



STUDY OF EPIDEMIOLOGICAL FACTORS ASSOCIATED WITH THE OCCURRENCE OF PULMONARY TUBERCULOSIS DISEASE IN WAD MADANI & AL MANAGIL HOSPITALS- GEZIRA STATE – SUDAN – 2017

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ABSTRACT

This descriptive study was conducted in Gezira State – Wad Madani & Al Managil Hospitals – Gezira State-Sudan- from 2016 to 2018. With an aim to study the epidemiological factors of new positive cases among TB patients in Wad Madani and ELmanagil centers in Gezira State. The sample size was Total coverage of all new positive smear TB patients transferred to Wad madani and Elmanagil centers in Gezira state. About 221 samples. The data were collected by using the following methods, observation (check list) while managing to patients, structure questionnaire which distributed for each patient infected with tuberculosis disease for the first time, The data were analyzed manually using master sheets, and using statistical package for social science (SPSS), and data were depicted in tables and figures. The study indicated that (69%) of the patients were male, while female were (31%). Young people are the most affected by TB disease about (61%) of total patients, (30.3%) of the patients use of stimulants and (69.7%) didn't use, The important recommendations in this study is that Improvement of work environment for T.B centers in Gezira state by maintenance of clinics and laboratories, training of staffs. Raising of health education in community for contributing to detect and treatment cases of T.B disease.

KEYWORDS: *Epidemiological, Factors, New positive ,Tuberculosis, Centers.*

1. INTRODUCTION

Tuberculosis (TB), one of the most widespread infectious diseases, is the leading cause of death due to a single infectious agent among adults in the world(1).

The words “tuberculosis (TB)” and “M. tuberculosis,” the bacterium that causes TB, are used in different ways(2)., The first known case of recorded pulmonary TB occurred between 668-626 BC. This record was found in the library of King Assurbanipal of Assyria the following is an extract: “The patient coughs frequently, his sputum is thick and sometimes contains blood. His breathing is like a flute. His skin is cold, but his feet are hot. He sweats greatly and his heart is much disturbed. When the disease is extremely grave, he suffers from diarrhea”(3). It is estimated that between the years 2000 and 2010 ,eight to nine million new cases emerged each year . Approximately 1.5 million people die from the disease each year .In adults ,tuberculosis is the second leading cause of the death due to infectious disease (after AIDS), with 95% of

death occurring in low-income countries . Tuberculosis is a major problem of children in poor countries where it kill over 100,000 children each year.(4). Tuberculosis is caused due to slow dividing bacteria. As a result, it takes the infection several months to years to develop active symptoms for the disease. However, within 2 to 12 weeks of exposure to the bacteria, a person may develop a primary infection to lungs. Incidentally, this infection is asymptomatic, meaning it does not produce any symptom at all. A chest X-ray at this time shows no infection to lungs(5). Tuberculosis (TB) is a communicable disease caused by bacteria of the ‘tuberculosis complex group’ (*mainly Mycobacterium tuberculosis* [MTB] and *rarely M bovis, M africanum and M microti*).

The infection is transmitted from one person to another through invisible droplet nuclei which are generated when someone with active TB of the lungs or larynx coughs, sneezes, spits, laughs or talks. Active TB may also occur in sites outside the airways but transmission does not occur from these sites or is

very uncommon (eg. discharging wounds or abscesses). Transmission is relatively insufficient (in comparison to highly contagious diseases such as measles and chickenpox) and depends on the infectivity of the source case, as well as the amount of time spent in contact with others and the environment in which contact occurs. Conditions such as overcrowding in poorly ventilated enclosed spaces that are not exposed to sunlight (which kills MTB bacilli) greatly enhance the risk of transmission.

M bovis (acquired directly or indirectly from cattle) has historically been a significant cause of TB. When ingested in milk containing large numbers of organisms, *M bovis* may penetrate the gastrointestinal mucosa or invade the lymphatic tissue of the oropharynx. Human infection with *M bovis* has been largely eliminated in developed countries as a result of milk pasteurisation and bovine TB control programs.(6).

2. METHODOLOGY

2.1. Study Design:

This study is a descriptive facility- based / cross_sectional study for all new positive cases

among TB patients in Wad madani and Elmanagil T.B centers in Gezira state .

2.2 Samples:

Total coverage of all new positive smear TB patients transferred to Wad madani and Elmanagil T.B centers in Gezira state – Sudan, in the period from 1/7/2016 to 31/12/2016(about 6 months).and this may elides good outcome.

2.3 Data Collection technique:

Structured questionnaire which was distributed for each patient infected with tuberculosis disease for the first time. It includes ∴ epidemiological factors associated with the occurrence of pulmonary tuberculosis disease.

2.4 Data Analysis:

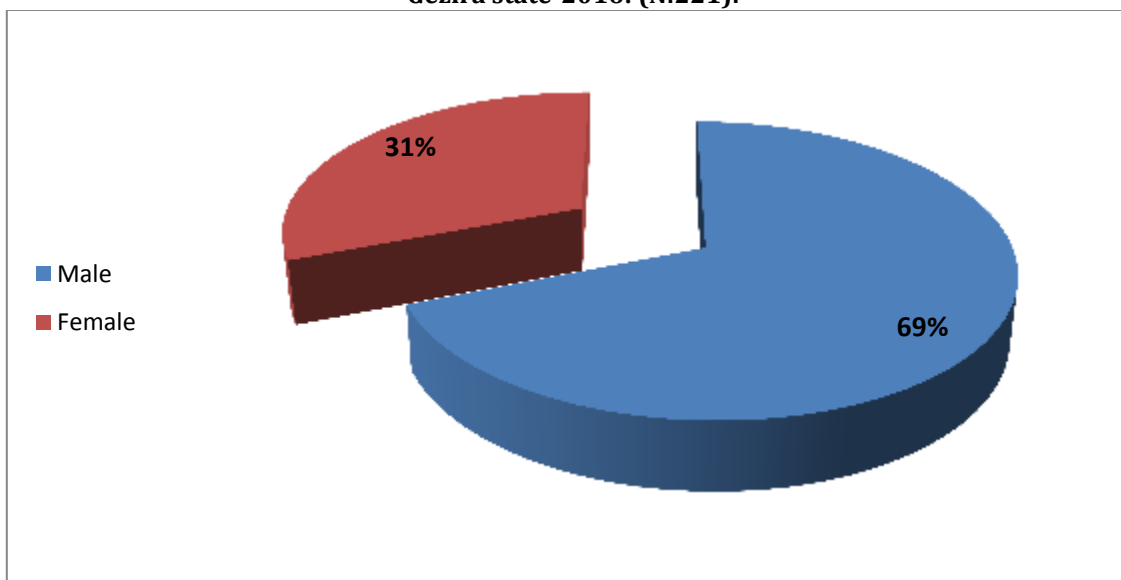
The data will be analyzed using statistical package for social science (SPSS).

2.6 Ethical Consideration:

- Consent of state ministry of health in Gezira state .
- _ Consent of participants in data collection.
- _ Consent of patients and strict confidentiality regarding patients information ,such as name, full residential address and ways of transmission, was considered.

3. RESULTS

Figure(1): Gender distribution of new positive TB patients in wad madani &al managil centers – Gezira state-2016: (N:221).



Figure(2) :Age distribution of new positive TB patients in wad madani & al managil centers - Gezira state- Sudan-2016,(N=221).

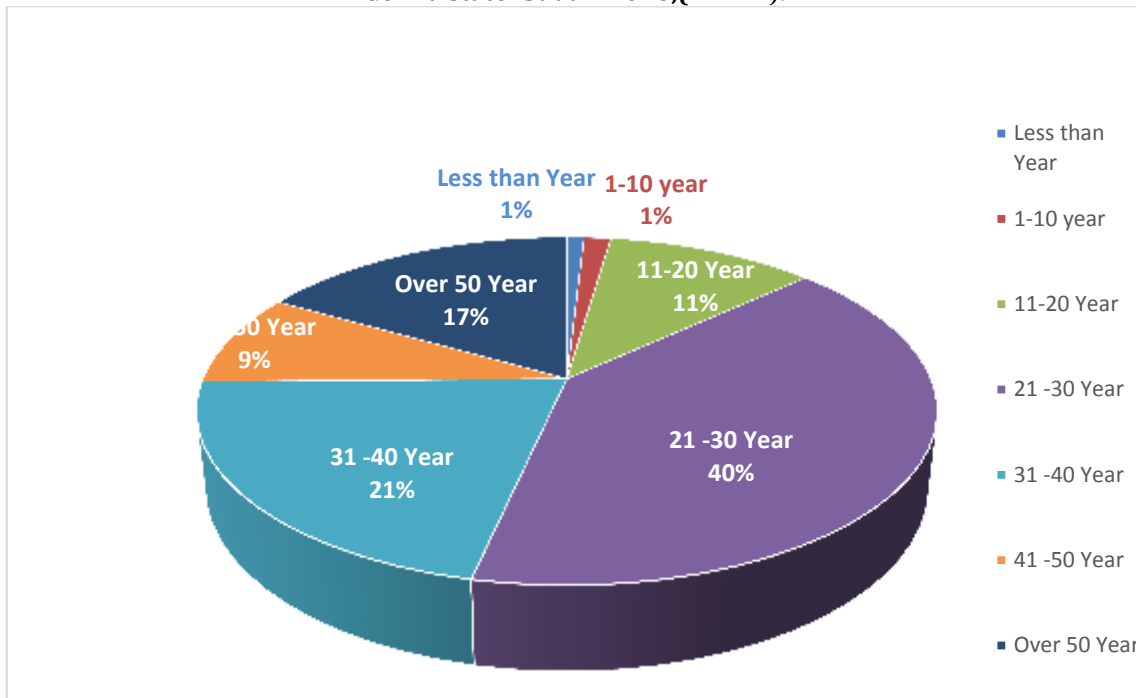


Table (1): Shows Regularity of daily meals for new positive TB patients in wad madani &al managil centers - Gezira state -2016: (N = 221).

Regularity of Meals	Total	Percent%
Yes	131	59.3
No	90	40.7
Total	221	100



Figure(3) : Percent of Type of daily meals for new positive TB patients in wad madani &al managil centers -Gezira state - Sudan 2016,(N=221)

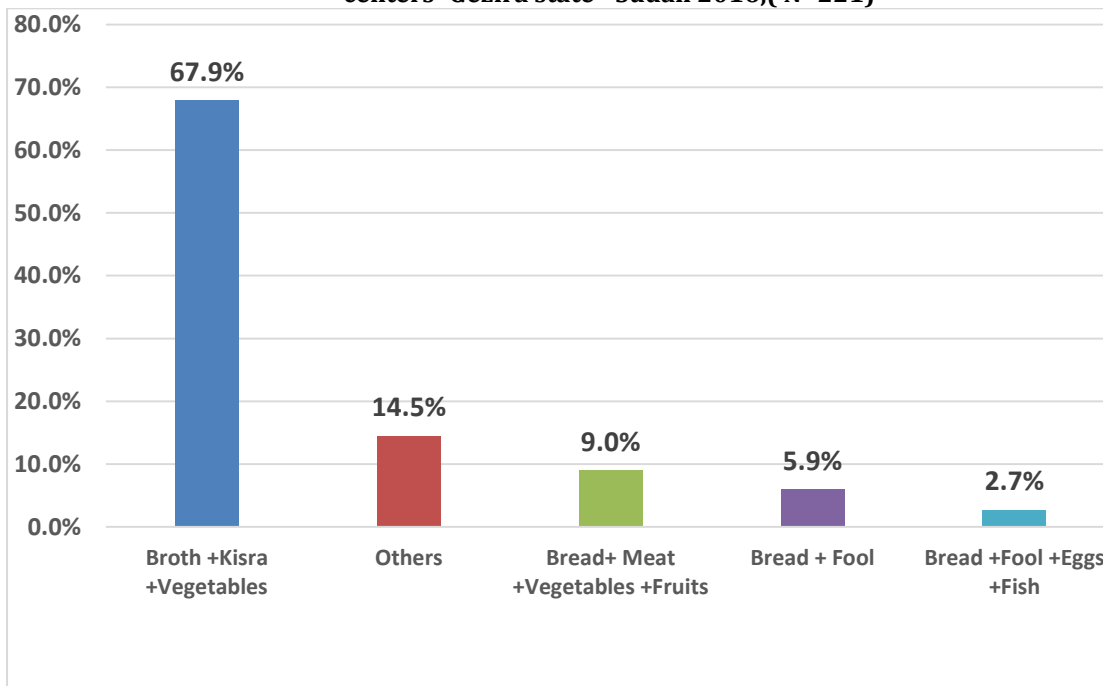
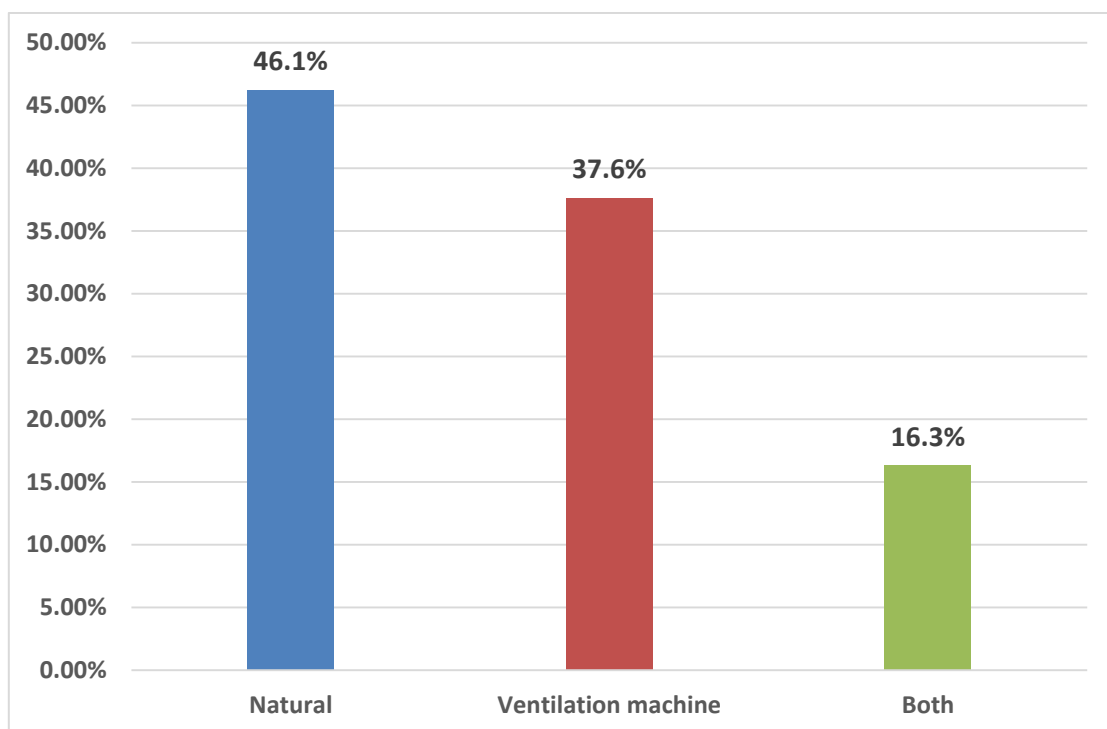
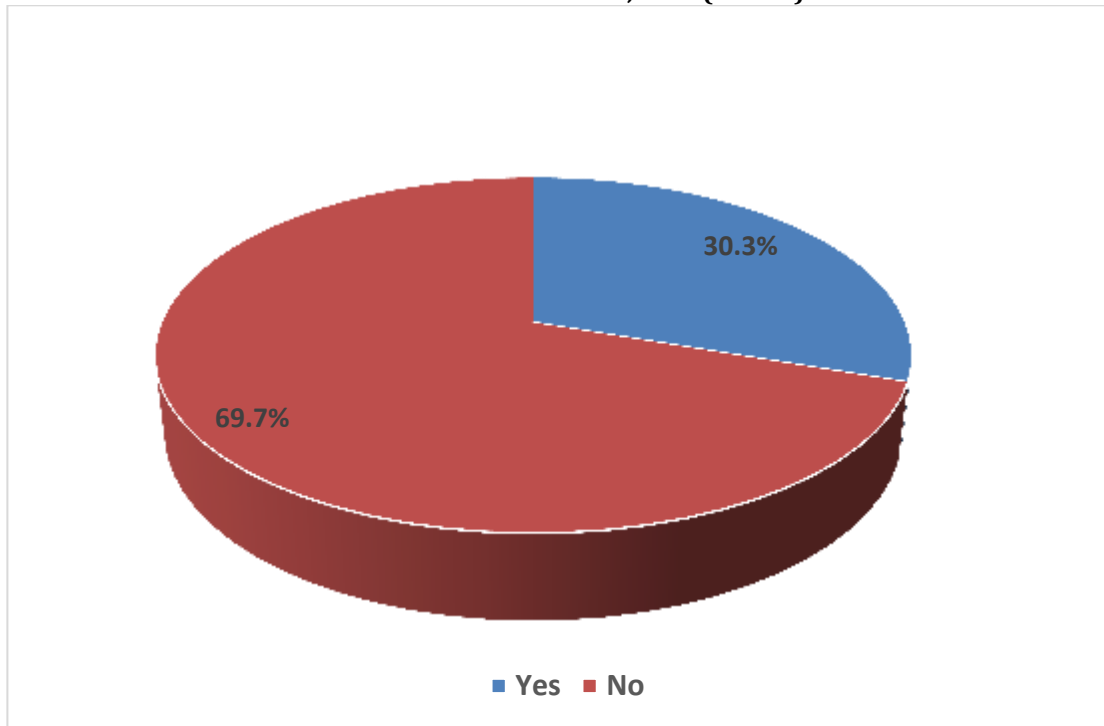


Figure (4): Shows ventilation used by positive TB studied group majority in wad madani &al managil centers -Gezira state - Sudan 2016,(N=221).



Figures(5): Use of stimulants by new positive TB patients in wad madani &al managil centers - Gezira state - Sudan, 2016(N=221).



Figures(6): Stigma sense in the society for new positive TB patients in wad madani &al managil centers -Gezira state - Sudan 2016,(N=221).

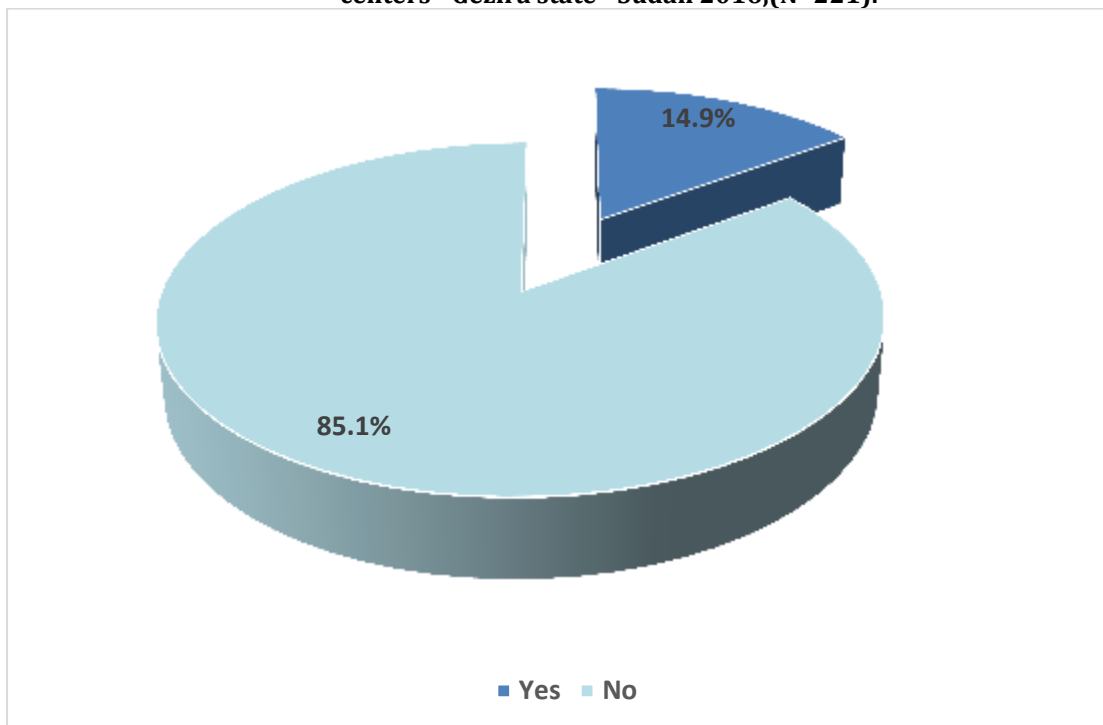




Table (3): Shows New positive TB patients sent out from their house due to TB positive result in wad madani &al managil centers - Gezira state -2016:(N = 221).

TB patients sent out from their house	Total	Percent%
Yes	13	5.9
No	208	94.1
Total	221	100

Table (4): Shows known chronic diseases of new positive TB patients in wad madani &al managil centers - Gezira state -2016:(N = 221)

known chronic diseases	Total	Percent%
Diabetes mellitus	8	3.6
HIV/ADIS	0	0
Cancers	0	0
Has no chronic disease	213	96.4
Total	221	100

4. DISCUSSION

The study reported that (69%) of the targets are male, The women about (31%). Indicating that men are most susceptible to tuberculosis disease than women . compare with previous study conducted in Eastern Sudan (Kassala Hospital)-2011- by researchers (Abdallah and Ali ,2012) has indicated to (63%) of the study group male , and (36,3) female(7), Compare also with previous study conducted in South India by (N.shetty et al ,2006) has indicated (the sex distribution of the group was 58% men and 42% women(8) , (Global Tuberculosis Report, 2014) has indicated that (Though most TB cases and deaths occur among men, the burden of disease among women is also high(9). In 2013, there were an estimated 3.3 million cases and 510 000 TB deaths among women, as well as an estimated 550 000 cases).

The study indicated that (74.7%)of the targets ,in the age groups between 11 years and 40 year (product category more high risk), compare with previous study conducted in Kampala city (Uganda) by researchers (Kirenga et al, 2015) has indicated to (81%) of targets equal and less than 40 yea(10) r.

The study indicated about (68%) of the targets meals are incomplete (quality) were eating (bread + kissra+ vegetables). (Hans L.Rieder, all- has indicated: Starvation or malnutrition reduces resistance to the disease. This is a very important factor in poorer communities, in both adults and children Drug-induced immunosuppression treatments used for treating certain diseases such as cancer also increase the chance of developing tuberculosis(11).

The study showed that the population has used of natural and ventilation machine (both) about

(16.3%) . (WHO- 2006)(12) has indicated { Natural ventilation, mixed-mode and mechanical ventilation systems can be used and supplemented with ultraviolet germicidal irradiation(UVGI) in areas where adequate ventilation is difficult to achieve. Where feasible, installation of ventilation systems should be a priority, because ventilation reduces the number of infectious TB germs in the air.

The study confirmed (30,3%)of the target use of stimulants (drugs ,alcohol, cigarettes, snuff and others). About (17.6%) of the targets were smoking cigarettes, compare with previous study conducted in Georgia by (Madea a Gegia and others -2011 to 2013) has indicated to (45,9%) current smokers and (31.8%) were past smokers(13). And other study conducted in Sudan –Khartoum state by researcher (R. Khalid,2014)has indicated to: out of the 272 participants , (23.9%) stated that they smoked cigarettes , (36.9%) were currently smokers , while (76.1%) had never smoked(14).

The study reported that (15%) of the targets were sense of stigma in society ,through with living in society and focus on them . (Collins et all-) said: {The stigmatized individual often internalizes this sense of disvalue and adopts a set of self-regarding attitudes about the marked characteristic including shame, disgust, and guilt. These attitudes produce a set of behaviors that include hiding the stigmatized trait, withdrawing from interpersonal relationships, or increasing risky behavior}(15).

The study indicated to (6%) of the targets were sent out from their house and (5%) sent out from the work . (Baral et all)said: { Stigmatization is conceptually distinct from discrimination – another social determinant of health – in that the primary goal



of discrimination is exclusion, not necessarily for the target to feel ashamed or guilty}(16).

The study reported : A total of 221 participants were enrolled in this study including (3.6%) infected with diabetes, and (96.4%) did not infected with any chronic disease. compare with previous conducted in China by researchers (Liquan Zhang et al), has indicated to :(22.9%)no infected, (40%) diabetes , (12%) liver diseases and (25%) others(17) , While other study conducted in Rewa – India by researchers Aashutosh Asati and others, has indicated to : (7.6%) were HIV infected , (10.2%) patients had diabetes mellitus , (13.7%)were using corticosteroids for treatment of other chronic illness , (26.4%) were malnourished , (16.2%) had history of contacts with other pulmonary T.B patients , (3.4%) patients had chronic kidney disease, and (1.7%) had malignancy(18) .

5. CONCLUSION

The present study reveals that various demographic , socioeconomic and environmental factors play a vital role in the etiology of pulmonary TB . Most important factor found were young age group , male gender , low socioeconomic status, exposure to TB infected patients , malnourishment and co-existing immune-compromised disease , Hence this study provides useful information about the epidemiological factors for new positive pulmonary TB that can used to control disease , by preventing these potential risk factor in population and timely diagnosis and providing treatment for pulmonary tuberculosis .

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