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KNOWLEDGE AND ATTITUDE TOWARDS TUBERCULOSIS AMONG STUDENTS OF GEORGIA

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ტუბერკულოზის ცოდნის და დამოკიდებულების კვლევა ქართველ სტუდენტებში

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რეზიუმე

ტუბერკულოზი ერთ-ერთი მნიშვნელოვანი გამოწვევაა საქართველოს საზოგადოებრივი ჯანდაცვისთვის. ტუბერკულოზის შესახებ ცოდნა მნიშვნელოვანია ამ დაავადების პრევენციის, დროული დიაგნოსტიკისა და მკურნალობისთვის სხვადასხვა პოპულაციურ ჯგუფებში, მათ შორის სტუდენტებში. კვლევის მიზანი იყო საქართველოს სხვადასხვა უნივერსიტეტის სტუდენტებს შორის ტუბერკულოზის ცოდნის დონის განსაზღვრა. შესწავლილი იქნა ტუბერკულოზის გადაცემის გზების, სიმპტომების, მკურნალობისა და ინფორმაციის წყაროების შესახებ ინფორმირებულობა. გამოვიყენეთ ჯვარედინ-სექციური კვლევის მეთოდი. კვლევამ გამოავლინა ქართველ სტუდენტებში ტუბერკულოზის შესახებ ინფორმირებულობის არასაკმარისი დონე, მათ შორის სამედიცინო ფაკულტეტების სტუდენტებში. კვლევის შედეგები ხაზს უსვამს ტუბერკულოზის შესახებ საგანმანათლებლო ღონისძიებების დაგეგმვის აუცილებლობას და შესაძლებლობას გვაძლევს შევადაროთ მოცემული შედეგები საგანმანათლებლო ინტერვენციების შემდეგ ჩატარებულ სამომავლო კვლევის შედეგებს.

Introduction. Tuberculosis (TB) is a disease caused by Mycobacterium tuberculosis that mainly targets the lungs. It spreads through the air from person to person by cough, sneeze or spit. TB germs can stay in the air for several hours, depending on the environment, they are more likely to spread in indoor areas or various places with poor air circulation than in outdoor areas. Just inhaling a few bacteria can result in an infection. Most common symptoms of TB include: a cough lasting more than three weeks, tiredness, fever, night sweats, decreased appetite, weight loss and an overall feeling of being unwell. Children may also face challenges in gaining weight or growing properly. People with inactive TB do not show mentioned symptoms of the disease, but if left untreated, they may develop active TB and become ill [1].

Every year around 10 million individuals contract TB and 1.5 million lose their lives to it making it the leading infectious disease killer globally [2]. TB poses a threat for individuals living with HIV and significantly contributes to antimicrobial resistance. Drug resistant TB occurs when the bacteria become resistant to one of the treatments such as isoniazid or rifampin. It spreads similarly to drug susceptible TB but with an increased risk of transmission due to delays in recognition and treatment.

Tuberculosis (TB) that is resistant to drugs can develop in different ways. Primary resistance occurs when resistant bacteria are transmitted directly from one person to another. Secondary resistance arises during treatment, often due to incorrect or irregular medication use, improper treatment regimens, poor drug absorption, or drug interactions. There are various types of drug resistant TB, including mono

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resistant (resistant to one drug) poly resistant (resistant to at least two drugs but not both isoniazid and rifampin) multidrug resistant (MDR TB resistant to isoniazid and rifampin) pre extensively drug resistant (pre XDR TB a type of MDR TB with additional resistance to fluoroquinolones or second line injectables) and extensively drug resistant (XDR TB resistant to isoniazid rifampin a fluoroquinolone and either a second line injectable or drugs like bedaquiline or linezolid). Resistant forms of TB require specific treatment regimen, depending on the type [3].

TB is present all over the world, however Most of the people who fall ill with TB live in low- and middle-income countries. Tuberculosis remains one of the most prominent public health challenges in Georgia. According to 2019 statistics, the estimated incidence rate for TB was 74 per 100,000 population and the mortality rate was 4.1 per 100,000 population. In the same year, 2,169 TB cases were notified [4].

Knowledge of TB is very important for prevention, timely identification of symptoms and seeking care among different population groups, including students. Data regarding TB knowledge and attitude among students in Georgia is limited. The aim of this study was to evaluate the awareness level and perception of TB among students at various Georgian universities.

Methods. A cross-sectional study was conducted in December 2023 - January 2024 to evaluate knowledge and attitude regarding transmission modes, symptoms, availability of treatment and source of information of TB among students in Georgia. Convenience sampling was used for recruitment from universities in Tbilisi and other regions: Samegrelo, Kvemo Qartli, Kakheti and Adjara. Students were enrolled from medical and nonmedical faculties. The questionnaire contained questions of demographics, TB knowledge and attitude. The survey was done using a face-to-face interview. Data analysis was conducted using IBM SPSS 23.0. Descriptive, bivariate and multivariate statistical analysis was employed.

Results. There was a total of 188 students recruited for the study with 57% female participants. 61.9% of the respondents were nonmedical students. 63.3% were from Tbilisi universities with 36.7% – from regions (Table 1). 98.9% of study participants had heard about TB mostly from personal communications (44.1%), internet (29%), medical literature (19.9%) and TV (19.9%). 28% of respondents believed that TB is a very serious problem for Georgia, for 52.7% it is a serious problem and according to 12.9% it is not very serious. Only 40% of study participants were aware that TB diagnosis and treatment in Georgia is free, difference between medical and nonmedical students (58.6% vs 32%, respectively) for this component was statistically significant (p=0.001). Approximately one-third (37.6%) of respondents believed that TB is very dangerous, with 56.5% classifying the infection as "dangerous", 3.8% as- "not dangerous" and 2.2% not having information regarding this topic. Most surveyed students (90.9%) knew that TB is a transmissible disease. Among those who knew that TB is transmissible, 74.4% were aware that it is airborne and 12.5% think that TB is a blood-borne infection. Study participants, who had knowledge of TB being airborne, 15.2% would still not refrain from contact with a TB patient. 58.1% of respondents correctly identified all the listed potential symptoms of TB, including: cough>2 weeks, blood in sputum, night sweats, fatigue, loss of appetite, weight loss, temperature and chest pain. 69% of medical students selected TB symptoms correctly, compared to 53.1% in case of non-medical students, this difference was statistically significant (p=0.04). 86.6% of students were aware that TB can be cured and out of those respondents 84.5% selected anti TB drugs provided by medical facility as the answer to the correct treatment method. 2.5% of respondents believe that TB is cured by climatotherapy without medications and 4.3%-with full value nutrition. Most frequent groups named as having high-risk for TB were imprisoned individuals (35.5%), HIV-infected patients (43%), drug users (30.1%) and smokers (23.7%). Knowledge regarding resistant form of the disease was significantly higher, however still not adequate, in medical students (74.1%) vs nonmedical students (16.2%) (p<0.0001). Study subjects from

Tbilisi had higher knowledge level compared to regions, however in multivariate analysis (logistic regression) the only independent predictor was the type of student (non-medical and medical) (aOR=0.089. CI 0.03-0.26). 49.1% of respondents reported inadequate treatment as the cause of TB resistance, 34.8% - treatment interruption and 24.1%- late treatment, 25% of students identified all the listed causes. 43.5% of studied participants believe that they could potentially get TB, some of the reasons written included: "potential accidental contact with TB-infected patient", "safety cannot be guaranteed for anyone", "high transmissibility of the disease" and that "Georgia is an endemic country for TB".

Regarding attitude towards TB, most of the surveyed students (47.8%) would be surprised if diagnosed with tuberculosis, followed by fear (46.8%), confusion (32.3%) and hopelessness (13.4%). 5.9% of respondents would have no reaction to the diagnosis and 2.2% would feel ashamed. 74.6% of studied participants would not hide TB from others, 87.6% stated that they would disclose their diagnosis to family members/relatives, health-care workers (61.8%) and friends (44.6%). Most participants who would hide their TB diagnosis did not know the exact reason why, the next reason was "people will avoid me" was selected as the most common specific reason for hiding TB diagnosis (29.8%).

45.7% of study participants felt compassion and wanted to help TB patients, the other 30.6% of students felt compassion but would try to stay away from people diagnosed with tuberculosis. Most respondents stated that they didn't know any TB patient (72.6%), 16.7% knew a TB patient and 10.8% did not have this information. Participants were also asked if they would avoid a person with TB, to which most students (34.9%) selected that they would try to have no contact, followed by no long-term relations in 26.9% and not sharing dishes for 19.4%. 41.4% of surveyed participants would not visit their TB-infected friend/relative/colleague, most commonly due to fear of disease (76.2%).

Regarding TB-related information, most of the participants (46.2%) believed that civil society, non-governmental organizations and TB communities should be involved in education of general population regarding tuberculosis. 28% of the surveyed students mostly see their role in peer education on TB -Majority of participants (88.7%) would see a doctor in case of having TB symptoms, however only half the students (50%) selected all the symptoms which needs TB diagnostics. including cough with sputum, cough >2 weeks, temperature >2 weeks, sputum with blood, loss of appetite, night sweating, chest pain, fatigue and weight loss. Those who have ever had TB symptoms (10.2%), only 55.6% visited physician, because most of them soon felt better (57.1%), treated symptoms at home (14.3%), was afraid of TB diagnosis (14.3%) or didn't have money (14.3%). Only a small percentage of surveyed students had ever taken listed antibiotics without prescription, including rifampicin-1.1%, ethambutol (1.1%), streptomycin (3.2%), amikacin (2.2%).

Most of the participants were willing to gain more information regarding TB, with the most popular sources being internet/social networks (58.5%), healthcare workers (33%) and special medical literature (30.3%). The majority of surveyed students (84.6%) don't watch TV.

Table1. Socio-demographic characteristics of study participants

Characteristics	N	%
Sex		
Male	83	43.1
Female	107	56.9
Marital status		
Married	17	9.1
Single	169	90.4

Place of residence		
Tbilisi	112	59.6
Other regions	76	40.4
Type of residence		
Urban	178	98.7
Rural	10	5.3
Place of study		
Tbilisi	119	63.3
Other regions	69	36.7
Type of student		
Medical	58	30.9
Nonmedical	130	69.1

Discussion. The study enrolled both biomedical and non-biomedical students to ensure representativeness of students' population in Georgia. Awareness among medical students is particularly interesting as in Georgia many people seek medical advice from acquaintances in the medical field, including medical students, this could have an influence on their healthcare decisions. Medical students will also have a crucial impact on health care in the future.

Socializing with others and the internet were the primary sources of having heard about TB, this was expected considering the younger age of respondents. This information is helpful when considering planning educational interventions for this population group. The tendency was also noted when respondents selected internet/social networks as a preferred method of obtaining information regarding TB and in a separate question it was mentioned that most of the students do not watch TV. All these factors should also be considered for future training or academic events. Only 40% of study participants had knowledge of TB diagnosis and treatment being free in Georgia. Possible reasons for seeing a low percentage could be the lack of campaigns on this topic. Even though medical students had a higher awareness level, it was still not sufficient. Accordingly, along with learning general information about TB, more emphasis should be placed on details regarding treatment and diagnosis in Georgia. Despite the fact that most respondents would refer to a physician in case of TB symptoms, half of the surveyed participants would not recognize some of the symptoms listed, this might be because many TB manifestations are similar to common cold signs, for which majority of individuals do not seek medical care, educating general population about TB symptoms could have a significant impact on timely diagnosis and further management.

This study has several limitations. First, the sample was not randomly selected – convenience sample was used. Also, face-to-face interviews could result in social desirability bias, underestimating the TB related stigma, particularly among medical students.

Conclusion. The study highlights several gaps in awareness of TB among biomedical and non-biomedical students in Georgia, along with emphasizing optimal sources of information on the disease. Our paper also showed the necessity of implementing educational interventions to improve knowledge regarding tuberculosis prevention, transmission and treatment among Georgian students. The research also gives potential for follow-up studies of awareness and attitude after conducting educational activities.

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SUMMARY

Tuberculosis remains one of the most prominent public health challenges in Georgia. Knowledge of TB is very important for prevention, timely identification of symptoms and seeking care among different population groups, including students. The aim of this study was to evaluate the awareness level and perception of TB among students at various Georgian universities. A cross-sectional study was conducted to evaluate knowledge and attitude regarding transmission modes, symptoms, availability of treatment and source of information of TB among the students in Georgia. Study revealed low TB knowledge level among Georgian students, including medical students. Our study showed the necessity of implementing educational interventions to improve knowledge regarding tuberculosis. The research also gives potential for follow-up studies for comparison of awareness and attitude after conducting educational interventions.

Keywords: knowledge, attitude, tuberculosis, students, Georgia