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Hospital Waiting Area- a Platform for Information, Education and Communication Display for Tuberculosis Infection Control: an Exploratory Study from Solan, India, 2024

Dr. Ajay Kumar Singh[*1], Dr. Sumit Chawla[2], Dr. Gagan Deep Raj Hans[3], Promila Kumari Goel[4], Rajeev Sharma[5] & Kulbhushan Singh[6]

[1]Block Medical Officer, Department Health and Family Welfare, Syri, Solan, H.P., India

[2]Associate Professor, Department of Community Medicine, Shri Atal Bihari Vajpayee Government CHHAINSA, Medical College, Faridabad, Haryana, India

[3]District Programme Officer, Department of Health and Family Welfare, Solan, H.P., India

[4]Lecturer, Department of Obstetrics and Gynaecology, MLM Nursing College, Solan, H.P. India

[5]Drug Resistant Tuberculosis Supervisor, Department of Health and Family Welfare, Solan, H.P., India

[6]Senior Tuberculosis Laboratory Supervisor, Department of Health and Family Welfare, Solan, H.P. India

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***Corresponding author:**
Dr. Ajay Kumar Singh
Block Medical Officer, Department Health and Family Welfare, Syri, Solan, H.P., India

ABSTRACT

Background: Waiting areas of hospitals provide opportunity to interact with patients. Lack of knowledge and misconceptions about tuberculosis (TB) disease transmission in health care facility attendees may prove as hindrance in disease control activities. **Methods:** A cross sectional study on 302 patients from the waiting areas of a secondary care hospital (taking the probability of knowledge deficit about TB as 26.8% from nationwide longitudinal study) was conducted in January-February, 2024. Correct knowledge (without misconceptions) was used as a dependant variable. Informed written consent was secured from the study participants and Ethics permission was secured from the institutional review board. **Results:** Six waiting areas were assessed and poor crowd management was observed here. The average waiting time was seven minutes. There was no Information, education and communication (IEC) material displayed in these areas. 269 respondents completed the study. 150 females and 119 males (55.80 and 44.20 % respectively) with mean age of 32 years (Mean = 32.74, Standard Deviation = 10.97) years participated. 98.14 % respondents had heard about "an illness called tuberculosis". Of these only 39.03 % knew about correct mode of disease transmission i.e. "through air while sneezing or coughing". Common misconceptions observed were the transmission by sharing food, sharing of utensils and touching a TB patient (59.85, 63.57 and 44.98 % respectively). Only 15.98 % (43 patients) had correct knowledge (without misconceptions) of disease transmission although 33.08 % had exposure to media for information. Age (Odd Ratio i.e. OR 1.02, 95% Confidence interval i.e. CI 1.00, 1.05), TB can be cured (OR 0.15, 95 % CI 0.03, 0.65), TB- a public health problem (OR 0.42, 95 % CI 0.20, 0.87) and patient's non isolation from family (OR 2.27, 95 % CI 1.08, 4.77) were associated with correct knowledge without misconceptions. **Conclusion:** Waiting areas of the hospital were poorly managed and lacked IEC material. Poor knowledge and large number of misconceptions about disease transmission exist among patients visiting hospitals. The Government authorities have been recommended that gaps in knowledge of TB among patients can be overcome by displaying appropriate IEC material in the waiting area so as to judiciously utilize the waiting time of the patients.

INTRODUCTION

Knowledge refers to what people know about a certain subject matter [1]. It is basically the information which is acquired or gained by a person by means such as listening, reading, and writing [2]. Waiting time of a hospital is the length of time when the patient is waiting idle in the hospital premises for delivery of the service such as checkup by a Doctor or for laboratory investigation.

This in turn depends upon the volume of patients and the workload on the existing staff of the hospital. Long waiting times causes dissatisfaction amongst patients and loss of confidence in health delivery system [3]. The Average waiting time varies from minutes to hours in various departments of a hospital such as emergency, operation theatre or outdoor patient (OPD) department [4].

Utilization of this waiting time to elicit the knowledge of people about diseases could play a pivotal role in designing various information, education and communication (IEC) material for the larger masses. Especially in the domain of nosocomial spread of communicable diseases, this can be a beneficial public health tool. Tuberculosis in this context is a disease which has high morbidity and mortality. India contributes to about one fourth of total TB burden of the world and about 26 lakh people here contact this disease annually [5]. Various community level studies have been undertaken to understand the knowledge about TB among the masses [6, 7]. In India, the ambitious TB Mukt Bharat Abhiyaan launched by the Prime Minister of the country envisages the community involvement in amelioration of this communicable disease. Understanding the knowledge and perception about TB, of one such community i.e. the people (the patients) attending hospitals could also help to achieve to Sustainable Development Goal TB Targets as envisaged in this programme [8]. Lack of knowledge about the disease and especially its mode of transmission, among the patients attending the hospitals may also pose a challenge in disease control strategies as many of these may be carriers of TB infection and may not be observing the right cough etiquettes while attending the hospitals. Their misconceptions like TB is a disease which spreads by touching each other or by eating food with each other etc may prove hindrance in the right approach of disease control management.

These perceptions pose a greater challenge when a larger footfall of patients attend a hospital, such as a secondary or tertiary level care hospital where a large number of overcrowded OPDs and waiting areas is a common phenomenon. Understanding these misconceptions will certainly throw a light to capture this target population for creating not only the self but also mass awareness about the disease dynamics, especially the modes of spread of disease, preventive care, its diagnostics and the facilities providing these services thereof [9]. Hence the study was undertaken among the patients in the waiting areas of the hospital, with the following objectives:

(a) To assess the waiting areas of the hospital

(b) To assess the knowledge about TB

(c)To evaluate the misconceptions about the disease

MATERIAL AND METHODS

Study Design:

A cross sectional study was conducted.

Study Population: The study included the patients who attended hospital for their checkup.

Study area: The study was conducted at Regional Hospital Solan, a secondary level health care provision facility, in Northern India. Patient waiting areas were chosen from various outpatient departments (OPDs) like General, Medicine, Skin, Orthopaedic, Surgery and Gynaecology

Study period: The study was completed during January-February 2024.

Sample size: 302 hospital attendees/patients (taking the probability of knowledge deficit about TB as 26.8% from nationwide longitudinal study) were enrolled for the study [10]. Out of this, 269 patients completed the study questionnaire.

A pilot tested standardized self-administered questionnaire was used on the patients attending the hospital. The waiting areas were also inspected for the quality of Information, Education and Communication material (IEC) displays about the disease tuberculosis and infection control mechanisms.

Statistical analysis plan: Univariate and Bivariate analysis was undertaken. Correct knowledge (without misconceptions) was used as a dependant variable. Explanatory variables tested were: age, gender, education, occupation, residence settings, patient's isolation from family, disease curability, media exposure and TB considered as a public health problem by Government. Analysis was done with the Statistical Package for Social Sciences software, version 21.

Ethics statement: The ethical permission for the study was obtained from the institutional review board. Informed written consent was obtained from the participants after explaining the purpose of the study and ensuring confidentiality among them.

RESULTS

Six waiting areas of OPDs were assessed. The study elicited that the waiting areas of the hospital were congested and there was no proper management with respect to the flow of patients through these areas. Sitting arrangements were inadequate. These waiting areas have been overlooked upon by the management authorities. Not only were these poorly managed in terms of crowd management, but these areas also lacked the IEC material displays. An average waiting time of seven minutes was observed among the study participants across all the waiting areas of the OPDs of the hospital.

269 participants, with females as majority (55.8%), voluntarily contributed in the study. The mean age of the study participants was 32 years (Mean = 32.74, Standard Deviation = 10.97). Table 1 elucidates the various sociodemographic features of the study participants. Only a few of them (about 5.58%) had no formal education. Statistically significant more number of females was shopkeepers, farmers, skilled and unskilled labourer as compared to males. Maximum (85.50%) belonged to nuclear families and were from history of smoking and

males significantly smoked more. Similarly, alcohol consumption (6.69% of all) was significantly more among the males.

Table 1: Socio-Demographic Features of Patients Attending Solan District Regional Hospital (N = 269)

Gender	Male 91 (33.83 %)	Female 178 (66.17 %)	Total (%)	Chi square value (degree of freedom)	P-value
Education					
No formal education	7	8	15 (5.58)		
Primary education					
Higher	16	27	43 (15.98)	1.576 (3)	0.665
Graduate and above	38	81	119 (44.24)		
	30	62	92 (34.20)		
Occupation					
Farmer	17	82	99 (36.80)		
Unskilled labour	29	31	60 (22.30)	23.406 (3)	0.000
Skilled labour	19	38	57 (21.18)		
Shopkeeper	26	27	53 (19.70)		
Family					
Nuclear	82	148	230 (85.50)	2.356 (1)	0.125
Joint	9	30	39 (14.50)		
Area					
Rural	60	100	160 (59.48)	2.377 (1)	0.123
Urban	31	78	109 (40.52)		
Smoking					
Non Smoker	77	14	247 (91.82)	9.510 (1)	0.000
Smoker	170	8	22 (8.18)		
Alcohol					
Non-Alcoholic	78	173	251 (93.31)	12.703 (1)	0.000
Alcoholic	13	5	18 (6.69)		

Table 2 infers the perception of study participants about the disease TB. Almost all (98.14%) had heard about the disease TB and among them the females significantly more. A large proportion of the patients had misconceptions about the spread mechanism of TB i.e. the disease spreads by touching each other (44.98%), sharing of utensils (63.57%) and eating food together (59.85%). These misconceptions were significantly found more among the females. Only 39.03 % knew the correct mechanism of spread of the disease i.e. the disease spreads by air through coughing/sneezing. Among them also the females significantly had the more correct knowledge of this mode of spread of the disease.

Table 2: Perception About Spread of TB Among the Patients Attending District Solan Regional Hospital (N=269)

Characteristic	Male	Female	Total (%)	Chi square value (degree of freedom)	*p* value
Heard of TB	87	177	264 (98.14)	4.852 (1)	0.028
Spreads from one to other person by:					
• Coughing (through air)	34	71	105 (39.03)	0.205 (2)	0.903
• Touching	37	84	121 (44.98)	1.159 (2)	0.560
• Sharing utensils	53	118	171 (63.57)	2.175 (2)	0.337
• Eating food together	49	112	161 (59.85)	2.493 (2)	0.288

Table 3 describes the relationship of various attributes with the correct duration of treatment of the disease i.e. 6 months. 33.08 persons had gained the correct knowledge from listening to Radio and it was significantly more than getting the knowledge from other sources such as TV, Print media and from other people. A vast majority significantly believed that TB is curable. Similarly, majority of the hospital attendants (69.80) having correct knowledge of treatment duration believed that TB is being considered as a major public health problem by the Government. About half (50.92 %) significantly knew that the disease is not related to poverty. Majority (71.74%) of the hospital attendants having correct knowledge of treatment duration, also significantly knew that TB is a killer disease if not treated timely. A large proportion (38.28%) also significantly believed that the TB patient should be kept in isolation, away

from the family members and also that TB patients are always bed ridden (50.92%) .

Table 3: Attributes and Relationship with Knowledge of Correct Duration of Treatment

Attribute		N (%)	Chi Square Value (Degree of Freedom)	P Value
Source of Knowledge about TB	Other people TV Radio Print media	42 (15.61) 76 (28.25) 89 (33.08) 62 (23.04)	19.108 (6)	0.004
TB is curable	Yes No Do not know	227 (84.38) 13 (4.83) 29 (10.78)	21.559 (4)	0.000
TB is major public health problem	Yes No Don't know)	177 (69.80) 36 (13.38) 56 (20.81)	26.628 (4)	0.000
Is TB related to Poverty	Yes No Don't know	105 (39.03) 137 (50.92) 27 (10.03)	20.469 (4)	0.000
Is TB a killer disease	Yes No Don't Know	193 (71.74) 26 (9.66) 50 (18.58)	37.807 (4)	0.000
Patients kept separate from family	Yes No Don't Know	103 (38.28) 118 (43.86) 48 (17.84)	15.340 (4)	0.004
Are TB Patients bed ridden	Yes No Don't know	79 (29.36) 137 (50.92) 53 (19.70)	32.222 (4)	0.004

Table 4 infers that only 43 (15.98%) hospital attendants (patients seeking health care) had the correct knowledge of disease without misconceptions i.e. It spreads by coughing only and that it does not spread by touching each other, sharing utensils and by eating food together. Statistically significant proportion of them considered TB being a major public health problem and that Governments are contributing a lot for the management of this disease. Significant number of patients seeking health care from hospital also believed that the patients suffering from TB are not kept isolated from their families. Age (Odd Ratio i.e. OR 1.02, 95% Confidence interval i.e. CI 1.00, 1.05), TB can be cured (OR 0.15, 95 % CI 0.03, 0.65), TB- a public health problem (OR 0.42, 95 % CI 0.20, 0.87) and patient's non isolation from family (OR 2.27, 95 % CI 1.08, 4.77) were associated with correct knowledge without misconceptions.

Table 4: Attributes Related to Correct Knowledge of TB without Misconceptions (N=43)

Attribute		N (%)	Chi Square Value (Degree of Freedom)	P Value
TB is major public health problem	Yes No Don't know)	34 (19.20) 6 (16.66) 3 (5.35)	6.092 (2)	0.041
Patients kept separate from family	Yes No Don't Know	8 (7.76) 28 (23.72) 7 (14.58)	10.519 (2)	0.005
Spreads from one to other person by: • By Coughing (through air)			100.113 (2)	0.000
Does not spread from one to other person by: • Touching • Sharing utensils • Eating food together			62.602 (2) 29.332 (2) 34.333 (2)	0.000 0.000 0.000

DISCUSSION

The study has elicited the poor management of the waiting areas of the hospital in terms of patient in and outflow from various OPDs. The waiting period of the patients which got spent in mere chaos due to inappropriate crowd management otherwise could have been used judiciously for spreading the awareness for infection control mechanisms and disease aspects with the aid of nicely displayed IEC material. Patient flow system should be made by assessing arrival time pattern and waiting time distribution of patients for various types of OPDs such as Medicine, Surgery, Orthopaedics, Eye, ENT, Skin etc. Similar pattern of waiting periods and their associated aspects have also been studied elsewhere. Median waiting time in these studies, for diagnostic tests and their results was 1 hour whereas waiting time for patients who were kept under observation after preliminary diagnosis was 16 hour [11].

The present study has elicited the gaps present in Information, education and communication message displays in the waiting areas of the hospital settings. These IEC displays, especially on infection control mechanisms can play a vital role in TB control mechanisms. It was observed in the study that the waiting areas totally lacked IEC displays. Waiting areas are critical areas of a hospital. Underlying their importance in spreading information among patients and other people sitting/waiting there is a common phenomenon in hospitals, as studied similarly elsewhere also [12, 13]. IEC displays having impact on the knowledge of patients of waiting areas have also been studied similarly in other studies. The information provided on signage often shapes the perception of the patients who are in waiting areas of hospitals and enhances their knowledge on air borne infection control mechanisms [14, 15, 16].

The present study elucidated the community perception about the disease tuberculosis. Similarly, community studies conducted in this region on different types of communities have elicited the gaps in various disease/ health domain and have highlighted the steps for their address [17, 18, 19, 20, 21].The study has highlighted that a significant proportion of male patients attending the hospital for seeking health care services were smokers and alcohol consumers in context of their socio-demographic attributes. In similar study settings at this hospital of Solan another study had also elicited that males were comparatively consuming more of tobacco and alcohol [22]. Almost all the study participants were at least knowing that there is a disease named tuberculosis. Similar higher levels of knowing the disease entity has also been reported elsewhere [23]. It was also observed in the study that females had heard more about the disease compared to males. Sobagaiich et al. (2024) had in a study, similarly observed a difference in knowledge with respect to gender [24]. It was observed in the present study that a large proportion of the patients and among them more of the females, had misconceptions about the disease spread mechanisms such as that it spreads by touching each other, or by eating food together or through sharing of utensils. Adeoye et al. (2024) also have documented similar misconceptions in their study [25]. In another similar study Musuka et al. (2018) had elicited various misconceptions among patients about the spread of tuberculosis [26].

The study has inferred that only a small proportion of patients knew the correct mode of disease transmission i.e. its spread by air borne mechanism through coughing, sneezing etc. Similar lower levels of knowledge about disease transmission were documented by Angelo et al. and Amo-Adjei et al. in their respective studies [27, 28].

The study has also documented that TB is being considered as a major public health problem by a large proportion of the respondents as similarly reported in a study by Hernandez-Acevedo et al. [29]. It was observed during the study that the display of IEC material regarding the disease TB in the waiting areas of the hospital was totally lacking. The waiting area provides an ample opportunity to the patients to read and understand health messages if displayed appropriately. Similar low IEC material displays in hospital settings have been documented in other studies also [30, 31, 32].

CONCLUSION

The study has clearly elicited the poor management aspects of the waiting areas of the hospital. It has also highlighted the misconceptions of the patients attending the hospitals about the disease tuberculosis. It has been recommended to the Government Health Authorities to manage the waiting areas of the hospitals in an appropriate way and to utilize the waiting time of the patients to increase their knowledge about the diseases by the IEC displays in the waiting areas. IEC displays can be in the shape of wall paintings, flex posters or audio-visuals.

Conflict of Interest: There was no conflict of interest among the authors of the study.

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