

**AL MUTHANNA INTERNATIONAL TRAUMA CONFERENCE**  
**MAY 9 – 11, 2020**  
**SAMAWA, IRAQ**



**Under the patronage of His Excellency**  
**Professor Dr. President of the University, Prof. Dr. Amer Ali Al-Atwi**

**Prof. Dr. Basim Herez Ali Asudani, Dean of Al Muthanna Medical College**

**Prof. Dr. Nasser Ghaly Yousif, Conference Coordinator**

**Prof. Dr. S. G. Ahmed, Conference Scientific and Technical Coordinator,**  
**Egypt**

Publisher Website  
[www.scholarsliterature.com](http://www.scholarsliterature.com)

# Knowledge Assessment of Kirkuk Technical Students Regarding Pulmonary Tuberculosis

Al-Naqeeb SAR<sup>1\*</sup>, Jasim WM<sup>2</sup> and Husein ZA<sup>3</sup>

<sup>1</sup>PhD Medical Microbiology, Department of Nursing, Kirkuk Technical Institute, Northern Technical University, Iraq

<sup>2</sup>PhD Family Community Medicine, Department of Nursing, Kirkuk Technical Institute, Northern Technical University, Iraq

<sup>3</sup>M.Sc. Clinical Biochemistry, Ministry of Health, Kirkuk Health Directorate, Iraq

## Abstract

Tuberculosis (TB) is one of the most common infectious diseases worldwide and continues to be a major public health problem for low and middle-income countries. Several effective strategies have been implemented by the World Health Organization (WHO) to prevent and control the disease, including the directly observed treatment, short-course (DOTS) and stop TB strategies. The study aim was to assess the students' knowledge regarding the pulmonary tuberculosis causes, transmission method and the way of diagnosis. Across-sectional study was done on 530 students from different scientific departments in Kirkuk technical institute from the period of 31/12/2009 till 31/12/2010. A special prepared designed questionnaire form distributed to students after complete explanation about the study aim. The study presents that most of students from Health Departments go with the bacterial cause for pulmonary tuberculosis (63.7 %), while (57.5 %) of Technical Department go with the viral cause of the disease in comparison to (42.8 %) of study students from administrative depts. go with the parasitic cause of tuberculosis. The study recommended that the need for innovate the current infectious curriculum to promote TB knowledge and practices among health students.

**Keywords:** Assessment; Tuberculosis; Students; Knowledge

\***Correspondence to:** Suzan Adil Rashid Al-Naqeeb, PhD Medical Microbiology, Department of Nursing, Kirkuk Technical Institute, Northern Technical University, Iraq; E-mail: [suzan.adel@ntu.edu.iq](mailto:suzan.adel@ntu.edu.iq)

**Citation:** Al-Naqeeb SAR, Jasim WM, Husein ZA (2020) Knowledge Assessment of Kirkuk Technical Students Regarding Pulmonary Tuberculosis. *Prensa Med Argent*, S1-008. DOI: <https://doi.org/10.47275/0032-745X-S1-008>.

**Received:** May 09, 2020; **Accepted:** May 19, 2020; **Published:** May 21, 2020

## Introduction

Tuberculosis is an bacterial infection with *Mycobacterium tuberculosis*, which most commonly affects the lungs called (pulmonary tuberculosis), but it can also affect the others organs like the central nervous system called (meningitis), lymphatic system, circulatory system which referred as (military TB), and genitourinary system, bones and joints [1]. Nowadays tuberculosis is the most common major infectious disease because two billion people or one-third of the world's population, with nine million new cases of active disease annually were affected with TB, resulting in two million deaths, mostly in developing countries [2]. *Mycobacterium tuberculosis* carries through airborne particles, or droplets nuclei and these particles are estimated to be 1-5 µm in diameter, which can be generated by laryngeal TB sneeze leading to cough, speak or sing [3,4]. There are many predisposing factors for TB infection, which include [5,6]:

- Contact with large populations of people
- Poor nutrition
- IV drug use
- Alcoholism
- HIV infection

The clinical back grounds on which TB should be suspected are persistent cough for more than three weeks; pleural pains, hemoptysis, pneumothorax, weight loss, fever and lethargy with generalized weakness [7,8]. BCG vaccination, which used in many countries all over the world as a part of TB control program especially for infants. The protective efficacy of BCG for preventing serious forms (meningitis and military TB), is high in children; more than 80% [9]. Close contact of TB means the (people with, prolonged continuous or intense contact) are at highest risk of becoming infected, typically 22% infection rate but may reach up to 100% [10,11]. The main principle of chemotherapy of TB is to avoid resistance by treating with at least two drugs to which the organism is likely to be sensitive. Pulmonary TB, caused by sensitive organism should be treated daily with (INH 5mg/kg, Rifampin 10mg/kg, Pyrazinamide 35mg/kg and Streptomycin 15 mg/kg) for two months, followed by Rifampin and INH for four months [12]. Achieving a high level of tuberculosis (TB) awareness is necessary for the success of prevention and treatment efforts in high-risk groups, and thus represents a key challenge for public health initiatives [13]. Burden of Tuberculosis in Iraq, has been identified as middle TB burden country in the world, and ranks 17<sup>th</sup> of 22 Eastern Mediterranean Rank (EMR) countries according to estimated incidence of all forms of TB and 19<sup>th</sup> according to estimated incidence of numbers of all forms TB [14].



## Aim

To assess the students' knowledge regarding the causative agent, route of transmission, and the diagnostic method among different scientific departments in Kirkuk technical institute.

## Subjects and Methods

### Study Agreements

Official permission taken from Kirkuk Technical departments before establishing the study.

### Study Setting and Period

The study done in various departments belong to Kirkuk Technical Institute form the period of 31/12/2009 to 31/12/2010.

### Sampling Techniques

A total 530 students from different scientific departments including;

Department	Number of students included
Nursing	146
Community health	140
Sewing design	54
Survey	52
Computer system	82
Accounting	56

A randomly selected student after receiving verbal agreements for participation in the study with full detail explains about the study aim.

### Data Collection Tool

A special designed questioner form prepared by the investigators utilizing the current available books.

The questioner includes four main parts:

- Demographic distribution of the study sample like age, sex, educational level, residence and study stage.
- Students' knowledge about the disease causative agent.
- Students' knowledge about the root of disease transmission.
- Students' knowledge about the main methods of T.B diagnosis.

### Statistical Analysis

The data was calculated as: Questions with yes or no, a number and % was calculated. Chi-square test was used to detect the relation between studies variables

## Results

**Table 1:** Study student's distributions according to their departments.

Department	No. of Students	%
Health Departments (Community Health & Nursing)	286	53.9%
Administrative Department (Computer System& Accounting)	138	26.1%
Technical Department (Survey & Sewing Design)	106	20.0%
Total	530	100.00%

Table 2 shows the majority of study students, were female (65.8%), between the ages of 20-22 years (83.4 %), living in urban area (85.3 %) and from second stage (60.2 %).

Table 3 shows that most of students from Health Departments go with the bacterial cause for pulmonary tuberculosis (63.7 %), while (57.5 %) of technical department go with the viral cause of the disease in comparison to (42.8 %) of study students from administrative depts. go with the parasitic cause of tuberculosis with a P value = 0.000.

Table 4 presents that 63.3% of Health students go with the cow milk which is the main root of disease transmission with 45.3% of Technical students go with the droplet infection in comparison to 57.2% of administrative dept. go with cow milk as a main source of disease transmission with a P value = 0.000.

Table 5 shows that both students from Health and Technical dep. go with the radiology as a main method for disease diagnosis (43.0%, 66.9%) respectively with a p value = 0.000 while 63.0 of administrative students go with the bacteriology as a diagnostic method for the pulmonary tuberculosis with a p value = 0.000.

**Table 2:** Distribution of study students according to their demographic character.

Parameter	Total study Sample: 528	
	No.	%
Sex	Male	181 34.2 %
	Female	349 65.8
Age	<20 years	71 13.4
	20-22 years	442 83.4
	>22 years	17 3.2
Existence	Urban	452 85.3
	Rural	78 14.7
Knowledge	1 <sup>st</sup>	211 39.8
	2 <sup>nd</sup>	319 60.2

**Table 3:** Distributions of study students according to their knowledge about the causative agent.

Causative agent of pulmonary tuberculosis	Health students (Nursing+ Community of Health) N=286		Technical Students (Design+ Survey) N=106		Administrative students (Accounting+ Computer System) N=138		P Value
	No.	%	No.	%	No.	%	
Viral	55	19.2%	61	57.5%	42	30.4 %	0.000
Bacterial	182	63.7%	34	32.1%	37	26.6%	0.000
Parasitic	49	17.1%	11	10.4%	59	42.8%	0.000

Where: x2 - Test was used

**Table 4:** Frequency distribution of students according to their knowledge about the root of transmission.

Root of Transmission	Health students (Nursing+ Community of Health) N=286		Technical Students (Design+ Survey) N=106		Administrative students (Accounting+ Computer System) N=138		P value
	No.	%	No.	%	No.	%	
Direct	93	32.5 %	37	34.9%	32	23.2 %	0.082
Cow Milk	181	63.3 %	21	19.8 %	79	57.2 %	0.000
Droplet infection	12	4.2 %	48	45.3%	27	19.6 %	0.000

Where: x2-Test was used



**Table 5:** Study Students Distributions of study students according to the diagnostic method of pulmonary tuberculosis.

Diagnostic method	Health students (Nursing+ Community of Health) N=286		Technical Students (Design+ Survey) N=106		Administrative students (Accounting+ Computer System) N=138		P value
	No.	%	No.	%	No.	%	
Radiology (chest X-ray)	123	43.0 %	71	66.9 %	19	13.8 %	0.000
Hematology (Blood exam)	65	22.7 %	22	20.8 %	32	23.2 %	0.891
Bacteriology (sputum exam)	98	34.3 %	13	12.3 %	87	63.0 %	0.000

Where: x2-Test was used

## Discussion

The current study show that majority of students go with the different causative agents for pulmonary tuberculosis. A study was done by *yangiangetal* in china among final year medical students to assess their knowledge, attitude and practice towards tuberculosis. They found that the total mean percentage of correct answers for TB knowledge was 44.4% (SD 13.5%), including 52.5% (SD 16.8%) for epidemiology and prevention, 35.7% (SD 16.1%) for diagnosis, and 47.5% (SD 22.7%) for the causative agent. Medical students who reported observing at least one TB case and an X-ray of a TB patient had a higher percentage of correct answers for epidemiology and prevention (54.4% vs. 43.9%,  $p < 0.001$ ; 54.3% vs. 42.1%,  $p < 0.001$ ), diagnosis (37.2% vs 29.0%,  $p < 0.001$ ; 37.1% vs. 27.5%,  $p < 0.001$ ), infectious cause (50.0% vs. 36.0%,  $p < 0.001$ ; 49.5% vs. 35.7%,  $p < 0.001$ ) and total score (46.2% vs. 36.2,  $p < 0.001$ ; 46.0% vs. 34.7%,  $p < 0.001$ ). Older medical students ( $\geq 23$  years) had greater knowledge than younger medical students ( $< 23$  years) regarding diagnosis (37.2% vs. 31.7%,  $p < 0.001$ ) [15], concerning the student's knowledge about the route of disease transmission, the present study show that there was a significant variation between different departments. A similar study was done by *Jorge et al* /to determine the level of knowledge and attitudes about tuberculosis that high school students have in a district of Peru Northwest coast (Chiclayo) by conducting a self- questionnaire sheet and they found that the average knowledge score was 8.39 out of 20 possible points as maximum. 18.8% of the students had adequate level of knowledge about TB. 51.41% showed positive attitudes towards patients with TB. Only 43.26% showed adequate knowledge in prevention. Lower values obtained in treatment (19.12%). There was association between adequate knowledge and having more schooling years, urban origin, and positive attitudes towards tuberculosis ( $p < 0.05$ ). Women displayed more positive attitudes as well as students from urban areas [16]. A further study was taken in Babylon/Iraq during 2018 to evaluate the knowledge of nursing students regarding tuberculosis. The main results shows the sample mean for the evaluation of the clinical education was 89.1, standard deviation 4.8 while the hypothetical average was 68 with t-test of 7.9 which indicates strong significant results that means students benefit from the clinical learning was very good and the clinical part of the learning process is very interested. The primary objective of measuring clinical performance in nursing education is to ensure students can provide safe care [17]. For table 5 about the students knowledge regarding disease diagnosis, the study show that both students from Health and Technical department go with the radiology as a main method for disease diagnosis while administrative students go with the bacteriology is the essential diagnostic method for the pulmonary tuberculosis. A study was contributed by Ahmed K, et al (2015), in college of health and medical technology/Baghdad/Iraq during 2015 to evaluate the student's knowledge about pulmonary tuberculosis. The study included all stages

and departments of the college, using questionnaire format including (stage, department, sex and age for the student) and other questions about the disease. They found that students in (fourth, third and second) stages have good information about causative agent of TB and have percentages in arrangement(30.1%, 22.1%, 23.9%). This study show the smoking is have the highest percentage among other risk factors which cause TB (84.5%) [18]. Further study was done by Rana M, et al. (2015) in Bangladesh to assess the level of knowledge regarding tuberculosis among non-medical university students. They found that most of the students (94.4 %) were informed about the term TB, among them 50 % got information from electronic media. More than 50 % students believed that TB is a communicable disease, 42.8 % students agreed that bacteria is an agent for TB, most of the subjects (93 %) had the knowledge about the vaccination against TB and 97.6 % students believed that TB is curable. However, students had poor knowledge about latent TB (13.7 %) and DOTs program (28.5 %).and diagnostic method  $\chi^2$ -test demonstrated that gender, residence, type of family and parents education were associated with students' knowledge of TB [19].

## Conclusions

- There was quite difference between students' knowledge regarding pulmonary tuberculosis in various aspects (Causative agents, root of transmission and diagnostic method).
- There was a defect in health student department's knowledge in disease causation and transmission.
- Other scientific departments show a various knowledge aspect about pulmonary tuberculosis.

## Recommendations

- Essential microbiological curriculum can be implemented in health departments to increase students' knowledge and attitude about many infectious disease transmissions.
- More advanced training program about the health education for communicable and non-communicable diseases.
- Specific popular large sample studies can be adapted to assess the level of students' knowledge, practice and awareness for disease transmission, and causation.

## References

1. World Health Organization (2006) The global plan to stop tuberculosis 2006-2015, Switzerland.
2. Raviglione MC, Uplekar MW (2006) WHO's new stop TB strategy. *Lancet* 367: 952-955.
3. Dye C, Maher D, Weil D, Espinal M, Raviglione M (2006) Targets for global tuberculosis control. *Int J Tuberc Lung Dis*10: 460-462.



4. World Health Organization (2018) WHO Global tuberculosis report 2018, Switzerland.
5. Dye C, Lönnroth K, Jaramillo E, Williams BG, Raviglione M (2009) Trends in tuberculosis incidence and their determinants in 134 countries. *Bull World Health Organ* 87: 683-691.
6. Woith WM, Volchenkov G, Larson JL (2010) Russian health care workers' knowledge of tuberculosis and infection control. *Int J Tuberc Lung Dis* 14: 1489-1492.
7. Irani AD, Shahraki AH, Ghaderi E, Nasehi M, Mostafavi E (2015) Lack of optimum practice among health care workers regarding tuberculosis in Iran: a knowledge, attitude, and practice study. *Am J Infect Control* 43: e7-e12.
8. Li Y, Ehiri J, Tang S, Li D, Bian Y, et al. (2013) Factors associated with patient, and diagnostic delays in Chinese TB patients: a systematic review and meta-analysis. *BMC Med* 11: 156.
9. Montagna MT, Napoli C, Tafuri S, Agodi A, Auxilia F, et al. (2014) Knowledge about tuberculosis among undergraduate health care students in 15 Italian universities: a cross-sectional study. *BMC Public Health* 14: 970.
10. Teixeira EG, Menzies D, Cunha AJ, Luiz RR, Ruffino-Netto A, et al. Knowledge and practices of medical students to prevent tuberculosis transmission in Rio de Janeiro, Brazil. *Rev Panam Salud Publica* 24: 265-270.
11. Behnaz F, Mohammadzade G, Mohammadzadeh M (2014) Assessment of knowledge, attitudes and practices regarding tuberculosis among final year students in Yazd, central Iran. *J Epidemiol Glob Health* 4: 81-85.
12. Olakunle OS, Oladimeji O, Olalekan AW, Olugbenga-Bello A, Akinleye C, et al. (2014) Knowledge of tuberculosis management using directly observed treatment short course therapy among final year medical students in south Western Nigeria. *Pan Afr Med J* 18: 32.
13. Zhao Y, Ehiri J, Li D, Luo X, Li Y (2013) A survey of TB knowledge among medical students in Southwest China: is the information reaching the target? *BMJ Open* 3: e003454.
14. Lewis MD, McKew JP, Neuzi KE, Akasaka T (2017) Highly selective Src kinase inhibition protects myocardial injury after ischemia/reperfusion. *Am J Biomed Sci* 5: 146-158.
15. Ou Y, Luo Z, Mou J, Ming H, Wang X, et al. (2018) Knowledge and determinants regarding tuberculosis among medical students in Hunan, China: a cross-sectional study. *BMC Public Health* 18: 730.
16. Cordova JG, Rojas VE (2017) Attitudes and knowledge regarding tuberculosis in high school students, a cross sectional survey in Northwest Peru. *Eur Respir J* 50: PA552.
17. Jihad SK (2012) Evaluation of clinical education among students of Nursing college in Babylon University. *Kufa J Nurs Sci* 2: 1-6.
18. Jawad AK, Al-Hakak ZM, Abdul MA (2016) Assessment of students' knowledge about pulmonary tuberculosis disease in college of health and medical technology, Baghdad, Iraq. *AGERC, 4<sup>th</sup> Int Sci Conf Genet Envr*, Cairo, Egypt.
19. Lindtjörn BF, Phiri WG, GMann GD (2017) Outcome of DOTS: effectiveness assessment of treatment among tuberculosis patients in Guinea. *Am J Biomed* 5: 231-242.