Knowledge about tuberculosis among secondary school Teachers in Baghdad City  
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Abstract:
Background: Teachers and schools play an important role in health promotion. Community awareness in general and in educational teaching staff 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 determine the level of knowledge of secondary school teachers regarding tuberculosis.

Methods: This descriptive cross-sectional study was conducted in Al-Karkh section of Baghdad during the period from November 2015 to April 2016. The sample size was determined at 500 teachers from the total number of 50 schools.

A simple random sampling technique was adopted to select schools from each of the ten sectors; this resulted in a total of 50 schools (25 schools for males and 25 for females). 10 teachers were randomly selected from those schools for a total of 250 male & 250 Female teachers.

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, 50.2% of the questions were answered correctly, only 34.6 % knew that TB was caused by bacteria, 53.6 % knew that TB’s first symptom was a cough of more than 3 weeks, 64.2 % knew that TB is associated with loss of appetite & weight loss, 45.6 % knew that TB is associated with fever & night sweats, only 56.6 % of students knew that it is transferred by respiratory droplets, 70 % knew that the first organ most commonly affected by TB is the lung, 46.2 % knew that the TB vaccine is BCG, only 36.6 % knew that sputum examination is used to help identify TB, 59.9 % knew that covering your mouth during coughing & sneezing helps to prevent disease spread, only 35.4% knew that TB treatment is available in all primary health care centers.

Conclusion: More than one third of the secondary school teachers had good knowledge regarding Tuberculosis, also female teachers had a higher level of knowledge than male teachers.

Keywords: Tuberculosis, secondary school teachers, Knowledge.

Introduction
Tuberculosis is re-emerging as a global public health problem and there is a need to have better understanding of the educational communities’ perception of the disease to implement better prevention and control. Tuberculosis is a global health problem, an infectious bacterial disease caused by Mycobacterium Tuberculosis, first discovered by Robert Koch on March 24th, 1882 for which he was granted the Nobel Prize in Physiology or Medicine 1905 despite many advances throughout history in the fight against Tuberculosis, it remains a leading cause of morbidity & mortality especially in developing countries. Schools continuously seen as important avenues for TB health education given the multiplier effect such intervention is likely to have on the teachers, students, their families, communities and others in their environment.

In the Global Tuberculosis report for 2017 published by the WHO, TB is the ninth leading cause of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS. In 2016, there were an estimated 1.3 million TB deaths among HIV-negative people (down from 1.7 million in 2000) and an additional 374 000 deaths among HIV-positive people. An estimated 10.4 million people fell ill with TB in 2016: 90% were adults, 65% were male, 10% were people living with HIV (74% in Africa) and 56% were in five countries: India, Indonesia, China, the Philippines and Pakistan, 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.

Even though Iraq is not one of the TB high burden countries, TB remains endemic in Iraq, and due to Iraq’s instability, plus social & cultural practices, TB reporting, diagnosis & treatment efforts remain inadequate.

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.

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.

There are no similar studies done regarding TB previously in Iraq, the most similar KAP study was done in Kurdistan in 2011 on 106 teachers, revealed a low knowledge level of teacher regarding communicable diseases as the majority of the teachers responses were very poor.

A similar KAP study was done in UK in 2012 which included 74 teachers, and showed a lack in knowledge of teachers regarding health promotion and a lack of attention paid to public health priorities.

One of the most important goals to achieve from increasing teachers’ knowledge regarding TB is decreasing TB stigmatization as the fear of the social and economic consequences following diagnosis can
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make individuals reluctant to seek and complete medical care. [9]
The objective of this study is to determine the level of the knowledge of teachers regarding TB.

Methods:
This descriptive cross-sectional study was conducted in Al-Karkh side of Baghdad during the period from November 2015 to April 2016. The sample size was determined at 500 teachers from 50 secondary schools. [10]

A simple random sampling technique was adopted to select 5 schools from each of the ten sectors; all 10 sectors of Al-Karkh side were included, this resulted in collecting a total of 50 schools (twenty five schools for males and twenty five for females).

The teachers were randomly selected from those schools, 250 males & 250 Females, using a systematic random sampling technique by choosing ten teachers from the selected schools, a total of 10 teachers were selected from each school. Teachers 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. [11] 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, teachers 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, 50.2 % of the questions were answered correctly, only 34.6 % answered that TB was caused by bacteria, 53.6% answered that TB's first symptom was a cough of more than 3 weeks, 64.2 % answered that TB is associated with loss of appetite & weight loss, 45.6 % answered that TB is associated with fever & night sweats, only 56.6 % of students answered that it is transferred by respiratory droplets, 70 % answered that the first organ most commonly affected by TB is the lung, 46.2 % answered that the TB vaccine is BCG, only 36.6 % answered that sputum examination is used to help identify TB, 35.4% answered that covering your mouth during coughing & sneezing helps prevent disease spread, only 35.4% answered that TB treatment is available in all PHCC.

Only 37.8% of teachers answered 6 questions or more correctly, however, there was a difference in the percentage of teachers with good knowledge between male & female teachers, as 39.2 % of females, and 36.4 % of males had good knowledge regarding TB.

<table>
<thead>
<tr>
<th>Question</th>
<th>Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 TB caused by Bacteria</td>
<td>34.6%</td>
</tr>
<tr>
<td>2 First symptom is cough for more than 3 weeks</td>
<td>53.6%</td>
</tr>
<tr>
<td>3 Associated with loss of appetite &amp; weight loss</td>
<td>64.2%</td>
</tr>
<tr>
<td>4 Associated with fever &amp; night sweats</td>
<td>45.6%</td>
</tr>
<tr>
<td>5 Transferred by respiratory droplets</td>
<td>56.6%</td>
</tr>
<tr>
<td>6 First organ affected is the Lung</td>
<td>70%</td>
</tr>
<tr>
<td>7 TB vaccine is BCG vaccine</td>
<td>46.2%</td>
</tr>
<tr>
<td>8 Sputum examination is used to recognize TB</td>
<td>36.6%</td>
</tr>
<tr>
<td>9 Covering mouth while coughing prevents disease spread</td>
<td>59.4%</td>
</tr>
<tr>
<td>10 TB treatment is available in all PHCCs</td>
<td>35.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question</th>
<th>Males</th>
<th>%</th>
<th>Females</th>
<th>%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Knowledge</td>
<td>91</td>
<td>36%</td>
<td>98</td>
<td>39%</td>
<td>189</td>
</tr>
<tr>
<td>Poor Knowledge</td>
<td>159</td>
<td>64%</td>
<td>152</td>
<td>61%</td>
<td>311</td>
</tr>
<tr>
<td>Total</td>
<td>250</td>
<td>100%</td>
<td>250</td>
<td>100%</td>
<td>1000</td>
</tr>
</tbody>
</table>
Discussion:

Overall, the knowledge of teachers that were part of the study was generally limited, especially considering TB is taught at schools as a biology subject at the third (9th) 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 active teaching involvement in health practices.

The increased rate of correct answers in questions related to Tuberculosis symptoms may be due to the respondent answering the questions with an image of a patient with Tuberculosis on their mind (an elderly person who is coughing blood & looks thin & cachexic). This observation is somewhat reassuring as it is the most related to Tuberculosis recognition & transmission, which are the aspects which we want to focus on and have the greatest impact on community health, while at the same time the fact that the question answered most correctly (Q6: First organ affected is the lung) was answered correctly only 70% of the time confirms that there is a considerable gap in health education that needs to be filled.

The respondents had limited information concerning bacteria as a causative agent of TB. Which is more or less similar to other studies done in the Somali region of Ethiopia[12,13,14], Southwest Ethiopia[15], as well as the Afar region, Ethiopia[16], Kenya[17], and Pakistan[18]. Keeping in mind that those studies were population based & not based on teacher communities. Poor knowledge regarding the causative agent of the disease may have a negative impact on the patients' attitude towards health seeking behavior & preventive methods as most people with such beliefs may not visit health facilities or may consider other traditional therapy alternatives.

Based on the results of this study, the respondents had basic knowledge about common signs/symptoms of TB, which is in accordance with previous population-based studies in our country [19], Ethiopia[16] and the Philippines[20]. In this regard it was reported that persistent cough, loss of appetite, weight loss, fever & night sweats were common signs & symptoms of TB. This level of community knowledge regarding TB symptoms has an important implication for the TB control program in that it could reduce diagnosis & treatment delay, as well as disease spread.

An important aspect noted in this study is that respondents were more aware of the prevention methods, and methods of TB spread than other aspects of the disease, their level of knowledge was in accordance with studies such as that by Melaku et al in Ethiopia[12]. Accordingly the transfer of TB by respiratory droplets, the lung being the organ first affected by the disease & covering mouth while coughing or sneezing were similarly documented by other studies in Ethiopia[12,15] & Pakistan[21], keeping in mind these studies were population based & included study samples mainly from rural areas.

Respondents in this study had basic knowledge regarding BCG vaccination, this may be related to the family status of the respondent, those who have recently had children and had them vaccinated were more likely to know the answer than those who are single or have older children.

Respondents had limited knowledge regarding the method of diagnosis (sputum examination, and mostly believed that diagnosis required more invasive testing which may lead to increased avoidance of health services for fear of invasive testing.

An important aspect noted in this study is the limited knowledge of the teacher population regarding TB treatment, which reflects an inadequacy of the health promotion system implemented in our region, Especially regarding TB.

Conclusion:

It can be concluded from this study that generally the knowledge of secondary schools teachers is Only 37.8% of teachers answered 6 questions or more correctly, however, there was a difference in the percentage of teachers with good knowledge (6 or more correct answers) between male & female teachers, as 39.2% of females, and 36.4% of males had good knowledge regarding TB.

Recommendations:

TB health promotion in schools should be strengthened on an ongoing basis and in coordination with local TB control departments and district-level Centers for Disease Control and Prevention. There is a need for targeted efforts to educate teaching staff about TB since the teachers can be a major source of information to students including their own families and others in their circles of influence.

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.

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*Ministry of Health