Project on

A survey on knowledge and awareness of Tuberculosis (TB) in rural area of Bangladesh

[In the partial fulfillment of the requirements for the degree of Bachelor of Pharmacy]

Submitted To

The Department of Pharmacy,

Faculty of Allied Health Sciences,

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APPROVAL

This project paper, **"A survey on knowledge and awareness of Tuberculosis (TB) in rural area of Bangladesh",** submitted to the Department of Pharmacy, Faculty of Allied Health Sciences, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Pharmacy and approved as to its style and contents.

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DECLARATION

I hereby declare that this project report, **"A survey on knowledge and awareness of Tuberculosis (TB) in rural area of Bangladesh",** I am declaring that this Project is my original work. I also declare that neither this project nor any part thereof has been submitted elsewhere for the award of Bachelor or any degree.

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Finally, I would like to express my gratitude towards my parents and other family members for their kind cooperation and encouragement which helped me in completion of this project.

Dedication…….

My Parents

The persons who always encourage me in every sphere of my life

Abstract

Despite the development of potentially curable chemotherapy, tuberculosis (TB) keeps increasing in global morbidity and is an important cause of human mortality in underdeveloped countries. The goal of this study is to understand the numerous diagnostic techniques employed for identifying tuberculosis (TB) and identify the elements that contribute to the disease's development. A survey that was developed utilizing questionaries' was being distributed face-to-face. On the other side, 35% of respondents stated they had no clear understanding of the tuberculosis sickness, while 65% of respondents indicated they did. Findings of the study revealed that 57% of participants believed bacterial infections to be the main causes of tuberculosis. The overwhelming majority of participants (55%), who made up 41% of the sample, were informed that their family member had not previously had tuberculosis. The majority of respondents (91%) said that tuberculosis is totally treatable. The majority of respondents (39%) said that persistent coughing is one of the main signs of tuberculosis. Chest pain and coughing up blood were mentioned by 24% and 23% of participants, respectively, as symptoms of tuberculosis. Pursuant to the poll, 49% of respondents said that the suggested therapy period for tuberculosis is six weeks, 27% said three weeks, and 23% said twelve weeks.

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Chapter 1
Introduction

1.1 Introduction

For most people, mycobacterial infection is prevalent. The ongoing resistance that tuberculosis displays is characterized by the lack of indicators, the suppression of bacterial procreation, and the presence of the disease as the only indicator. An illness is indicated by the presence of immunological response to mycobacterial antigens. This illness, referred to as latent infection, is thought to impact one-third of the world's population. [1] 5–10% of infected individuals encounter an interruption in the impasse, which results in active sickness; this is a symptomatic condition in which dissemination is likely and the bacterial load is considerable. Although only a small portion of those who are infected have the disease, an enormous number of inadvertent infected people destroys approximately 1.7 million people annually, more than any other single bacterial pathogen. [2] This worldwide health problem is made worse by drug-resistant bacteria and human immunodeficiency virus (HIV) infection, which both considerably increase the likelihood of sickness activities and greatly limit possibilities for therapy for tuberculosis, respectively. (TB). The ongoing global TB epidemic poses important questions about bacterial pathogenesis and host immunity. [3] How do microorganisms propagate an infection? What causes an immune response that, in most people, inhibits bacterial replication and protects against infection? [3] In this synopsis, the progress made in addressing these critical TB pathogenesis issues is highlighted. [4] We focus on M. TB rather than generalist mycobacteria, which are important infections in those with compromised immune systems. In ectotherms, M. marinum, a close genetic relation of M. tuberculosis, causes granular disease. [5] Since M. marinum and M. tuberculosis overlap genetic virulence characteristics, we consider M. marinum in cases where it has provided illuminating knowledge on the TB disease. A lot has been established in the roughly 130 years since Robert Koch identified M. tuberculosis as the main cause of the infection. There are still many substantial unsolved problems regarding the development and immunology of tuberculosis, and these fundamental biology difficulties have profound practical implications. [6]

1.2 Symptoms and Signs

Pulmonary tuberculosis typically develops gradually as time passes lacking a distinct beginning. The disease may manifest in a wide range of manners, from skin positive with negative X-rays to severe tuberculosis. The majority of problems are often minor and often brought about by other circumstances, like excessive smoking, physically demanding work, pregnancy, or other medical issues, after which the problem is moderately or considerably established, as evidenced by changes on the roentgenogram. Hepatic and lung ailments make up the two categories. The frequency of these unpleasant symptoms is dependent upon whether the patient has original tuberculosis or reactivated tuberculosis. [9] Patients with primary tuberculosis have a much higher chance of being asymptomatic or hardly symptomatic. The more common symptoms and indications of both primary and reactivated TB are provided together with the corresponding frequencies. The most typical intrinsic sign is fever, which is low at initially but rapidly worsens as the disease progresses. [10] Usually starting in the late afternoon, the fever may occur unaccompanied without symptoms that are apparent. Effervescent perspiration generally occurs as you sleep; these are known as "night sweats." More toxemia indications could include weakness, irritability, malaise, unusual exhaustion, migraines, and weight loss. [11] The development of casein necrotic and the concomitant dissolution of the caseation often results in the patient spitting and producing sputum, which is often accompanied by moderate bleeding. Pleuritic and constrictive chest pain are possible. As a consequence, it usually occurs toward the end of the sickness. The presence of a tracheobronchial obstruction or a major sickness with extensive lung and parenchymal involvement is often a sign of difficulty of breathing. A visual inspection of the chest is often ineffective early in the course of the disease. At this phase, the predominant signs of penetration are tiny rales on deep breath after thorough expiration and a harsh, fatal cough. (Post-tussive rales). [12]

1.3 Pathophysiology of Tuberculosis

A coordinated combination of infectious and biological processes defines Mycobacterium infections, frequently referred to as tuberculosis. M. tuberculosis has evolved to thrive by entering a host and remaining there for a long time exploiting the natural defenses within the host. The intracellular pathogenic bacteria M. TB possesses a mycolic acid coating, multiplies its cells once every 18 to 24 hours, and is immobile. Tuberculosis is the name

of the disease caused by M. tuberculosis. [13] On a worldwide scale 1.7 to 2 billion people are impacted by this disease, which claims the lives of around 4,000 people each hour and 1.2 to 1.5 million people annually.

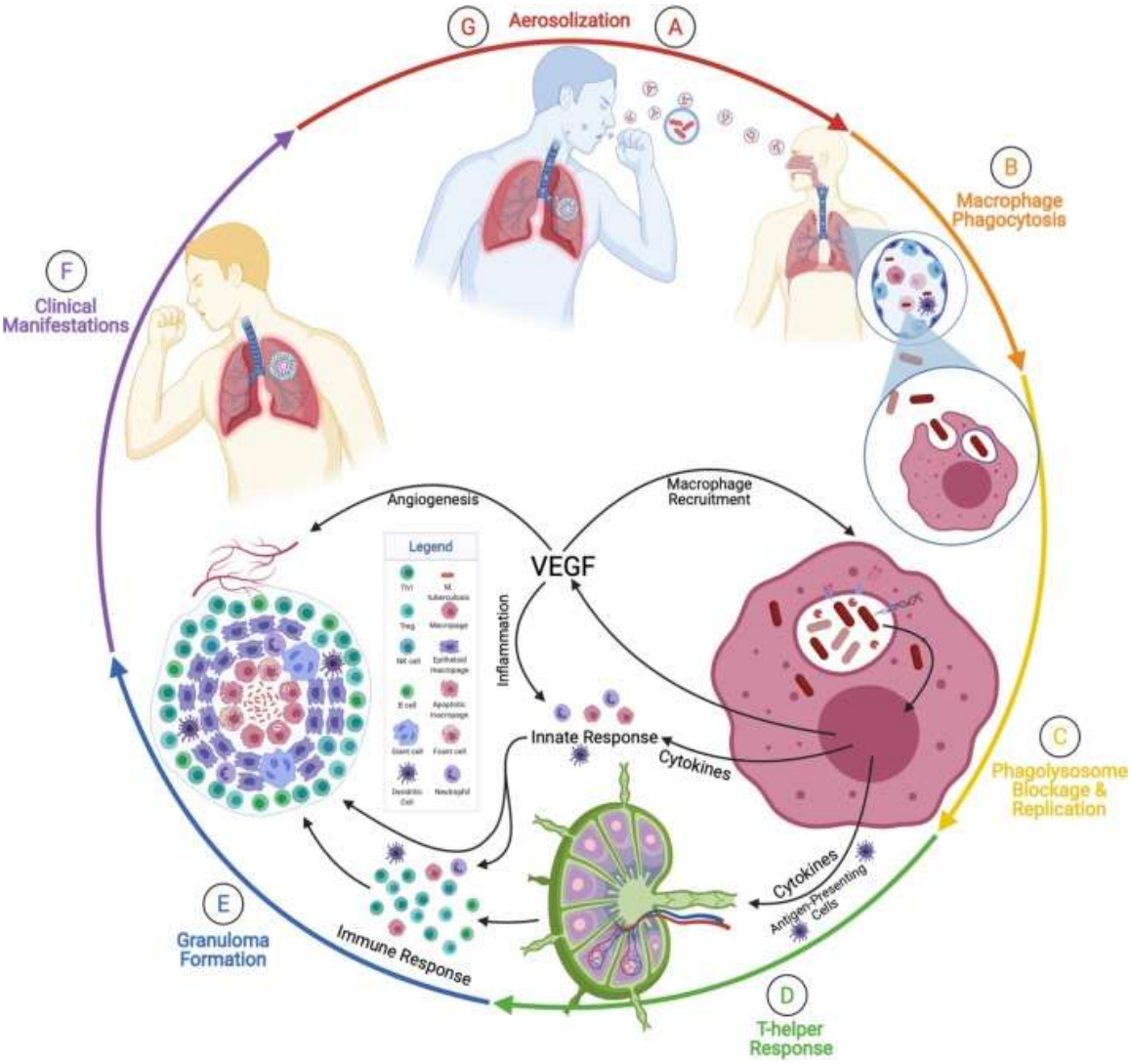

Figure 1: Seven Steps in the Pathophysiology of Active Tuberculosis. [14]

Aerosolization

The story of the TB pathogenesis caused by M. tuberculosis begins and finishes with the propagation of bacteria that are pathogenic. The TB propagation cascading is made up of multiple steps and requirements. The instance in question is required for the propagation of the germs to start. Unless the source of infection is tuberculous in beginning or proactively contaminated, it must release particles that are infectious. After that, M.

tuberculosis may pass on to healthy persons via damaged skin layers, the mucosal membranes of the intestines, and most frequently through the respiratory tract. As stated before, the originator is a person who can aerosolize M. tuberculosis because they have active laryngeal or pulmonary tuberculosis. These Aerosolization is created by what causes it when they vigorously exhale, such as when they cough, sneeze, yell, or sing. (Fig.1) [15] The point of origin of these aerosolizations causes strong exhalation motions, such as coughing, sneezing, shouting, or whistling. (Fig. 1A). M. TB can therefore survive in the air. Those who are vulnerable inhale the M. TB aerosol. Many of these fragments, which are less than 5 m and comprise 1-3 bacilli, can enter the alveolar sacs through inhaling. Nevertheless, the sizes of the infectious pieces range from 0.65 to more than 7 m. The germs move to and settle in the alveolar sacs. [16]

1.4 Diagnosis

The diagnosis of tuberculosis is extremely challenging. Several of the potential concerns are listed. A conclusive identification of tuberculosis requires bacteriological evidence. Keep in mind that an elevated acid-fast stain does not always mean that the sample contains Mycobacterium TB. [17] Other mycobacteria, such as saprophytes and potential pathogens, are capable of being acid-fast. For this, M. tuberculosis culture is the only reliable way of confirming an identification. New irrational fear sputum is the best collection to stain along with cultured for M. tuberculosis. [18] It can be contracted by the patient breathing an isotopic or hypertonic saltwater aerosol for five to fifteen minutes. If the individual refuses to offer an organic sputum gathering, a stomach expel to capture ingested sputum may be beneficial. The specimen has to be collected in the morning, before the patient gets up or eats. [19] A great deal of individuals can obtain quality cultural material by using the previously mentioned techniques. Gastric screenings for these bacteria are of little use when nontuberculous swallowed acid-fast bacilli are present. In a rare circumstance, a bronchoscopy might be required. tuberculosis patients' fiber-optic bronchoscopy samples were developed. [20]

Chapter 2
Purpose of the study

2.1 Purpose of the study

- The goals of this project are to get a thorough understanding of the medical problem being researched.
- To determine which factors, contribute to the progression of Tuberculosis (TB).
- To have a better grasp of the many diagnostic procedures used to diagnose this illness.
- To know consciousness of general people about Tuberculosis (TB).
- To find out preventive ability in general people against Tuberculosis (TB).
- To know general responder's knowledge about causes of Tuberculosis (TB).
- To identify their taken treatment without doctor suggestion.

Chapter 3
Methodology

3.1 Methodology

A big or small proportion of project participants, consumers, and/or stakeholders may be surveyed to collect a wealth of quantitative and qualitative data.

- I have started work for this survey in January 2023
- A survey created using a questionaries' was being circulated on face to face individually.
- Some important data has been collected by reviewed number of related article paper from different website like google scholar, research gate and PubMed.

3.2 Sample size

- The test had 15 short-answer questions and took roughly four to five minutes to finish. The survey includes the following information: (1) prologue; (2) sociosegment statistics (age, gender, instructional level, and occupation status); and (3) Tuberculosis (TB) causes and impact.
- I have tried my best to collect all data from different profession people for gathering different types of information.
- The examination is led by a questionnaires oriented survey, 200 populations was being responded for this assessments.

3.3 Data analysis strategy

Data analysis is the methodical application of statistical and/or logical tools for describing and illustrating, condensing and summarizing, and evaluating data. Microsoft Excel was used to analyses the data.

Chapter 4
Literature Review

4.1 Tuberculosis Pathogenesis and Immunity

Despite the development of potentially therapeutic chemotherapy, tuberculosis (TB) keeps increasing in global morbidity and is an important factor of human mortality in underdeveloped countries. Recent advances in bacteria molecular genetics, immunology, and genetics in humans have revealed new data regarding the molecular motorists of infectiousness, the immune system reactions that are essential for halting progression of the illness, and the variables that influence immunopathology in tuberculosis. The research and development of new therapies, including efficient vaccines and cutting-edge medications, are nevertheless hindered by a substantial knowledge gap. The present article focuses on the in vitro and in vivo research that has helped advance our knowledge of the pathophysiology and immunology of tuberculosis. [21]

4.2 Tuberculosis treatment

Given that it must be done in the context of both personal and societal health; tuberculosis treatment is still challenging. Furthermore, it was additionally created that social and economic issues should be considered when evaluating how well the therapy is working. We carried out a thorough analysis of the most recent international and national studies on the treatment of tuberculosis in order to present medical personnel with recommendations that take into account the circumstances in Brazil and to clarify choices with regard to the disease survivors in consume to mitigate sickness and stop the propagation of the illness. [22]

4.3 New agents for the treatment of drug-resistant Mycobacterium tuberculosis

Due to inappropriate medication schedules and dosages, in addition to the ability of the tuberculosis bacilli to generate undetected infections that are amenable to the medications now in use, the prevalence of multidrug- resistant has grown. (MDR-TB). Given that managing MDR-TB infections is an important clinical challenge with few viable or effective solutions, patients face a poor prognosis and years of counseling. The paper focuses on new medication classes that have the potential to treat MDR-TB and highlights their distinct benefits as questions, including their mode of action, in clinical efficacy, and significant medicinal chemistry traits. Samples are from MDR-TB medicinal compounds in the commercial and late preclinical development pathway, including the previously approved medications bedaquiline and delaminid. [23]

Chapter 5
Result & Discussion

5.1 Age of responders

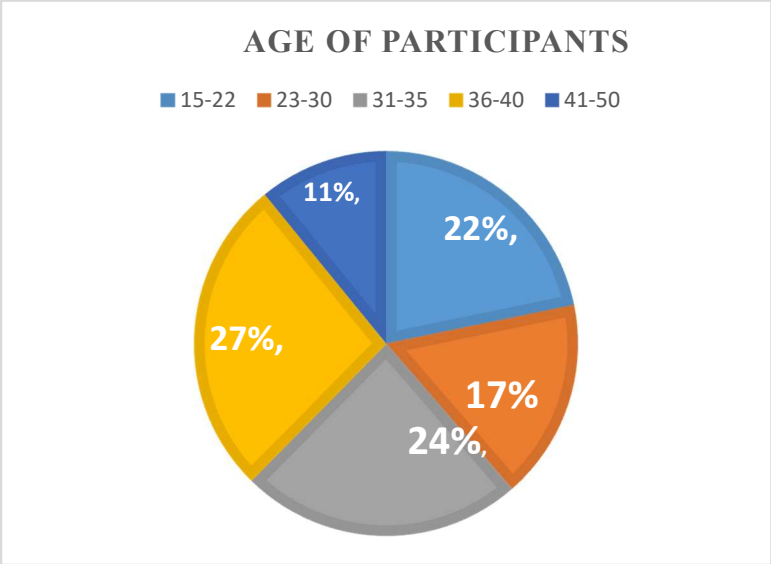

Figure 2: Age of responders

Discussion: The aforementioned assessment received responses from respondents across a wide range of age groups. The highest percentage of participants (27%) were between the ages of 36 and 40, while 24% of those surveyed were between the ages of 31 and 35. 22% of the participants were between 15 and 22 years old.

5.2 Gender of participants

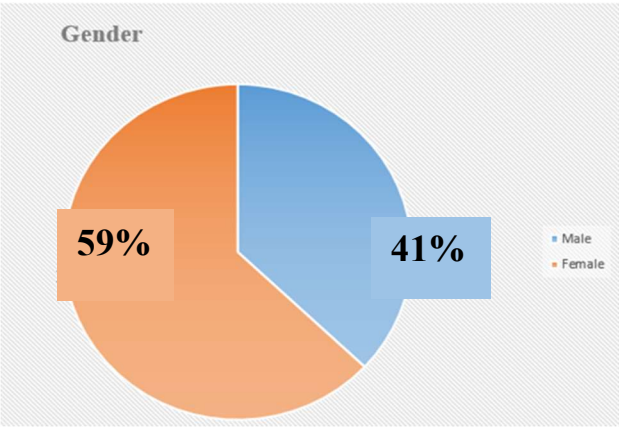

Figure 3: Gender of participants

Discussion: An impression of the respondents' demographics is shown in figure 5. Making up the majority 59% of responders are female, with 41% being male.

5.3 Professional status of responders

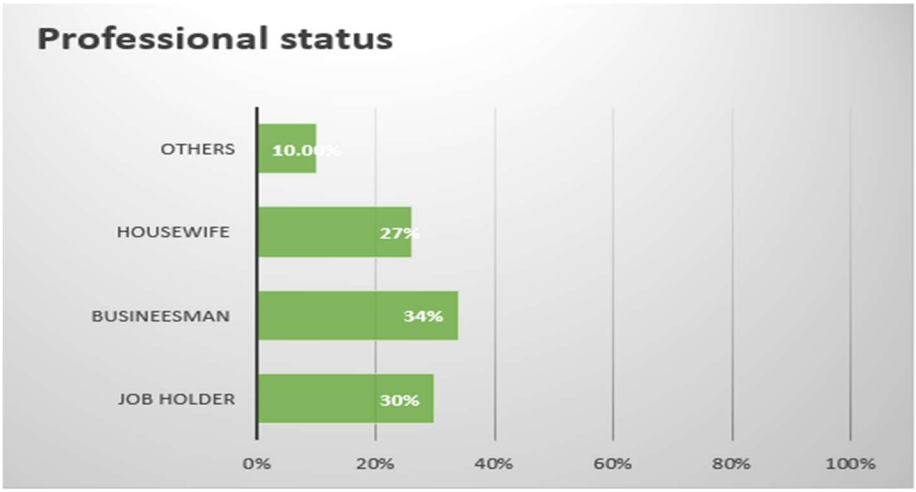

Figure 4: Professional status

Discussion: The majority of the presenters to this opinion (34%), as has been established, were businesspeople. Some respondents (27%, 30%, respectively) reported being housewives or working.

5.4 Idea about tuberculosis disease

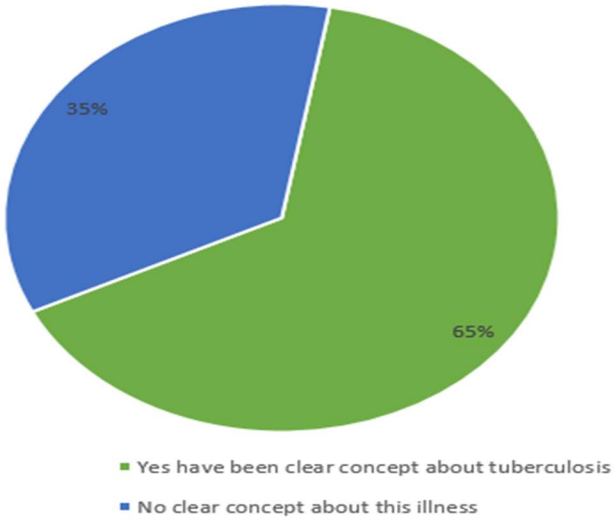

Figure 5: Awareness about tuberculosis disease

Interpretation: By inhaling minute droplets from a sick person's cough or sneeze, a person can get tuberculosis (TB). even though the lungs are the main organs affected, the stomach (abdomen), glands, bones, and nervous system may also be affected. According to this poll, nearly all of respondents (65%) claimed to have a clear understanding of the tuberculosis sickness, while just 35% did not.

5.5 Primary roots of tuberculosis

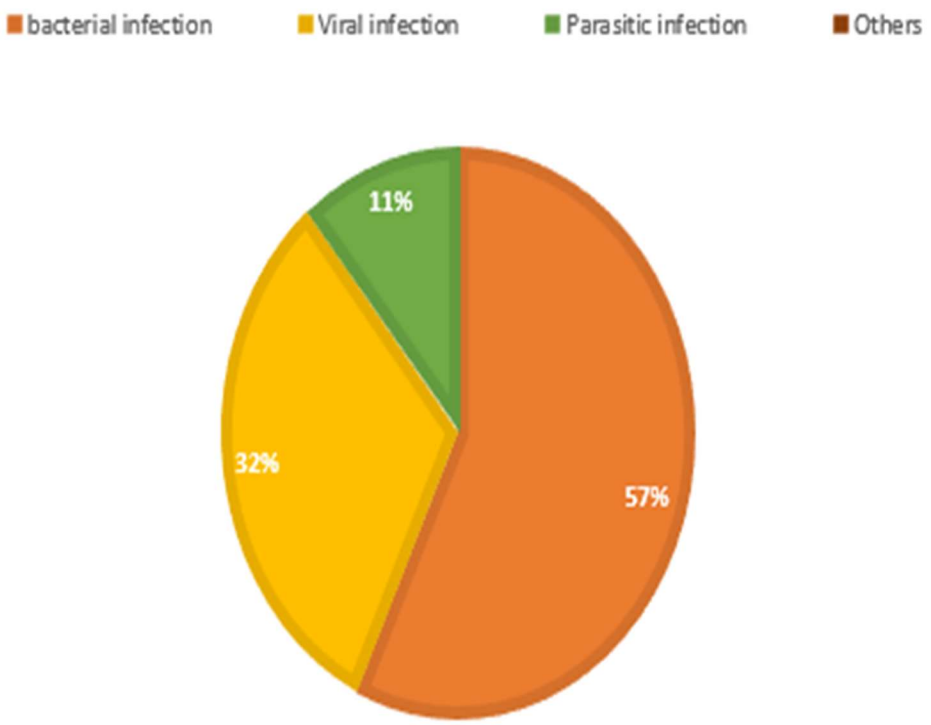

Figure 6: Primary roots of tuberculosis

Interpretation: The root cause is the originator of an impact, outcome, or consequence. Findings of the study revealed that 57% of participants believed bacterial infections to be the main causes of tuberculosis. Just a minority of respondents (1%) and some participants (32%), however, claimed that parasitic infection was the primary cause of TB.

5.6 Tuberculosis affected family member

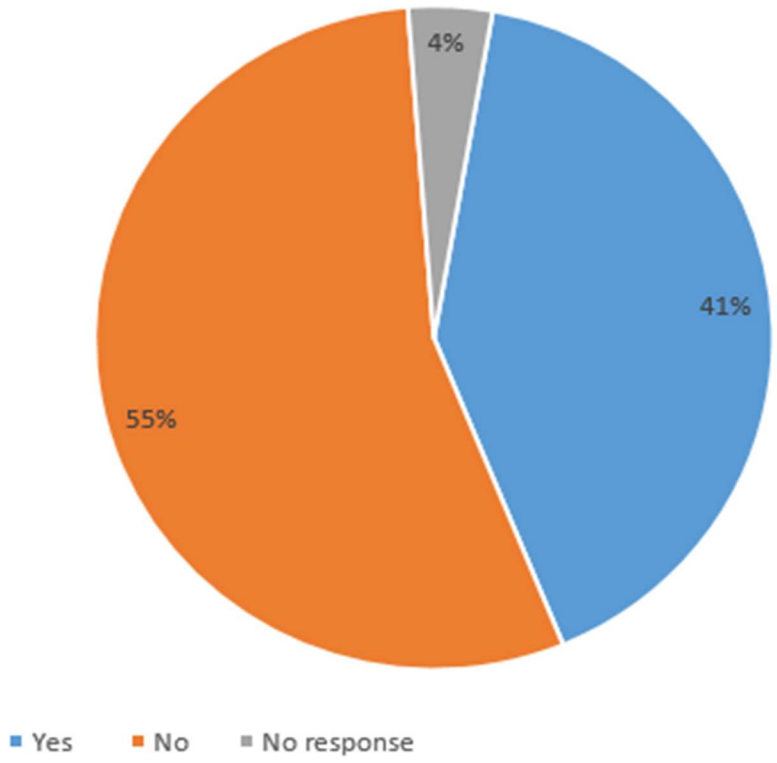

Figure 7: Family member suffering about tuberculosis

Interpretation: TB bacteria are transferred via the air when a person who has the disease coughs, laughs, sings, or sneezes. These tuberculosis bacteria can be inhaled by someone nearby, resulting in TB. Patients with TB are unable to transmit the illness to others. But if left untreated, TB infection can turn into TB disease. Analysis revealed that some respondents (41%) had knowledge of a family member who had tuberculosis, but the majority of respondents (55%), were informed that their family member had not previously encountered the disease.

5.7 Poor personal hygiene

- Not washing the hands after using toilet
- Not washing the hands before eating any food
- Not washing the fruits or vegetables before eating

The majority of respondents concurred with the statements made above regarding the negative effects of poor personal hygiene. It is important to practice good personal hygiene in order to avoid tuberculosis.

5.8 Tuberculosis is completely curable or incurable

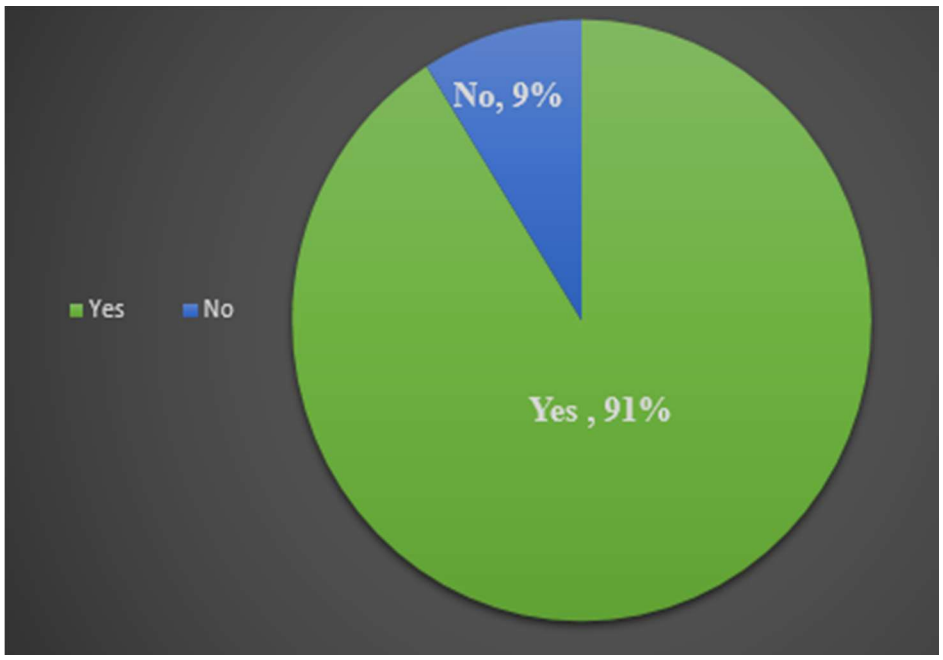

Figure 8: Curable illness of tuberculosis

Interpretation: Treatment frequently succeeds in curing TB. A six-month antibiotic regimen is usually required. The majority of respondents (91%) stated that tuberculosis is totally treatable**.**

5.9 Primary symptoms of tuberculosis

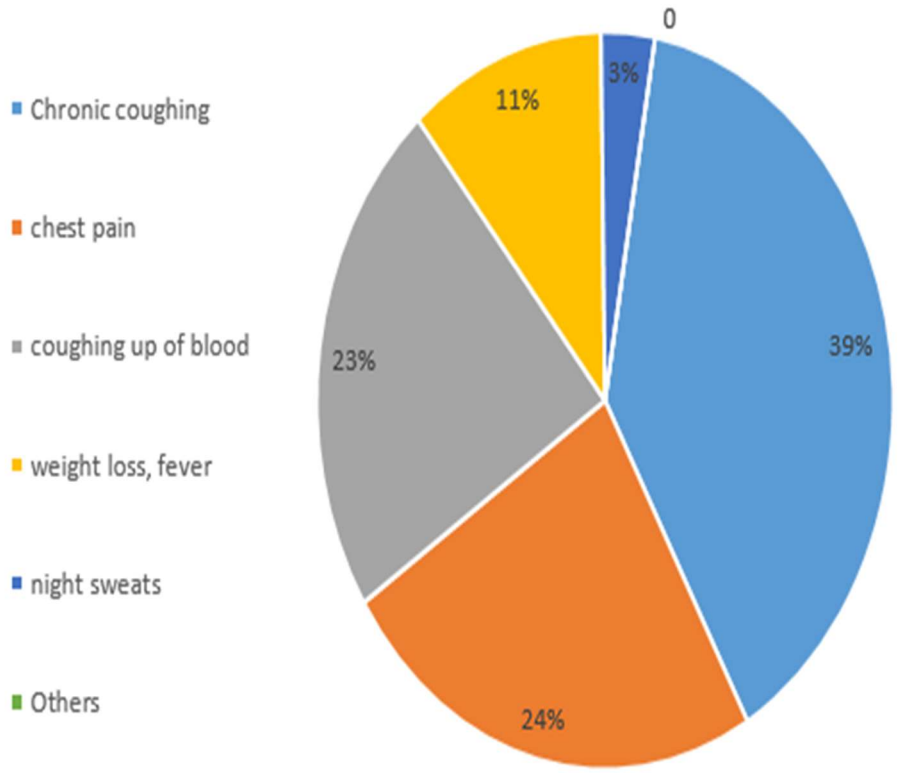

Figure 9: Symptoms of tuberculosis

Interpretation: The majority of respondents (39%) said that persistent coughing is one of the main signs of tuberculosis. The signs of tuberculosis are chest pain, according to 24% of respondents, and bloody coughing, according to 23% of respondents.

5.10 You or your family member taken any medicine without doctor's suggestion

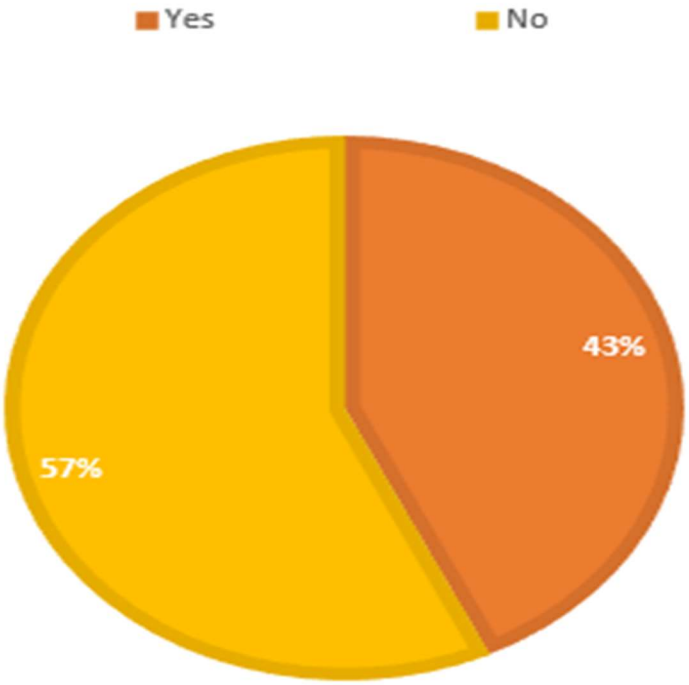

Figure 10: Taken medicine

Interpretation: Responding to the research, the majority of people (57%) have taken medications without seeking a doctor's advice. However, everyone should take medication according to a consultation prescription.

5.10 Idea about the treatment duration of TB

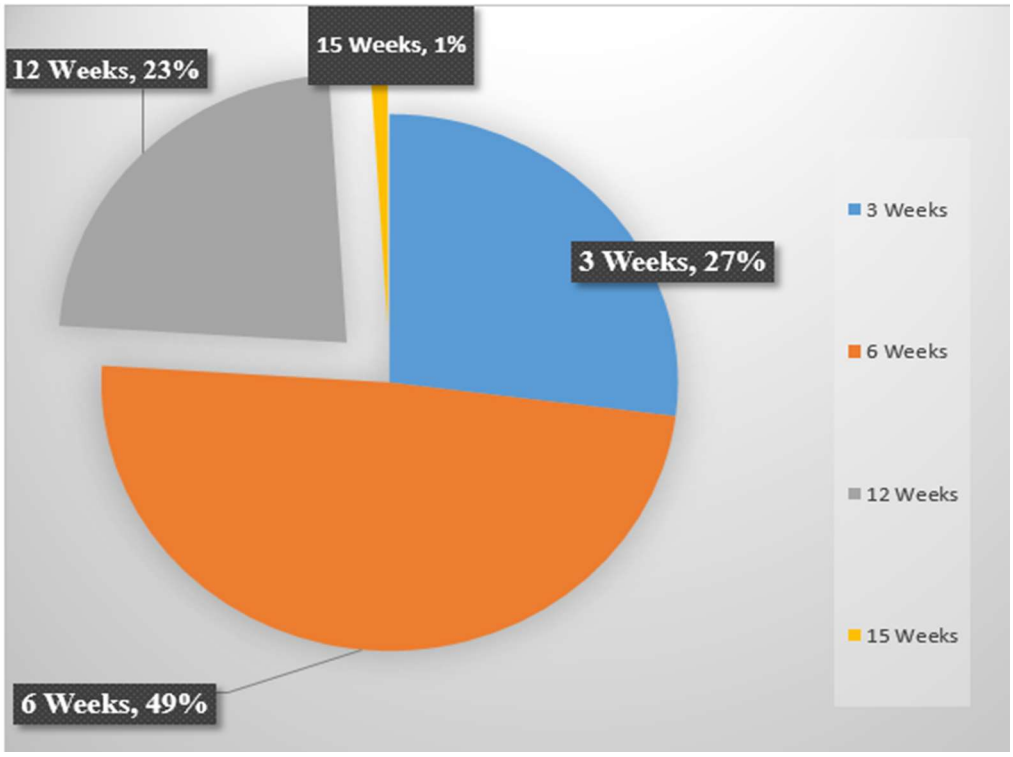

Figure 11: Treatment duration of TB

Interpretation: Pursuant to the poll, 49% of respondents said that the recommended treatment period for tuberculosis is six weeks, 27% said three weeks, and 23% said twelve weeks. Don't extend invitations for others to come or see you.

Chapter 6
Conclusion

6.1 Conclusion

The global effort to combat tuberculosis (TB) is still in danger in 2010 due to the persistent issues of HIV infection and treatment tolerance. To avoid the needless development of additional instances of XDR tuberculosis, it is imperative to treat drug-resistant tuberculosis correctly from beginning to end and to offer quick assessment, aggressive counseling, and appropriate medication for MDR tuberculosis. This is due to the clear indications that drug-susceptible and MDR tuberculosis patients that were not appropriately treated led to XDR tuberculosis. According to (39%) respondents, persistent coughing is one of the main signs of tuberculosis. Chest pain and coughing up blood were mentioned by 24% and 23% of participants, respectively, as symptoms of tuberculosis. The majority of respondents (91%) said that tuberculosis is totally treatable.

Chapter 7

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