Comparative Case Study On Tuberculosis Patients Between Rural And Urban Areas

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Abstract

The recent recurrence of tuberculosis (TB) has forced us to re-evaluate the disease's pre-existing theories. Social scientists have looked at numerous cultural, environmental, and politico-economic aspects, but biomedical literature frequently explains tuberculosis in terms of biological reasons (such as bacterial infection). The design and implementation of programmes to meet the requirements of patients who have or are at risk for both diseases are influenced by the numerous linkages between TB and HIV infection. The World Health Organisation and other international organisations have promoted collaboration between national TB and HIV programmes and some amount of local service integration, and these initiatives are acknowledged as necessary in regions where the two illnesses are common. The field where their impact would be seen and the anticipation of improving both diseases' outcomes will be realised, however, is yet relatively untapped for most of these strategies. In this article, comparative case study is performed between TB patients of rural and urban areas. The method used was conducting survey using questionnaires to be answered by the patients. The conclusion drawn from the study was that the people who are older, less educated, female, and live far from medical facilities experience the greatest delays in receiving TB care and receiving a diagnosis.

Keywords: Tuberculosis, Rural, Urban, World Health Organization and survey.

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Introduction

The Latin root of the word "tuberculosis" means "nodule" or "something that sticks." Mycobacterium tuberculosis (MTB) bacteria are typically the cause of tuberculosis (TB), an infectious disease[1]. Although it typically affects the lungs, tuberculosis can also affect other bodily regions[2]. When an infection goes undiagnosed, it is referred to as latent tuberculosis. If untreated, almost half of individuals with active disease—which develops from about 10% of latent infections —die[3]. Chronic cough with blood-colored mucus, fever, night sweats, and weight loss are typical signs of active TB[1]. Due to the disease's connection to weight loss, it was previously known as consumption. A wide variety of symptoms can result from infection in other organs[3].

Mycobacterium tuberculosis is the bacteria that cause tuberculosis (TB). Although the TB germs typically assault the lungs, they can also affect the kidney, spine, and brain. Not every person who contracts the TB germs gets ill. Latent TB infection (LTBI) and TB disease are consequently two TB-related diseases. TB disease can be lethal if it is not adequately treated[4].

People who have active TB in their lungs cough, spit, speak or sneeze can spread the disease to others through the air[1]. Latent TB carriers do not disseminate the illness. People with HIV/AIDS and smokers are more likely to have an active infection[3]. Chest X-rays, microscopic inspection, and culture of bodily fluids are used to diagnose active TB[2]. Blood tests or the tuberculin skin test (TST) are used to diagnose latent TB[15-35].

Types of tuberculosis

There are essentially two types of TB: pulmonary TB, which affects the lungs, and extra pulmonary TB, which affects the lungs as well as other organs. Miliary tuberculosis and TB Meningitis are the two most severe types of TB. Mild tuberculosis affects the entire body, whereas TB meningitis affects the CNS and causes headaches, poor alertness, and a state resembling stupor or near-unconsciousness[5].One of the most prevalent kinds of extra pulmonary tuberculosis is lymph node tuberculosis (LNTB). Most often, adolescent girls experience neck swelling as a result of it[6]. (TB) tuberculosis Pleural Effusion: This condition results in an overflow of fluid between the layers of the pleura, the thin tissue layer that protects the lung, outside the lung, causing coughing and shortness of breath. Skin TB and eye TB are the least prevalent forms of TB[5]. Other TB subtypes can impact the intestines, bones, and even the pericardium (the membrane that surrounds the heart)[6].

History

Tuberculosis in humans was first discovered 9,000 years ago at Atlit Yam, an Israeli coastal city that is now submerged beneath the Mediterranean Sea. In the remains of a mother and kid who were interred together, archaeologists discovered TB. In India (3,300 years ago) and China (2,300 years ago), TB was first mentioned in writing[7]. TB accounted for 25% of all fatalities in Europe between the years 1600 and 1800. Similar figures were recorded in the US. The first report on tuberculosis in New York City was released in 1893 as a result of Dr. Hermann Biggs' 1889 success in persuading the New York City Department of Health and Hygiene that doctors should report TB cases to the health department. For the first time, CDC released national TB data in the United States[8].

Identification of bacterium

Mycobacterium tuberculosis, the organism that causes tuberculosis (TB), was found on March 24, 1882, according to Dr. Robert Koch. During this time, TB claimed the lives of one in seven Europeans and Americans. Dr. Koch's discovery marked the most significant advancement in the treatment and eradication of this horrible illness [9].

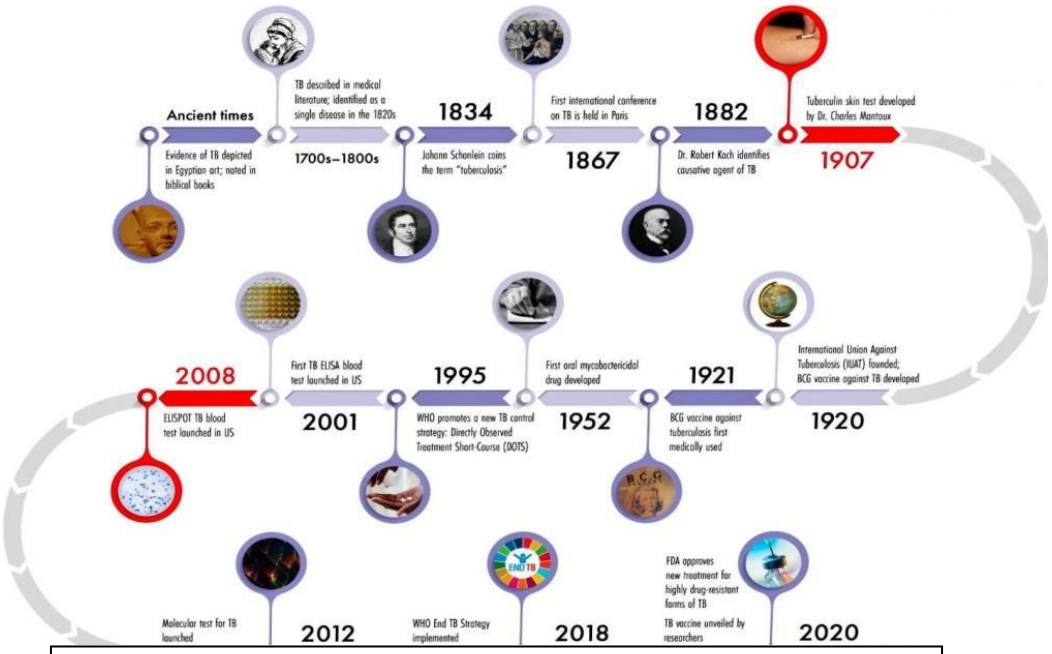


Fig 1: Depicting history and identification of bacterium[10]

In order to promote awareness of the consequences of TB on people worldwide, March 24 was designated as World TB Day a century later. Until TB is totally eradicated, World TB Day won't be observed as a holiday. However, it's a fantastic opportunity to educate people about the damage that TB brings about and how to stop it[10].

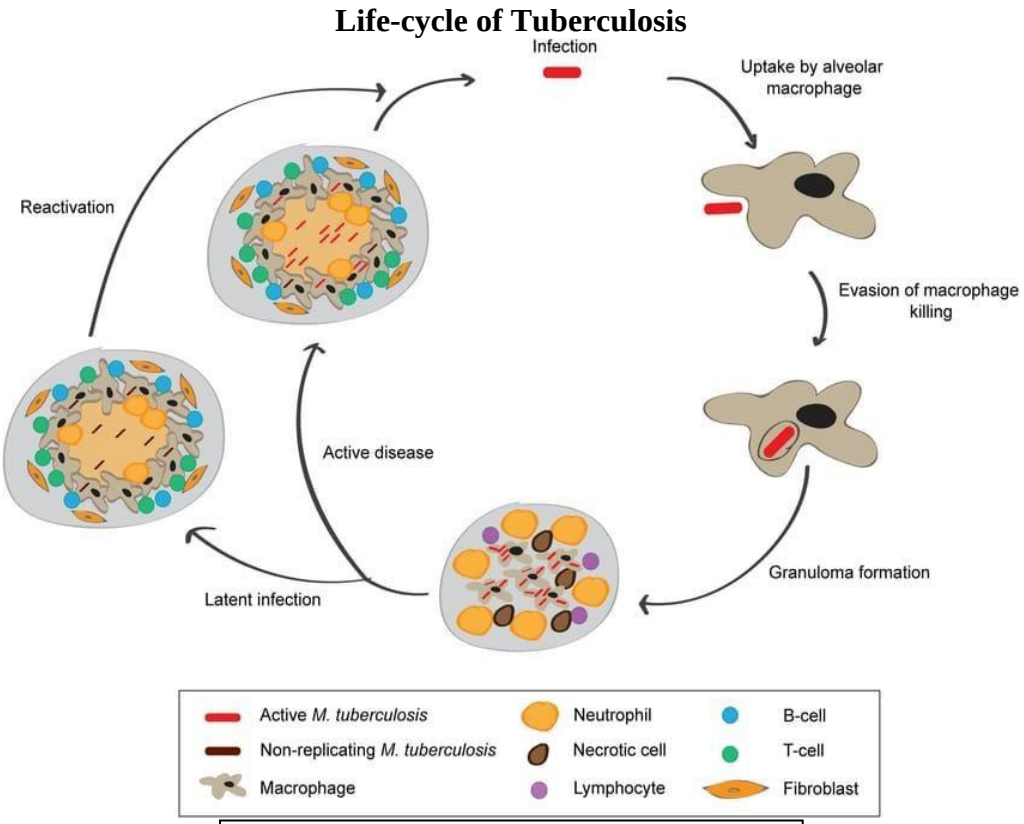


Fig 2: Life-cycle of tuberculosis

SYMPTOMS

Fig: Depicting different symptoms of Tuberculosis[13]

Treatment

First line drugs: Rifampin, Isoniazid, Pyrazinamide and Ethambutol

Second line drugs: Kanamycin (discontinued use in the USA) Streptomycin, Capreomycin, Amikacin, Levofloxacin, Moxifloxacin and Gatifloxacin

Multi-drug resistance (MDR) TB drugs: Bedaquiline, Delamanid, Linezolid and Pretomanid[14].

Different schemes launched by the Government

1. The scheme for incentives for nutritional support to TB patients has been introduced by the Ministry of Health and Family Welfare, Government of India. This programme will be known as "Nikshay Poshan Yojana", and it will give patients $500 each month by direct deposit into their accounts[12].
2. The Revised National TB Control Programme (RNTCP), which was established in 1997 and implemented across the nation in a stepwise way with assistance from the World Bank and other development partners, is based on the internationally approved Directly Observed Treatment Short-course (DOTS) strategy. In March 2006, complete nationwide coverage was attained. RNTCP has been acknowledged as the largest, fastest-expanding TB control project in the world in terms of patient treatment[13].
3. In order to eradicate tuberculosis by the year 2025, the Hon. President Smt. Droupadi Murmu introduces the Pradhan Mantri TB Mukt Bharat Abhiyaan. The Ministry of Health and Family Welfare, Government of India, has announced the scheme for incentives for the patients. She proclaimed the Pradhan Mantri TB Mukt Bharat Abhiyaan and asked citizens to strive together for TB elimination in the spirit of Jan Bhaagidari on a war footing. The launch event was attended by the Union Minister for Health and Family Welfare, Dr. Mansukh Mandaviya, the Minister of State for Health and Family Welfare, Dr. Bharati Pravin Pawar, as well as other dignitaries[14].
4. In Delhi, the Centre plans to provide Rs. 750 per month through direct benefit transfer (DBT) to each patient who has tuberculosis (TB) across India in 2016[12].

5. Direct Benefit Transfer (DBT) is the method by which the Government of India (GOI) offers citizens specific benefits. The recipient's bank account receives the government subsidy or benefit directly[13].

Material & Methods

Hospital survey and name of authorised persons

In rural areas:-

Civil Hospital, Sausar– Dr. Hemraj Bokde

In urban areas:-

Chakole Hospital, Nagpur- Name of concerned persons are:

-Dr. Shilpa Jhichkar (Tuberculosis officer TBO)

-Dr. Pankaj Pathak (Senior treatment super-visor)

-Dr. Nilima Uikey (TB health visitor)

-Dr. Arvind Chauhan (TB health visitor)

-Dr. Aniket Raut (TB preventive therapy)

CIVIL HOSPITAL, SAUSAR CHAKOLE HOSPITAL, NAGPUR

Questionnaires……?

Patient No. : _____

Gender: _____ Age: _____

Q1. What symptoms did you had ?

Q2. Does any of your family member have/ had TB ?

Q3. Which type of TB do you have ?

Q4. How long is the person taking medications ?

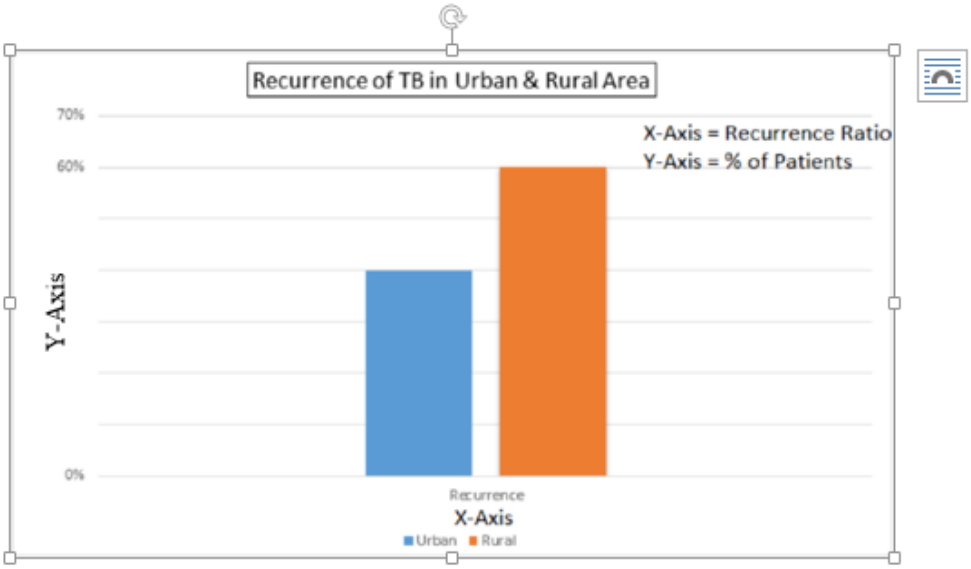
Q5. Did you got government facilities ?

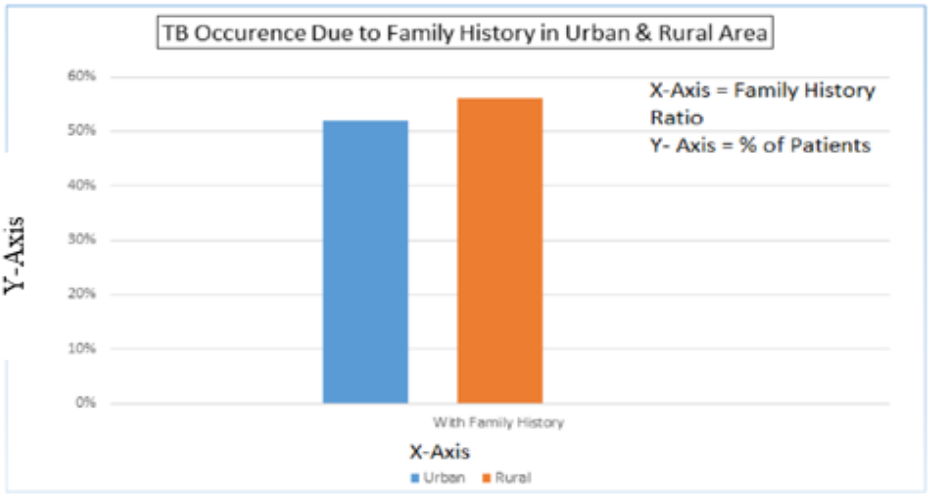
Q6. Have you had TB for 1st time / reoccurred ?

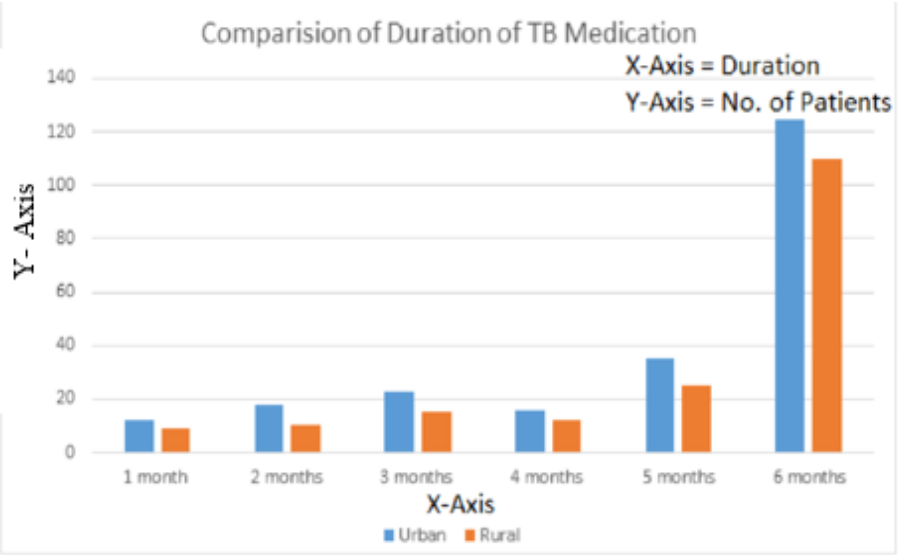
Q7. Do you consume alcohol/ tobacco ?

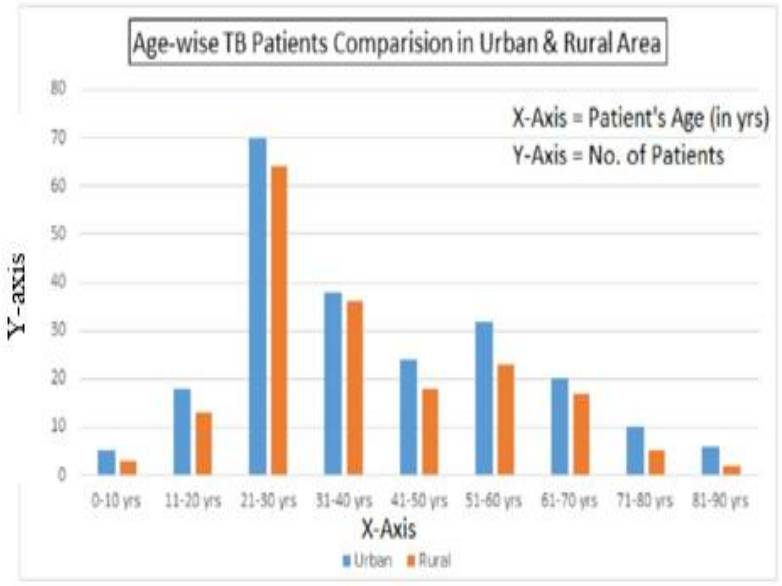
Result

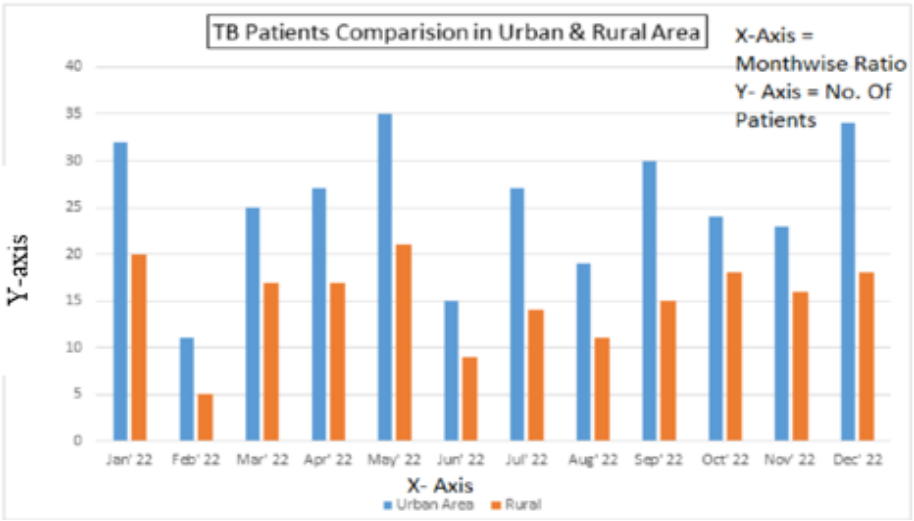
In the survey, more than 500 patients from rural as well as urban areas with different age belonging to different areas were questioned. The answer collected from different people of the question of urban and rural areas are compiled in the form of histogram.

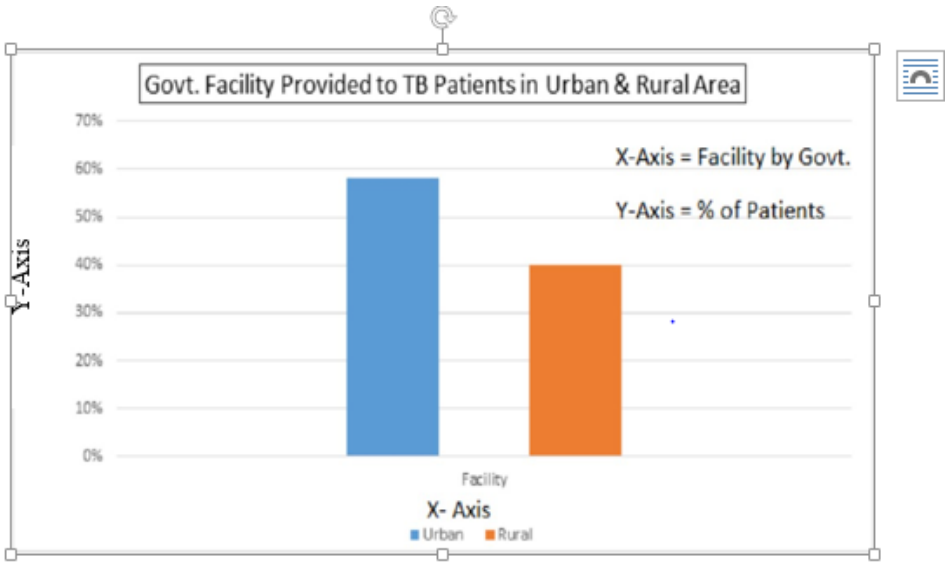

Recurrence of TB in Urban & Rural Area
X-Axis = Recurrence Ratio
Y-Axis = % of Patients
70%
60%
0%
Y-Axis
Recurrence
X-Axis
Urban
Rural

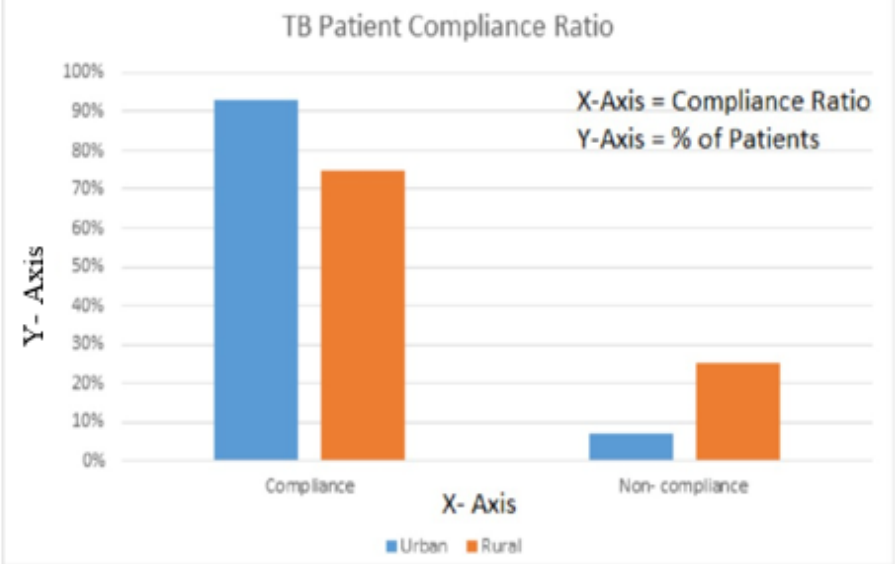

TB Occurence Due to Family History in Urban & Rural Area
X-Axis = Family History Ratio
Y- Axis = % of Patients
60%
50%
40%
30%
20%
10%
0%
Y-Axis
With Family History
X-Axis
Urban
Rural

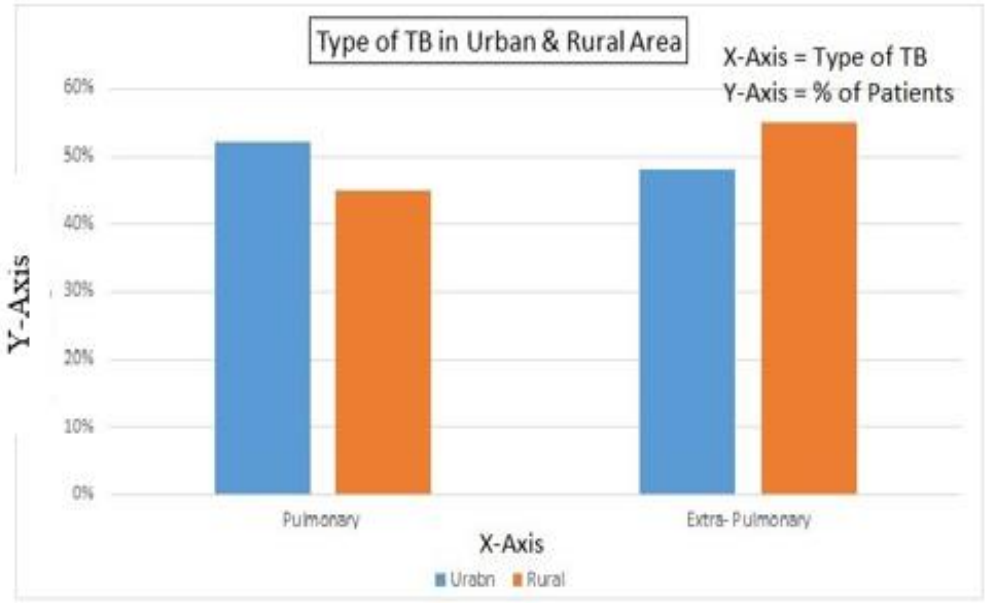

Comparision of Duration of TB Medication
X-Axis = Duration
Y-Axis = No. of Patients
140
120
100
80
60
40
20
0
Y- Axis
1 month
2 months
3 months
4 months
5 months
6 months
X-Axis
Urban
Rural


Age-wise TB Patients Comparision in Urban & Rural Area
X-Axis = Patient's Age (in yrs)
Y-Axis = No. of Patients
Y-axis
80
70
60
50
40
30
20
10
0
0-10 yrs
11-20 yrs
21-30 yrs
31-40 yrs
41-50 yrs
51-60 yrs
61-70 yrs
71-80 yrs
81-90 yrs
X-Axis
Urban
Rural


TB Patients Comparision in Urban & Rural Area
X-Axis = Monthwise Ratio
Y- Axis = No. Of Patients
Y-axis
40
35
30
25
20
15
10
5
0
Jan' 22
Feb' 22
Mar' 22
Apr' 22
May' 22
Jun' 22
Jul' 22
Aug' 22
Sep' 22
Oct' 22
Nov' 22
Dec' 22
X- Axis
Urban Area
Rural


Govt. Facility Provided to TB Patients in Urban & Rural Area
X-Axis = Facility by Govt.
Y-Axis = % of Patients
Y-Axis
70%
60%
50%
40%
30%
20%
10%
0%
Facility
X- Axis
Urban
Rural





According to survey-

- Ratio of Government facilities provided to the patients was found to be: Urban area – 58%, Rural area– 42%
- Recurrence of TB ratio were found to be: Urban area–40%, Rural area –60%
- Patients having family history were found to be: Urban area–52%, Rural area –56%
- Patient compliance ratio for medication were found to be: Urban area–93% and Rural area –75%
- Duration ratio of the treatment was found to be: Maximum patients in urban and rural areas had 6months of medication therapy.
- Age-wise patient were found to be:

Age (in yrs)	Urban	Rural
0-10	3	5
11-20	13	18
21-30	64	70
31-40	36	38
41-50	18	24
51-60	23	32
61-70	17	20
71-80	5	10
81-90	2	6

Table 1: Age-wise No. of patients in rural and urban areas

Discussion & Conclusion

Tuberculosis is such a disease which spreads so quickly and the patient does not able to recognize it also. There are number of drugs available for curing of the disease as well as there is a vaccine also i.e. BCG vaccine to get immune for fighting with this disease. During the survey, it was found that the patients are not even aware about the type of disease. In the opinion of TB patients, government has launched number of programs but they are not aware of those programs. So, people need to get some knowledge about this disease from campaigns and programs. Therefore, there is a need to discuss about the awareness of programs for the patients.

Gender plays a significant role in TB care, as TB is associated with social stigma. Studies reveal that women prefer home remedies at the onset. In many developing and under privileged communities, TB patients face dire consequences once detected with TB. They face various barriers in day-to-day life, as well as isolation and rejection from their respective families and communities.

We conclude that the elderly, the less educated, women, and those living far from health facilities face the longest delay in reaching TB services and achieving diagnosis.

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