

Comparative Study of Urban and Rural Tuberculosis
patients in Alirajpur District, Madhya Pradesh

By

Avantika Rathore

*Dissertation submitted for the partial fulfillment of the
MBA Hospital and Health Management*

Academic year, 2016-2018



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TO WHOMSOEVER MAY CONCERN

This is to certify that Dr. Avantika Rathore student of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at Fortis Escort hospital, Jaipur from 20th February 2018 to 24th March 2018 and National Health Mission Madhya Pradesh from 5th April 2018 to 26nd May 2018.

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.



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The certificate is awarded to

Dr. Avantika Rathore

In recognition of having successfully completed her
Internship

And has successfully completed her Project

Comparative study on profile of urban and rural tuberculosis patients in
Alirajpur District , Madhya Pradesh , INDIA

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He/ She comes across as a committed, sincere & diligent
person who has a strong drive and zeal for learning

We wish him/her all the best for future endeavors



Signature
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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled A Comparative study on urban and rural tuberculosis in Alirajpur District, Madhya Pradesh and submitted by Dr.Avantika Rathore Enrollment No. **IIHMR-U/02/2016-18/0400** under the supervision of **Dr. Ashok kaushik** for award of **MBA in Hospital and Health Management** of the University carried out during the period from **20th Feb 2018 to 24th march 2018 at Fortis Escort hospital and 05th April to 25th May 2018 at NHM Madhya pradesh** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.



Signature

Dr. Avantika Rathore
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Acknowledgment

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Regards

Dr. Avantika Rathore

List of Abbreviations

S. No.	ACRONYMS	FULL FORM
1.	NRHM	National Rural Health mission
2.	NHM	National Health mission
3.	NUHM	National Urban Health Mission
4	CMHO	Chief Medical Health Officer
5	NCDC	National Cooperative Development Corporation
6	MMR	Maternal Mortality Ratio
7	IMR	Infant Mortality Rate
8	GDP	Gross Domestic Product
9	DOTs	Directly Observed Treatment, Short-Course
10.	ASHA	Accredited Social Health Activist
11	WCD	Women & Child development
12	ANC	Antenatal care
13	PHC	Primary health centre
14	NIC	National Informatics Centre
15	CHC	Community health centre
16	OJAS	Organized Just Accessible Seamless
17	JSY	Janani Suraksha Yojana
18	RSY	Rajshree yojana
19.	SLY	Shubhlaxmi yojana
20	PCTS	Pregnancy Child Tracking System
21	MCTS	Mother Child Tracking System
22	HMIS	Health Management Tracking System
23.	AWW	Anganwadi workers
24.	BPL	Below Poverty Line
25.	MO	Medical officer
26	HPS	High Performing State
27\.	LPS	Lowest Performing State
28	LAMA	Leave Against Medical Advice

ABSTRACT

Title: Comparative Study of Urban and Rural Tuberculosis (TB) patients in Alirajpur District, Madhya Pradesh (MP)

Author: Dr. Avantika Rathore

Background: Tuberculosis (TB) continues to be a major public health problem in India, with over 1.9 million new cases annually, making it the highest TB burden country in the world. For the second time, India has been ranked number one around the globe for leading TB deaths. In 2016 approximately 423,000 patients died from TB and this accounts for a third of the global 1.4 million deaths

Objectives: To compare urban and rural tuberculosis patients of Alirajpur District, MP and to recommend measures to reduce the prevalence of TB in Alirajpur District, MP

Methodology: A cross sectional study was conducted in Alirajpur District, MP on 232 registered rural and urban tuberculosis patients in TB cell as sample size through convenient sampling technique. A semi-structured questionnaire was formulated which adopted quantitative analysis approach to deduce the findings of the collected data. Questionnaires were distributed randomly among villages. The questions included in the questionnaire required the respondents to fill out their history of TB within their family. Interviews were also conducted randomly in the villages.

Results: The study estimated that out of 232 sample TB registered cases, around 88% belonged to Rural Population and 12% to Urban population. Also, the results showed that the male gender is most vulnerable to TB as 65% of the sample study of TB cases was male as compared to 35% of female affected TB cases.

Conclusion: The study established that rural populations are more susceptible to TB. Children in the rural areas are mostly infected with TB due to malnutrition, exposure to smoke and so on. Those children in the rural do not have adequate access to quick medical services like those in the urban areas. In connection to that the tribal parents in the rural areas believe in traditional healing methods which are mostly not effective. , more men are vulnerable to TB compared to the women. This can further be explained by the gender distinctions in the societal interaction patterns because men have more chances of interacting with individuals outside their homes even those with TB which is largely attributed to the cultural opinions about the women having more restrictions in their functions around their home and community at large; this in turn makes them less likely to ask for help outside. The study explains for the social responses which indicate that the women are mandated to support their spouses while the suffering from TB but a man on the other hand does not have a similar mandate to support his spouse.

Key Words: TB, RNTCP, DOTS

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CHAPTER ONE

TITLE

Comparative Study of Urban and Rural Tuberculosis Patients in Alirajpur District, Madhya Pradesh

1.0 INTRODUCTION

Tuberculosis (TB) continues to be a major public health problem in India, with over 1.9 million new cases annually, making it the highest TB burden country in the world.¹ It accounts for one-fifth of the world's new TB cases, and two-thirds of the cases in the Southeast Asia region. For the second time, India has been ranked number one around the globe for leading TB deaths. In 2016 approximately 423,000 patients died from TB and this accounts for a third of the global 1.4 million deaths. Nevertheless, it is not only in India where TB has become a bane other nations are going through a similar situation. According to the World Health Organization 20th annual edition report, the death toll of TB deaths In India is closely followed by China, Indonesia, Pakistan and the Philippines .Actually, TB has now become one of the deadliest an infectious diseases that is leading to more annual deaths compared to HIV. However, there was good news from the report because the rates of TB globally had dropped. As a matter of fact, there was a drop of 12 percent in India of the number of TB deaths compared with 2015. Nonetheless, the toll of the fresh TB cases reported in India reduced by 3 percent. Having a population of 1.324 billion persons, this translated to approximately 2.7 million new cases of TB reported in 2016(Rao et al., 2017)

India is a vast country inhabited by diverse groups of people, with a wide variety of socio-cultural backgrounds. The tribal population is one such group of people who share common cultural and socio-religious beliefs, and reside in particular discrete geographic areas. Their cultural and socio-religious beliefs are quite different from the wider general population. They are an underprivileged group of society, often having poor access to the health-care delivery systems. Prevalence of TB disease is an important epidemiological index to measure the burden of the disease in a community. Epidemiological information on TB is also vital for the planning of control strategies and service delivery systems (Varadarajan, et al., 2016).

A nation-wide disease survey conducted by the Indian Council of Medical Research (ICMR) in 2000 provided, for the first time, information on the TB disease situation in the general population of the country. Information on the TB situation in the rural populations of India is limited to a few studies carried out in small populations scattered across the country.^{4–6} The rural population accounts for 25% of the population of the central Indian state of Madhya Pradesh (MP). Before beginning the research, it is important to understand the difference between the rural and urban populations in India. The rural people in India are referred to as and are considered the poorest in the country. The rural populations still depend on agriculture, fishing and hunting. Rural populations have their own tradition, lifestyle, culture and language. The urban also known as non-tribal on the other hand are more civilized and sophisticated and have adopted westernization culture, lifestyle and have access to quality education and health services (Varadarajan, et al., 2016).

Though the Revised National Tuberculosis Control Programme (RNTCP), based on the Directly Observed Treatment Short Course (DOTS) strategy, was launched in India as a national programme in 1997, it was only implemented from 2004 in the survey area. In view of these, the present study was undertaken in the rural population of the state to compare the profiles of rural and urban tuberculosis patients.

1.1 OBJECTIVES

1. To compare urban and rural tuberculosis patients of Alirajpur District, Madhya Pradesh.
2. To determine why the population of Alirajpur is suffering from TB infections
3. To find out solutions that can reduce the prevalence of TB in Alirajpur
4. To find what the government has done so far in an effort to eliminate TB

CHAPTER TWO

2.0 LITERATURE REVIEW

India experiences approximately a quarter of the worldwide TB burden. More so, India has been ranked as the country with the utmost affliction of both TB and MDR TB. There are approximately 79,000 multi-drug resistant TB patients among the cases of pulmonary TB each year. India is ranked is the second after South Africa with high levels of HIV and TB cases. In 2016, there were about 28 lakh cases and people died. As a matter of fact, India has millions of TB cases some which are not identified and others that are not diagnosed and unaccounted for (Central TB Division, 2017).

Following the India's government report, the rural population is said to be nearly 104.28, which accounts for 8.6% of the total population in India. There is intense heterogeneity that involves susceptible tribes now known as particularly vulnerable tribal groups. In connection to that, there are differing gaps on the health status among the rural populations and the urban populations. Individuals from the rural areas experience various health risks that entail maternal and infant mortality, malaria, anaemia and malnutrition. Their susceptibility is largely attributed to the high levels of illiteracy, poverty, alcohol use, smoking; inadequate health care and tough isolate surroundings. The pattern of escalating susceptibility is a matter of great concern in India (Central TB Division, 2017).

According to reports, the rural populations are the most deprived, neglected and exploited lot in India. In spite of the various constitution provisions, they are observed to be backward when compared to the overall population in India (Xaxa, 2012). Majority of the rural populations choose to live in the remote forest areas and they remain segregated and unaffected by civilization and other development processes.

When the rural populations have access to those resources obtained from the forest, they do not experience challenges while satisfying their basic needs. Actually, they are normally interested in preserving the forest because it acts as their life support system. On the other hand, urbanization as well as large industrialization has greatly influenced the rural populations' pattern of livelihood. Actually, this particular trend is responsible for displacing large populations from their habitats (Xaxa, 2012). Rapid industrialization and development projects have not created a great distinction in the social-economic status; rather in some cases, the STs situation has worsened. Widespread illiteracy, malnutrition, poverty, lack of clean drinking water, poor living conditions, inadequate sanitation facilities as well as ineffective child, maternal and general nutritional services have made the conditions of the rural populations more susceptible.

Being among the poorest states in India, Madhya Pradesh has approximately over 37% of its overall population of 60 million living under the poverty line. Gender-based discrimination is observed in the unequal sex ratio (916/1000) and lower human advancement indicators for the women. Despite the states development in the recent years, Madhya Pradesh continues to experience high rates of both infant and maternal mortality across India. The total rate of fertility and occurrence of the communicable and vector borne diseases are above average (The End TB Strategy WHO, 2015).

In Madhya Pradesh, the most population strongest tribe community is Gonds and their group is called Koiter. Other tribe groups are Kamars, Korkus, Haibas, Kols in Madhya Pradesh. Their economy is non-market-oriented and exist barter system. But now, it is changing rapidly with the change of global market and liberalization and many tribal development programs implemented in the various parts of India. The tribal political associations are of various kinds and incorporate individuals, elders, families, a clan group, a village, and a tribal territory. The political characteristics of tribals may broadly be looked at through their social organization. They are-political association based on village as unit, clan lineage, and group villagers of a territory (The End TB Strategy WHO, 2015).

Poor health is positively correlated to social variables. Health status of the tribal women is reflected by its sex ratio, female literacy, women-child ratio, and age at marriage, fertility, mortality, maternal and childcare practices, and women are more vulnerable to diseases that afflict population. He again reported that rural populations have strong belief on supernatural god for their health, calamities, dog bites, and snake bites, etc. Indian Council of Medical Research (ICMR, 2017) report reveals that the wide spread poverty, illiteracy, malnutrition, absence of safe drinking water and sanitary conditions, poor maternal and child health services, ineffective coverage of national health and nutritional services, etc., have been found, as possible contributing factors of dismal health condition prevailing among the primitive tribal communities of the country. Tuberculosis (TB) prevalence is about 2 times higher among tribal males than females, and it increased with age in central parts of India (Madhya Pradesh). Most of the tribes in Andhra Pradesh in practiced traditional medicines such as herbals and psychological treatments (Varadarajan, *et al.*, 2016).

A high mortality rate uncovers several things. One of them being delayed diagnosis. Secondly, those diagnosed are not given enough treatment. Among the reasons for delayed diagnosis is lack of enhanced facilities and machinery. In many parts of India, Tb is examined from two sputum smears obtained from different times during the day and are analyzed under a microscope. This is a very slow process with high margin for errors (Reddy, 2013).

According to Chakrabarti et al ., (2015), TB case infects more individuals per year in urban centers, rural TB case remains infectious for longer strongly suggesting the need for interventions tailored to different settings. There are differences in urban and rural TB dynamics, specifically the number of people likely to be infected by a single patient and the length of time that patient remains infectious, both of which affect strategies for control. An urban TB case will infect an average of 12 people per year and remains infectious for about one year, while a rural case will infect an average of four people per year, but remains infectious for more than two years according to new report.

The burden of tuberculosis (TB) is high in tribal populations. Although poor living conditions, malnutrition, erroneous health assumptions and beliefs concerning TB, lack of resources, and treatment by traditional healers increase the burden of TB among the tribal/indigenous population [15– 17], the treatment outcome is not significantly associated with ethnicity that was also observed in a previous study conducted by Chakrabarti et al., in West Bengal . It indirectly indicates that programme failure related variables like lack of access to proper treatment, traditional and cultural barriers, lack of tracking of defaulters, and so forth, which was not addressed in previous study and was more important predictors than socio-demographic characteristics and it was felt by Chakrabarti et al. That means unfavorable outcome among tribal population can be avoided, because it less depends on non-modifiable factors like ethnicity (2015).

The increasing levels of social inequality, the enhancement of the private health system and the hindrances to quality access among those living in poverty as well as the deteriorating public health sector are factors that raise the differential susceptibility among the rural populations. Nonetheless, populations in India are demographically, economically and culturally distinct in terms of the size of their population, interactions and language with other people in the community (Chakrabarti et al., 2015).

Government policies have been placing more hindrances in the treatment of TB. Patients who were diagnosed with MDR-TB had been given hope with the new drug Bedaquiline that had been approved to be used. However, it has limited stocks and is particularly available in only states in India and patients eligible for this treatment must have lived in those states for about three years. Those policies faced legal challenges when the high court in Delhi declared that exceptions must be made for those patients who are seriously ill

even though they do not meet the residency requirements (The End TB Strategy WHO, 2015).

India experiences an estimated 27% of the global TB burden. This costs the economy of India about \$ 300 million of lost wages and about \$23 billion indirect expenses by the Indian economy as result of absenteeism among staff and loss in productivity. Normally, patients are prevented from seeking treatment from both the informal and formal providers in the private health care system. Since in both the private and public health sector the tracking of patients and data is poor, their treatment process is also difficult (Rao et al., 2017).

The above literature reveals that numerous studies have been conducted regarding TB in India. Nonetheless, most of the researchers focused on the causes of TB infections and the gender disparities of TB. Few researches were conducted on the rural and urban populations. Those that were conducted on the rural and urban populations did not give deep details and clear comparisons of the profiles of the two populations or how the two populations differ in terms of TB exposure and treatment. This presented a gap in knowledge that is further explored in this research.

2.1 ETHICAL CONSIDERATIONS

It is ensured that the subjects receive a full disclosure of the nature of the study, with an extended opportunity to ask questions. Informed consent will be taken from the respondents and confidentiality, respect and dignity of the respondents will be maintained during the study. Information received by the respondents will not be misused in any form.

2.2 Government contributions towards TB elimination

World Vision India hosted a Project Axshya's Tuberculosis Consortium Partner's Meet at New Delhi recently. During the event the partners shared key project achievements, promising practices and emphasized the role of civil society organizations in the path towards TB elimination, recognizing the accelerated response of the government for TB diagnosis and treatment across the country. Dr. Ashwini Khanna, State TB officer, highlighted that the government of India has taken up the challenge to end TB in the country by 2025. The soldiers in the fight are fully geared to eliminate the dreaded diseases. In 2017 there were eighteen lakh patients. As of WHO 2.8 million patients were reported last year (Indian Council of Medical Research, 2017).



Prime Minister Narendra Modi on March 2018 launched a campaign to eradicate the deadly Tuberculosis (TB) from India by 2025, five years earlier than the target set by the World Health Organisation (WHO). Prime Minister announced at the summit that India has set the aim to eradicate TB from India by 2025,” the ‘Delhi End TB’ after launching Tuberculosis Free India Campaign, which will take the activities of National Strategic Plan (NSP) for TB elimination forward in Mission mode. India has not been successful in curbing Tuberculosis yet.

The Prime Minister claimed that if something doesn't yield result even after 10 to 15 years then there is need to change the approach. The situation needs to be analyzed carefully. With the funding of around Rs 12,000 cr over the next three years, the motto of the NSP is to make sure that each TB patient easily accesses quality ensure every TB patient has access to quality examination, treatment and support. One of the top 10 causes of death worldwide, tuberculosis clocks up approximately 2.8 million cases and nearly half a million deaths on an annual basis in India. In 2016, TB was responsible for 1.7 million deaths despite most cases being curable, while over 10 million people contract TB every year (Central TB Division, 2017).

CHAPTER THREE

3.0 METHODOLOGY

The methods used for primary data collection were questionnaires and interviews. Secondary data collection methods were from online sources like journals and medical reports.

3.1 Research Questions

1. What are the possible causes of TB in Alirajpur?
2. Are rural populations more vulnerable to TB compared to urban populations?
3. Is there a gender divide in TB vulnerability in Alirajpur?
4. What is the stigma associated with TB between the males and females?
5. Is there general information about TB in Madhya Pradesh?
6. Has the government made steps in eliminating TB in Madhya Pradesh?

3.2 Research Design

Study setting and design

Study type – Descriptive study

Study place - Alirajpur district, Madhya Pradesh, India.

Study time – 3 Months (05th February 2018- 05th May2018)

Study sample size - 232 participants (Registered rural and urban tuberculosis patients in TB cell)

Study population – Children, Adult patients including both gender and More than 50 years of age patients

Data Analysis Procedure- Software like MS Excel used for data entry and analysis.

3.3 Data Collection Procedure

Questionnaires were distributed randomly among villages. The questions included in the questionnaire required the respondents to fill out their history of TB within their family. The data included those who have been ever infected from the father, to the children. They were also to fill whether they received proper medical care. Lastly they were to respond on their opinion about the government's effort to eliminate TB in the area. The questions were closed ended and were distributed to those who could understand very Basic English language.

Interviews were conducted randomly in the villages. Interviews were used besides questionnaires because a lot of information can be collected from interviews as opposed to questionnaires. Some respondents may omit giving information particularly if they fail to understand the question. Secondly, some may omit some questions because of uncertainty of confidentiality of the research. Nevertheless, the interviews were used to help overcome these challenges. At the beginning of the interview, the interviewee was assured of confidentiality of the information. Secondly, during interviews it was possible to assess whether the interviewees were giving genuine or false information by observing their body language. Thirdly, the interviews ensured that all questions were answered and clarification was sought.

Secondary sources from the library as well as online journals were used to collect data. TB is prevalent in India and several researchers have conducted various different studies on this particular issue. Thus, numerous books and journals were used to obtain information. Through the internet, we were also able to obtain medical reports that had been published about TB.

CHAPTER FOUR

4.0 RESULTS

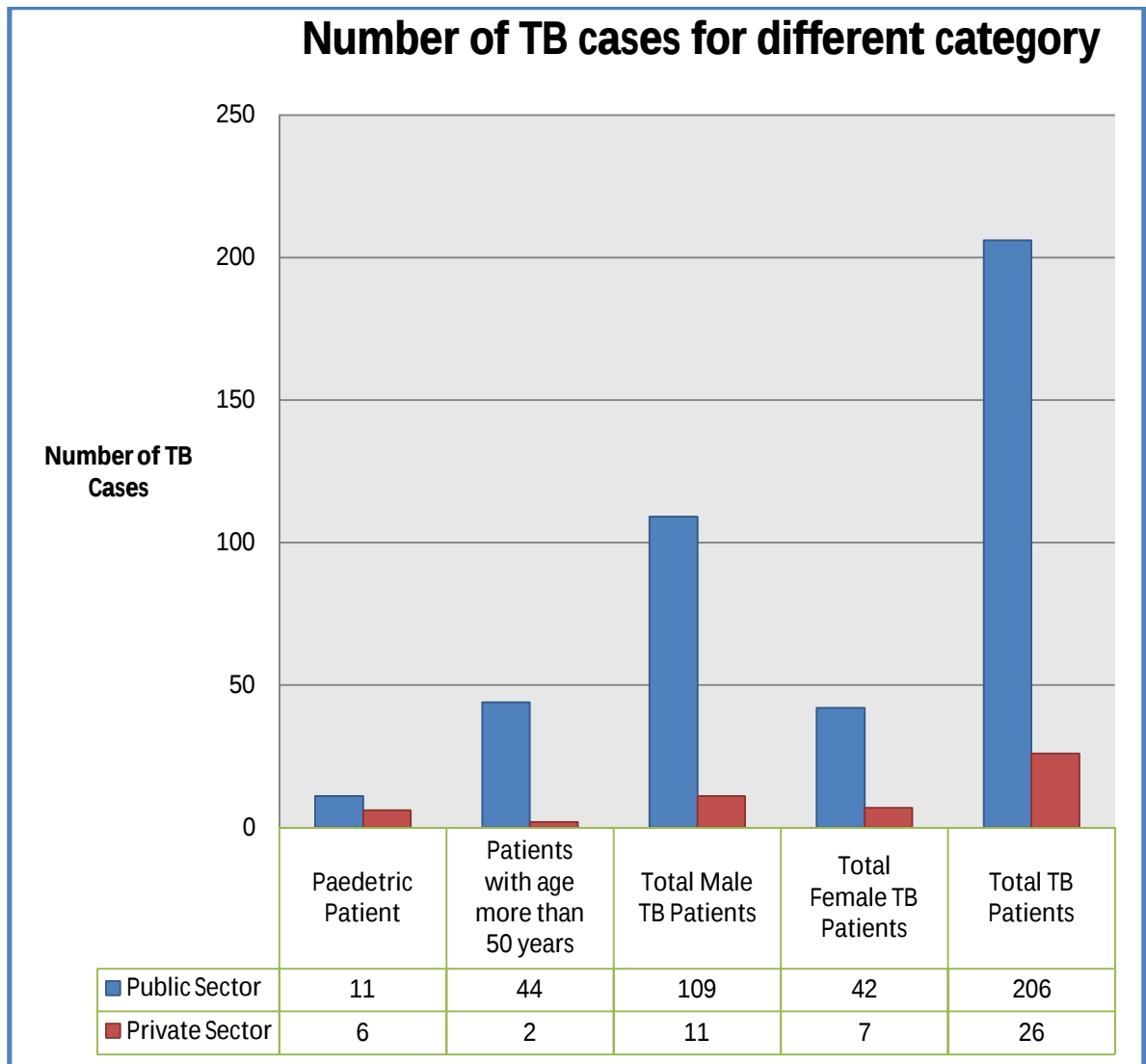


Figure 4.1 Represents TB patient details in the Public and Private Sectors of Alirajpur District, MP

As can be seen from the above Figure 4.1 number of total TB cases for the period of study; for public sector 206 TB cases were reported while for Private it was only 26 reported cases thus suggest a wide difference of awareness, eating habits, living style between the two sectors and public sector is far more vulnerable to TB.

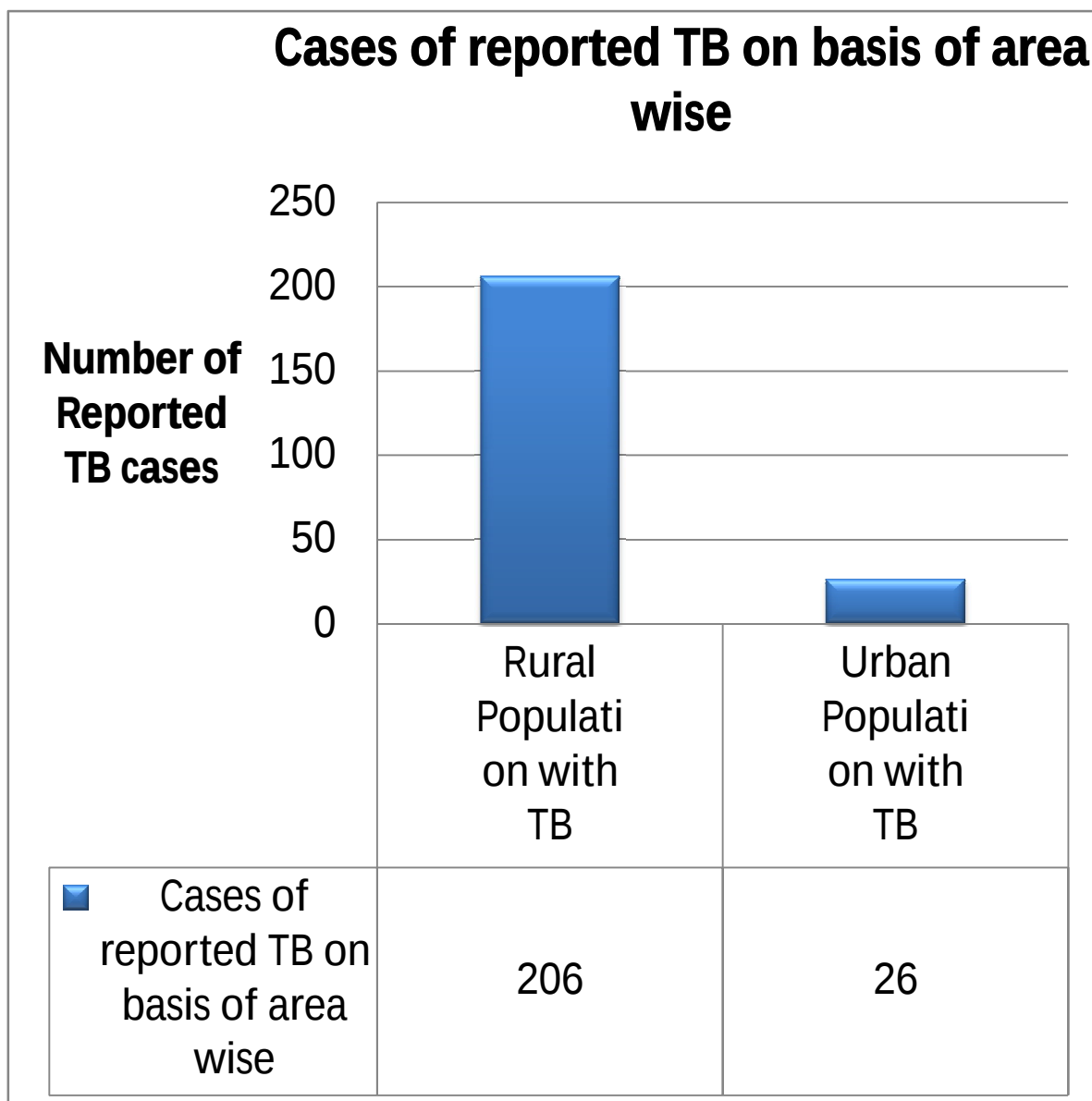


Fig. 4.2 Represents the cases of TB among the rural and urban populations in Alirajpur District, MP

As can be seen from above Figure 4.2 out of the study population of 232 cases reported as TB around 88% is Rural Population and 12% is Urban population again suggesting a wide gap between the two and rural population is far greater vulnerable to TB due to their lifestyle and lack of help seeking attitude and also due to lack of grass root medical facilities in Rural parts to a greater extent.

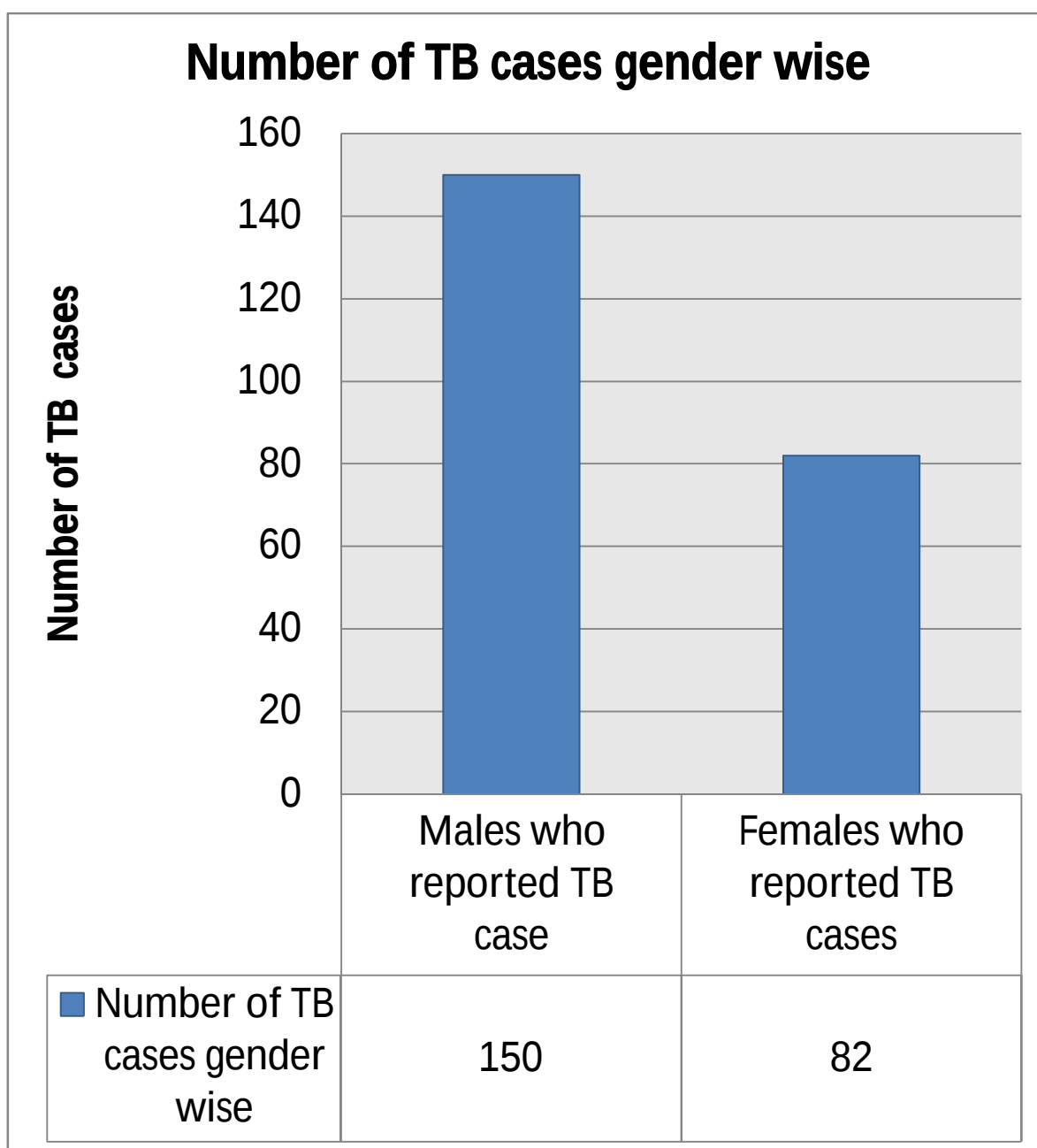


Fig 4.3 Represents number of males and females who report TB cases in Alirajpur District, MP

As can be inferred from the above figure; it is the males who are far more vulnerable to TB as can see by 65% of total 232 TB cases ; 150 were males and 82 were females who were reported TB.

4.1 Result Analysis

The results above reveal that the number of people who suffer from TB in the rural areas is higher than that in the urban areas (Figure 4.2). Children in the rural areas are highly susceptible to TB than those in the urban areas. The rural areas of Madhya Pradesh State incl. Alirajpur District accommodate most of the aged population. In that case, they are highly susceptible to TB infections. In connection to that, the data collected also shows that the male gender is most vulnerable to TB (Figure 4.1).

In the urban areas of Alirajpur District, both the male and female have equal chances of obtaining TB but the difference is quite large in the rural areas of Alirajpur District. In general, people in rural areas are more susceptible to TB infections than in the urban areas. The numbers of TB cases reported are different depending on gender. More males than females report and go for TB treatment compared to the females (Figure 4.3).

4.2 Discussion

There is a clear health divide observed from the above results. The rural populations are more susceptible to TB (Figure 4.2). Children in the rural areas are mostly infected with TB due to malnutrition, exposure to smoke and so on. Those children in the rural do not have adequate access to quick medical services like those in the urban areas. In connection to that the tribal parents in the rural areas believe in traditional healing methods which are mostly not effective.

Based on the above results, more men are vulnerable to TB compared to the women. This can further be explained by the gender distinctions in the societal interaction patterns because men have more chances of interacting with individuals outside their homes even those with TB. Women on the other hand, spend a lot of their time within the community. According to Liefoghe et al. (2015) review, women encounter more hindrances to acquire TB treatment than men the males. This is largely attributed to the cultural opinions about the women having more restrictions in their functions around their home and community at large; this in turn makes them less likely to ask for help outside.

Several studies have explored reasons behind the gender bias in tuberculosis susceptibility and found that fear and stigma associated with TB makes greater impact on women than on men. The analysis of epidemiological data by Thompson *et al.*, reflects gender to have an impact on the disease and its control. It seems, therefore, that the observed differences in disease prevalence in males and females may or may not have any direct biological basis; however, they are strongly associated with malpractice of health care policies by care providers or care seekers.

Stigma delays HS and results in patients dropping out of treatment. Due to their social susceptibility, women become highly vulnerable to stigma. The Maya Pradesh research in India reveals that stigma may greatly affect their participation in the DOTS programs leading to poor treatment outcomes and this stigma effect is more pronounced among the women.

Various interview questions were created to indicate stigma. Majority of the respondents admitted reduced self-esteem as a characteristic of the illness. They explained that the affected people have low self-value and they try to hide. Actually the women hide this disease more as compared to the men. The reason is because women are in fear of being socially isolated and they have reduced respect from other people in and outside the community. In fact, approximately half of the interviewees confirmed that individuals in the community treat the Tb patients in embarrassing ways.

The narrative explains for the social responses which indicate that the women are mandated to support their spouses while the suffering form TB but a man on the other hand does not have a similar mandate to support his spouse. As a matter of fact, the society gives the man a right to leave his wife or send her back home when she suffers from TB.

About information dissemination about TB around the community, and with regards to the public health priorities, men were noticed to be served better by the formal media. Limited access to public education about TB has largely contributed to shame among women which results in self-blame in such poor settings and also encounters delays in HS. Most women had their own ideas about the causes of Tb among men and they mostly referred to it as

‘Karma’ which is commonly used in the cultural setting to refer to fate, literally the outcomes of actions in one’s previous life when no other causes can be identified. These findings show the need to come up with innovative approaches that can be utilized to disseminate meaningful health facts about TB to the women. Perhaps it could be done by using the women’s gatherings or activities in the primary health care system more efficiently.

With regard to government support, majority of the respondents felt that the government was not doing enough to combat TB. Both the rural and urban populations expressed that the government was acting slowly yet TB continues to kill many individuals both from the rural and urban populations. There are inadequate hospitals which have inadequate facilities. In fact some claimed that doctors took long before diagnosing them because the lab results took long.

4.3 Challenges Encountered During The study

A limitation of the study was that the prevalence was estimated based on a small population and may not be as precise as that would have been obtained from a larger population. The individuals who participated in the study were few hence; the results were not very diversified. However, this challenge was overcome by completely utilizing the 150 respondents available. Particularly, during the interviews the questions were asked and answers provided by all the participants. Clarifications were also sought and this gave precise information about the current TB crisis in the state.

The rural populations are primitive and naïve and obtaining information from them is a hustle hence their body language was also used to access whether they were giving genuine or false information. In that case, body language may be misinterpreted. Nevertheless, the respondents were convinced about the privacy and confidentiality of the information they were giving. Thereafter, crucial information was obtained after great conviction.

Language barrier was another difficulty in the study. Most of the individuals in the rural areas do not understand English. Thus, the researcher had to use local language to communicate and in some cases it was challenging to decipher what they were saying.

4.4 Recommendations

In India, several healthcare providers involving diverse sectors from the government, non-governmental organizations (NGOs) and the private and corporate sectors manage TB patients. Effective control of TB will be possible if all these sectors join and work towards a common goal. A substantial proportion of patients with TB are managed at medical colleges across the country. From the TB control point of view, medical colleges, in both the government and private sectors are recognized to occupy a key position with a unique potential for involvement with the RNTCP. To widen access and improving the quality of TB services, involvement of medical colleges and their hospitals is of paramount importance. Being tertiary care medical centres, large numbers of patients seek care from the medical colleges. In addition, the role of medical college faculty in TB control as key opinion leaders and role models for practicing physicians and as teachers imparting knowledge, skills and shaping the attitude of medical students cannot be underestimated. There is a pressing need for all medical colleges to advocate and practice DOTS strategy which provides the best opportunity for cure of TB patients

India bears the highest burden of TB globally with about 25 per cent of all cases. The extent of TB in high-burden and low-resource regions is difficult to measure directly, but knowing the number of cases is necessary to plan, staff and finance control programs, the officials said. Health care provides urgently need improved estimations of the burden of tuberculosis. To implement appropriate policies and interventions, it is important to understand the current extent of the disease, as well as transmission dynamics.

Community-based approach-By taking the World Health Organization's standard TB treatment model, DOTS (Directly Observed Therapy Short Course) directly to the hearts of the slums through its mobile clinics. OpASHA's pragmatic, community-based approach enables patients to more easily adhere to their treatment regimens, and this is estimated to have fewer than 3% of patients missing their doses each day, compared to 36% in the public health system.

For years, the number of projected TB cases in India has increased, while detection has remained low. This can largely be attributed to the fact that patients from the country's

urban slums and rural communities often do not elect to enter the public healthcare system. Faced with a choice between travelling to distant health facilities to take a single dose of medication and going to work to provide food for their families, patients naturally tend to choose the community based approach.

Over 80 percent of India's citizens continue to rely on a virtually unregulated private healthcare system. Instead of having patients travel to such clinics, Operation ASHA's model seems practical: treatment should be taken directly to the patient. While this approach is certainly not the only solution to a TB epidemic that requires a multifaceted approach, it does offer a compelling example of how last-mile delivery can be a financially pragmatic approach to treating those with TB in the world's most difficult-to-reach locales. Additional innovations such as OpASHA that prioritize last-mile delivery could prove effective in realizing India's ambitious hopes of eliminating TB by 2025.

There is a great difference between the rural population and urban ways of doing things. Nevertheless, when it comes to health, the rural populations who have chosen to isolate themselves and stay away from civilization need to be respected. Despite the fact it is their will to stay in such conditions, the government needs to offer them with mobile clinics. At the end of the day, when the herbal medicines do not work, they may opt for those clinics. In return, they may choose to alter their lives particularly when they see the effects of modern treatment.

In connection to that, most of the Indians, both the rural and urban populations have not been properly sensitized on the early signs of TB. This leads to delayed diagnosis and treatment of the disease. Educating the entire public on the early signs of TB is the first step in eliminating the disease. Individuals who are well educated about the disease will take precautions when dealing with infected people and they will detect early signs of infections and seek medical attention.

It is almost an impossible task to eliminate TB by 2025 going by the current scenario. To reach even near to the goal, all stakeholders will have to work together. Government needs to improve the implementation of national TB control program by increasing budget allocation to Revised National TB Control Programme to execute the TB control program

more aggressively and effectively. Government also need to quickly roll out daily fixed-dose regimen under directly observed treatment short course throughout the country and introduce new diagnostic technology and newer anti-TB drugs. The huge private sector in the country, where at least 50% cases of TB report for their treatment, needs to be engaged rapidly and effectively. There is an urgent need for drastic improvement in working of health sector in both public as well private sector. An effective surveillance and follow-up of all TB patients need to be ensured. There is also a need for an adequate social, emotional, and nutritional support to all TB patients. Unless all stake-holders come together for a cohesive effort, End TB strategy in India may only remain a distant goal.

4.5 Conclusion

- The research was able to fulfill its objectives about comparing the rural and urban tuberculosis populations.
- The study concluded that rural populations are more susceptible to TB. Children in the rural areas are mostly infected with TB due to malnutrition, exposure to smoke and so on.
- In connection to that the tribal parents in the rural areas believe in traditional healing methods which are mostly not effective. , more men are vulnerable to TB compared to the women which can further be explained by the gender distinctions in the societal interaction patterns because men have more chances of interacting with individuals outside their homes even those with TB which is largely attributed to the cultural opinions about the women having more restrictions in their functions around their home and community at large; this in turn makes them less likely to ask for help outside.
- More so, the research concluded that the government still has a long way to go in eliminating TB by 2025. In addition, the government has to collaborate with other agencies for national and international in order to achieve the reality of a TB free India.

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Annexure 1: Questionnaire for Patients with TB and presumptive TB visiting DOTS/TB clinics/ hospital in Alirajpur District, Madhya Pradesh

Date of Interview: DD/MM/YYYY

Interview Location: Name of the clinic/ hospital & address:

City/Village/Tehsil :

Interview No. :

Result of Interview 1. Complete 2. Refused 3. Incomplete 4. Postponed

INTRODUCTION AND CONSENT

Greetings. My name is _____ and I am a resident of _____ District/Tehsil. We are conducting a survey to improve health services for TB patients and TB suspects. We would like to ask you a few questions about the care you've received and the information you've been given. Your opinions are very important to us. Your answers will be kept confidential and your name will not be written on the survey so there will be no possibility to identify you. Your participation in this study is voluntary and you can withdraw from the interview at any moment without any negative consequences for you. The survey will take about 25 - 30 minutes of your time. Do you have any questions?

Do you agree to participate in this survey? ____Yes ____No

Signature of interviewer: _____

Name of Interviewer: _____

No	Questions	Coding Categories (Select the appropriate option)
I	Patient: Information	
1	Gender:	1. Male 2. Female
2	Age	 Years
3	Marital Status	1. Single (never married) 2. Married 3. Divorced/separated 4. Widow
4	Duration of treatment	 Number of months
5	Number of children under 5 years living in the household	

6	Education	1. Illiterate 2. Literate with no formal education 3. Primary (class I—V) 4. Middle (class VI—VIII) 5. Secondary (class IX—X/ Metric/ SC) 6. Senior Secondary (class XI—XII/ SSC) 7. Graduation and above
7	Occupation	1. Self Employed 2. Home Maker 3. Government Service 4. Private Service 5. Professional 6. NGO Sector 7. Daily Wage Earner 8. Not Employed
8	Household income per month	1. Up to Rs. 5000 2. 5000 - 10,000 3. more than 10,000
9	Residence	1. Urban 2. Rural
II	Patient: Information	
1	Do you know what TB is?	1. Yes 2. No
2	Do you think that TB a serious disease?	1. Yes 2. No
3	What in your own opinion causes TB?	1. Infection 2. Punishment 3. Unavoidable 4. Don't know 5. Others (Please specify)
4	What are the symptoms of someone infected with TB?	1. Cough for more than 2 weeks 2. Sputum with blood 3. Fever 4. Weight loss 5. Don't know
5	How a person can get TB? (TB transmission)	1. Through germs present in air droplets expelled in the cough 2. Sharing utensils objects with an infected person 3. Others (food, water, etc) 4. Don't know
6	Do you know how TB is diagnosed?	1. TB is diagnosed through sputum examination 2. TB is diagnosed through X-ray

		3. Other 4. Don't know
7	Do you know that TB can be cured?	1. Yes 2. No
8	Do you know what some cases of TB will require a longer treatment to be cured (MDR-TB)?	1. Yes 2. No
9	Do you know about higher incidence of TB among HIV +ve people?	1. Yes 2. No
10	Where do you receive most of your health information?	1. Health worker 2. Pharmacist 3. Friend/ Family 4. TV 5. Radio 6. Newspaper/ magazine
III	Patient: Attitude Towards TB	
1	Do you think TB patients should be helped with?	1. TB medicines for free 2. Food support 3. Transportation support to access health centers 4. Other
2	Should people with TB disclose their illness to other people?	1. Yes 2. No
3	Who do you think is more likely to get TB, men and women?	1. Men 2. Women
4	How did you feel when you found out that you had TB?	1. Scared 2. Depressed 3. Didn't believe (denial) 4. Other (Please specify).....
5	Did you inform your friends/ family that you had TB?	1. Yes 2. No
6	Are male or female TB patients more discriminated against?	1. Male 2. Female
7	(For women) Do you think that TB will affect your ability to become pregnant/ have healthy children?	1. Yes 2. No
IV	Patient: Access to TB Diagnosis	

1	How far is your home from this health facility? (Distance or time)	_____ hours or _____ Km
2	Is the health center easy to reach (accessibility/ convenience of transport)	1. Yes 2. No
3	Does the health center have convenient hours?	1. Yes 2. No
4	Do you have to pay for transportation to get to the health center?	1. Yes (How much)..... 2. No
V	Patient: Satisfaction	
1	1. Strongly Disagree; 2. Disagree; 3. Don't Know; 4. Agree; 5. Strongly Agree	
2	Are the health care providers supportive and respectful of people who have TB?	1 2 3 4 5
3	Are you satisfied with the service you are getting from this facility?	1 2 3 4 5
4	Have health care workers answered all of your questions concerning TB?	1 2 3 4 5
5	Are you satisfied with clinic schedule?	1 2 3 4 5
6	Are you comfortable with waiting time in the clinic?	1 2 3 4 5
7	Are you satisfied with your DOTS provider?	1 2 3 4 5

*****THANK YOU FOR YOUR COOPERATION*****