KNOWLEDGE OF THE PUBLIC SCHOOL STUDENTS ON TUBERCULOSIS CONHECIMENTO DE ESTUDANTES DA REDE PÚBLICA DE ENSINO SOBRE A TUBERCULOSE

CONOCIMIENTO DE ESTUDIANTES DE LA RED PÚBLICA DE ENSEÑANZA SOBRE LA TUBERCULOSIS

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ABSTRACT

Objective: to analyze the knowledge of public school students about tuberculosis. **Method:** this is a quantitative and descriptive study of type survey carried out with 70 high school students from the public school system. Data were collected through a structured instrument applied before and after tuberculosis education activity. Data were analyzed by descriptive statistics and presented in absolute and relative numbers in tables. **Results:** students have already heard about the disease; reported not knowing people with tuberculosis and had the perception that the disease mainly reaches the lungs. After the educational activity, there was an increase in the percentage of correct answers in the question about the etiological agent; on the medication used in the treatment and on the prevention of tuberculosis. **Conclusion:** students have already heard about the disease; reported not knowing people with tuberculosis and had the perception that the disease mainly reaches the lungs. After the educational activity, there was an increase in the percentage of correct answers in the question about the etiological agent; on the medication used in the treatment and on the prevention of tuberculosis. **Descriptors:** Tuberculosis; Education; Health Education; Primary Prevention; Health Promotion; Students.

RESUMO

Objetivo: analisar o conhecimento de estudantes da rede pública de ensino sobre a tuberculose. **Método:** estudo quantitativo, descritivo, do tipo inquérito, realizado com 70 estudantes do ensino médio da rede pública de ensino. A coleta de dados ocorreu por meio de um instrumento estruturado aplicado antes e após a realização de atividade de educação sobre tuberculose. Os dados foram analisados por meio de estatística descritiva e apresentados em números absolutos e relativos em tabelas. **Resultados:** os estudantes já ouviram falar sobre a doença; referiram não conhecer pessoas com tuberculose e tinham a percepção de que a doença atinge principalmente os pulmões. Após a realização da atividade educativa, observou-se um aumento no percentual de acertos na questão sobre o agente etiológico, a medicação utilizada no tratamento e a prevenção de tuberculose. **Conclusão:** os estudantes já ouviram falar sobre a doença, referiram não conhecer pessoas com tuberculose e tinham a percepção de que a doença atinge principalmente os pulmões. Após a realização da atividade educativa, observou-se um aumento no percentual de acertos na questão sobre o agente etiológico, a medicação utilizada no tratamento e a prevenção de tuberculose. **Descritores:** Tuberculose; Educação; Educação em Saúde; Prevenção Primária; Promoção da Saúde; Estudantes.

RESUMEN

Objetivo: analizar el conocimiento de estudiantes de la red pública de enseñanza sobre la tuberculosis. **Método:** estudio cuantitativo, descriptivo, del tipo inquérito, realizado con 70 estudiantes de la enseñanza media de la red pública. La recolección de datos fue por medio de un instrumento estructurado aplicado antes y después de la realización de actividad de educación sobre tuberculosis. Los datos fueron analizados por medio estadística descriptiva y presentados en números absolutos y relativos en tablas. **Resultados:** los estudiantes ya oyeron sobre la enfermedad; dijeron no conocer personas con tuberculosis y tenían la percepción de que la enfermedad afecta principalmente los pulmones. Después de la realización de la actividad educativa, se observó un aumento en el porcentaje de aciertos en la pregunta sobre el agente etiológico; sobre la medicación utilizada en el tratamiento y sobre la prevención de tuberculosis. **Conclusión:** los estudiantes ya oyeron sobre la enfermedad; dijeron no conocer personas con tuberculosis y tenían la percepción de que la enfermedad afecta principalmente los pulmones. Después de la realización de la actividad educativa, se observó un aumento en el porcentaje de aciertos en la pregunta sobre el agente etiológico; sobre la medicación utilizada en el tratamiento y sobre la prevención de tuberculosis. **Descriptores:** Tuberculosis; Educación; Educación en Salud; Prevención Primaria; Promoción de la Salud; Estudiantes.

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INTRODUCTION

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis* that can affect several areas of the body, primarily affecting the lungs, and can be transmitted through the airways through the elimination of bacilli.¹ Besides to immunological susceptibility, TB is directly associated with inadequate health care and poor conditions such as malnutrition, overpopulation and unhealthy housing.²

In the world, TB remains a major public health problem because it is linked to people's survival conditions and to the co-infection of the Acquired Immunodeficiency Virus (HIV).³ By 2015, TB was among the top 10 causes of death in the world, with around 10.4 million new cases recorded. Even though there was a 22% reduction in deaths between 2000 and 2015, 1.4 million deaths were still reported in that period.⁴

When the epidemiological situation of TB in the Brazilian context is observed, there is a 15.4% reduction in the mortality coefficient in the period from 2006 to 2015. Despite this, about 66,796 new cases of TB were registered, besides to a coefficient of incidence in 32.4/100,000 inhabitants. In the State of Rio Grande do Norte (RN), the incidence rate in this same period was 27/100,000 inhabitants, while the mortality rate was 1.9/100,000 inhabitants. In the city of Natal, capital of the state, the incidence coefficient reached 38.9/100,000 inhabitants and an 8.4% abandonment rate.⁵

In this context, it is considered that the development of strategies for the early diagnosis, prevention, and health promotion are important for the control of TB. Also, health education becomes fundamental for the promotion of health because through it, the individual can build their autonomy and be co-responsible for his health.⁶

In this sense, a proposal to increase people's knowledge about TB and enable improvements in their quality of life can be traced through the articulation of two sectors of society, health and education.⁷

Education should be seen as complex and not just a preparation or training of people. Thus, efforts must be made and individual and collective commitment must be made so education does not become an item favorable to the neglect and automatic repetition of ideas and actions.⁸

Therefore, in any kind of planning and action that takes place, it is necessary to understand that the other being carries his

Knowledge of the public school students... knowledge and experiences, and no knowledge is true and unique. People have the power to change the environment in which they live, but for this, they need to be aware of their role, how they can transform reality and not just how to repeat what they have been taught. Thus, in the educational processes, the development of a critical conscience through the relation to the social context in which the learner is inserted must be fostered to a constant process of transformation.⁹

OBJECTIVE

- To analyze the knowledge of public school students about tuberculosis.

METHOD

This is a quantitative and descriptive study of the survey type, carried out with students from four public schools in the state located in the city of Natal, capital of the State of Rio Grande do Norte (RN), Brazil. The estimated population of the city in 2016 was 877,662 inhabitants. To address the health situation of this population there are 79 health facilities, which are organized in five Health Districts (South, East, West, North I and North II).

Although they were not characterized as health services, the choice of schools considered this organization and was done intentionally, based on the spatial organization of health facilities in the municipality. At first, the researchers contacted the director of the districts' schools, at which time the research was presented.

After this, a partnership was established with two educational institutions that belong to the geographic space corresponding to the North Sanitary District (DSN) and two in the South Sanitary District (DSS), identified as DSN1, DSN2, DSS3 and DSS4 to maintain the secrecy of the information.

Data collection was performed from February to December 2016 through an instrument prepared by the researchers, composed of two parts: the first one was composed of sociodemographic questions and the second one about knowledge about TB. This last one consisted of 10 multiple choice questions, containing four alternatives that dealt with the concept of TB, transmission, etiological agent, main symptom, diagnostic examination, characteristics of the disease, treatment, prevention and risk in case of treatment abandonment. The adequacy of the instrument was through meetings with discussions between the researchers and the

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Coordination of the Tuberculosis Control Program of the State of Rio Grande do Norte.

The study population consisted of 70 students, aged 18 years old or older, with active enrollment in the third year of high school, in 2016 of the state public school system in the day and night shifts. Data collection took place in three distinct stages: the first stage, (pre-test) where the instrument was applied; the second stage was carried out by a lecture, interactive video exhibition and discussions about the material presented and the third stage (post-test) occurred with the application of the same instrument previously applied.

The data were analyzed through descriptive statistics by the SPSS statistical program in its version 22.0 and presented in absolute and relative numbers in tables.

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Because it was a research involving human beings, it was followed by what is proposed by Resolution 466 of October 12, 2012, of the National Health Council, evaluated and approved by the Research Ethics Committee of the Federal University of Rio Grande do Norte through the opinion number 1,379,626. Participants were also asked to sign the Informed Consent Form.

RESULTS

More than half of the 70 participants in the study were male, aged between 18 and 20 years old, attended DSN schools from one to five years and considered the school they studied as good, according to data presented in Table 1.

Table 1. Characterization of participants according to gender, age, and school information. Natal (RN), Brazil, 2016.

Characterization		n	%
Gender	Female	32	45.7
	Male	38	54.3
	Total	70	100
Age	18 to 20 years	53	75.7
	20 to 30 years	11	15.7
	31 to 60 years	06	8.6
	Total	70	100
School the study	DSN 1	17	24.3
	DSN 2	38	54.3
	DSS 3	14	20.0
	DSS 4	01	1.4
	Total	70	100
How they evaluate the school	Very good	12	17.1
	Good	34	48.6
	Regular	18	25.7
	Bad/very bad	02	2.9
	Did not answer	04	5.7
	Total	70	100
Time they study at school	Less than 1 year	04	5.7
	From 1 to 5 years	62	88.6
	From 6 to 11 years	04	5.7
	Total	70	100

Also according to the results, when observing the data of Table 2, it is verified that a great part of the students lives in neighborhoods located in the DN. Most of them do not work, with family income between 0 and 2 minimum wages and live with 03 to 05 people in residence that have 04 to 06 rooms.

Table 2. Socioeconomic characterization of the participants. Natal (RN), Brazil, 2016.

Characterization		n	%
Neighborhood	Nossa Sra. da Apresentação (DN)	22	31.4
	Planalto (DS)	09	12.9
	Felipe Camarão (DO)	04	5.7
	Potengi (DN)	26	37.1
	Pajuçara (DN)	02	2.9
	Lagoa Azul (DN)	04	5.7
	Did not answer	03	4.3
	Total	70	100
Working	No	47	67.1
	Yes	20	28.6
	Did not answer	3	4.3
	Total	70	100
Family income	From 0 to 2 minimum wages	58	82.9
	From 3 to 5 minimum wages	12	17.1
	Total	70	100
Type of house	House	68	97.2
	Apartment	01	1.4
	Canvas tent	01	1.4
	Total	70	100
People living with the student	From 0 to 2 people	15	21.4
	From 3 to 5 people	42	60.0
	From 6 to 13 people	13	18.6
	Total	70	100
Room in the house	From 1 to 3 rooms	05	7.1
	From 4 to 6 rooms	42	60.0
	From 7 to 9 rooms	20	28.6
	From 10 to 14 rooms	03	4.3
	Total	70	100

When asked if they had already heard about TB, most of the students said yes, and a good part of them cited the television as a medium for knowledge, 17.1% knew it in school and only 7.2% in some Health Unit or

hospital. Most of the students reported not knowing or having met someone with TB; of those who knew, 5.6% said that they were their relatives.

Table 3. Participants' knowledge about tuberculosis. Natal, RN, Brazil, 2016

Question	Answer					
	Yes		No		Total	
	n	%	n	%	n	%
Have you heard about tuberculosis?	62	89.0	8	11.0	70	100
Do you know anyone with tuberculosis?	06	8.6	64	91.4	70	100

According to the answers in Table 4, it was seen that most students had a basic idea of the concept of TB, is a disease that affects mainly the lungs. Regarding the transmission medium, there was a decrease in the percentage of correct answers before and after the educational activity (62.9% to 61.4%).

In the item related to the etiological agent of the disease, there was an increase in the percentage of answers (18.6% to 55.7%), as well as in the question about symptomatology (57.1% to 58.6%) and item the main diagnostic test (smear microscopy) (from 40.0% to 58.6%).

Also according to the results, in the questions about a characteristic of the disease, the medication used in the treatment and prevention form, an increase in the

percentage of hits was observed: 51.4% to 60.0%, 43.3% to 98.6% and 48.6% to 92.9%, respectively.

Table 4. Distribution of students' answers before and after the educational activity. Natal (RN), Brazil, 2016.

Variable	Pre-test				Post-test					
	Hits		Errors		Hits		Errors		Total	
	n	%	N	%	n	%	n	%	n	%
Concept	69	98.6	1	1.4	69	98.6	1	1.4	70	100
Streaming	44	62.9	26	37.1	43	61.4	27	38.6	70	100
Etiological agent	13	18.6	57	81.4	39	55.7	31	44.3	70	100
Symptoms	40	57.1	30	42.9	41	58.6	29	41.4	70	100
Diagnostic examination	28	40.0	42	60.0	41	58.6	29	41.4	70	100
Feature	36	51.4	34	48.6	42	60.0	28	40.0	70	100
Medication	46	65.7	24	34.3	69	98.6	1	1.4	70	100
Avoid contagion	56	80.0	14	20.0	59	84.3	11	15.7	70	100
Prevention	34	48.6	36	51.4	65	92.9	5	7.1	70	100
Abandonment of treatment	61	87.1	9	12.9	63	90.0	7	10.0	70	100

DISCUSSION

TB is a disease mainly affecting populations living in less favorable socioeconomic conditions, living in agglomerates, with lower levels of education and nutrient deficits.¹²

It is also seen that despite the fact that TB is a longstanding disease known for long, there are still social stigmas and prejudices that can contribute to the abandonment or noncompliance with treatment.¹³

In a developed study that analyzed the approach of several questions such as concept, transmission and etiological agent, for example, of stigmatizing diseases such as TB in high school textbooks, it was shown that these materials presented conflicting errors and information, or the lack of important information to be addressed with the students, such as the fact that the disease is still high in Brazil.¹⁴ This demonstrates the need to improve alternatives to address these issues in the classroom.

Also, it is very important that the various sectors of society work in the development of education, health promotion, and care actions, due to the importance of prevention, as well as to the early diagnosis. something much broader considering several social, cultural and environmental factors.¹⁶

In this study, when evaluating the answers related to knowledge about TB in this study, it is noticed that most students are aware of being a disease that mainly affects the lungs, which shows previous knowledge in this question, were also confirmed after the educational activity.

Regarding the second questioning, most of the students hit the item on the medium of transmission, which is through coughing, talking or sneezing. Other studies have also shown that coughing in the transmission is the main response, but it can be seen that people still associate TB transmission through

household utensils, hugging and handshaking, and even sexual pathways.^{17- 8}

Regarding the symptoms, there was no great difference of knowledge regarding the educational activity, once the students recognize the early symptoms of the disease. TB patients may present with fever, persistent cough, fatigue, reduced appetite, weight loss, and hemoptysis in some cases.¹ Recognizing the symptoms of this pathology is of paramount importance for the identification of respiratory symptoms and initiating appropriate treatment.

About the main diagnostic test, bacilloscopy, the result was also positive, as it was verified an increase in the percentage of correct answers. Differently, from the findings in this study, a study of undergraduate students and nursing professionals about TB knowledge showed that more than 90% of the participants were unaware of smear microscopy as a TB diagnostic test.²⁰ Educational actions are necessary to strengthen understanding of how the diagnosis of the disease is performed, as well as the correct way to collect the bacilloscopy sample, contributing to the early diagnosis of TB and reducing the chain of transmission of the disease.²¹

An improvement in knowledge about a cure was observed. This reality was similar to a study in which the great majority of participants (88.3%) stated that TB was a curable disease.²²

Regarding the medication used in the treatment of TB, in which it is available free of charge in the Health Units, an adequate knowledge is revealed before the educational activity and a strengthening of this knowledge after the educational activity. In a study conducted in Nigeria in 2013, 50.0% of participants reported that the drugs used in the treatment were not costly, but most participants did not know they were available

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and the treatment was performed free of charge.²³

It is seen that cultural and sociodemographic factors may contribute to the belief in nontraditional methods that may be successful in the treatment of the disease.¹⁹ Information on the therapeutic regimen needed for treatment and free distribution of medication was one of the most emphasized concepts during the educational activity, as a way to show the ease of obtaining these drugs, evidencing the importance of drug treatment and self-care for therapeutic success.

Most of the participants in this study showed to have the conception that the consequence of abandoning treatment could aggravate the symptoms and even lead to death. Fear of the disease is a complex thing that leads people to believe that if they do not get it right, they can worsen their condition and die, but this fear of a stigmatizing illness can also lead people to ignore it.²⁴ In a study carried out in Ethiopia in 2017, it was shown that the participants related abandonment from treatment with worsening of symptoms and death²², corroborating the findings of this study.

Conditions of social vulnerability and ignorance can influence the abandonment of treatment, which makes it important to develop strategies that act on these conditioning factors.

Avoiding contact with droplets and secretions of the person with TB is important, and when the individual presents clinical improvement and without drug resistance, after about 15 days of treatment he is no longer considered a transmitting agent.⁴ Promoting adequate TB knowledge is essential because stigma is still present when it refers to the close contact of people diagnosed and being treated.²³

A satisfactory knowledge was verified when analyzed the use of vaccination as BCG (*Bacillus Calmette-Guérin*) as an important way to prevent TB before and after the educational activity, especially the most severe forms, evidencing a better understanding about the vaccination. In a study carried out in the municipality of Montes Claros in 2012, in some of the speeches, the participants referred to vaccination as a form of prevention; on the other hand, there are reports that prevention is due to the isolation of the person, and separation of utensils.²⁵ It is important to clarify these concepts for the community, as

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there are still some contradictions found in these studies.

Thus, health promotion in the school context must take place in a planned, continuous and preventive manner and not be restricted to a specific sector of society. Providing the formation of partnerships, bond, autonomy, and co-responsibility of individuals for their well-being and health.⁷

Health promotion actions and strategies are important in the various sectors of society and are essential for the dissemination of knowledge of infectious diseases such as TB to allow the early detection of respiratory symptoms and increase the chances of cure.

CONCLUSION

It is noteworthy that most public school students participating in the research already had prior knowledge of the disease acquired mainly through television and reported that they did not know or knew someone who had TB. They demonstrated to be clarified in the concept, means of transmission, symptomatology, and ways of avoiding the disease. Also, they believed that abandoning treatment could aggravate the symptoms of the disease and lead to death.

The investigation allowed identifying that the practitioners had little information related to the etiological agent, diagnostic method, treatment, and prevention form before participation in the activity, which improved considerably after the educational activities.

Thus, it is evident that, even though it has been a known disease for centuries, TB is still a disease little known to high school students, needing continuous development of health education activities, as well as strengthening partnerships between various sectors of society and the community.

Therefore, it is expected to contribute to the dissemination of knowledge to the community, facilitating the early diagnosis of the disease and the appropriate treatment.

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