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Demographic Dynamics in Tuberculosis Patients of Delhi

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ABSTRACT

There are many socio-demographic risks factors for pulmonary tuberculosis. However there are limited studies done in Delhi. The objective of the study to determine the socio-demographic risk factors associated with confirmed TB patients registered in Dots centre of Delhi. Method this was hospital based study a case was defined as individual 17- 20 years. Then 21-55 years age group has clubbed. Results Occupational levels of the subjects indicate that in settled population males are involved in private jobs 48.6%. While 55% females are house wives, 26.1% males are self-employed, 24.5 % females are students in settled population. Similarly in migrated population 58.7% males are in private jobs and 26.4 % are students and 70.5 % females are house wives and 15.4 % females are students.

INTRODUCTION

Tuberculosis is commonly known as TB. TB is contagious and an often severe airborne disease caused by a bacterial infection. TB typically affects the lungs and also affects the other organs of the body. It's usually treated with the regime of drugs taken for 6 months to 12 years its depend on the type of infection. India has 1 billion populations out of which 2 million develop tuberculosis and half a million die of tuberculosis each year while 95% population affected by tuberculosis comprises the young.

Population of Delhi[11] is increased rapidly in last decade. According to 2011 census of India. Population of Delhi[11] around 16,753, 235. This is because development in the infrastructures and facilities offered by the government and other agencies in Delhi. Estimated figures say that 200,000 to 300,000 people a year settle in Delhi permanently from other states in India as migrants. People comes here in opportunity of job, education and become permanent settle of Delhi. A large section of Delhi population is formed by migrant section coming from other state. In 2004 figure increased 15,279,000 from 2001 census of India i.e.13,782,976. The capital of India is considered to second largest metropolitans city after Mumbai.

According to latest Census of India 2011 District wise population of National Capital Territory (NCT). These area are selected for data collection.

Total Population In Delhi	17,838,842
East Delhi	1707725
North Delhi	883418
South Delhi	2733752

Fig. 1 Map of Delhi

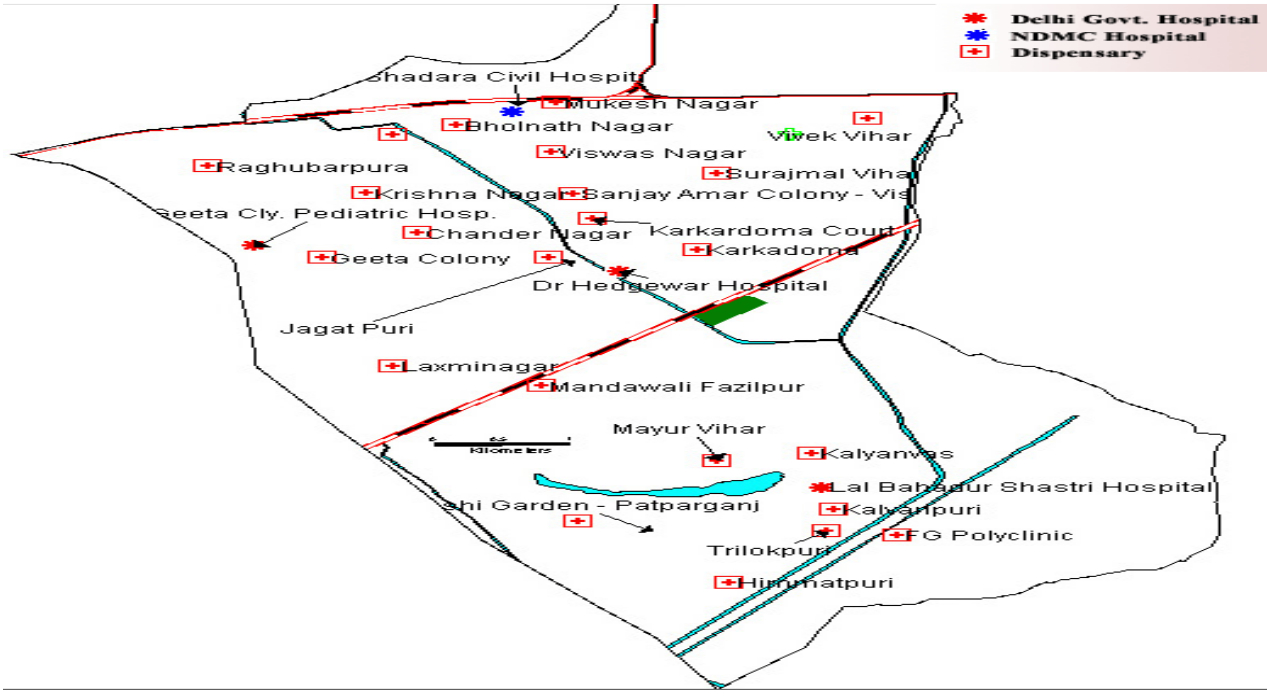

Fig.2 Map of East Delhi

Social and Health Condition in Delhi: Delhi is capital city of India has market economic system. All populations are provided with drinking water, electricity facilities. Transport amenities like metros trains, charted bus,railway stations. The roads are connected with the flyover, modern infrastructure roads. Government has provided with the Dots centre in every district of Delhi with laboratory labs.

MATERIALS AND METHODS

Present study is an analysis of patients record among population of Delhi living in the area East Delhi, North Delhi and South Delhi. This record compromise of Parameter such as age, sex, education, occupation, personal income, age at marriage, marital status, number of children. TB category (I,II or III), site of disease for all consecutive cases.

Diagnosis as having Tuberculosis patients and administered DOTs at the area DOTS Centre between July 2015-Nov 2015. We have chosen the population i.e. settled and migrated population in Delhi. To compare the difference between the two population. Which population is more affected at which age group. Random sampling method was used to collect data. A total of 569 households formed the part of the study and an equal number of respondents were interviewed using various interview schedule developed for the study. Interview schedule include section of socio-demography. Which consist age, sex, caste, religion, marital status. Age at marriage, number of children, number of household members in family. Settled and migrated population is chosen for comparison purpose and to observe which group of the population is more affected by TB.

Study Techniques: A schedule was made in which various closed end questionnaire were with form demography. Data Processing-After completion of field data collection each proforma was be edited and entered in MS-Excel data sheet. Socio-demographic variables concerning gender, marital status, age, type and size of the family as well as SES indicators of social class were included in the analysis. SES socio economic status was calculated by the Kuppu Swamy[1] method in India. Score for SES was calculated according to Kuppu swamy[1] parameter 2014 which include the education, occupation and family income per month.

Total Score card according to the Kuppu Swamy[1] 2014

Sr. no.	Score	Socioeconomic Class
1.	26-29	Upper (I)
2.	16-25	Upper Middle (II)
3.	11-15	Lower Middle (III)
4.	5-10	Upper Lower (IV)
5.	<5	Lower (V)

Data Collections: All Individuals were questioned by the trained fieldworkers. The interviews were conducted face to face in Dots centre of Delhi selected district. Selected districts for field are East, North and South Delhi. Several patients came to Dots centre. Most of them lived in urban slum of Delhi. Some of the Dots centre did not possess separate consulting rooms. So some time surrounding noise are problem in interviews.

RESULTS

Table 1Present information on Demographic, Socioeconomic status of the studied population in Delhi. The age range in the present study 17-55years.Subjects are divided into different age groups for comparison like 17,18,19,20 yrs., 21-25 yrs., 26-30 yrs., 31-35 yrs., 36-40 yrs., 41-45yrs, 46-50yrs, and 51-55yrs respectively. Precautionary measures were taken to include the uniform population size in each age cohort. In both genders senior secondary education levels in males are 23.9% & females are 16.3% more in settled population and illiterate in male 26 % and female 38% educated level in migrated population. And major emphasis was on what percentage for secondary and senior secondary education level was obtained by studied population. It was resulted that 23.9% male, 16.3% female of settled population and in migrated population 20.7% male & 11.5% female are obtained senior secondary level education. Whereas it's shocking result that only 1.3% female are obtained post-graduate level education none of the sexes found to be post-graduate level education among settled population.

Occupational levels of the subjects indicate that in settled population males are involved in private jobs 48.6%. While 55% females are house wives, 26.1% males are self-employed, 24.5 % females are students in settled population. Similarly in migrated population 58.7% males are in private jobs and 26.4 % are students and 70.5 % females are house wives and 15.4 % females are students.

Socio-economic status (SES) has been calculated according to Indian criteria Gururaj[1]divided into five categories. There is no one in SES I category whereas SES IV category has the highest percentage of males (32.9%) and also the highest percentage of females (66.7%). While in migrated population results are almost similar. SES IV category has highest percentage of males (54.9%) and females (70.5 %) and only .7% males of settled population are in lower V category.

Personal Income of individual subjects of males is 27.5% higher (6000-8000 Rs.) per month and in females 3.4 % in (2000-4000, 8000-10,000 Rs.) per month and 0.5 % only shows in settled males. Similarly 32 % males earning

6000-8000 Rs. per month and 5.1 % females earning 6000-8000 per month in migrated population . 16.7 % male's 85% females of settled who having no salaries while in migrated 25.4% males and 87.2% females having no-personal income per month. Females are greater in number for both populations.

Age at marriage level in males at 16-19 age is 17.1% higher and 1.8 % are lowest. 45% males are not married till present age. They are mostly youngster and 28.6% are 16-19 age of female are higher and lowest is 7% at 28-30 age of marriage 36.7% of females who are not married till are youngster in settled population. While in migrated population 18.9% are at 20-23 age of marriage 55.7% males are not still married mostly are youngster and 38.5% females are at 16-19 age followed by 19.2% at 20-23 age of marriage and 21.8 % females are not married mostly youngster in migrated population.

Marital status level are categorised into married, unmarried and widowed. 55.4% males are married and 44.6% are unmarried males. 60.5% females are married and 37.4% female are unmarried. 20% are widowed females in settled settings. While in migrated 56.6% unmarried males 43.4% are married. Females 76.9% are married which are highest in both population and 23.1% are unmarried females.

In population number of children's who are below age of 15 years in family having 24.3% of one child followed by 18.5% , two child below age of 15 years in their house. While in females 28.6% have two child, one child 32%. Having 2 child in family is highest and lowest is 7%. Family having 6 children in house and 29.3%.Who does not have any child in houses is 29.3%. who doesn't have any child in house of settled population. Similarly in migrated population 24.6% are 1 child, 12.3% are 2 child and 53.3% are no child. In females 34.6% with 1 child, 25.61% with 2 child and 28.2% no child in houses found. Age at menarche at age 13 years is 42.2% in settled and in migrated is 55.11%.

Table 1: Demographic characteristic of the study population

Variables	Settled (N=369)				Migrated (N=200)			
	Male N(222)		Female (N=147)		Male N(122)		Female (N=78)	
	N	%	N	%	N	%	N	%
Age Groups								
17yrs.	20	9.0	18	12.2	11	9.1	2	2.6
18yrs.	14	6.3	8	5.4	7	5.8	1	1.3
19yrs.	7	3.2	5	3.4	3	2.5	2	2.6
20yrs.	9	4.1	9	6.1	7	5.8	5	6.3
21-25yrs.	29	13.1	33	22.4	28	23.1	27	34.5
26-30yrs.	37	16.7	31	21.1	32	26.3	19	24.4
31-35yrs.	18	8.1	10	6.8	6	5.0	7	9.0
36-40yrs.	31	14.0	12	8.2	12	9.9	6	7.7
41-45yrs.	21	9.3	9	6.1	11	8.3	6	7.7
46-50yrs.	24	10.1	3	2.0	3	2.5	1	1.3
51-55yrs.	12	6.1	9	6.1	2	1.7	2	2.6
Education								
Illiterate	50	22.5	35	23.8	26	21.5	30	38.5
Literate	26	11.7	20	13.6	14	11.6	14	17.9
Primary	37	16.7	23	15.6	24	19.8	8	10.3
Higher secondary	26	11.7	23	15.6	12	9.9	7	9.0
Senior Secondary	53	23.9	24	16.3	25	20.7	9	11.5
Graduate	30	13.5	22	15.0	20	16.5	9	11.5
Post-Graduate							1	1.3
Occupation								
Govt. Job	10	4.5	1	0.7	1	0.8	0	0.0
Pvt. Job	107	48.6	10	6.8	72	58.7	4	5.1
Self employed	58	26.1	8	5.4	12	9.9	2	2.6
House wife	0	0	82	55.8	0	0	55	70.5
Student	35	15.3	36	24.5	32	26.4	12	15.4
Auto Driver	8	3.7	0	0	0	0	0	0.0
Unemployed	4	1.8	10	6.8	5	4.2	5	6.4
Socio economics Status								
SES- II	58	26.1	19	12.9	24	19.7	9	11.5
SES- III	76	34.2	29	19.7	31	25.4	14	17.9
SES-IV	88	39.5	98	66.7	67	54.9	55	70.6
<Lower V	0	0	1	0.7	0	0	0	0
Personal Income (in rupees.)								

Rs. 0	37	16.7	123	86.1	31	25.4	68	87.2
Rs.2000-4000	5	2.3	5	3.5	9	7.4	0	0
Rs.4001-6000	20	9	4	2.0	6	4.9	2	2.5
Rs.6001-8000	61	27.5	3	2.1	39	32	4	5.1
Rs.8001-10,0001	56	25.2	5	3.4	22	18.1	0	0
Rs.10001-12000	13	5.7	2	1.4	12	9.8	1	1.3
Rs.12001-15000	15	6.8	2	1.4	1	0.8	2	2.6
Rs.15001-20000	4	1.8	2	1.4	2	1.6	1	1.3
Rs.20,001 above	10	4.5	1	0.7	0	0	0	0
Rs.50,000	1	0.5	0	0	0	0	0	0
Age at Marriage								
Not married	100	45	54	36.7	68	55.7	17	21.8
12-15 yrs.	4	1.8	13	8.8	2	1.6	7	9
16-19 yrs.	38	17.1	42	28.6	22	18	30	38.5
20-23 yrs.	46	20.7	35	23.8	23	18.9	15	19.2
24-27 yrs.	25	11.3	2	1.4	5	4.1	8	10.3
28-32 yrs.	9	4.1	1	0.7	2	1.6	1	1.3
Marital Status								
Married	123	55.4	89	60.5	53	43.4	60	76.9
Unmarried	99	44.6	55	37.4	69	56.6	18	23.1
Widow	0	0	3	2	0	0	0	0
No. of Children								
0	108	48.6	43	29.3	65	53.3	22	28.2
1	54	24.3	47	32	30	24.6	27	34.6
2	41	18.5	42	28.6	15	12.3	20	25.6
3	14	6.3	13	8.8	10	8.2	7	9
4	3	1.4	1	0.7	2	1.6	2	2.6
5	2	0.9	0	0	0	0	0	0
6	0	0	1	0.7	0	0	0	0

	Settled		Migrant	
Age at menarche	N	%	N	%
<12 yrs.	23	15.6	10	12.8
13 yrs.	62	42.2	43	55.1
14 yrs.	46	31.3	14	17.9
15 yrs.	15	10.2	11	14.1
>16 yrs.	1	.7	0	0

DISCUSSION AND CONCLUSION

From present study resulted that 23.9% male, 16.3% female of settled population and in migrated population 20.7% male & 11.5% female are obtained senior secondary level education. Whereas it's shocking result that only 1.3% female are obtained post-graduate level education none of the sexes found to be post-graduate level education among settled population.

Occupational levels of the subjects indicate that in settled population males are involved in private jobs 48.6%. While 55% females are house wives, 26.1% males are self-employed, 24.5 % females are students in settled population. Similarly in migrated population 58.7% males are in private jobs and 26.4 % are students and 70.5 % females are house wives and 15.4 % females are students. Mangtani[1]studied the association between four socio-demographic measures (unemployment, overcrowding, low social class and the proportion of migrants from areas of high prevalence of TB) and average level and rate of change of notification rates for TB in 32 London Boroughs and found that average level of notification was correlated with overcrowding and the proportion of migrant but not with unemployment or social class. An association was also found between increase in unemployment and the rate of change in notification rates but the effects was small. The present study was supported by the Mangtani[1] study rate of unemployment affected was small.

Ogboi[6] have concluded that the study revealed that most of the patient presenting with tuberculosis are in the productive age with unemployment and low literacy level serving as potent risk factors for tuberculosis in the study area. This situation creates a risk of multi-drug resistant TB outbreaks. There was a positive relationship between sputum positive, unemployment, education and occupational status. Singh [7] studied on incidence and prevalence of tuberculosis among household contacts of pulmonary tuberculosis patients in a peri urban population of South Delhi, India. They investigated association between household and its members Bcg vaccinations, previous Self

history of TB, no. of rooms. They concluded cases carry a high risk of being diseased with TB. Through household transmission, the disease can get manifested in household contact active disease. Their result also indicate that who were not vaccinated with Bcg in childhood carried a significantly higher risk of acquiring TB. Study of the demographic is supported by the Leung[2] in their studies the percentage of population born locally, the percentage of the population widowed or divorced and the percentage of households residing in rooms or bedsits were consistently associated with the standardised notification ratios (SNR) for both periods, being married and in a single household were also significantly associated with the SNR. Using a backward conditional approach, only local birth, being married, and residing in rooms or bedsits were independent predictors of SNR (all $P < 0.05$). Author concluded that Socio-economic factors other than simple poverty are affecting the district-specific tuberculosis rates in Hong Kong. Zhou[8] investigated TB treatment among migrant TB patients and to identify the factors associated with adherence. Risk factors for adherence were divorced or bereft spouse , patients not receiving TB related health education, in his results output showed that patients marital status received TB related health education before patients evaluation on free treatment policies incentives to adherence and treatment supervisor were factors significantly associated with non-adherence. Strachan[18] in their results confirmed Adjustment for a range of other socioeconomic, migration, and lifestyle variables made little difference to the relative risks derived using either community or clinic controls. Coker[13] when prevalence of exposure is taken into account the most important factors in the development of pulmonary tuberculosis in Russia are exposure to raw milk and unemployment. Forssbohm15in his studies females were more likely than males to have EPTB. The age specific odd a were bimodal with a nadir in the age group in the range 15-34 years and a peak in those aged 45-64 years. Oxlade[17] has discussed in their paper that people with low socio-economic status typically live in poor housing and environmental conditions, have greater food insecurity and have less access to quality health any association with TB. Cantwell[14] have concluded that united for in the final model, which also adjusted for interaction between crowding and race/ethnicity. SES impacts TB incidence via both a strong direct effect of crowding, manifested predominantly in overcrowded settings, and a TB-SES health gradient, manifested at all SES levels. SES accounts for much of the increased risk of TB previously associated with race/ethnicity and the impact of socio-economic factor. Hawker[16] in his finding it was poverty was significantly associated with tuberculosis in white population and tuberculosis. In single variable analyses for white residents the only variables significantly associated with tuberculosis rates were the proportion of households with more than 1.5 people per room ($P = 0.0036$) and the proportions of residents in such households ($P = 0.0085$), both of which were positively associated with tuberculosis dates.WHO[12] guideline Children's and other adults are TB usually infected by someone in their immediate house hold. When the positive cases in the household.

TB programme structure by increasing awareness with improved diagnostic services for case detection. With early case detection, proper case treatment and management, integration of TB services into general health services, involvement of communities in TB control activities and improvements in strategic information / public health education / communication especially to the low income and uneducated to reduce TB prevalence and incidence well as the socio-economic impact of the disease is strongly recommended.

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