Relationship of tuberculosis with demographic & socio-economic variables among patients visiting health care facility in district peshawar

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ABSTRACT

Objective: Pulmonary tuberculosis is considered as one of the common communicable diseases and leading causes of death among the developing countries. In Pakistan, the prevalence and incidence of tuberculosis is still on rise. Thus current study was conducted to assess the relationship between tuberculosis and different risk factors among patients visiting health facility.

Methodology: A cross sectional study of descriptive type was carried out in the health care facility of Peshawar from January to July 2018 in District TB Office Peshawar. After taking ethical approval from Kabir Medical College, Peshawar; two hundred (n=200) participants of age 18-65 years were included through non-probability sampling technique. Strict inclusion and exclusion criteria were followed to control the confounders. Data was collected via a structured questionnaire and analysis was done using SPSS 16.0; and results were presented in form of tables.

Results: Pulmonary tuberculosis was highly prevalent among male individuals; and approximately 31.50% had age above 35 years; 42.50% had poor socio-economic status; 81.50% reside in small houses; 67.50% lived in less than three rooms per house; 80.50% of patients were sharing their room with other persons; and 64.50% of patient's had more than ten family members. Moreover, 63% had no windows in their rooms and 40% were using bio-mass for cooking fuel purposes.

Conclusion: The tuberculosis was more prevalent among poor housing structure with less number of rooms, small houses, overcrowding and poor ventilation status, and thus needed to create awareness among target population to improve the housing quality so to avoid the communicability and frequency of pulmonary tuberculosis.

Keywords: Communicable Disease, Risk Factors, Housing Quality, Overcrowding, Rooms, Ventilation, Tuberculosis.

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INTRODUCTION

Tuberculosis, a pandemic infection caused by Mycobacterium tuberculosis.[1] Globally, tuberculosis is considered as 2nd leading cause of death. According to World Health Organization, 1/3rd of the total world inhabitants has tuberculosis.[2,3,4] The tuberculosis showed strong and significant association with the socioeconomic status i.e. housing quality, over-crowding and thus increases risk of its causation.5 Socioeconomic status has long been linked with tuberculosis. Initially at start of 20th century, the tuberculosis prevalence was reduced among the developed nations. It might be due to good housing structure & environment, control over population, better & better sanitation services, and good food, which resulted in reduced TB cases.[6] According to 2015 statistics, the incidence of tuberculosis is 142 per 100,000 population.[7] Tuberculosis is rightly named as a disease of poor people due to the compromised socio-economic conditions of more dense communities, low social standards[8], house hold contact[9], low socioeconomic status, no ventilation systems and have unhygienic food handling practices and more air pollution.[10]

South Africa has the highest TB prevalence and incidence and is the leading cause of mortality.[11,12] In Saudi Arabia, during 1991-2010, approximately 65000 TB cases were reported to the Ministry of Health.[13] Tuberculosis has

significant impact not only to the patient, but to the entire nation and cost a state as much as 7% of its Gross Domestic Product.[14] According to statistics of Iran in 2016, tuberculosis and leprosy control office, department of health and education has rated Guilan, city of Iran, in alarming condition due to its high incidence of TB (24/100,000) after the Sistan (Baluchistan) and Golestan provinces.[15] India has high tuberculosis prevalence along with multi drug resistant tuberculosis and TB related mortality; and of 2010 Statistics, TB has 185/100,000 incidence with 315,000 deaths which were attributed to tuberculosis.[16]

Pakistan is at 6th position among highest prevalent nation with high burden of tuberculosis. Furthermore, in the Eastern Mediterranean Region, Pakistan contributes approximately 50% of tuberculosis burden. According to statistics of 2010; that beside the procurement and existence of better and effective treatment strategies; operationalization of directly observed therapy in 1995; the yearly new cases of all types of tuberculosis was 225 and the prevalence was 350 cases per 100,000; and was thus raising questions over the efficacy of national TB control and prevention program.[17]

A study was conducted in Lowe Dir, Khyber Pakhtunkhwa, which showed the high burden of mortality and morbidity attributed to tuberculosis due to increased incidence of tuberculosis in the past decade.[18] Moreover, in another study of Khyber Pakhtunkhwa province, the burden of tuberculosis in the year 2009 was reported to be 100 per 100,000. Similarly, a study was published in Journal of Ayub Medical College, Abbottabad (2013); showed that the prevalence of tuberculosis was approximately 97 per 100,000.[19]

Pakistan being a developing country with high prevalence of communicable diseases, and tuberculosis is one of the common diseases having high incidence and prevalence both in rural and urban population. Moreover, the different epidemiological risk factors which had significant role in the causation of tuberculosis were prevalent in Pakistan. Thus this study was conducted at the tertiary health care facility to identify the potential risk factors affecting the tuberculosis population and to create awareness and health education campaigns among the local population to avoid the risk and factors which leads to tuberculosis.

METHODOLOGY

After taking ethical approval from the Ethical Review Committee of the Kabir Medical College, Peshawar; a cross sectional study of descriptive type was carried out by the Department of Community Medicine at District TB Office Peshawar from January to July 2018. A total of two hundreds (n=200) participants, male and female, of age 18-65 years were included through the non-probability convenience sampling technique. Patients having severe psychiatric illnesses, bedridden, handicapped and those refused to participate were excluded from the study. The structured questionnaire consisted of both qualitative and quantitative variables. Data was analysed by using SPSS 16.0 & Micro-Soft Office Software's; and finally presented in form of tables.

RESULTS

The demographic variables of tuberculosis patients (n=200) visiting District TB Office Peshawar is shown in Table 1. Different socio-economic variables of tuberculosis patients (n=200) visiting District TB Office Peshawar is shown in Table 2.

Table 1 - Demographic variables of Tuberculosis Patients (n=200) visiting District TB Office Peshawar

Variables	Frequency (n)	Percentages
Age		
< 35 years	63	31.50
> 35 years	137	68.50
Gender		
Male	125	62.50
Females	75	37.50
Socioeconomic Status (Monthly income; Social Habitat)		
Good	39	19.50
Middle	76	38.00
Poor	85	42.50

House Status			
	Rented	141	70.50
	Own	59	29.50
Type of House			
	Clay	109	54.50
	Cement /Brick	91	45.50
Size of House			
	Small (< 3 Rooms)	163	81.50
	Big (> 3 Rooms)	37	18.50
Type of Water Supply			
	Closed	83	41.50
	Open	117	58.50

Table 2 - Showing Different Socio-Economic Variables of Tuberculosis Patients (n=200) visiting District TB Office Peshawar

Variables		Frequency (n)	Percentages
Type of Family			
	Single	31	15.50
	Joint	169	84.50
Family Size			
	< 10 Members / House	71	35.50
	> 10 Members / House	129	64.50
No of Rooms /house			
	Less than 3	135	67.50
	More than 3	65	32.50
Individuals Occupying /room			
	< 2	39	19.50
	2 or > 2	161	80.50
Total Windows in Room			
	< 2	126	63.00
	2 or > 2	74	37.00
Exposed to air pollution within house			
	Yes	121	60.50
	No	79	39.50
Type of Fuel used			
	Wood/kerosene oil	71	35.50
	Gas /electricity	49	24.50
	Biomass	80	40.00

DISCUSSION

In this study, it was observed that more male patients (62.5%) visited tertiary health care facility regarding pulmonary tuberculosis treatment. Majority of the patients were found to have middle and low socioeconomic status (80.5%), as were revealed and supported by many national and international studies which showed strong relationship of tuberculosis with male gender, age factor and socio-economic status.[6,7]

The poor quality of houses was also one of the important risk factor for the transmission of the tuberculosis among poor communities with low socio-economic conditions. A study conducted in china; also supported and confirmed that houses made up of clay and poor quality

conditions increases risk of pulmonary tuberculosis.[20] Many international studies conducted found a significant and positive relationship between housing density and tuberculosis, as small houses had poor ventilation systems and thus were predisposed to pulmonary tuberculosis.[21] Our findings are in line with these as it reports, 81.50% (n=163) of the patients were residing in small houses.

Our study found high burden of pulmonary tuberculosis among overcrowded and populous communities i.e., 67.50% (n=135) lived in houses with less than three rooms; 80.50% (n=161) patients were sharing rooms with others (more than 2 persons); and 64.50% (n=129) patients living in populous house (more than ten family members per house); as was revealed in many international studies which showed strong and significant relationship between tuberculosis and overcrowding among populous residential settings.[5,9] Many national and international researchers revealed and confirmed that tuberculosis prevalence and incidence was high with more density of population per family; and similar findings were reported in 2014.[21,22] Moreover, a report of Uganda found that nearly 60% of tuberculosis was attributed to poor and condensed family structure and thus results were in accordance to the previous studies.[23]

Furthermore, in another study; high frequency (85.0%) of tuberculosis showed strong and significant relationship with overcrowding, thus it was found that increase of one person per room (PPR) increased the risk to about 40% in an overcrowded community.[24] Our study showed that 63% (n=126) of patients residential houses had no windows in their rooms and thus reported that there was no cross ventilation which showed that poor ventilation is a risk factor of pulmonary tuberculosis. Thus our findings supported and confirmed many international studies which reported that poor ventilation was strongly associated with tuberculosis in residential places, occupational environment, and with or near health care facilities and thus contributing to increased chances of transmission.[21,25] Moreover, increased exposure to fossil fuels i.e. coal, gas, & petrol etc. showed strong positive relationship many other pulmonary complications26; as was supported by our study results which shows that 40% (n=80) were using bio-mass for cooking fuel purposes.

CONCLUSION

From the results it is concluded that tuberculosis showed strong relationship with most of the indirect determinants and thus was more prevalent among patients living in poor housing structure, less number of rooms, small houses, overcrowded communities and poor ventilation status. Furthermore, poor socio-economic status along with the environmental factors contributes to tuberculosis and that was the reason for high prevalence among such individuals. Thus it is needed to increase the awareness of the target population with an aim to improve the housing quality and to reduce the vulnerability and frequency of tuberculosis.

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