IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Assessment Of Knowledge And Attitude Regarding Pulmonary Tuberculosis Among Rural Population Of Charar-I-Sharief Budgam, Kashmir: A Descriptive Study.

[1]Rohi Jan,[2]Rasey jan, [3] Zakir-ul-islam,

[1]Tutor,[2,3]Bsc nursing Students,

[1,2,3]Department of Health sciences,

[1, 2,3]Islamic University of Science & Technology, Awantipora, Kashmir, India.

Abstract; The aim of this study was to evaluate the knowledge gap by assessing the knowledge and attitude regarding pulmonary TB among the rural population of Charar-i-Sharief Budgam Kashmir. This descriptive study aims to assess the level of knowledge and attitude towards pulmonary tuberculosis (TB) among the rural population of Charar-i-Sharief, Budgam, Kashmir.

A quantitative research approach was adopted, and a convenient sampling technique was used to select participants. Data were collected using structured questionnaires for assessing knowledge and attitude, with an interview schedule to facilitate data collection. Data collected was organised and analysed according to the objectives of the study using descriptive and inferential statistics.

RESULTS: Findings revealed that 6.7% of participants had adequate knowledge, 93.3% had moderate knowledge, and 0% had inadequate knowledge regarding pulmonary tuberculosis. There was no significant association found between knowledge scores with their selected socio-demographic variables. The study highlighted significant gaps in knowledge and suggested the need for enhanced educational interventions to improve awareness and attitudes towards TB prevention and treatment in the rural population.

Index Terms- Knowledge, Attitude, pulmonary tuberculosis, AFB, DOTS.

I. INTRODUCTION

Tuberculosis (TB) is a contagious disease caused by Mycobacterium tuberculosis, primarily affecting the lungs but capable of infecting other organs.[1] TB is transmitted through airborne droplets from an infected person's cough or sneeze. Symptoms include persistent cough, fever, chills, night sweats, weight loss, and in severe cases, haemoptysis and chest pain.[2] Dezspite being preventable and treatable, TB remains the ninth leading cause of death globally, with stigma contributing to antibiotic resistance, delayed treatment, and high mortality rates.[3]

TB disproportionately affects socioeconomically disadvantaged populations, particularly those living in poor conditions with limited awareness of symptoms and treatment options.[9] India has the highest

TB burden, contributing approximately 25% of global cases, with nearly 2.2 million new infections annually.[7] Government programs like the Revised National Tuberculosis Control Program (RNTCP) aim to increase awareness and reduce transmission.

According to the WHO, TB caused 1.7 million deaths in 2016, and while global TB mortality has decreased by 37% since 2000 due to improved diagnosis and treatment, multi-drug resistant TB (MDR-TB) remains a growing concern.[5] In 2020, an estimated 9.9 million new TB cases were reported, marking an 18% decrease from 2019 but an increase in the mortality rate.[1]

The WHO declared TB a global health emergency alongside HIV/AIDS and malaria, implementing the Directly Observed Treatment, Short-course (DOTS) program to ensure better treatment adherence.[5] In 2022, TB caused 1.3 million deaths globally, with 167,000 deaths occurring among HIV-positive individuals. In 2023, the CDC reported a 16% rise in TB cases in the U.S., with the highest increase among children aged 5–14 years (42%).[4]

The persistence of TB is influenced by factors such as poverty, overcrowding, lack of public health infrastructure, and stigma. The COVID-19 pandemic highlighted gaps in TB control, particularly in resource-limited areas.[4] Social stigma affects treatment outcomes, as discrimination and misinformation prevent individuals from seeking timely care.[3]

The WHO's "End TB Strategy" aims for a 90% reduction in TB incidence by 2035.[4] However, diagnostic challenges persist due to the slow growth of Mycobacterium tuberculosis. New molecular tests like Nucleic Acid Amplification Tests (NAATs) have improved detection, but they remain inaccessible in many high-burden areas.[4]

Awareness and education play a crucial role in TB control. Studies show that increasing public knowledge about TB transmission and treatment leads to better treatment outcomes and reduced transmission rates.[2] Advocacy, Communication, and Social Mobilization (ACSM) initiatives are essential in combating TB in rural areas, where misconceptions and stigma are more prevalent.[7]

In India, rural TB incidence is high due to delayed diagnosis and poor treatment adherence. Studies indicate that while urban areas report more cases, rural regions experience longer disease durations due to healthcare access barriers.[14] Poor living conditions, lack of healthcare services, and traditional beliefs contribute to TB's persistence in rural populations.[7]

The study titled "A Descriptive Study to Assess the Knowledge and Attitude Regarding Pulmonary Tuberculosis among the Rural Population of Charar-i-Sharief, Budgam, Kashmir" aims to evaluate public awareness and attitudes toward TB. Findings will assist healthcare professionals in designing targeted interventions to reduce stigma, improve awareness, and promote early diagnosis and treatment.

RESEARCH METHODOLOGY: To assess the knowledge and attitude regarding Pulmonary Tuberculosis among rural population of Charar-i-sharief, Budgam, Kashmir, a quantitative research approach was found appropriate in order to meet the research objectives and the nature of problem under investigation.

Research setting: - Setting is the physical location and the condition in which data collection takes place in a study.[16] The present study was conducted at Kakawring area of Charar-i-sharief Budgam, Kashmir. The criteria for selecting this setting was feasibility and availability of sample.

Study population: -A population is the entire aggregation of cases in which the researcher is interested. Population is a set of people or entities to which the results of a research are to be generalized.[16] Permanent residents of Kakawring, Charar-i-sharief, Budgam, Kashmir, area were the study's target population throughout the data collection period, which proceed from 13-08-24 to 18-08-24.

Variables under study

Within qualitative research, concepts are commonly referred to as variables. Variables are qualities, properties, or characteristics of person, things, or situations that change or vary.[16] Independent, dependent, and demographic variables are the three categories of qualities.

Demographic variables: To characterize the composition and distribution of the sample they employ for inferential statistics, researchers collect demographic data. The demographic factors used in this study were age, gender, marital status, type of family, educational status, occupation, income per month.

Research variables: Research variable is any attribute that is capable of taking on a variety of values. Research variables for this study were the knowledge and attitude regarding pulmonary tuberculosis among rural population of Charar-i-sharief Budgam, Kashmir.

SAMPLE AND SAMPLING TECHNIQUE

Sample: Sample may be defined as representative unit of a target population, which is to be worked upon by researchers during their study. [31] The sample for the current study included 60 permanent residents of Charar-i-sharief, Budgam, Kashmir.

Sampling technique: Sampling is the process of selecting a representative segment of the population under study.[16] The sample for this study was chosen using non probability convenient sampling technique. Non probability convenient sampling technique is a method that chooses sample participants based on how easily the researcher can contact them.

Data collection tools /instruments: A research instrument is a device used to measure the concept of interest in a research project that a researcher uses to collect data.[16]

DESCRIPTION OF THE TOOL: The tool used for this study was structured knowledge interview schedule which consists of two parts/ sections;

SECTION A: Demographic variables. It consists of 7 items related to sociodemographic profile of rural population living in Kakawring, Charar-i-Sharief, Budgam, Kashmir. These 7 items includes age, gender, marital status, type of family, educational status, occupation and income per month.

SECTION B: consists of knowledge interview schedule about various aspects of TB developed by Ms. Rohi Jan.[41] It consists of 50 questions under 3 subheadings which are;

1. Assessment of knowledge regarding general aspects of tuberculosis.
2. Assessment of knowledge regarding treatment and its side effects.
3. Assessment of knowledge regarding prevention and spread of pulmonary tuberculosis.

SECTION C: Attitude scale developed by Mohammed E Almalki.[1] It consists of 9 statements.

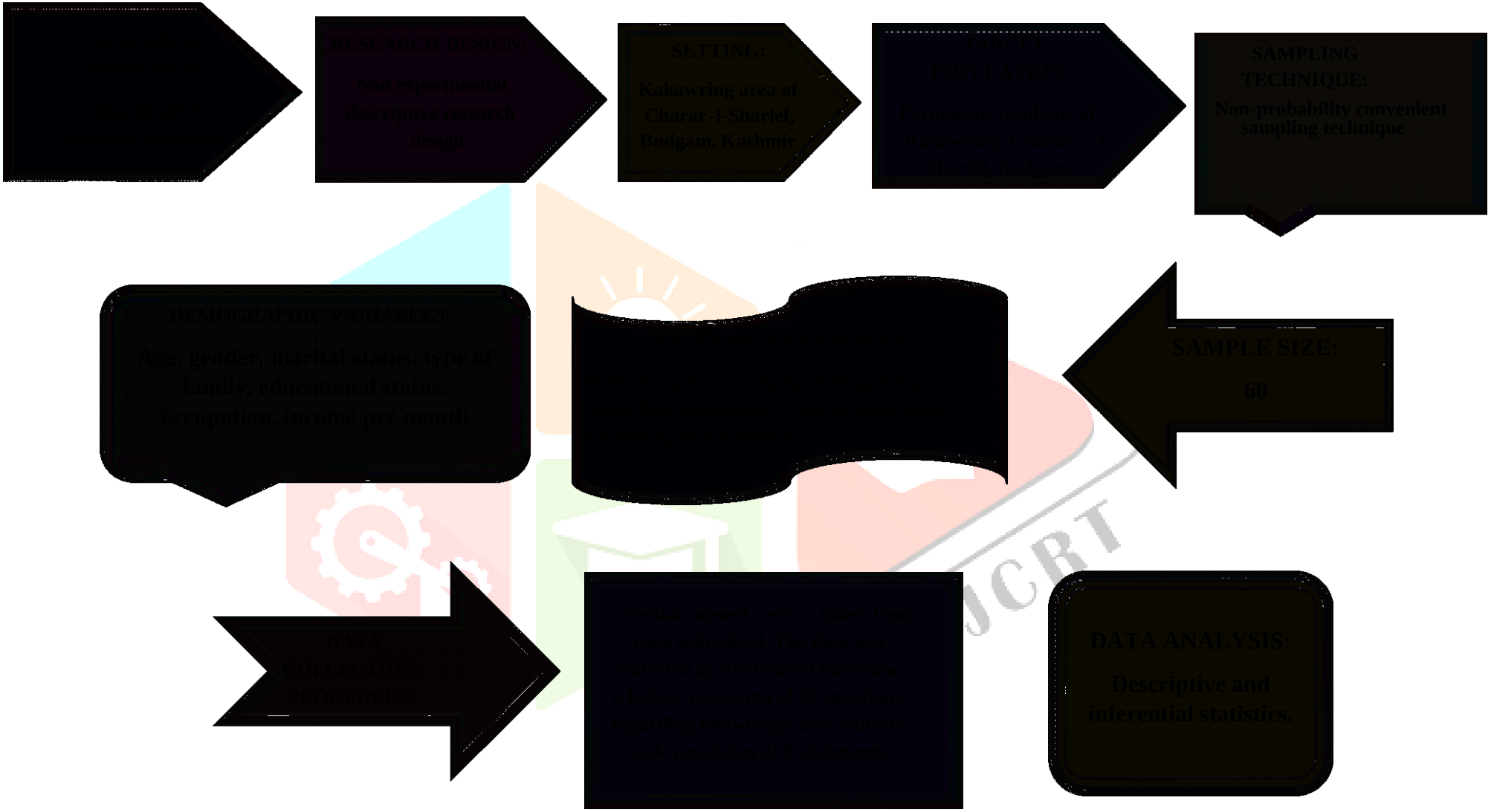

Fig-1;SCHEMATIC REPRESENTATION OF METHODOLOGY

ANALYSIS AND INTERPRETATION:

The data analysis was based on following objectives;

1. To assess the level of knowledge regarding pulmonary tuberculosis among rural population of Charar-i-Sharief Budgam Kashmir.
2. To assess the level of attitude regarding pulmonary tuberculosis among rural population of Charar-i-Sharief Budgam Kashmir.
3. To find the association between the knowledge scores regarding pulmonary tuberculosis among rural population of Charar-i-Sharief Budgam Kashmir with their selected socio-demographic variables (age, gender, marital status, type of family, educational status, occupation and income per month).

On the basis of the research statement, following hypothesis were formulated;

- H0 : There is no significant association between knowledge scores regarding Pulmonary Tuberculosis among rural people with their socio-demographic variables at 0.05% level of significance.
- H1 : There is significant association between knowledge scores regarding Pulmonary Tuberculosis among rural people with their socio-demographic variables at 0.05% level of significance.

Analysis and interpretation of data was done according to the objectives using descriptive and inferential statistics. The level of significance chosen was at $p \leq 0.05$.

ORGANIZATION OF ANALYSED DATA:-

The analysed data was organized according to the objectives and presented under the following sections:

SECTION -A: Description of demographic variables

SECTION B: Assessment knowledge regarding Pulmonary Tuberculosis.

SECTION C: Assessment of attitude regarding Pulmonary Tuberculosis.

SECTION D: Description of Association of knowledge Scores with selected socio-demographic Variables.

SECTION A: Description of demographic variables

This section offers a summary of the demographic characteristics of the study participants. The collected data covers information related to factors such as the age of participant in years, gender, marital status, type of family, educational status, occupation, income per month.

ANALYSIS AND INTERPRETATION OF DEMOGRAPHIC VARIABLES OF SUBJECTS;

Table 3; Percentage and frequency distribution of subjects according to age
N=60

Age	Percentage	Frequency
≤ 20 years	8.3%	5
20-40 years	40.0%	24
>40 years	51.7%	31

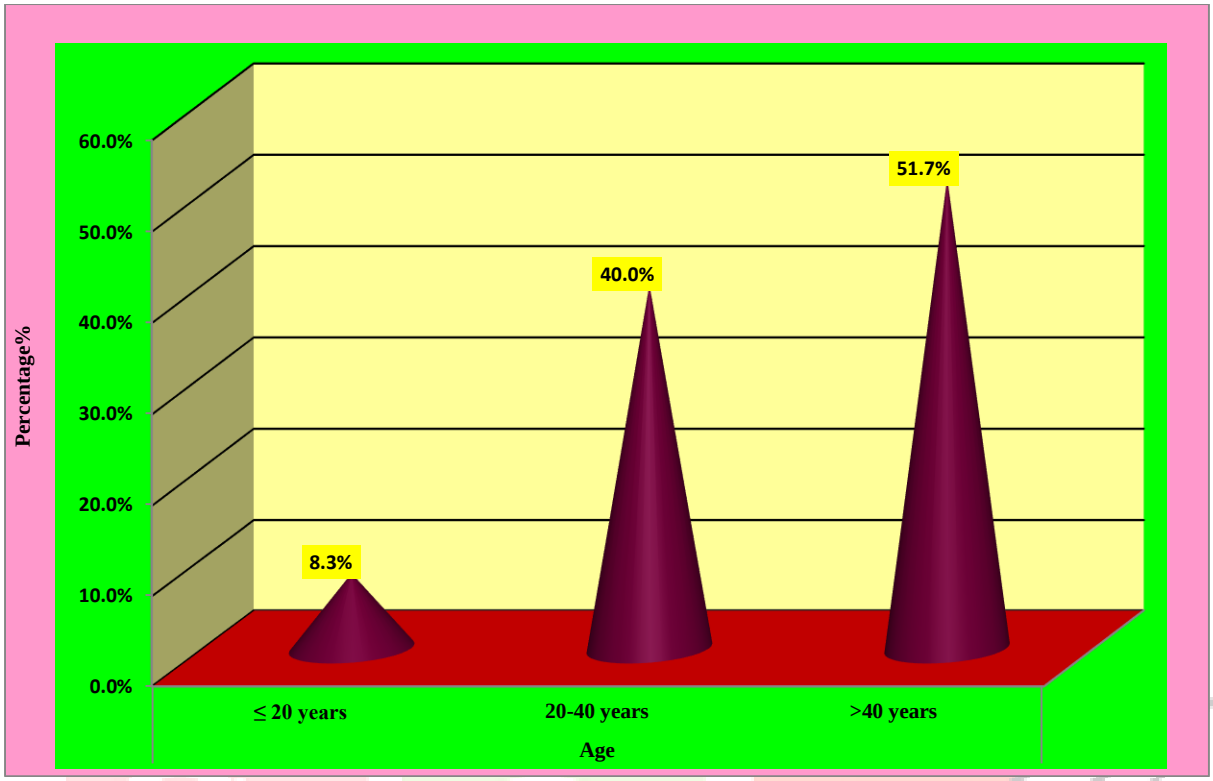

Figure No.2 : Percentage distribution of study subjects according to age.

The data presented in table 3, figure 2 depicts that the majority of study subjects were over 40 years old, comprising 51.7% (31 subjects). The age group of 20-40 years accounts for 40.0% (24 subjects), while only 8.3% (5 subjects) were aged 20 years or younger.

Table 4; Percentage and frequency distribution of subjects according to gender
N=60

Gender	Percentage	Frequency
Male	38.3%	23
Female	61.7%	37

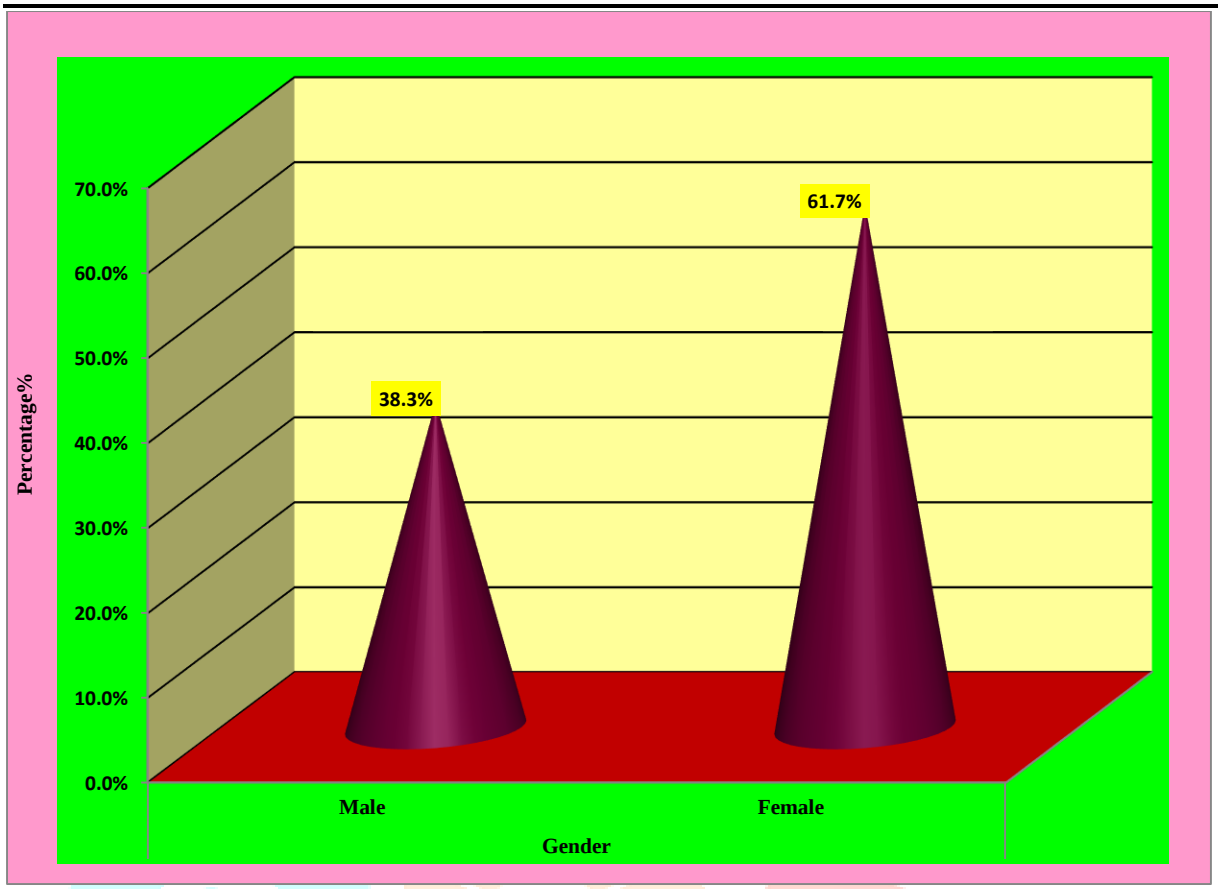

Figure No.3: Percentage distribution of study subjects according to gender

The data presented in table 4, figure 3 depicts that the majority 61.7% (37 subjects) of study participants were females, compared to males 38.3% (23 subjects).

Table 5; Percentage and frequency distribution of subjects according to marital status; N=60

Marital status	Percentage	Frequency
Married	86.7%	52
Unmarried	13.3%	8

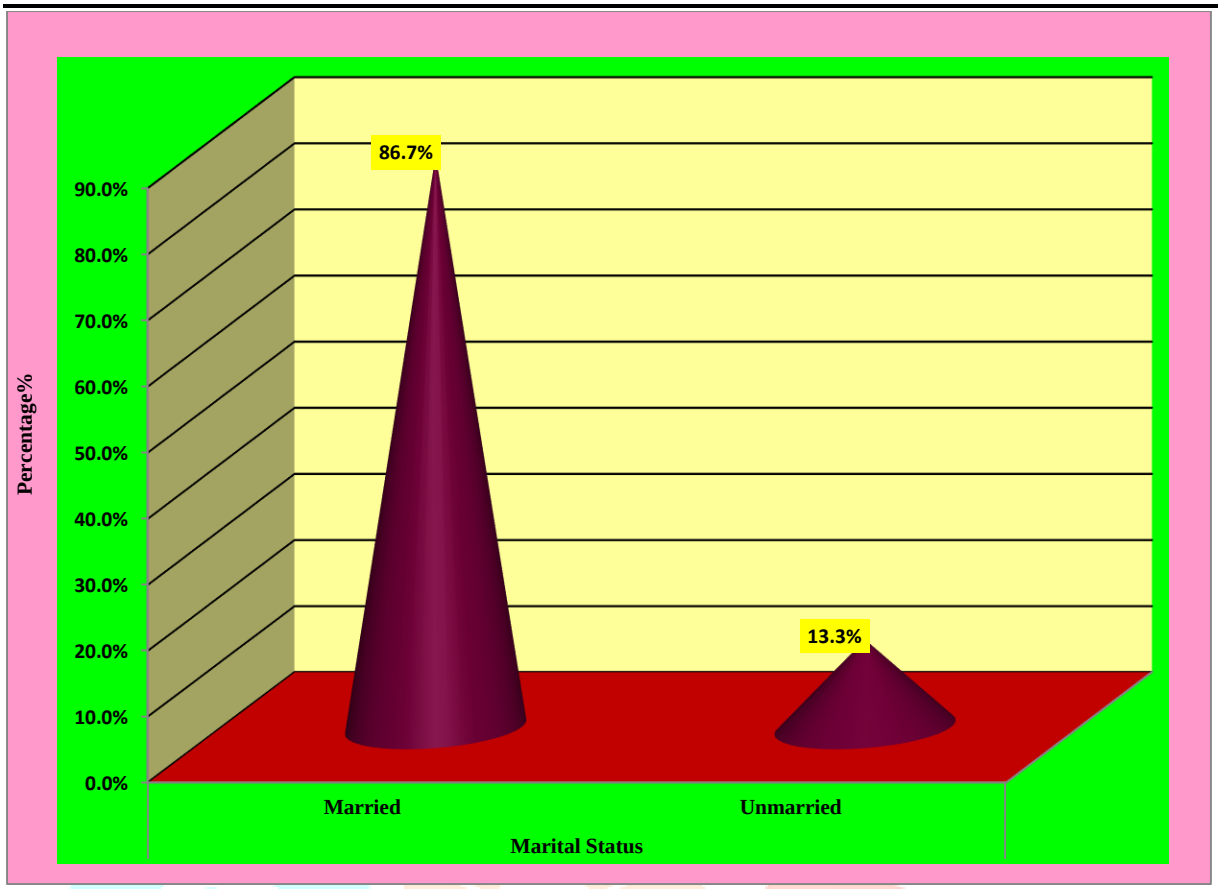

Figure No.4: Percentage distribution of study subjects according to marital status

The data presented in table 5, figure 4 depicts that majority of the participants were married, 86.7% (52 subjects), than unmarried 13.3% (8 subjects).

Table 6; Percentage and frequency distribution of subjects according to type of family; N=60

Type of family	Percentage	Frequency
Nuclear	81.7%	49
Joint family	18.3%	11

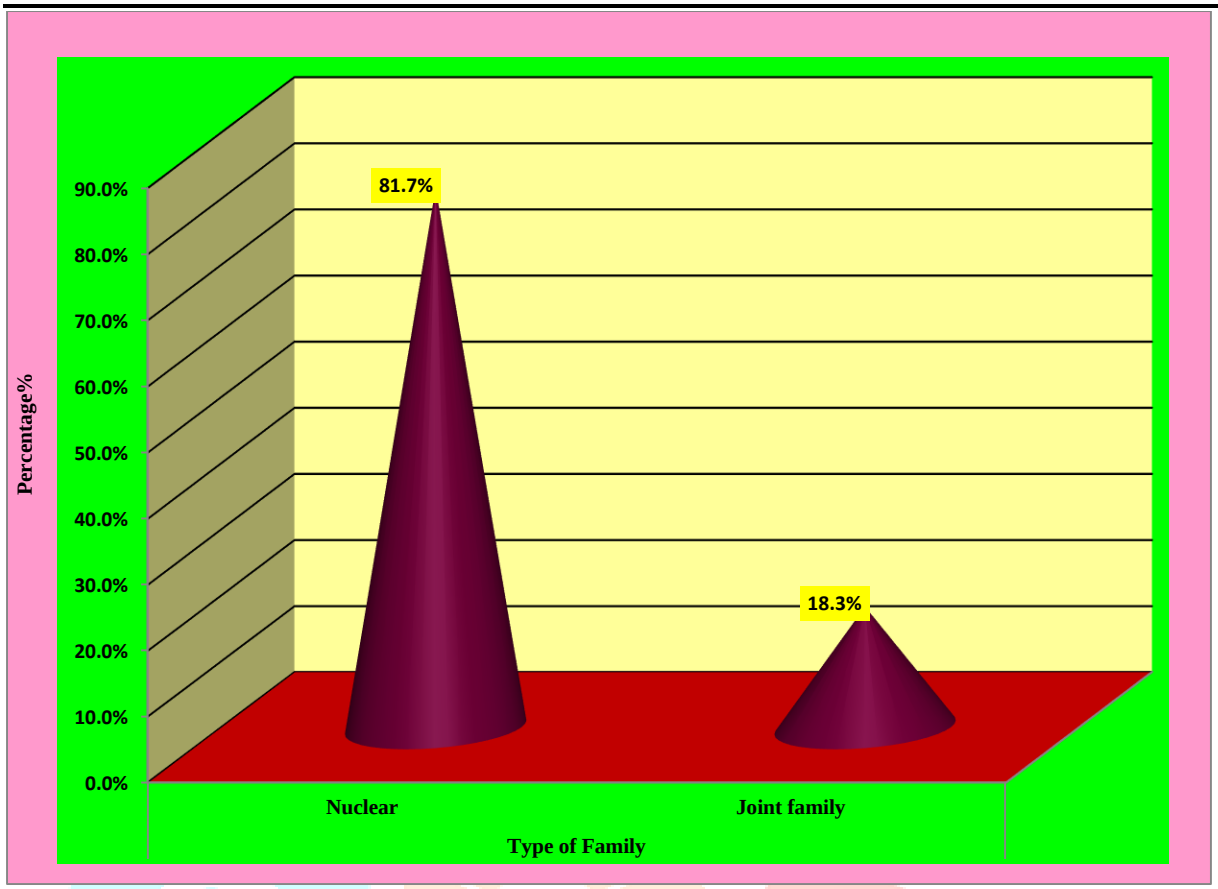

Figure No.5: Percentage distribution of study subjects according to type of family

The data presented in table 6, figure 5 depicts that the family structure was predominantly nuclear, with 81.7% (49 subjects) living in nuclear families compared to 18.3% (11 subjects) in joint families.

Table 7; Percentage and frequency distribution of subjects according to educational status; N=60

Educational status	Percentage	Frequency
Illiterate	93.3%	56
Secondary	6.7%	4
Graduate & above	0.0%	0

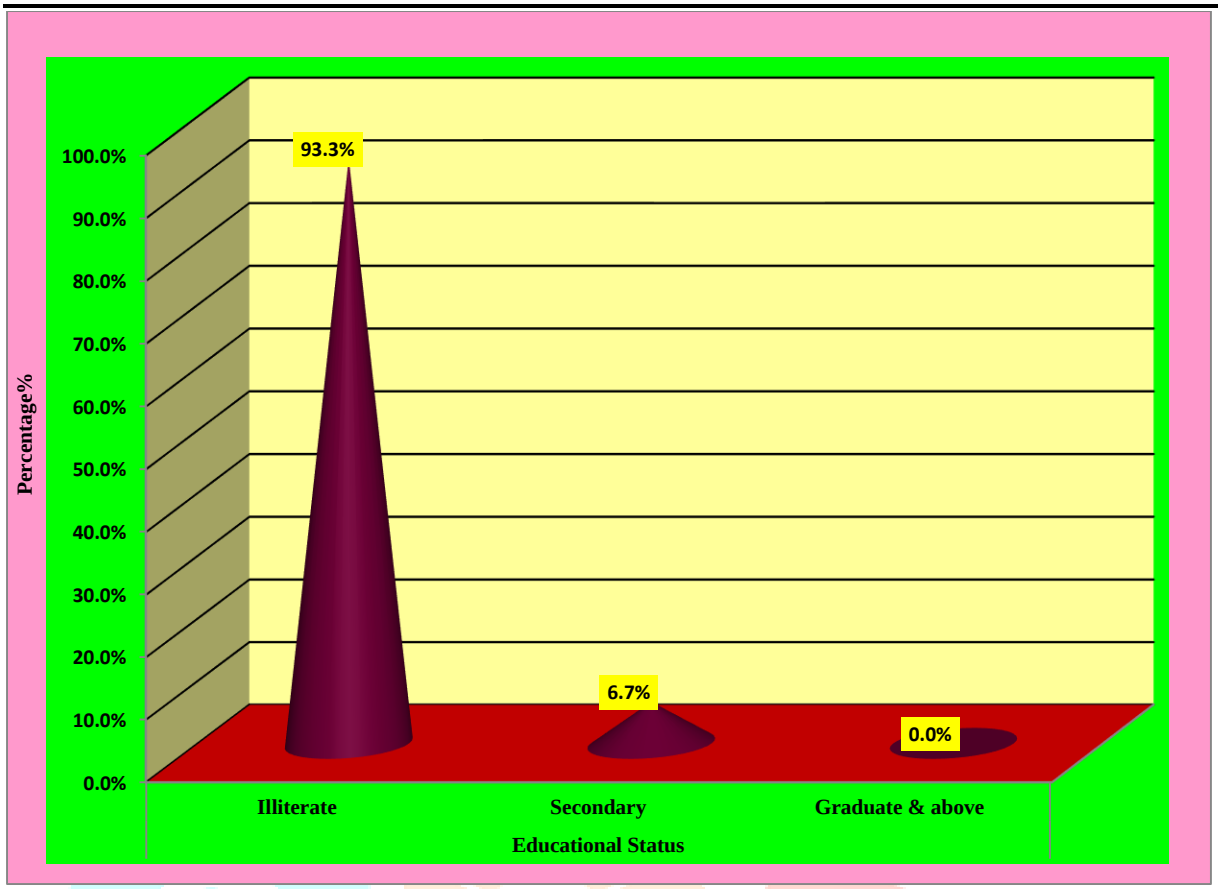

Figure No.6: Percentage distribution of study subjects according to educational status

The data presented in table 7, figure 6 depicts that the educational background shows a high level of illiteracy, with 93.3% (56 subjects) classified as illiterate. Only 6.7% (4 subjects) have completed secondary education, and none have attained a graduate degree or higher.

Table 8; Percentage and frequency distribution of subjects according to occupation; N=60

Occupation	Percentage	Frequency
Employee	0.0%	0
Business	6.7%	4
Labour class	85.0%	51
Student	8.3%	5

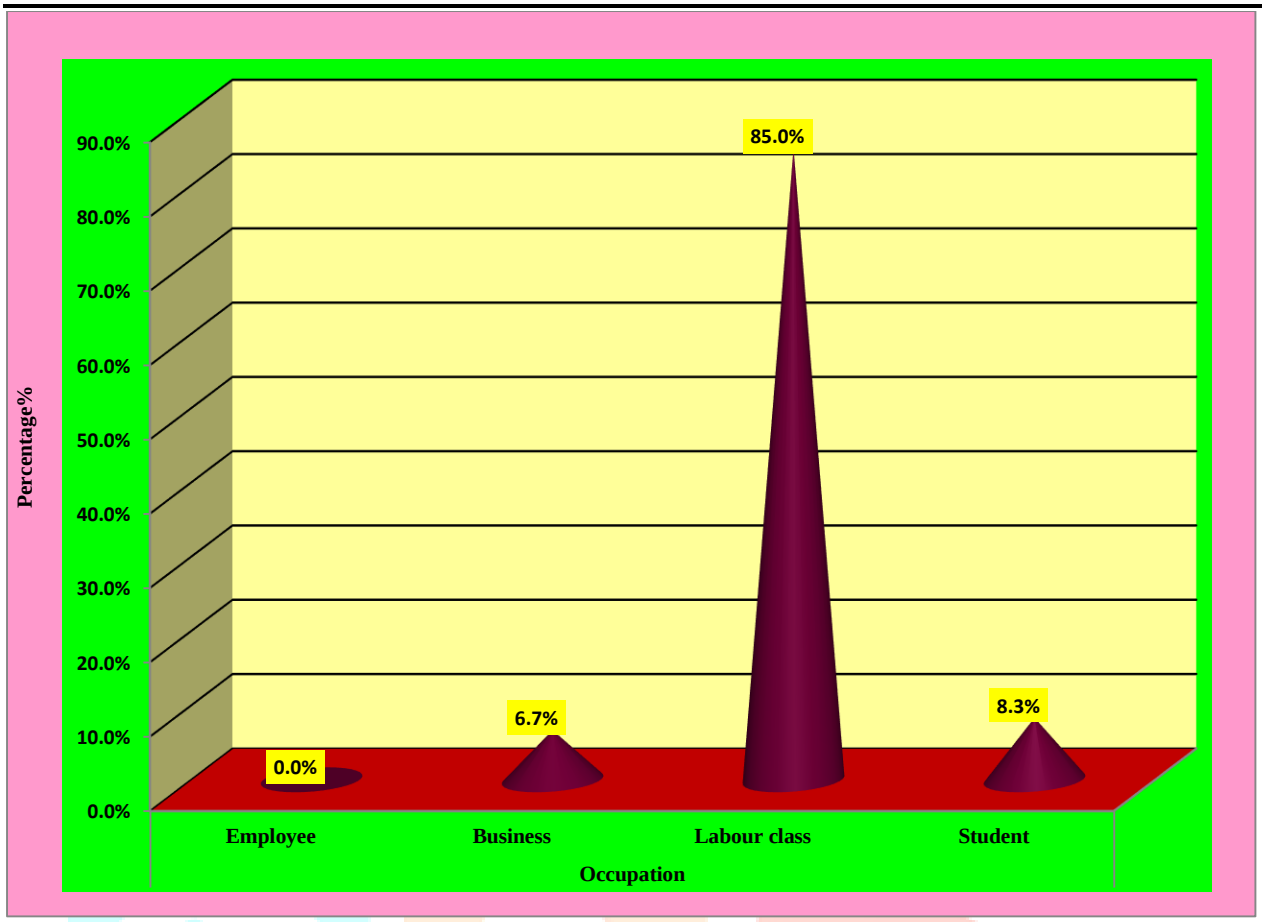

Figure No.7: Percentage distribution of study subjects according to occupation

The data presented in table 8, figure 7 depicts that majority of study subjects 85.0% (51 subjects) were from labor class, while 6.7% (4 subjects) were engaged in business, and 8.3% (5 subjects) were students..

Table 9; Percentage and frequency distribution of subjects according to income per month; N=60

Income per month	Percentage	Frequency
≤ 5000	0.0%	0
5000-10000	35.0%	21
10000-15000	65.0%	39
>15000	0.0%	0

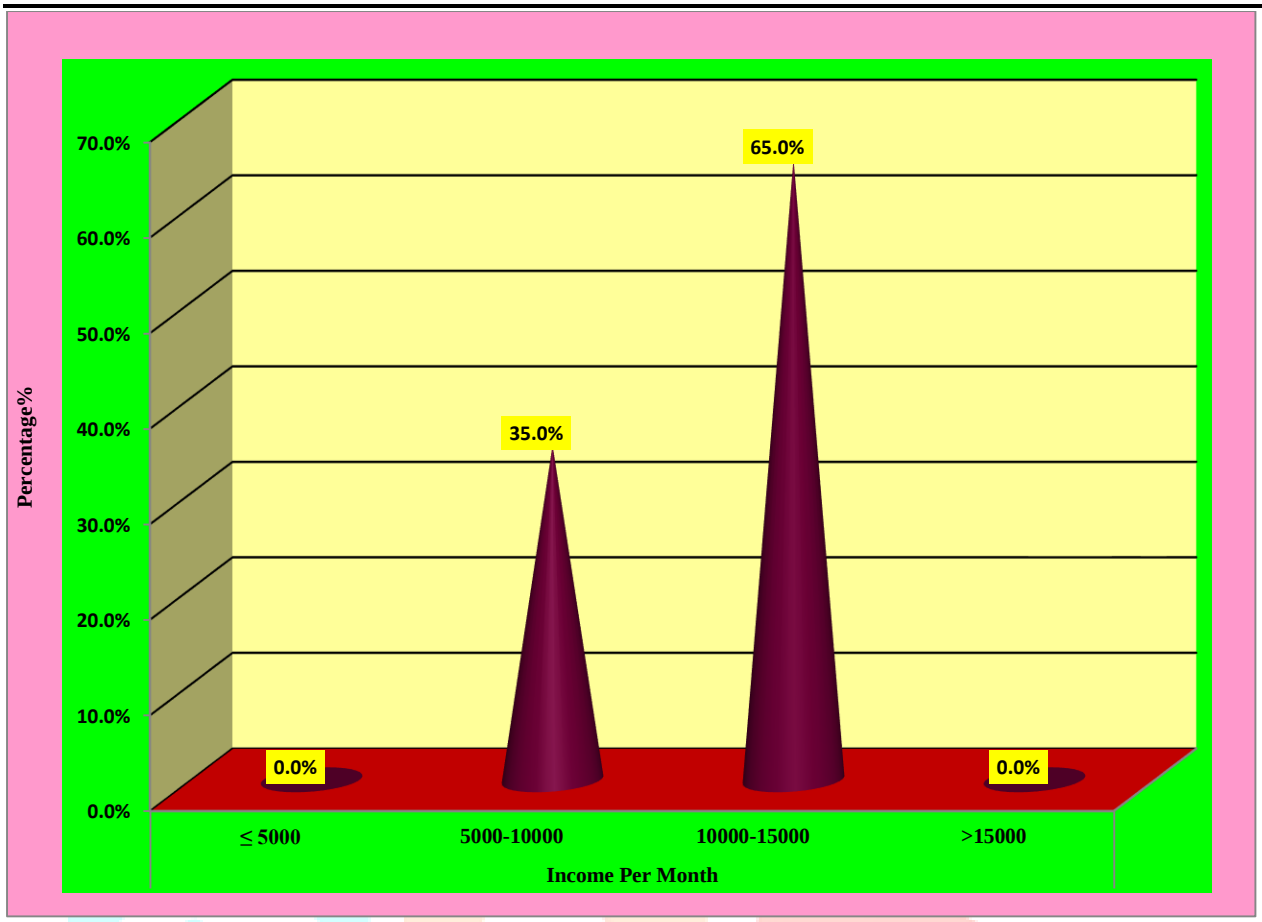

Figure No.8: Percentage distribution of study subjects according to income per month

The data presented in table 9, figure 8 depicts that the majority of participants (65.0%, 39 subjects) were within the income range of 10,000-15,000. The next largest group was those earning between 5,000-10,000 (35.0%, 21 subjects), while no participants was earning less than 5,000 or more than 15,000.

SECTION – B

Assessment of knowledge regarding pulmonary Tuberculosis

Table – 10; Frequency & Percentage distribution of study subjects according to level of knowledge; N=60

LEVEL OF KNOWLEDGE	PERCENTAGE	FREQUENCY
ADEQUATE KNOWLEDGE.(36-50)	6.7%	4
MODERATE KNOWLEDGE.(18-35)	93.3%	56
INADEQUATE KNOWLEDGE.(0-17)	0.0%	0

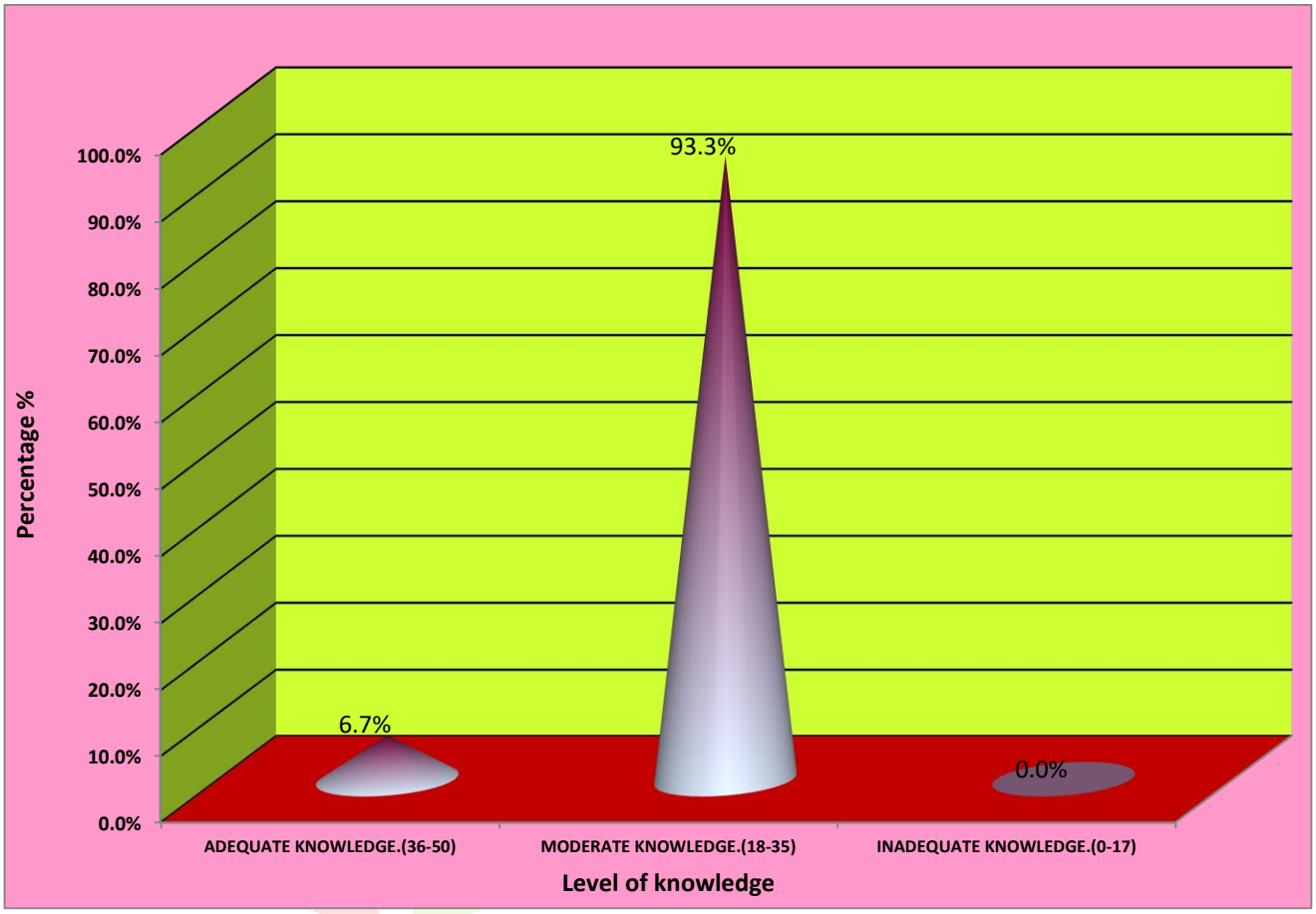

Figure no. 9; Diagram showing the percentage distribution of study subjects according to level of knowledge

The table 10 and figure 9 depicts that, the majority of study subjects were having moderate level of knowledge (93.3%, 56 subjects) that scores between 18-35. Only a small fraction (6.7%, 4 subjects) demonstrate adequate knowledge (scores between 36-50), while there were no participants scoring inadequate knowledge level (0-17).

Table –11; Descriptive statistics of knowledge score of study subjects regarding pulmonary tuberculosis;

					N=	60	
Descriptive Statistics	Mean	Median	S.D.	Maximum	Minimum	Range	Mean %
KNOWLEDGE SCORE	29.03	29	3.83	39	21	18	58.07

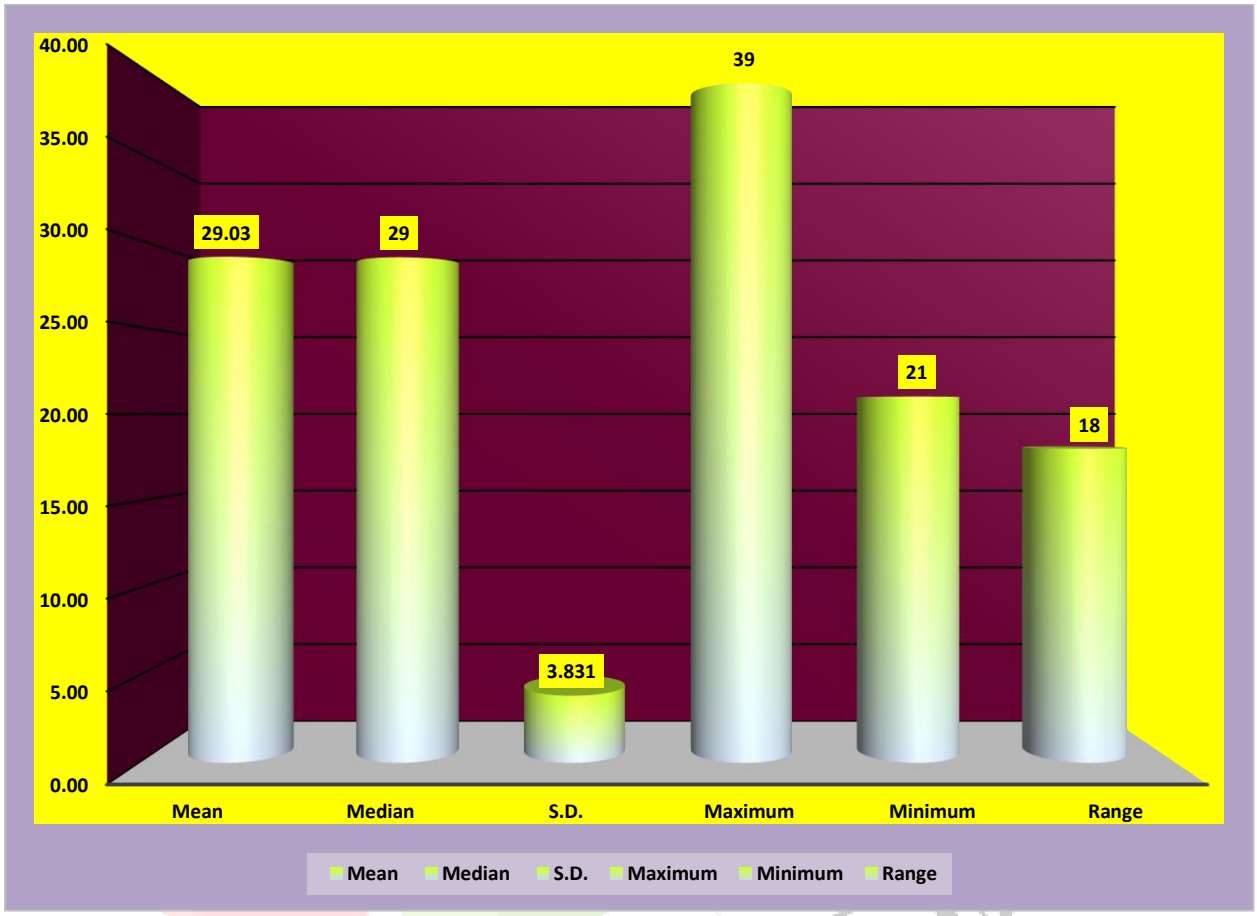

Figure no. :10; Diagram representing descriptive statistics of knowledge score of study subjects regarding pulmonary tuberculosis;The data presented in table 11 and figure 10 depicts that the knowledge scores of the 60 participants show a mean score of 29.03, indicating that on average, participants scored slightly above the midpoint of the scoring range, which extends from a minimum of 0 to a maximum of 50. The median score is 29, suggesting that half of the participants scored below this value and half scored above, indicating a relatively symmetrical distribution of scores.

The standard deviation of 3.83 reflects some variability in the scores, meaning that while many participants scored around the mean, there are notable differences among individual scores. The range of 18 (from a minimum score of 21 to a maximum of 39) further illustrates this variability, with scores clustered toward the middle of the range.

SECTION C

Assessment of attitude regarding Pulmonary Tuberculosis;

Table-12; Percentage and frequency distribution of subjects according to how serious is tuberculosis;N=60

S-1: How serious is tuberculosis?	Percentage (%)	Frequency (f)
Don't know	0.0%	0
Not very serious	0.0%	0
Somewhat serious	1.7%	1
Very serious	98.3%	59

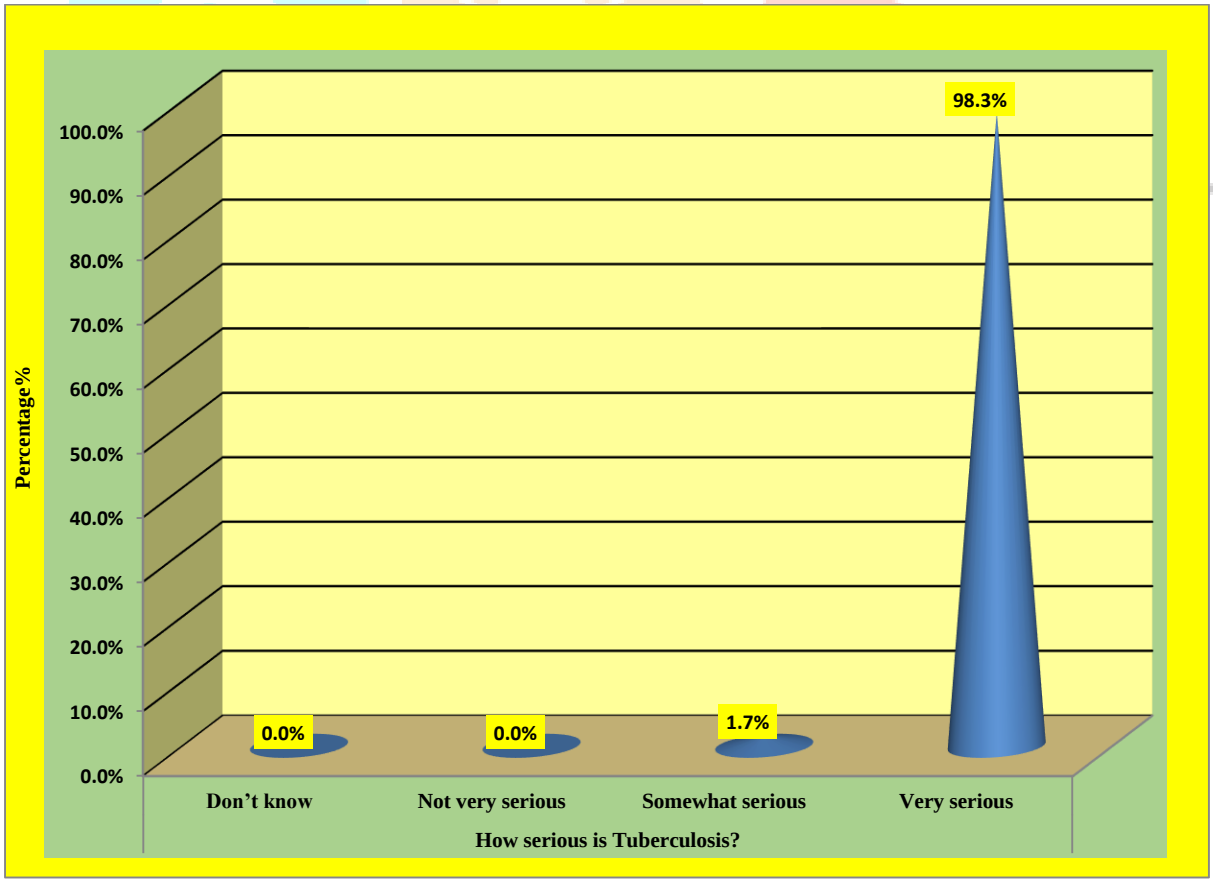

Figure-11; Percentage distribution of subjects according to How Serious is Tuberculosis;

The data presented in table 12 and figure 11 depicts that the responses indicate a strong consensus on the seriousness of tuberculosis, with 98.3% (59 respondents) considering it "very serious." Only 1.7% (1 respondent) viewed it as "somewhat serious," while no one considered TB to be "not very serious" or had uncertainty about its seriousness.

Table-13; Percentage and frequency distribution of subjects according to how serious a problem do you think TB is in your area;
N=60

How serious a problem do you think TB is in your area?	Percentage	Frequency
Don't know	16.7%	10
Not very serious	23.3%	14
Somewhat serious	28.3%	17
Very serious	31.7%	19

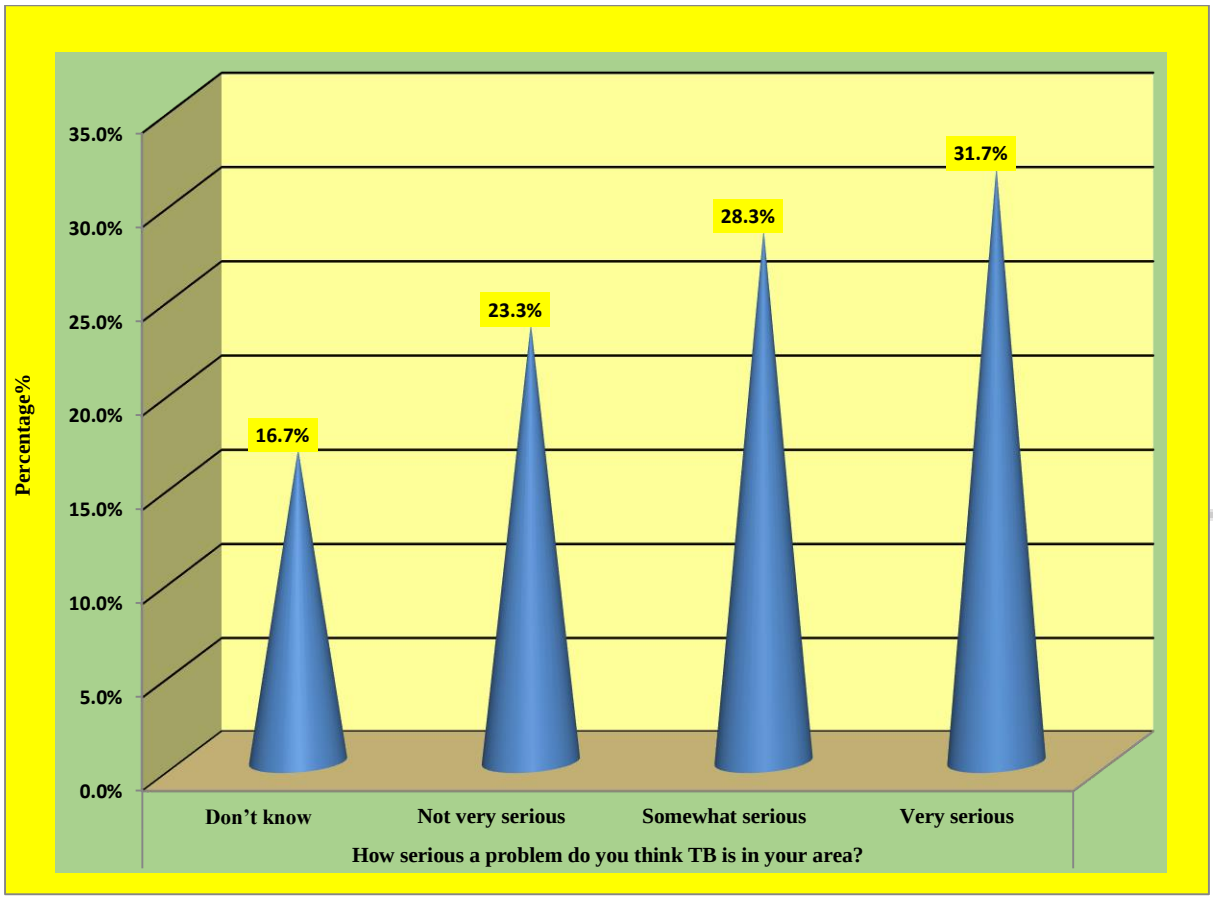

Fig. -12; Percentage distribution of subjects according to How Serious a Problem do You Think TB is in Your Area;

The table 13 and figure 12 depicts that attitude about TB as a local problem show a more varied response. While 31.7% (19 respondents) deemed it "very serious," a combined 60% (41 respondents) considered it "not very serious," "somewhat serious," or were unsure about their area.

Table-14; Percentage and frequency distribution of subjects according to do you think you can get TB;

N=60

S-3;Do you think you can get TB ?	Percentage (%)	Frequency (f)
No	81.7%	49
Yes	18.3%	11

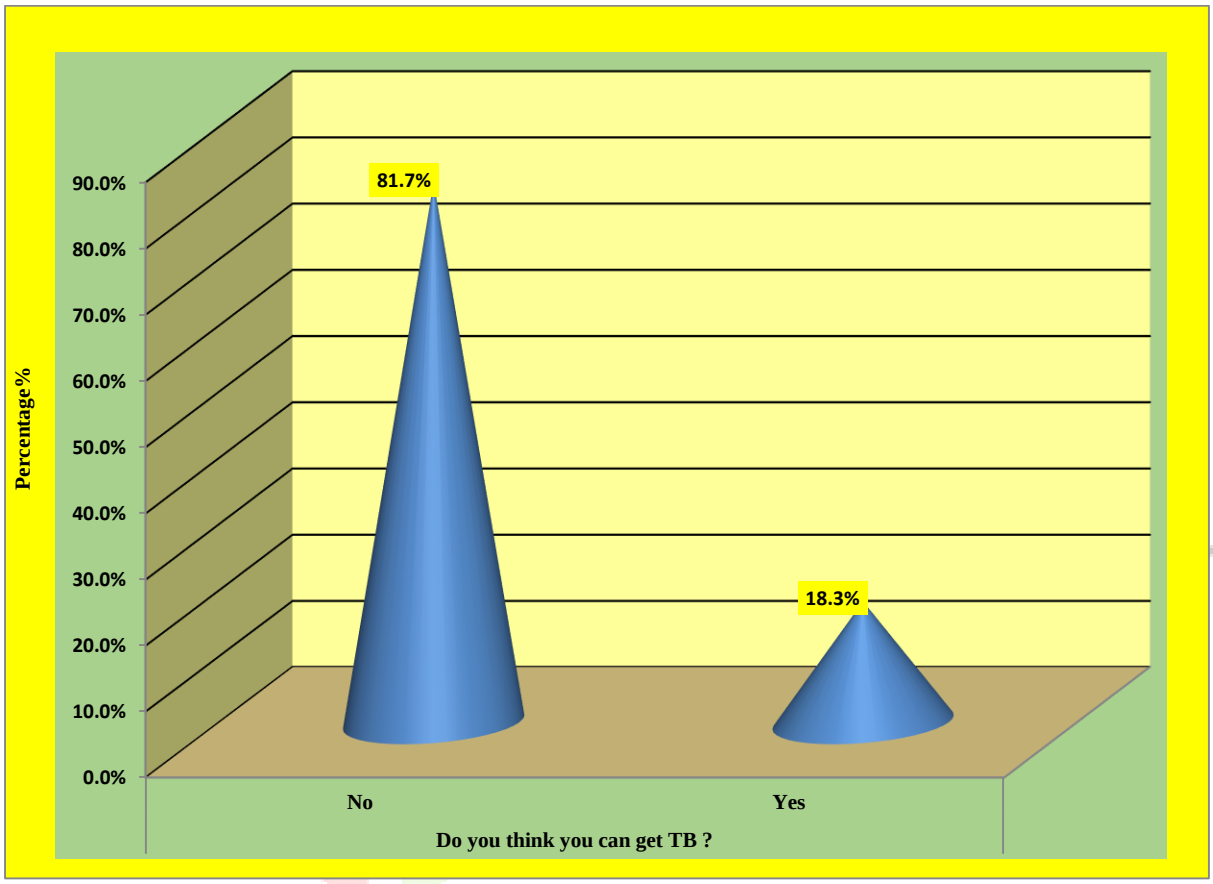

Fig. 13; Percentage distribution of subjects according to Do You Think You Can Get TB;

The data presented in table 14 and figure 13 depicts that majority of the subjects (81.7%, 49 respondents) believe they cannot contract TB, while only 18.3% (11 respondents) think they can.

Table-15; Percentage and frequency distribution of subjects according to what would be your reaction if you found out that you have TB; N=60

S-4;What would be your reaction if you found out that you have TB?	Percentage (%)	Frequency (f)
Others	3.3%	2
Hopelessness	23.3%	14
Sadness	58.3%	35
Shame	0.0%	0
Surprise	11.7%	7
Fear	3.3%	2

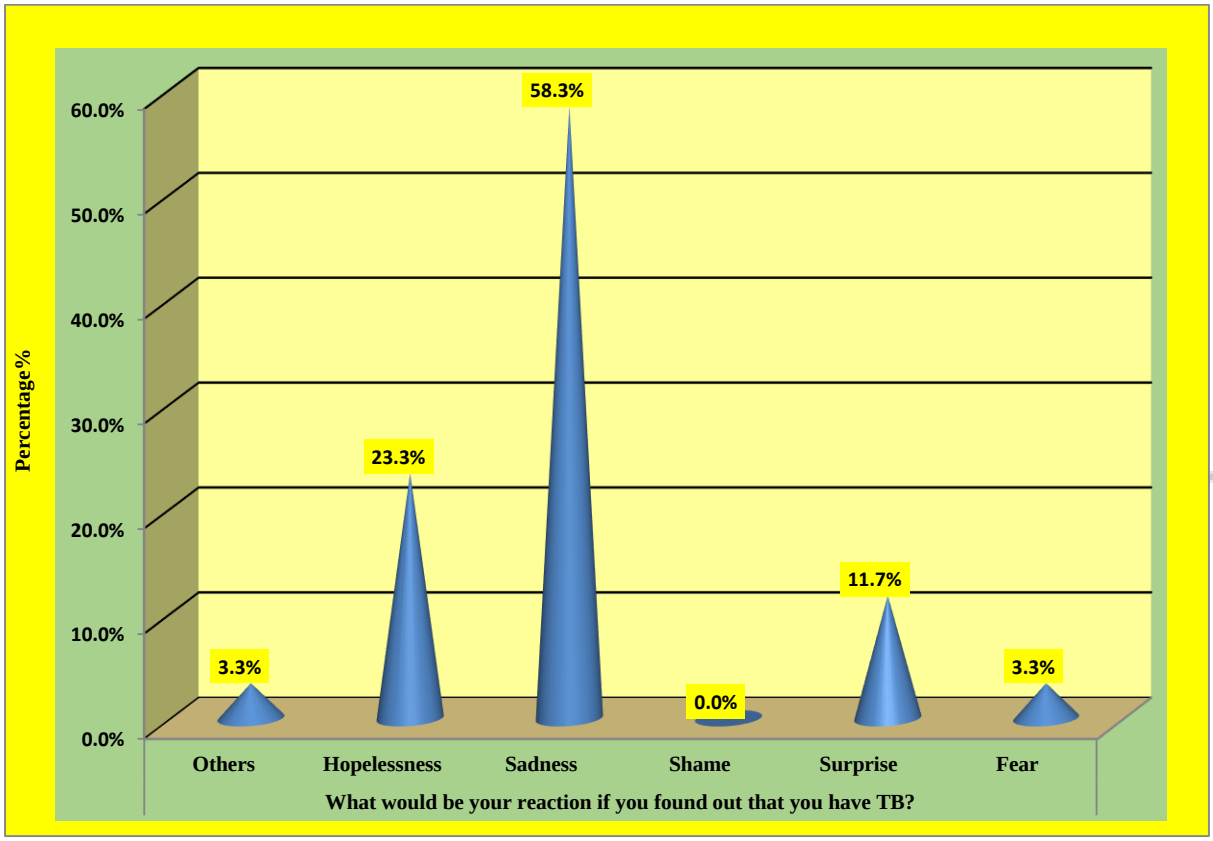

Fig. 14; Percentage distribution of subjects according to What Would be Your Reaction if You Found Out You Have TB;

The data presented in table 15 and figure 14 depicts that the emotional responses to the possibility of a TB diagnosis reveal a predominance of negative feelings. "Sadness" was the most common reaction (58.3%, 35 respondents), followed by "hopelessness" (23.3%, 14 respondents) and "surprise" (11.7%, 7 respondents). Only a small fraction expressed feelings of "fear" or "others."

Table-16; Percentage and frequency distribution of subjects according to are some people more likely to become infected with TB than others;
N=60

S-5;Are some people more likely to become infected with TB than others ?	Percentage (%)	Frequency (f)
Don't know	6.7%	4
No	56.7%	34
Yes	36.7%	22

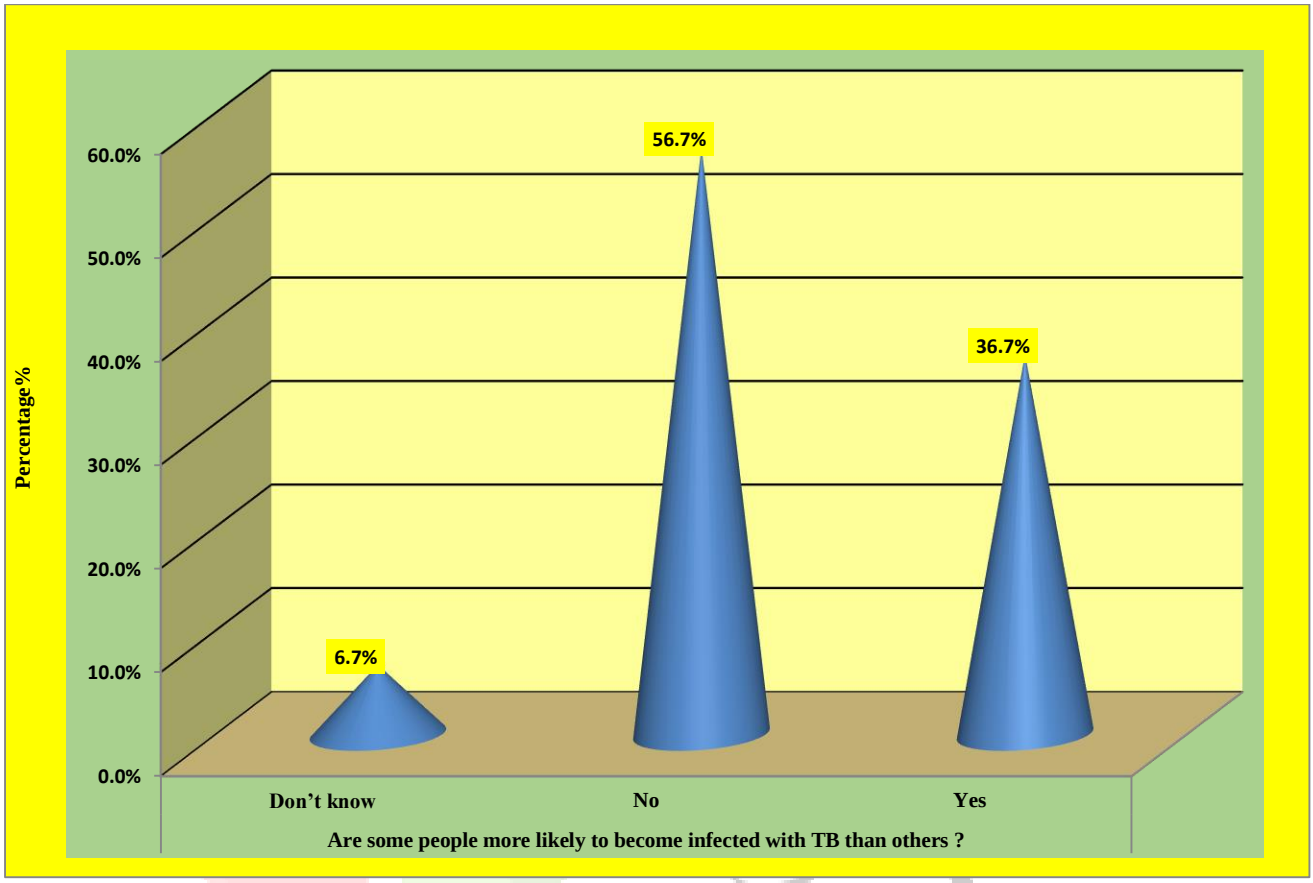

Fig. 15; Percentage distribution of subjects according to Are Some People More Likely to Become Infected with TB than Others;

The data presented in table 16 and figure 15 depicts that the responses to this question reflect mixed beliefs about vulnerability to TB. Majority (56.7%, 34 respondents) think that no specific group is more likely to get TB, while 36.7% (22 respondents) believe that certain individuals are at higher risk. This uncertainty is reinforced by 6.7% (4 respondents) who indicated they "don't know."

Table-17; Percentage and frequency distribution of subjects according to if yes, who is more likely to be infected;

N=60

S-6: If yes, who is more likely to be infected ?	Percentage (%)	Frequency (f)
Very old people.	26.7%	16
Children	0.0%	0
Both men and women	58.3%	35
Women	0.0%	0
Men	15.0%	9

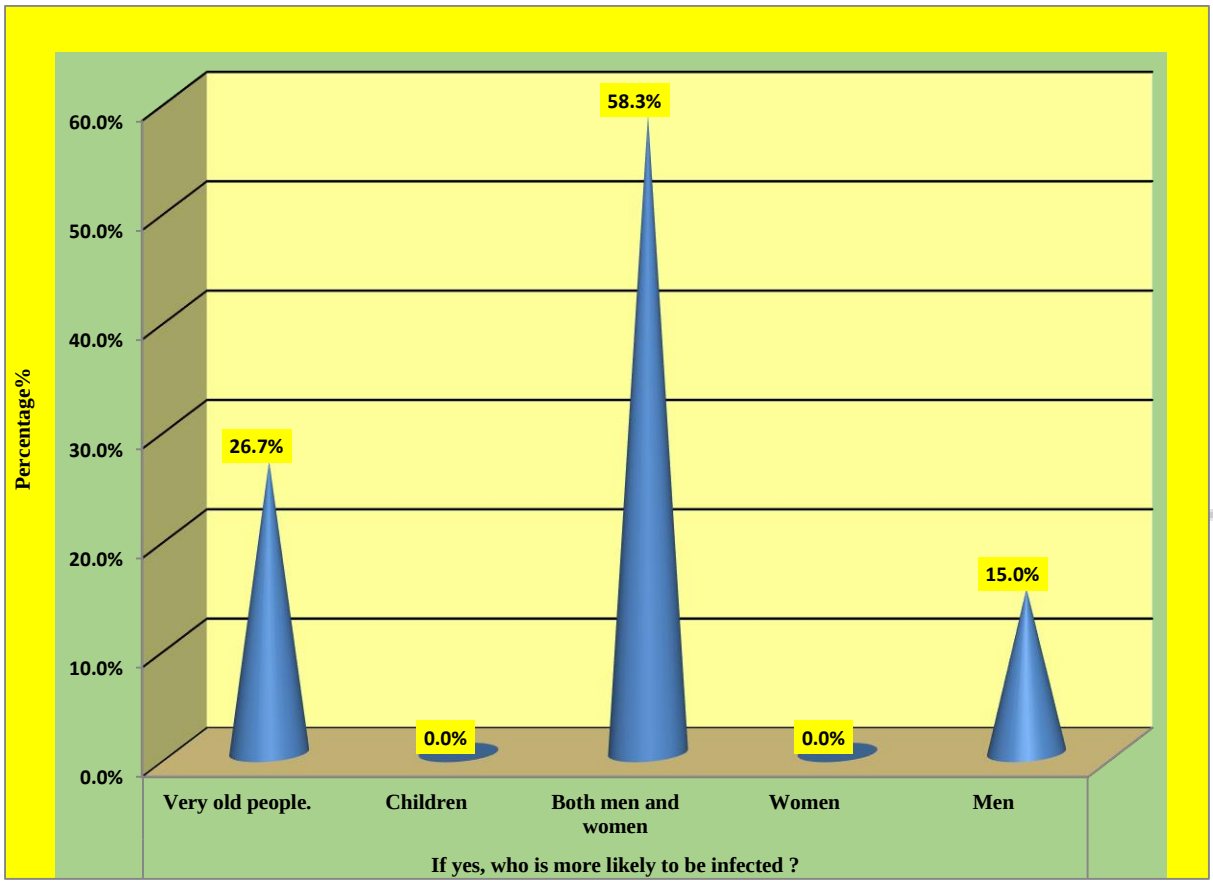

Fig. 16; Percentage distribution of subjects according to If Yes, Who is More Likely to be Infected?

The data presented in table 17 and figure 16 depicts that among those who acknowledged that some people are more likely to become infected, the majority identified "both men and women" (58.3%, 35 respondents) are at risk, followed by "very old people" (26.7%, 16 respondents) and then by "men" (15%, 9 respondents). Notably, no respondents pointed to "children," and "women,"

Table-18; Percentage and frequency distribution of subjects according to do you know people who have/had TB;

N=60

S-7: Do you know people who have/had TB ?	Percentage (%)	Frequency (f)
Do not know.	6.7%	4
No	75.0%	45
Yes	18.3%	11

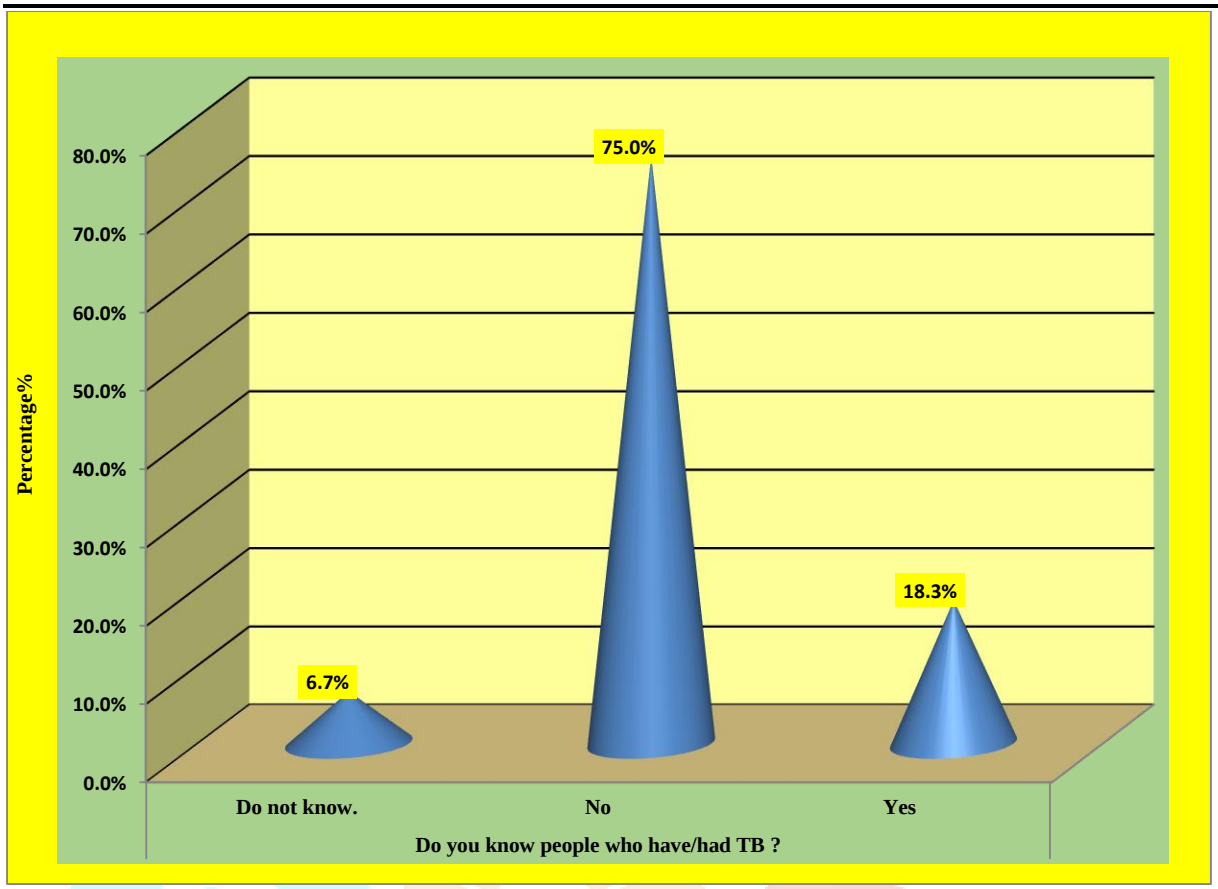

Fig.17; Percentage distribution of subjects according to Do You Know People Who Have/Had TB?

The data presented in table 18 and figure 17 depicts that a majority of the study subjects (75%, 45 respondents) reported that they do not know anyone with TB, while only 18.3% (11 respondents) confirmed knowing someone affected by the disease.

Table -19; Percentage and frequency distribution of subjects according to what is your feeling towards people with TB disease;

N=60

S-8: What is your feeling towards people with TB disease?	Percentage (%)	Frequency (f)
Others	0.0%	0
I have no particular feeling	1.7%	1
I fear them because they may infect me	28.3%	17
It is their problem and I cannot get TB	16.7%	10
I feel compassion but stay away from them	38.3%	23
I feel compassion and desire to help	15.0%	9

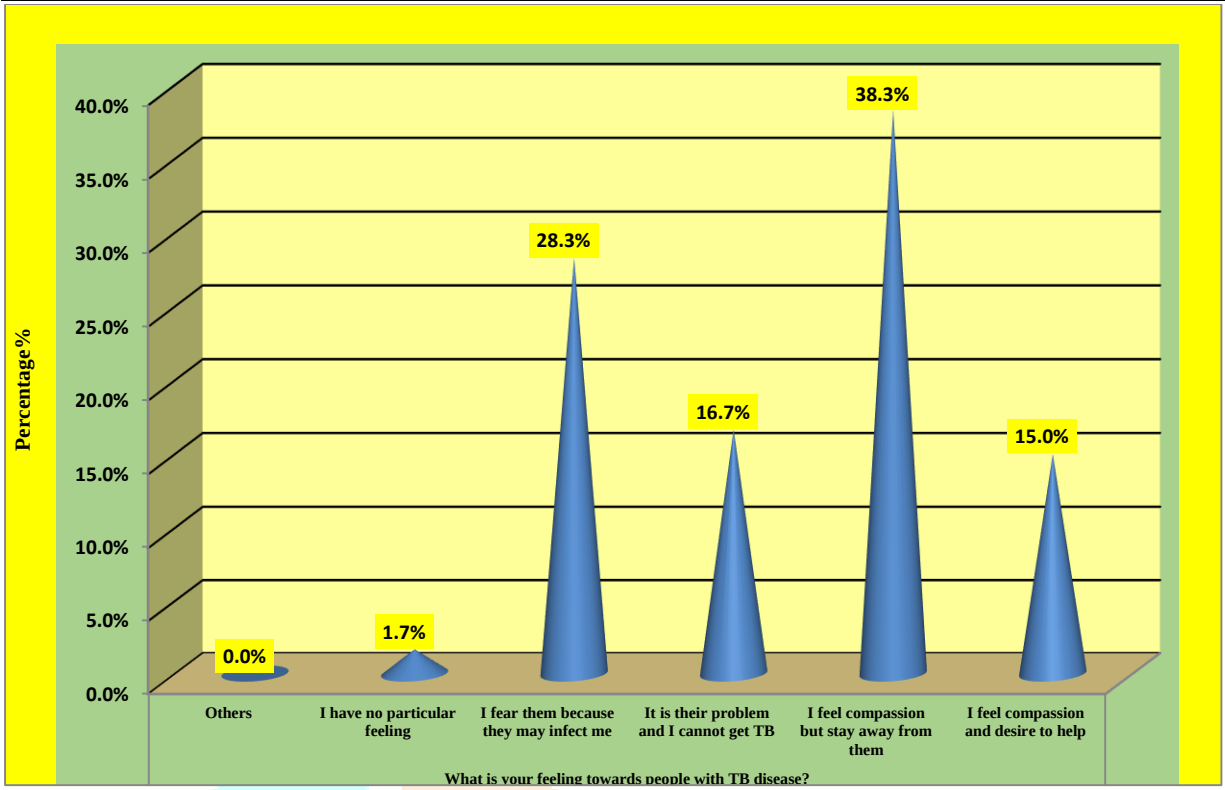

Fig.18; Percentage distribution of subjects according to What is Your Feeling Towards People with TB Disease;

The data presented in table 19 and figure 18 depicts that the responses reveal a mixed sentiment towards individuals with TB. A notable percentage (38.3%, 23 respondents) expressed compassion but indicated they would stay away from those with the disease. Additionally, 28.3% (17 respondents) fear those with TB due to potential infection, while only 15% (9 respondents) feel compassion and desire to help.

Table-20; Percentage and frequency distribution of subjects according to in your community, how is a person who has TB usually regarded/treated;

N=60

S-9: In your community, how is a person who has TB usually regarded/treated ?	Percentage (%)	Frequency (f)
Others (I don't know, don't give them specific attention)	1.7%	1
Mostly support and help them	65.0%	39
Most people are friendly, but they generally try to avoid them	5.0%	3
Most people reject them	28.3%	17

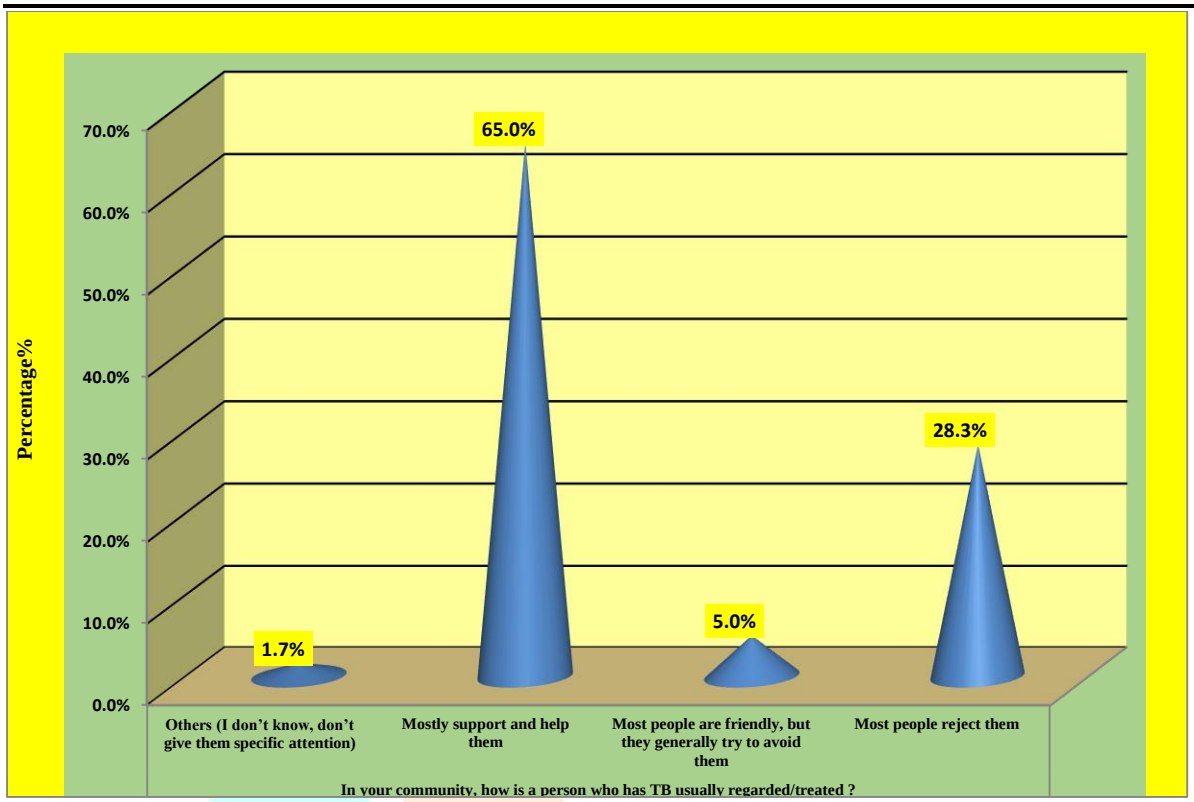

Fig.19; Percentage distribution of subjects according to In Your Community, How is a Person Who Has TB Usually Regarded/Treated;

The data presented in table 20 and figure 19 depicts that majority of the subjects (65%, 39 respondents) believe that individuals with TB receive "mostly support and help," suggesting a generally supportive community attitude. However, 28.3% (17 respondents) reported that most people reject those with TB, and only 5% (3 respondents) noted that people are friendly but generally try to avoid them.

SECTION D

This section deals with the findings related to the association between score and selected demographic variables. The chi-square test was used to determine the association between the score levels and selected demographic variables.

TABLE NO.21: Table Showing Association of knowledge Scores and Demographic Variables;

DEMOGRAPHIC DATA		LEVELS OF KNOWLEDGE (N=60)			ASSOCIATION WITH KNOWLEDGE SCORE				
Variables	**Options**	**ADEQUATE KNOWLEDGE**	**MODERATE KNOWLEDGE**	**INADEQUATE KNOWLEDGE**	**Chi Test**	**P Value**	**df**	**Table Value**	**Result**
Age	≤ 20 years	0	5	0	0.467	0.792	2	5.991	Not Significant
	20-40 years	2	22	0					
	>40 years	2	29	0					
Gender	Male	2	21	0	0.247	0.619	1	3.841	Not Significant
	Female	2	35	0					
Marital Status	Married	4	48	0	0.659	0.417	1	3.841	Not Significant
	Unmarried	0	8	0					
Type of Family	Nuclear	4	45	0	0.962	0.327	1	3.841	Not Significant
	Joint family	0	11	0					
Educational Status	Illiterate	3	53	0	2.315	0.128	1	3.841	Not Significant
	Secondary	1	3	0					
	Graduate & above	0	0	0					
Occupation	Employee	0	0	0	2.568	0.277	2	5.991	Not Significant
	Business	1	3	0					
	Labour class	3	48	0					
	Student	0	5	0					
Income Per Month	≤ 5000	0	0	0	0.188	0.664	1	3.841	Not Significant
	5000-10000	1	20	0					
	10000-15000	3	36	0					
	>15000	0	0	0					

The data presented in table 21 depicts that association between knowledge scores and selected demographic variables (Age, gender, marital status, type of family, educational status, occupation, income per month) was not significant. Hence the researcher accepts the null hypothesis (H0) which states that there is no significant association between knowledge of rural population living in Kakawring, Charar-i-sharief area of Kashmir with their selected sociodemographic variables(Age, gender, marital status, type of family, educational status, occupation, income per month) and the researcher rejects the

research hypothesis (H1) which states that there is significant association between knowledge of rural population living in Kakawring, Charar-i-sharief area of Kashmir with their selected sociodemographic variables(Age, gender, marital status, type of family, educational status, occupation, income per month).

REFRENCES;

01. Almalki ME, Almuqati FS, Alasmari R, Enani MJ, Bahwirith AA, Alloqmani AA, Alqurashi A, Hassan-Hussein A. A Cross-Sectional Study of Tuberculosis Knowledge, Attitude, and Practice Among the General Population in the Western Region of Saudi Arabia. Cureus. 2022 Oct 6;14(10): e29987. Doi: 10.7759/cureus.29987. PMID: 36381904; PMCID: PMC9642831.
02. Khan A, Shaikh BT, Baig MA. Knowledge, Awareness, and Health-Seeking Behaviour regarding Tuberculosis in a Rural District of Khyber Pakhtunkhwa, Pakistan. Biomed Res Int. 2020 Apr 21;2020:1850541. Doi: 10.1155/2020/1850541. PMID: 32382530; PMCID: PMC7193271.
03. Oladele DA, Balogun MR, Odeyemi K, Salako BL. A Comparative Study of Knowledge, Attitude, and Determinants of Tuberculosis-Associated Stigma in Rural and Urban Communities of Lagos State, Nigeria. Tuberc Res Treat. 2020 Dec 3;2020:1964759. Doi: 10.1155/2020/1964759. PMID: 33343936; PMCID: PMC7728486.
04. Tobin EH, Tristram D. Tuberculosis. [Updated 2024 Aug 11]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-.
Available from: https://www.ncbi.nlm.nih.gov/books/NBK441916/
05. Amare W, Teshome MS, Dessie G, Malik T. Assessment of knowledge, attitude, and practices of tuberculosis patients towards DOTs regimen in Jimma health center, Jimma zone, southwest Ethiopia. J Clin Tuberc Other Mycobact Dis. 2022 Aug 4;28:100329. Doi: 10.1016/j.jctube.2022.100329. PMID: 35958355; PMCID: PMC9361319.
06. Gurung J, Bhutia ST, Pradhan P. An investigation of knowledge, attitude and practice towards tuberculosis among denizen of Sikkim. Indian Journal of Tuberculosis(2024), 12(2) Doi = {https://doi.org/10.1016/j.ijtb.2024.01.012}
07. Bhuvaneswari Mageshwari, Assess The Knowledge on Tuberculosis Among People Living in Rural Area, Research gate journal,2019, 1(1) DOi - 10.5281/zenodo.2611182
08. Kusheno FT, Nguse TM, Gebretekle GB. Assessment of Knowledge and Attitude of Tuberculosis Patients in Direct Observation Therapy Program towards Multidrug-Resistant Tuberculosis in Addis Ababa, Ethiopia: A Cross-Sectional Study. Tuberc Res Treat. 2020 Jun 6;2020:6475286. Doi: 10.1155/2020/6475286. PMID: 32566290; PMCID: PMC7298339.
09. Datiko DG, Habte D, Jerene D, Suarez P. Knowledge, attitudes, and practices related to TB among the general population of Ethiopia: Findings from a national cross-sectional survey. PLoS One. 2019 Oct 28;14(10):e0224196. Doi: 10.1371/journal.pone.0224196. PMID: 31658300; PMCID: PMC6816561.
10. Grace A, Gopalakrishnan S, R U. (2018). Knowledge, attitude and practices regarding pulmonary tuberculosis in a rural area of Tamil Nadu, India: a cross sectional study. International Journal Of Community Medicine And Public Health, 5(9), 4055–4064.
Available from: https://doi.org/10.18203/2394-6040.ijcmph20183595
11. Agrawal N, Kumar A, Ali N, Uppadhaya SK, Singh HK. Knowledge, Attitude and Practices Regarding Tuberculosis among Outpatients of a Rural Field Practice Area: A Cross-sectional Study in Uttar Pradesh, IndiaJ Clin of Diagn Res.2022; 16(8):LC06-
12. Ly C, Yich P, Thon K, Pen N, Thol S, Nou M, Sokhun C (2023). Knowledge and attitude on tuberculosisamong college students in Cambodia. The Journal of Palembang Nursing Studies. 2(1). 30-41.
13. De S, Neapram S, Saji J, John L, Memane K, Mule V. A study to assess the knowledge regarding tuberculosis among adults from selected urban and rural areas of Pune district, The Pharma Innovation Journal, 2019, 13(1)
14. Semachew A, Minibel A, Bantie GM. Knowledge, attitude and preventive practice towards tuberculosis among clients visiting public health facilities, BMC Research Notes journal,2019, 12(1). Doi = 10.1186/s13104-019-4292-2
15. Sharma SK. Nursing Research & Statistics. Noida: Reed Elsevier India pvt Limited.
16. Polit D, Beck C. Nursing Research: Generating & assessing evidence for nursing practice. 2011.
17. Shoaib M, Najeeb M, Shah ZH, Khan MH, Haroon M, Siraj N. 2024. “Cross Sectional Study on the Prevalence of Tuberculosis Among the District of Sudhnuti, Azad Jammu and Kashmir”. International Journal of Pathogen Research 13 (2):37-45.

18. Chauhan A, Parmar M, Dash GC, Solanki H, Chauhan S, Sharma J, Sahoo KC, Mahapatra P, Rao R, Kumar R, Rade K, Pati S. The prevalence of tuberculosis infection in India: A systematic review and meta-analysis. Indian J Med Res. 2023 Feb-Mar;157(2&3):135-151. Doi: 10.4103/ijmr.ijmr_382_23. PMID: 37202933; PMCID: PMC10319385.
19. Nour MO, Nour SO. Systematic review and meta-analysis of the prevalence, incidence and treatment outcomes of tuberculosis in Egypt: updated overview. East Mediterr Health J. 2024 Jan 21;30(1):32-45. Doi: 10.26719/emhj.24.003. PMID: 38415334.
20. Aynalem YA, Getacher L, Ashene YE, YirgaAkalu T, YidegYitbarek G, Yeshanew Ayele F, Aklilu D, Marfo EA, Alene T, Shibabaw Shiferaw W. Incidence of tuberculosis and its predictors among under-five children with severe acute malnutrition in North Shoa, Amhara region, Ethiopia: a retrospective follow-up study. Front Pediatr. 2023 May 19;11:1134822. Doi: 10.3389/fped.2023.1134822. PMID: 37274818; PMCID: PMC10237155.
21. Ullah S, Waseem M, Hussain H, Ullah R, Khan N, Muhammad W. Prevalence of Pulmonary Tuberculosis,International Medical Journal (1994), 2022,29(2)
22. Nabi A, Shah, N, Tripathi S, Nazir R, Bashir H. (2022). Study of Prevalence of Tuberculosis Disease in the North Indian Subcontinent Kashmir Valley. Journal of Clinical and Diagnostic Research 16(1) DOi - 10.7860/JCDR/2022/53062.15847.
23. Thomas BE, Thiruvengadam K, Vedhachalam C, A S, Rao VG, Vijayachari P, Rajiv Y, V R, Bansal AK, Indira Krishna AK, Joseph A, J AP, Hussain T, Anand P, Das P, John KR, Devi K R, P S, S A, Dusthakeer A, J B, K Chadha V, G S T, Raghunath D, Das M, Khan AM, Kaur H. Prevalence of pulmonary tuberculosis among the tribal populations in India. PLoS One. 2021 Jun 4;16(6):e0251519. Doi: 10.1371/journal.pone.0251519. PMID: 34086684; PMCID: PMC8177518.
24. Cheng J, Sun YN, Zhang CY, Yu YL, Tang LH, Peng H, Peng Y, Yao YX, Hou SY, Li JW, Zhao JM, Xia L, Xu L, Xia YY, Zhao F, Wang LX, Zhang H. Incidence and risk factors of tuberculosis among the elderly population in China: a prospective cohort study. Infect Dis Poverty. 2020 Jan 31;9(1):13. Doi: 10.1186/s40249-019-0614-9. PMID: 32005290; PMCID: PMC6995187.
25. Kesete Y. Assessment of the prevalence of pulmonary tuberculosis patients at Nakfa Hospital from 2014 to 2019, Eritrea,2020, The preprint server for health sciences, 14(2)
26. Eilaf A. Mohammed, Huriyyah A. Alotaibi, Assessment of knowledge, attitude and practice towards Tuberculosis among taif , 2023, MDPI journal 11(20)
27. Madebo M, Balta B, Daka D. Knowledge, attitude and practice on prevention and control of pulmonary tuberculosis index cases family in Shebedino District, Sidama Region, Ethiopia. Heliyon. 2023 Oct 2;9(10):e20565. Doi: 10.1016/j.heliyon.2023.e20565. PMID: 37818014; PMCID: PMC10560778.
28. Alimi N, Sakhi R. Knowledge, Attitude, and Practices Toward Tuberculosis Among Health Faculty and Non-Health Faculty Students of Kabul University and Kabul University of Medical Sciences, Kabul, Afghanistan. Adv Med Educ Pract. 2023 Jul 13;14:753-761. Doi: 10.2147/AMEP.S411323. PMID: 37469613; PMCID: PMC10353910.
29. Abu-Humaidan AHA, Tarazi A, Hamadneh Y, Al-Leimon A, Al-Leimon O, Aljahalin M, Ahmad F, Awajan D, Alaridah N. Knowledge, attitudes, and practices toward tuberculosis among Jordanian university students. Front Public Health. 2022 Nov 21;10:1055037. Doi: 10.3389/fpubh.2022.1055037. PMID: 36478722; PMCID: PMC9719926.
30. Al Khalili S, Al Yaquobi F, Al Abri B, Al Thuhli K, Al Marshoudi S, Al Rawahi B, Al-Abri S. Assessing Oman's knowledge, attitude and practice regarding tuberculosis: a cross-sectional study that calls for action. Int J Infect Dis. 2022 Nov;124 Suppl 1:S4-S11. Doi: 10.1016/j.ijid.2022.06.002. Epub 2022 Jun 11. PMID: 35697196.
31. Bashorun AO, Linda C, Omoleke S, Kendall L, Donkor SD, Kinteh MA, Danso B, Leigh L, Kandeh S, D'Alessandro U, Adetifa IMO. Knowledge, attitude and practice towards tuberculosis in Gambia: a nation-wide cross-sectional survey. BMC Public Health. 2020 Oct 17;20(1):1566. Doi: 10.1186/s12889-020-09685-3. PMID: 33069220; PMCID: PMC7568354.
32. Esmael A, Ali I, Agonafir M, Desale A, Yaregal Z, Desta K. Assessment of patients' knowledge, attitude, and practice regarding pulmonary tuberculosis in eastern Amhara regional state, Ethiopia: cross-sectional study. Am J Trop Med Hyg. 2013 Apr;88(4):785-8. Doi: 10.4269/ajtmh.12-0312. Epub 2013 Feb 18. PMID: 23419364; PMCID: PMC3617870.
33. Seloma NM, Makgatho ME, Maimela, E. Knowledge, attitude and preventative practice of tuberculosis in rural communities of Dikgale, Mamabolo and Mothiba health and demographic

surveillance system in Limpopo province, South Africa. BMC Public Health 23, 1687 (2023). https://doi.org/10.1186/s12889-023-15845-y

34. Izham MNM, Rahman NAA, Haque M, Almaiah MA, Narciso KS. Knowledge, Attitude and Practices Related to Tuberculosis among Students in a Public University in East Coast Malaysia ,Advances in Human Biology journal,2022,12(2)

35. Al Khalili S, Al Yaquobi F, Al Abri B, Al Thuhli K, Al Marshoudi S, Al Rawahi B, Al-Abri S. Assessing Oman's knowledge, attitude and practice regarding tuberculosis: a cross-sectional study that calls for action. Int J Infect Dis. 2022 Nov;124 Suppl 1:S4-S11. Doi: 10.1016/j.ijid.2022.06.002. Epub 2022 Jun 11. PMID: 35697196.

36. Mahmud S, Mohsin M, Irfan SH, Muyeed A, Islam A. Knowledge, attitude, practices, and determinants of them toward tuberculosis among social media users in Bangladesh: A cross-sectional study. PLoS One. 2022 Oct 11;17(10):e0275344. Doi: 10.1371/journal.pone.0275344. PMID: 36219607; PMCID: PMC9553051.

37. Anaam MS, Alshammari M, Alfadly S, Alsahali S, Almutairi A, Alanazi I, Alhatlani M, Alotaibi F, Alhazmi A, Alharbi F. Knowledge, Attitude and Practice towards Tuberculosis and its Treatment in Qassim Region, Saudi Arabia. The Open Public Health Journal, 2023,16(1) DOi-10.2174/0118749445265585231023101811

38. Kasa AS, Minibel A, Bantie GM. Knowledge, attitude and preventive practice towards tuberculosis among clients visiting public health facilities. BMC Res Notes. 2019 May 15;12(1):276. Doi: 10.1186/s13104-019-4292-2. PMID: 31092282; PMCID: PMC6521470

39. Angelo AT, Geltore TE, Asega T. Knowledge, Attitude, and Practices Towards Tuberculosis Among Clients Visiting Tepi General Hospital Outpatient Departments, 2019. Infect Drug Resist. 2020 Dec 21;13:4559-4568. Doi: 10.2147/IDR.S287288. PMID: 33376362; PMCID: PMC7762442.

40. Tolossa D, Medhin, G. & Legesse, M. Community knowledge, attitude, and practices towards tuberculosis in Shinile town, Somali regional state, eastern Ethiopia: a cross-sectional study. BMC Public Health 14, 804 (2014). https://doi.org/10.1186/1471-2458-14-804

41. Rohi J, Mehmooda R, effectiveness of PTP on knowledge regarding pulmonary TB among clients registered at District tuberculosis centre Pulwama Kashmir.International journal of technical research and science,20183(5) DOI: 10.30780/IJTRS.V2.I12.2018.024