing side effects of the DOTS therapy whereas present study found that side effects experienced by 42% of the patients, 57% were former smoker among inpatients and 66% were never smoker among outpatients [8]. Present study findings suggest that among inpatients there were no drug users whereas another study shows that 17% were drug addicts. Present study findings shows that inpatients and outpatients of Pulmonary TB were not having adequate calorie and protein intake which was consistent with the findings of Mupere Ezekiel (2012) [9].

5. Conclusion

The study concluded that by identifying the predictors, hospitalization and further consequences can be reduced. Nurses can help to reduce hospitalization by educating the patients about predictors of hospitalization.

6. Recommendations

A prospective study can be done in order to find out the predictors. A comparative study can be done to compare the knowledge and attitude of patients regarding Tuberculosis. An experimental study can be done to assess the effectiveness of health teaching program on knowledge, attitude and behaviour regarding TB. Similar study can be conducted on large sample to generalize the findings.

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