

## Knowledge about Tuberculosis among Secondary School Students in Baghdad City

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### **Abstract:**

**Background:** Community awareness in general and in young generations in particular is of vital importance in combating tuberculosis which is a leading cause of morbidity and mortality in developing countries. Tuberculosis is still a prevalent disease in our country.

**Objective:** To assess the knowledge of secondary school students regarding tuberculosis.

**Methods:** This descriptive cross-sectional study was conducted in Al-Karkh district of Baghdad during the period from November 2015 to April 2016. The sample size was determined at 1000 students from the total number of 63464 students.

A simple random sampling technique was adopted to select schools from each of the ten sectors; this resulted in collecting a total of 20 schools (ten schools for males and ten for females).

The students were randomly selected from those schools, 500 male & 500 Female, using a systematic random sampling technique by choosing every other student from the selected classes.

The study instrument included multiple choice questions about the cause of the disease, the route of transmission, vaccination, symptoms, availability of treatment, transmission and prevention. The questionnaire was developed by the researcher making use of previous studies and WHO standards.

**Results:** On average, 42% of the questions were answered correctly, only 27.2% knew that TB was caused by bacteria, 40.8% knew that TB's first symptom was a cough of more than 3 weeks, 56.5% knew that TB is associated with loss of appetite & weight loss, 39.8% knew that TB is associated with fever & night sweats, only 38% of students knew that it is transferred by respiratory droplets, 60.6% knew that the first organ most commonly affected by TB is the lung, 44% knew that the TB vaccine is BCG, only 23.1% knew that sputum examination is used to help identify TB, 56.3% knew that covering your mouth during coughing & sneezing helps prevent disease spread, only 33.4% knew that TB treatment is available in all primary health care centers (PHCC).

**Conclusion:** Only about one third of the student sample had good knowledge regarding Tuberculosis, also female students had a higher level of knowledge than male students.

**Keywords:** Tuberculosis, secondary school, Knowledge, Baghdad.

### **Introduction:**

Tuberculosis is a global health problem, an infectious bacterial disease caused by *Mycobacterium Tuberculosis*, first discovered by Robert Koch on March 24th, 1882,<sup>[1]</sup> for which he was granted the Nobel Prize in Physiology or Medicine 1905<sup>[2]</sup>. Despite many advances throughout history in the fight against Tuberculosis, it remains a leading cause of morbidity & mortality especially in our country & other developing countries.<sup>[1]</sup>

In a recent WHO report, released on Oct 28<sup>th</sup> 2015, it was reported that TB deaths were halved in comparison to 1990, but still 4,400 people die each day worldwide as a consequence of Tuberculosis, it is estimated that TB have killed 1.5 million people in 2014 alone, which is unacceptable in an era where you can diagnose & cure almost every person with TB.<sup>[3]</sup>

One of the most important aspects in the fight against TB is to educate the community about its ways of spread & how social factors such as overcrowding and social stigma of TB are important in disease prevention.<sup>[4]</sup> There are no similar studies done previously in Iraq. Regionally, the most similar KAP study was done in Tehran in 2006 which included 5000 students, and showed that the knowledge level of students regarding TB was low and that they also, had low knowledge regarding

tuberculosis (especially boys).<sup>[5]</sup> Another similar study was done in Mysore city, India, which included 129 high school students and concluded that knowledge about disease causation, manifestation and cough hygiene was good, but knowledge was limited with respect to management.<sup>[6]</sup> One of the most important goals to achieve from increasing student knowledge regarding TB is decreasing TB stigmatization because the fear of the social and economic consequences following diagnosis can make individuals reluctant to seek and complete medical care.<sup>[7]</sup> The objective of this study is to assess the knowledge of students regarding TB, TB symptoms, ways of transmission & TB treatment, as a step toward improving community awareness regarding Tuberculosis.

**Methods:** This descriptive cross-sectional study was conducted in Al-Karkh district of Baghdad during the period from November 2015 to April 2016. The sample size was determined at 1000 students from the total number of 63464 students.<sup>[8]</sup>

A simple random sampling technique was adopted to select schools from each of the ten sectors; all 10 sectors of Al-Karkh district were included, this resulted in collecting a total of 20 schools (ten schools for males and ten for females). The students were randomly selected from those schools, 500 males

&500 Females, using a systematic random sampling technique by choosing every other student from the selected classes., a total number of 50 students was selected from each school. Students were given a self-administered questionnaire in the local Arabic language having a total of 10 multiple choice questions. The study instruments included multiple choice questions about the cause of the disease, the route of transmission, vaccination, symptoms, availability of treatment and how to prevent transmission if a person is infected,<sup>[9]</sup> The questionnaire questions were prepared based on the literature review and using WHO guidelines, and approved and given ethical approval by a committee of the Iraqi Ministry of Health, questions were weighted evenly, students who answered 6 or more questions correctly were labeled as having good knowledge, while those who answered 5 or less were considered as having poor knowledge according to the MOH committee recommendation, data was tabulated and analyzed using Microsoft Excel software.

**Results:** On average, 42% of the questions were answered correctly, only 27.2% answered that TB was caused by bacteria, 40.8% answered that TB's first symptom was a cough of more than 3 weeks, 56.5% answered that TB is associated with loss of appetite & weight loss, 39.8% answered that TB is associated with fever & night sweats, only 38% of students answered that it is transferred by respiratory droplets, 60.6% answered that the first organ most commonly affected by TB is the lung, 44% answered that the TB vaccine is BCG, only 23.1% answered that sputum examination is used to help identify TB, 56.3% answered that covering your mouth during coughing & sneezing helps prevent disease spread, only 33.4% answered that TB treatment is available in all PHCC. Only 29.2% of students answered 6 questions or more correctly, however, there was a significant difference in the percentage of students with good knowledge between male & female students, as 33.8% of females, and 25.8% of males had good knowledge regarding TB.

**Table 1.** Level of Knowledge of TB in student population

	Males	%	Females	%	Total
<b>Good Knowledge</b>	129	26%	169	34%	298
<b>Poor Knowledge</b>	371	74%	331	66%	702
<b>Total</b>	500	100%	500	100%	1000

**Table 2.** Answer Percentage for each question

	Question	True	False
1	<i>TB caused by Bacteria</i>	27.2%	72.8%
2	<i>First symptom is cough for more than 3 weeks</i>	40.8%	59.2%
3	<i>Associated with loss of appetite &amp; weight loss</i>	56.5%	43.5%
4	<i>Associated with fever &amp; night sweats</i>	39.8%	60.2%
5	<i>Transferred by respiratory droplets</i>	38.0%	62.0%
6	<i>First organ affected is the Lung</i>	60.6%	39.4%
7	<i>TB vaccine is BCG vaccine</i>	44.0%	56.0%
8	<i>Sputum examination is used to recognize TB</i>	23.1%	76.9%
9	<i>Covering mouth while coughing prevents disease spread</i>	56.3%	43.7%
10	<i>TB treatment is available in all PHCCs</i>	33.4%	66.6%
	<b>-Average</b>	<b>42%</b>	<b>58%</b>

**Discussion:** TB is a major public health challenge, even though Iraq is not one of the TB high burden countries,<sup>[1]</sup> TB remains endemic in Iraq,<sup>[10]</sup> and due to Iraq's instability, plus social & cultural practices, TB reporting, diagnosis & treatment efforts remain inadequate.<sup>[10]</sup> Taking a different perspective in the fight against TB, is to tackle primary & secondary prevention, through health education, using schools, colleges & the media to spread the knowledge regarding good health practices that permit early disease recognition & prevent TB spread.<sup>[11]</sup> Considering their age, the knowledge of students that were part of the study was generally inadequate, especially considering TB is taught at schools as a biology subject at the third

(9<sup>th</sup>) grade of middle school, it is described in good detail as a biology subject, but as a community health problem, it seems the educational effort is rather lacking as it is more directed towards memorizing words and has no student involvement in health practices.<sup>1</sup> From a public health point of view, a successful educational system should provide a comprehensive health education program that deals with issues that are common, dangerous & community relevant. Such a program provides an introduction to the human body and to factors that prevent illness and promote or damage health.

Health subjects' curricula in secondary schools include Nutrition & weight management, injury prevention, first aids, but it is deficient in

issues related to causes, transmission and prevention of infectious diseases of which Iraq is still endemic with especially tuberculosis. It should be noted that the teachers are not to blame, as we have to remind ourselves that their core business is education and their level of expertise in health education is minimal, and we need to start building coalitions to help design and implement an intensified community TB prevention and control effort, the first step towards that goal would be initiating public awareness campaigns in schools to increase the level of awareness about the growing TB problem. We should not underestimate the role of schools in teaching that TB is curable and preventable, that the cost of diagnosing and treating TB is almost free in Iraq, the big role they play in reducing stigma, and in helping affected individuals reach diagnostic and treatment facilities. Quite reassuring is the fact that the category with the highest number of correct answers was related to TB transmission, followed by TB symptoms, there was a wide variation in correct answers percentage from 23.1% to 60.6%, If we exclude general information, the category with the least community effect and the highest variance in answers regarding TB transmission, symptoms and treatment were between 33.4% and 56.5%. All these figures show that there is a gap, because the aims in teaching process are more academic than community based, and this does not work in health maintenance, it is not a matter of working harder, it is more a matter of working smarter.

**Conclusion:** it can be concluded from this study that generally the knowledge of secondary schools' students is Only 29.2% of students answered 6 questions or more correctly, however, there was a significant difference in the percentage of students with good knowledge (6 or more correct answers) between male & female students, as 33.8% of females, and 25.8% of males had good knowledge regarding TB.

**Recommendations:** In order for society to win the fight against TB, schools must play their vital role in the achievement of public health goals in conjunction with their educational commitment. For this to become a reality, teachers should deviate from the current system of memorizing words into teaching students more approachable scenarios that allow for more student involvement. Printing of a booklet that is handed out along with the curriculum

textbooks containing information regarding the most important & community relevant health messages that we want our young generation to learn, the booklet should be community relevant and in the simplest language possible, and it should include the use of graphic design to increase the attention given to the booklet.

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