



Tuberculosis Knowledge Levels Of Secondary School Students

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Abstract

Objective: A reduction in tuberculosis (TB) cases is possible through knowledge and control of the risk factors. In this study, the aim was to evaluate the knowledge levels of secondary school students about TB.

Method: The study is a descriptive study conducted in 2018-2019. The sample of the study consisted of 116 students, who volunteered to participate in the study of 12th grade of the school. The data collection tool consists of 19 questions: Personal Information Form and TB Knowledge Level Questionnaire (TBKLQ). In TBDSF, every correct answer is one point. The score that can be obtained varies between 0-11.

Results: The mean age of was 17.17 ± 0.37 years. 1.7% of the study group had tuberculosis. The incidence of tuberculosis in their families was 2.6%. 86.2% of the participants knew the correct cause of the disease, 51.7% of them were aware of the symptoms and 64.7% of them understood the correct transmission path. 37.1% of the study group knew the duration of treatment correctly, 20.7% of them knew the infectious period correctly; 93.1% of the study group knew that TB was a notifiable disease and 76.7% knew that registration of TB should be undertaken at the Tuberculosis Dispensary. 50.9% of the study group were aware that TB could be seen in the lungs and extrapulmonary organs, and 37.1% of them knew correctly when the TB vaccine should be administered. The mean TB knowledge score of the study group was 5.85 ± 2.11 . 59.5% of the participants reported that they had received training on TB. A significant difference was found between the TB knowledge scores of those who previously received TB education with those who did not.

Conclusion: The knowledge level of individuals with high school education about TB is at a medium level. One out of every two participants received training on TB. In order to increase the effectiveness of the fight against tuberculosis, to prevent the spread of the disease and to reach the goals of the end tuberculosis strategy, the lack of information should be overcome.

Keywords: Awareness, Education, Student, Tuberculosis

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Ortaöğretim Düzeyindeki Öğrencilerin Tüberküloz Bilgi Düzeyleri

Öz

Amaç: Tüberküloz (TB) vakalarında azalma, risk faktörlerinin bilinmesi ve kontrolü ile mümkündür. Bu çalışmada ortaöğretim öğrencilerinin TB'ye ilişkin bilgi düzeylerinin değerlendirilmesi amaçlanmıştır.

Yöntemler: Çalışma 2018-2019 yılında yapılmış bir tanımlayıcı çalışmadır. Çalışmanın örneklemini 12. sınıf öğrencilerinden çalışmaya katılmaya gönüllü 116 kişi oluşturmuştur. Veri toplama aracı Kişisel Bilgi Formu ve Tüberküloz Bilgi Düzeyi Soru Formu (TBDSF) olmak üzere 19 sorudan oluşmuştur. TBDSF' de her doğru cevap bir puandır. Alınabilecek puan 0-11 arasında değişmektedir.

Bulgular: Çalışma grubunun yaş ortalaması 17.17 ± 0.37 'dir. Çalışma grubunun %1,7'si, tüberküloz geçirmiştir. Katılımcıların %86,2'si hastalık etkenini, %51,7'si belirtileri, %64,7 bulaşma yolunu doğru bilmıştır. Çalışma grubunun %37,1'i, tedavi süresini doğru biliyor iken, bulaştırıcılık süresini %20,7'si doğru bilmıştır. Çalışma grubunun %50,9'u TB'nin akciğer ve akciğer dışı organlarda görülebildiğini, %37,1'i TB aşısının zamanını doğru bilmıştır. Çalışma grubunun %93,1'i TB'nin bildirimi zorunlu bir hastalık olduğunu, %76,7'si TB'ye ilişkin kayıtları tutan kuruluşun Verem Savaş Dispanseri olduğunu bilmıştır. Çalışma grubunun TB bilgi puan ortalaması 5.85 ± 2.11 'dir. Katılımcıların %59,5'u TB ile ilgili eğitim aldığını bildirmiştir. Önceden TB konusunda eğitim alanlar ile almayanların, TB bilgi puanları arasında anlamlı fark saptanmıştır.

Sonuç: Lise eğitimi alan bireylerin TB'ye ilişkin bilgi düzeyinin orta seviyededir. Her iki katılımcıdan birinin TB hakkında eğitim almıştır. Tüberkülozla mücadelenin etkinliğini artırmak, hastalığın yayılmasını önlemek ve verem sonu stratejisinin hedeflerine ulaşmak için bilgi eksikliğinin giderilmesi gerekmektedir.

Anahtar kelimeler: Eğitim, Farkındalık, Öğrenci, Tüberküloz.

INTRODUCTION

In recent years, despite increasing efforts in the struggle to end tuberculosis (TB), the main gaps - resource-constrained environments in particular and environments with a high disease burden - render these efforts largely inadequate. 1.6 million people lost their lives in 2017 to TB, which continues to be one of the top 10 causes of deaths in the World^{1,2}. 95% of deaths occur in low and middle-income countries. In Turkey, the total number of patients diagnosed with TB in 2017 was 12,046³. According to the World Health Organization Global Tuberculosis Report published in 2016, it will look to contribute to the 'End of TB' strategies and to raise awareness in society of the importance of early diagnosis of TB. Studies in the literature have reported a positive relationship between TB information, care-seeking and treatment adherence¹⁻³. In two different studies conducted in sub-Saharan countries, 66.3% to 99.7% were reported to have misconceptions about the etiology of TB,

27.6%-90% likewise misunderstood the symptoms of TB, 0.1% - 48.6% were mistaken with respect to its infectiousness, while 33.4% to 92.9% were incorrect as to methods of prevention^{4,5}. In another study, healthy lifestyle behaviors are determinants of health has an important place. It can be said that infectious diseases such as tuberculosis will also be acquired by the right health behavior at an early age will prevent contamination. The aim of this study is to evaluate the level of knowledge of secondary school students about TB.

METHOD

The study is a descriptive study conducted in 2018-2019. The sample of the study consisted of 116 students, who volunteered to participate in the study of 12th grade of the Eskişehir Mustafa Kemal Atatürk Vocational and Technical Anatolian High School in the 2018-2019 academic year. Students were asked to complete a structured questionnaire. The first section of the questionnaire prompted

demographic information (age, gender, family professions). In the second section, informative questions related to TB, control, and prevention methods. Mean of the data collection tool was developed in parallel with the drafting of the study. The Personal Information Form (8 Questions) and Tuberculosis Knowledge Level Questionnaire (TBKLQ) (11 questions) consisted of 19 questions, totally. The TBKLQ included the following questions:

What is the causative agent of tuberculosis?

What is one of the symptom of tuberculosis?

What is a definitive method of diagnosis?

What is the route of transmission of tuberculosis?

How long is the treatment period?

For how long is the patient infectious following treatment?

Which methods confer protection from TB?

Is tuberculosis a compulsory notification disease?

Which organ(s) does tuberculosis affect?

When do you think the tuberculosis vaccine should first be given?

Which institution is responsible for the records / follow-up of tuberculosis patients?

In the questionnaire, a score of 1 point is awarded for each correct answer. A possible score of between one and eleven can be obtained from the questionnaire.

Ethics: Ethical approval for the study was obtained from the Harran University, Medical Faculty, Department of Drug and Non-Medical Device Research Ethics Committee, number 18/12/35. The participants were informed about the study and written and verbal consent was obtained in accordance with the principles of the Helsinki Declaration.

Data Analysis

For data analysis, the SPSS 21.0 statistical package program (SPSS Inc., Chicago, Illinois, USA) was used. The Kolmogorov-Smirnov test was used to determine whether the distribution of continuous variables was appropriate for the normal distribution. Variables were shown as mean \pm standard deviation. $p < 0.05$ was accepted as statistically significant.

RESULTS

The mean age of the study group was 17.17 ± 0.37 years. 65.5% of our study group consisted of male students, and 34.5% were female. It was found that there was a difference between TB knowledge levels according to gender ($p < 0.05$). 67.2% of the mothers of the study group had both a primary and secondary education, and 54.2% of their fathers had both a high school and university-level education. 63.8% of the study group reported that their families had a moderate income.

It was found that 1.7% of the students in the study group had tuberculosis and 2.6% had a history of tuberculosis in their families. 59.5% of the study group had previously obtained information about TB. It was found that TBKLQ scores of those who had information about TB before were significantly higher than those who did not. (Table 1). Of the students in the study group, 86.2% were correct with respect to the causative agent, 51.7% in relation to the symptoms, and 64.7% with regard to the transmission path.

In the study group, 57.8% of the students knew that detecting bacillus in the sputum was a definitive diagnostic method, 37.1% knew the correct treatment period, and 20.7% knew the correct infectious period. 93.1% of the students in the study group knew that TB was a notifiable disease. 56.1% of the study group knew that TB could be seen in both the lungs and extrapulmonary organs, while 37.1% knew the time for administration of the TB vaccine correctly. The number of people, who knew that the organization holding TB records was the Tuberculosis Dispensary, was 76.7% (Table 2). Although not stated in the table, the mean TB knowledge score of the study group was 5.85 ± 2.11 .

Table I: Distribution of Working Group Participants according to various Sociodemographic Characteristics and TB Knowledge Level

Gender	N	%	Test Value*/ p
Female	40	34.5	1.648/0.09
Male	76	65.5	
Mother's Education			0.143/0.931
Illiterate	1	0.9	
Elementary School	78	67.2	
High School and Above	37	31.9	
Father's Education			1.999/0.157
Illiterate	0	0	
Elementary School	51	43.9	
High School and Above	64	54.2	
Family Income Level			0.417/0.842
Good	39	33.6	
Moderate	74	63.8	
Low	3	2.6	
TB Migration Status			0.248/0.804
Present	2	1.7	
Absent	114	98.3	
TB Migration Status in Family			0.433/0.693
Present	3	2.6	
Absent	113	97.4	
Previous information about TB status			3.291/0.001
Present	69	59.5	
Absent	47	40.5	

*The Mann-Whitney U test was used in paired groups and the Kruskal Vallis test was applied for more than two groups.

Table II: The Relationship between TBKLQ ** Distribution and Knowledge Level of TB in Working Group Participants

	n	%	Test Value***/ p
Knowledge of transmission path of TB			
No idea	14	12.1	36.056/0.000
Correct knowledge (Mycobectrium Tuberculosis)	100	86.2	
Incorrect knowledge	2	1.8	
Knowledge of TB Symptoms			
No idea	17	14.7	7.971/0.019
Diarrhea / Fever	21	18.1	
Rash / Fever	18	15.5	
Dry Cough/ Bloody Cough / Fever	60	51.7	
Knowledge of TB Transmission Path			
Via Blood	15	12.9	2.336/0.126
Via Droplet	26	22.4	
Via Digestion	75	64.7	
Knowledge of Definitive Diagnosis of TB			
No idea	30	25.4	28.262/0.000
Detection of Bacillus in the Sputum	67	57.8	
Blood test	19	16.4	

Table 2 continued

	n	%	Test Value**/ p
Duration of treatment of TB			
No idea	20	17.2	44.844/0.000
One (1) Month	2	1.7	
Six (6) Months	43	37.1	
Twelve (12) Months	51	44.0	
Infectious period of TB			
No idea	33	28.4	29.091/0.000
Fifteen (15) Days	24	20.7	
Six (6) Months	33	28.4	
One (1) Year	26	22.4	
Is TB notification mandatory?			
No idea	4	3.4	11.987/0.002
Yes	108	93.1	
No	4	3.4	
Which organs (s) does TB affect?			
No idea	15	12.9	39.521/0.000
Lungs only	36	31.0	
Lungs and Other Organs	65	56.1	
When is the first TB vaccine given?			
No idea	45	38.8	9.077/0.11
At the end of month 2	43	37.1	
1 year old	19	16.4	
2 years old	9	7.8	
The institution that keeps track of / records of TB patients			
No idea	11	9.5	5.332/0.150
Public hospital	4	3.4	
Tuberculosis Dispensary	89	76.7	
Family Physician / Health Center	11	9.5	
Private Hospitals	1	0.9	

** Tuberculosis Knowledge Level Questionnaire (TBKLQ)

*** Mann-Whitney U test was performed in pairs and the Kruskal Wallis test was applied for more than two groups.

DISCUSSION

In 2017, 1.6 million people lost their lives due to TB, which continues to be one of the top 10 causes of deaths in the world. It is known that 95% of deaths are in low and middle income countries³. This information supports the fact that TB is one of the most important and preventable diseases of developed and developing countries. In society, the way to gain knowledge or awareness of diseases is to either witness someone who had the disease or to have the disease yourself. However, this is not a desirable situation because of the consequences and the burden of the disease. In our study, the mean TB information score was 5.85 ± 2.11 , and there was a statistically significant difference between TBKLQ scores of those who had information about TB before were significantly higher than those who did not. This result emphasizes the importance of obtaining information about the disease beforehand.

Knowing a disease-specific factor is one of the conditions for raising awareness about that disease⁶. In our study, 86.2% of the participants were found to know the causative agent of TB correctly. The frequency of those who knew the correct agent of the disease was significant difference (Table 2). In another study, this rate was reported to be 37.7%⁷. In a cross-sectional study conducted with 1200 medical students in China, the frequency of those who knew that the mycobacterium avium complex was the most common factor in the etiology of TB was 6.4%⁸. The reason our results differ from studies in the literature may be due to the fact that our study group consisted of students, who were in high school and who were senior students. Although there are many studies investigating the level of knowledge in different sample groups in the literature, there are only two studies that question the causative agent of tuberculosis.

The most common symptom of pulmonary TB is a persistent cough, and usually but not always, mucous, which is sometimes bloody

(hemoptysis)⁹. In our study, 51.7% of the participants, ie one in two, reported that cough was a symptom of the disease. It was determined that the frequency of those who knew the TB symptoms correctly significant difference (Table 2). Demir et al (2016) were found this rate 46.8%¹⁰. Adane et al. (2017) reported the prevalence of cough as one of the most common symptoms of TB - 79.1%. The reason for this result, which is similar to that in the literature, may be due to scenes of bloody coughing in films about tuberculosis.

The route of transmission of TB is the airway¹¹. In our study, it was found that 22.4% of the participants knew the correct mode of transmission of TB. In a study of Demir et al.,(2016) it was found that 84.2% of the students of medical faculties and 42.8% of non-educated students knew the transmission path. In a study conducted by Ayık et al (2013), of 44 patients with and without tuberculosis, 43.2% of TB cases and 50% of non-TB cases correctly identified the mode of transmission¹².

A definitive diagnosis of pulmonary tuberculosis is made by showing the presence of tuberculosis bacilli in the sputum and / or by growing the bacilli in cultures, if possible. Bronchial lavage is applied to those who cannot produce sputum or an examination conducted of the gastric juices in those who are fasting¹³. In our study, it was found that one in every two high school students knew the definitive method of diagnosis (57.8%). It was observed that the frequency of those who knew that they were diagnosed with Bacillus Detection in Sputum was significantly higher (Table 2). In a study conducted of medical faculty students, the figure was 70.9% for those undertaking related studies, and 24.3% for those who were not. In the literature, this rate varies between 75.3-83.6% in different studies conducted with physicians^{14,15}.

The standard treatment period for tuberculosis is 6 (six) months¹⁶. In our study, participant of

37.1% stated that the duration of treatment was six months and participant of 44% stated that it was 12 (twelve) months. It was observed that the frequency of those who knew that the treatment period was 12 months made a significant difference compared to the other groups (Table 2). In a study by Demir et al. (2016) the rate of those who knew the correct treatment period was 58% with respect to those who were untrained, and 83.7% in relation to those who had training¹⁰. In a study by Kara et al. (2015) the rate was 86.4%¹⁴. Our results were found to be lower than those of other studies in the literature. The reason why the result we have obtained is different from the literature, may be due to the low number of patients in the family members. One of the most common aspects encountered in tuberculosis is the period of infectiousness of the disease. In our study, 20.7% of the participants knew the correct infectious period. The majority of the study group reported that infectiousness ranged from six months to twelve months. It was observed that those who knew that the contamination period was fifteen days in TB made a significant difference (Table 2). In the study of 38.6% of TB cases and 23.3% of non-TB cases stated that TB was an infectious disease¹². The results obtained in the literature and in our study may be an indicator of the problem of social isolation experienced by the people who have the disease.

The notification of tuberculosis disease is important in terms of the control of infectious diseases, decreasing the number of contacts and increasing treatment success. 93.1% of the study group stated that tuberculosis is a notifiable disease. It was observed that the frequency of those who knew that reporting TB was mandatory significant a difference (Table 2). In a study conducted by Enginyurt et al. (2016), in a research hospital with health workers, it was reported that 82.5% knew that tuberculosis was a notifiable disease¹⁷. This

result supports the fact that people have sufficient information to provide necessary control.

Tuberculosis may be involved in many organs, especially the lungs^{9,11}. In our study, one out of two participants (56.1%) stated that tuberculosis can be seen in both of the lungs and extrapulmonary organs. The frequency of those who knew that TB showed involvement in the lungs and other organs was significantly higher (Table 2). In a study by Kara et al. (2015) of pediatric residents, the figure was 96.1%¹⁴. In the study of Ayık et al. (2013), 72.9% stated that TB showed pulmonary involvement¹².

Vaccination, which is the most important method of prevention, can prevent the occurrence of infectious diseases, as well as reduce the burden of disease. It is recommended that the BCG vaccine be given to infants 2 months after birth³. 37.1% of the respondents gave the correct answer to the question about when the first BCG vaccine for TB should be given. There was no difference between the groups in the study of Demir et al. (2016) only 59.6% of the medical faculty students, who had studied the subject, knew the correct timing for the vaccination¹⁰. In the study of Ayık et al. (2013) 13.6% of TB cases and 16.6% of non-TB cases correctly identified the timing of the BCG vaccination¹².

Although tuberculosis patients first learn of their disease in a hospital, tuberculosis dispensaries are the place where the patient is monitored and direct supervised treatment is carried out effectively¹¹. In our study, 76.7% of participants correctly recognized the institution that kept / monitored the records of TB patients. There was no difference between the groups. The studies in the literature were mostly carried out on the symptoms and methods of prevention of tuberculosis and no questions were posed in relation to tuberculosis dispensaries. This has limited the discussion of our study. Our study shows that seven out of ten people have knowledge about TB dispensaries. The high public awareness is important of TB dispensaries in terms of continuity of treatment and reduction of contamination.

CONCLUSION

The results of this study indicate that individuals in receipt of a high school education lack sufficient

knowledge about the diagnosis, treatment and follow-up of TB. In order to increase the effectiveness of the fight against tuberculosis, prevent the spread of the disease and in order to achieve the objectives of the End of TB strategy, the lack of information evident in these groups in all areas of society should be addressed.

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Ethics Committee Approval: Ethical approval for the study was obtained from the Harran University, Medical Faculty, Department of Drug and Non-Medical Device Research Ethics Committee, number 18/12/35. The participants were informed about the study and written and verbal consent was obtained in accordance with the principles of the Helsinki Declaration.

Declaration of Conflicting Interests: The authors declare that they have no conflict of interest.

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