

*Tanaffos* (2006) 5(4), 23-28

©2006 NRITLD, National Research Institute of Tuberculosis and Lung Disease, Iran

## Assessment of the Amount of Knowledge and Attitude of Tehran High School Students Regarding Tuberculosis

Mohammad Ali Emam Hadi <sup>1</sup>, Maryam Jalilvand <sup>2</sup>, Mina Hadian <sup>2</sup>

<sup>1</sup> Department of Legal Medicine, NRITLD, Shaheed Beheshti University of Medical Sciences and Health Services, <sup>2</sup> Tohid Counselling and Psychological Services, Ministry of Education and Training, TEHRAN-IRAN.

### ABSTRACT

**Background:** Tuberculosis (TB) is a chronic infectious disease which is still a global health hazard. With the emergence of new more effective drugs, tuberculosis was expected to be completely eradicated; but, global reports show results to the contrary. It seems that, in addition to drug regimens, individual health and social factors, should be taken into consideration. This is not achievable except by increasing the knowledge and creating a positive attitude towards this disease. The aim of this study was to evaluate the level of knowledge and attitude of high school students regarding TB in twenty-two areas of Tehran.

**Materials and Methods:** A stratified, random sampling was performed in which 22 educational districts of Tehran were divided into five geographical areas (North, South, East, West and Central). Two educational districts were chosen from each geographical area out of which four high schools (2 boys and 2 girls high schools) were selected. In each high school, 40 to 45 9<sup>th</sup>, 10<sup>th</sup> and 11<sup>th</sup>-grade students were selected as the study group. A total of 5000 students were enrolled in this study and data were collected by face- to face interview and questionnaire.

**Results:** This study showed that the knowledge level of students regarding TB was low and they also, had a negative attitude towards tuberculosis (especially boys). There was a positive relationship between the attitude and knowledge of students towards TB. The knowledge level decreased as the educational level increased.

**Conclusion:** Considering the direct correlation of attitude and knowledge and also the important role of attitude in preventive behaviours, increasing the knowledge of adolescents about tuberculosis seems to be essential. This aim can be achieved by establishing national tuberculosis control committee and scheduling programs for general education of all students of the country in this regard. (Tanaffos 2006; 5(4): 23-28)

**Key words:** Student, Tuberculosis, Assessment, Attitude, Knowledge

### INTRODUCTION

At present, Tuberculosis (TB) is still a prevalent disease causing mortality throughout the world. It

was expected to be controlled when new effective drugs were discovered in 1940s. In the early 1980s, researchers were optimistic that tuberculosis would be confined to medical texts by the year 2000. Thus, TB was neglected which later led to mismanagement of this disease. Reports have shown that the prevalence of TB increased terribly in 1985 when the

Correspondence to: Emam Hadi MA

Address: NRITLD, Shaheed Bahonar Ave, Darabad, TEHRAN 19569, P.O:19575/154, IRAN

Email address: emamhadi@yahoo.com

Received: 17 October 2006

Accepted: 25 December 2006

World Health Organization (WHO) considered it a global emergency and requested more serious attention be directed to this problem (1, 2). Lack of careful attention to this issue was accompanied by the increasing prevalence of acquired immunodeficiency syndrome (AIDS), immigrants, malnutrition, war and other factors which added to this global dilemma (3, 4, 5).

It seems that attitude towards this disease among people is unfair (5, 6). On the other hand, tuberculosis control programs, which are under the supervision of WHO, have not been able to eradicate this disease (7). In our country, the Ministry of Health is responsible for controlling infectious diseases including tuberculosis.

It seems that lack of proper attitude and knowledge about tuberculosis is one of the important causes of unsuccessful control programs. Thus, the mainstay for eradication of TB is to increase the general knowledge level about the nature, transmission and prevention of this disease. The aim of this survey was to evaluate the knowledge level and attitude of Tehran high school students with regard to TB.

## MATERIALS AND METHODS

A cross-sectional study was performed in high schools of 22 districts of Tehran in 2005. A face-to-face interview was done and a questionnaire was filled by the subjects.

Questionnaires contained questions to assess the knowledge level and attitude of students regarding tuberculosis (confirmed by WHO). The study group included all high school students of both sexes aged 15-20 years. Sample size was 5000 (2500 individuals of each gender) with  $\alpha=0.05$ ,  $\beta=10\%$  and 10% attrition. Stratified random sampling was performed. Twenty-two educational districts were divided to 5 areas based on geographical location (North, South, East, West, and Central). Two educational districts

were selected from each geographical area out of which 4 high schools were chosen (2 male high schools and 2 female high schools). Eventually, in each high school 40 to 45 students were randomly selected from each grade (9<sup>th</sup>, 10<sup>th</sup> and 11<sup>th</sup> grade).

Data were collected by preparing a questionnaire containing 40 questions regarding routes of transmission, prevention and detection of TB. In a pilot study performed on 112 students, the reliability was calculated to be 0.82 for knowledge and 0.89 for attitude by Cronbach's Alpha. Data were analyzed by SPSS Software. Non-parametric Chi-square test, ANOVA and Scheffe post Hoc comparison test were also used.

## RESULTS

In this study, 5000 students from 40 high schools (both male and female high schools) were studied from 10 educational districts in Tehran. After eliminating the incomplete items, 4576 questionnaires were analyzed. Table-1 shows the frequency distribution of demographic characteristics of the study group according to gender. The study group included 49.5% boys and 51.5% girls. Sixty-seven percent of the study population were in the age range of 16-17 years and 40%, 32% and 28% of students were in the 9<sup>th</sup>, 10<sup>th</sup> and 11<sup>th</sup> grade, respectively. Forty-five percent of their families had income levels lower than 160,000 Tomans per month. Tuberculosis was detected in only 1.1% of the study group.

Question 1 was: What was the most important resource of information about TB?

The results showed that television was the most important source for obtaining information in both sexes. Next was newspapers in boys and the radio in girls.

Question 2 was: What was the level of knowledge about TB?

The results regarding evaluation of knowledge levels and attitudes are as follows (Table 2).

**Table 1.** Frequency distribution of demographic characteristics of the study group by sex.

Variable		Boy	Girl	Total
		Frequency (%)	Frequency (%)	Frequency (%)
Age (years)	14-15	481(21.2)	549(23.8)	1030(22.5)
	16-17	1491(65.7)	1566(67.9)	3057(66.8)
	18 and higher	297(13.1)	192(8.3)	489(10.7)
	Total	2269(49.58)	2307(50.42)	4576(100)
Grade	9 <sup>th</sup>	877 (38.65)	951(41.22)	1828(39.9)
	10 <sup>th</sup>	724(31.9)	717(31.07)	1441(31.5)
	11 <sup>th</sup>	668(29.44)	639(27.69)	1307(28.6)
Family's income level (Tomans)	100	367 (16.17)	313 (13.56)	680 (14.86)
	100-160	707 (31.15)	620 (26.87)	1327 (30)
	160 and higher	1195 (52.66)	1374(59.55)	2569(55.14)
History of tuberculosis in family	Yes	26 (1.2)	23 (1)	49(1.1)
	No	2243 (98.8)	2284(99)	4527(98.9)

**Table 2.** The results regarding knowledge levels and attitudes.

Variable		Boy	Girl	Total	P-value
		Frequency (%)	Frequency (%)	Frequency (%)	
Signs and symptoms of tuberculosis	Low	1201(67.9)	1495(53.3)	2696(58.9)	0.000
	Moderate	471(26.6)	1008(35.9)	1479(32.3)	
	High	97(5.5)	304(10.8)	401(8.8)	
Routes of transmission	Low	902(51)	1440(51.3)	2342(51.2)	NS
	Moderate	711(40.2)	1153(41.1)	1864(40.7)	
	High	156(8.8)	214(7.6)	370(8.1)	
Prevention of tuberculosis	Low	979(55.3)	1640(58.4)	2619(57.2)	0.032
	Moderate	721(40.8)	1088(38.8)	1809(39.5)	
	High	69(3.9)	79(2.8)	148(3.2)	
Treatment of tuberculosis	Low	666(37.6)	1216(43.3)	1882(41.1)	0.000
	Moderate	622(35.2)	954(34)	1576(34.4)	
	High	481(27.2)	637(22.7)	1118(24.4)	
General knowledge	Low	791 (44.7)	1193(42.5)	1984(43.4)	NS
	Moderate	633(35.8)	1028(36.6)	1661(36.3)	
	High	345(19.5)	586(20.9)	931(20.3)	
Attitude to tuberculosis	Positive	558(31.5)	1053(37.5)	1611(35.2)	0.000
	Moderate	792(44.8)	1156(41.2)	1948(42.6)	
	Negative	419(23.7)	598(21.3)	1017(22.2)	

1. Fifty- nine percent of students had low knowledge levels about signs and symptoms, while 32% had moderate and 9% had high levels of knowledge regarding TB.
2. Fifty-one percent had low knowledge levels about TB transmission, 41% had moderate and 8% had

high levels of knowledge.

3. Regarding the prevention of TB, low, moderate and high knowledge levels were seen in 57%, 40% and 3%, respectively.
4. Regarding treatment of TB 41%, 34.5% and 24.5% had low, moderate and high levels of knowledge, respectively.
5. Forty-four percent had low levels of general knowledge and information about TB, 36% had moderate and 20% had high levels of knowledge.
6. Regarding the attitude towards tuberculosis, 35%, 43% and 22% of students had positive, neutral and negative attitudes, respectively.
7. There were significant differences with regard to routes of transmission, prevention and treatment of TB between girls and boys (boys had more knowledge than girls in this regard). The level of knowledge regarding signs and symptoms of TB was higher in girls than boys. Furthermore, boys had stronger negative attitudes towards TB compared to girls.

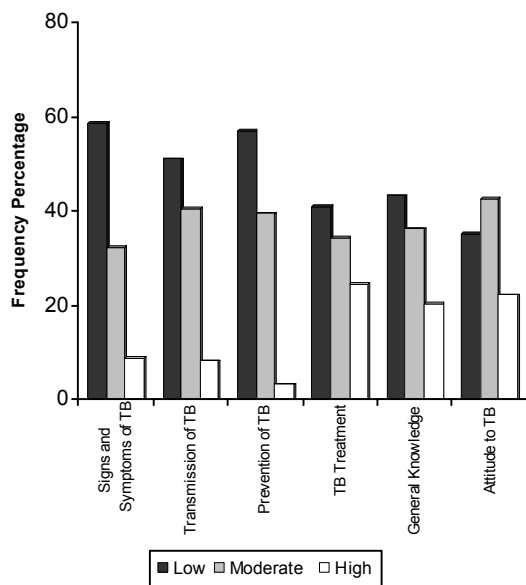


Figure 1. Knowledge level and attitude regarding Tuberculosis

Question 3 was: Is there significant correlation between the level of knowledge about TB and the

level of education?

Table 3 shows that level of knowledge varies in different grades. Based on the Scheffe post Hoc comparison test, students in the 9<sup>th</sup> grade had higher levels of knowledge than those in the 10<sup>th</sup> grade.

Table 3. Level of knowledge in different educational grades.

Variable	Mean	P-value
Grade	9 <sup>th</sup>	0.368
	10 <sup>th</sup>	0.127
	11 <sup>th</sup>	0.092
Income level (Tomans)	100	-0.226
	100-160	-0.6831
	160 and higher	-0.660
Source for information	Radio	0.261
	Television	0.031
	Magazine	0.3270
	Journal	-0.224
Attitude	Positive	1.21
	Moderate	0.953
	Negative	-0.255

Question 4 was: Is there significant correlation between the level of knowledge about TB and income level?

As shown in table 3, students who lived in low-income families had the lowest levels of knowledge about signs and symptoms and treatment of TB.

Question 5 was: Is there any significant relationship between the level of knowledge about TB and family history of this disease?

The results showed that there was a significant difference in signs and symptoms of TB between students with a positive and negative history of disease. The former group had higher levels of knowledge in recognition of signs and symptoms of TB.

Question 6 was: Is there significant correlation between the attitude towards TB and knowledge level?

Table 3 showed that the knowledge of students

with stronger positive attitudes towards TB, was higher than those with negative or neutral attitude.

Question 7 was: Is there significant relationship between the information resources about tuberculosis and knowledge level?

As shown in table 3, students who selected the radio as their first choice for obtaining information about tuberculosis had higher knowledge levels about the routes of transmission of this disease compared to students whose first choice was the television and magazines.

Question 8 was: Is there significant difference in attitude between girls and boys?

The results showed that negative attitudes were more prevalent in boys ( $P < 0.001$ ,  $t = 4.18$ ).

Question 9 was: Is there significant correlation between the attitude and income level?

The results showed that there was a significant relationship between income levels and attitude towards TB ( $p < 0.001$ ,  $f = 6.959$ ). The Scheffe post Hoc comparison test showed that students living in families with income levels lower than 100,000 Tomans per month had the strongest negative attitude towards TB.

## DISCUSSION

Regarding the source for obtaining information on TB, television, radio, journals and magazines were chosen by girls, respectively, and television, journals, magazines and radio were chosen by boys, respectively.

In addition, subjects who chose television as the most important source to obtain information, had higher levels of knowledge about this disease.

Colvin et al. (5) indicated the great role of media, especially radio and television in obtaining information about infectious diseases.

Data showed that less than 10% of students had high levels of knowledge and more than half of them had low levels of knowledge about signs and

symptoms, routes of transmission, prevention and treatment of TB.

Colvin et al. (5), Cardini et al. (8) and Rodier et al. (9) showed low level of knowledge in people of endemic countries.

It is noticeable that the level of knowledge about TB had an inverse relationship with educational level (9<sup>th</sup> grade students had higher levels of knowledge). Moreover, a positive history of tuberculosis in the student's family correlated with an increased level of knowledge.

Regarding attitude, 35% had positive, 43% had neutral and 22% had negative attitudes. This indicates that lack of awareness about TB and wrong beliefs have resulted in such a negative attitude. On the other hand, students with stronger positive attitude towards TB, had higher levels of knowledge. Similar results were obtained in Rodier et al. (9) and Chakaya et al. (10) studies.

Our study showed that students who lived in low-income families (especially less than 100,000 Tomans per month) had the lowest level of knowledge and the strongest negative attitudes with regard to signs and symptoms and transmission of TB which was consistent with Shetty et al. study (11).

We recommend that serious attention be paid to informing students in schools about infectious diseases such as TB and AIDS via pamphlets, text books and through the media (radio and television) and health committees.

Establishing student committees in the provinces to prevent and control TB and other infectious diseases is of paramount importance.

## REFERENCES

1. World Health Organization report on the Tuberculosis Epidemic. 1997. Geneva: WHO.
2. Dye C, Scheele S, Dolin P, Pathania V, Raviglione MC. Consensus statement. Global burden of tuberculosis:

- estimated incidence, prevalence, and mortality by country. WHO Global Surveillance and Monitoring Project. *JAMA* 1999; 282 (7): 677- 86.
3. Munsiff SS, Alpert PL, Gourevitch MN, Chang CJ, Klein RS. A prospective study of tuberculosis and HIV disease progression. *J Acquir Immune Defic Syndr Hum Retrovirol* 1998; 19 (4): 361- 6.
  4. Friedman LN, Williams MT, Singh TP, Frieden TR. Tuberculosis, AIDS, and death among substance abusers on welfare in New York City. *N Engl J Med* 1996; 334 (13): 828- 33.
  5. Colvin M, Sharp B. Sexually transmitted infections and HIV in a rural community in the Lesotho highlands. *Sex Transm Infect* 2000; 76 (1): 39-42.
  6. Roy SK, Roy SK, Bagchi S, Bajpayee A, Pal R, Biswas R. Study of KAP of the private medical practitioners about national disease control programmes. *Indian J Public Health* 2005; 49 (4): 256- 7.
  7. Tabarsi P, Mirsaedi SM, Amiri M, Mansouri SD, Masjedi MR, Velayati AA. Tuberculosis and HIV patterns in a TB referral center in Iran. *Eur Respir J* 2004; 24:suppl.48, 197s.
  8. Cardini F, Zantedeschi E, Pomponi G, Bossi A, Signorelli C. AIDS: knowledge, attitudes and sex behavior of young people attending AIED family planning health services. *Ann Ig* 1998; 10 (2): 85- 93.
  9. Rodier GR, Morand JJ, Olson JS, Watts DM, Said-Salah. HIV infection among secondary school students in Djibouti, horn of Africa: knowledge, exposure and prevalence. *East Afr Med J* 1993; 70 (7): 414- 7.
  10. Chakaya JM, Meme H, Kwamanga D, Githui WA, Onyango-Ouma WO, Gicheha C, et al. Planning for PPM-DOTS implementation in urban slums in Kenya: knowledge, attitude and practices of private health care providers in Kibera slum, Nairobi. *Int J Tuberc Lung Dis* 2005; 9 (4): 403- 8.
  11. Shetty N, Shemko M, Abbas A. Knowledge, attitudes and practices regarding tuberculosis among immigrants of Somalian ethnic origin in London: a cross-sectional study. *Commun Dis Public Health* 2004; 7 (1): 77- 82.