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UNIVERSITY OF SAN DIEGO

Hahn School of Nursing and Health Science

DOCTOR OF NURSING PRACTICE

A Pilot Project for Tuberculosis Education in College Students

by

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A Doctor of Nursing Practice Portfolio presented to the

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DOCTOR OF NURSING PRACTICE

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Abstract

Background: San Diego's Tuberculosis (TB) incidence is more than double the national rate.

The majority of cases of active TB are due to the progression of latent TB infection (LTBI).

Objectives: This evidence-based practice (EBP) project aimed to increase knowledge, awareness, and improve attitudes and practices regarding TB among college students.

Participants: Twenty Community College Students in San Diego participated in the project.

Methods: Students attended an in-person educational session. A pre-post knowledge, attitudes and practices (KAP) questionnaire measured the impact.

Results: The intervention improved knowledge and attitudes. The average post-intervention TB knowledge score was 95.8% compared to 57% pre-intervention. Post-intervention, 90% of students felt that TB was a serious problem in San Diego compared to 38% pre-intervention.

Conclusions: TB educational interventions within community colleges in San Diego have the potential to contribute to decreasing TB rates within the San Diego County community.

Keywords: latent TB infection, tuberculosis, BCG vaccine, education, college

Background and Significance

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis* bacteria and is the second leading cause of infectious disease-related deaths after Covid-19.¹ While TB mainly affects the lungs, it can affect almost any bodily system. Latent tuberculosis infection (LTBI) is caused by the same bacteria and can develop into active TB. The difference between active TB, or TB disease, and LTBI is that active TB causes symptomatic illness, and persons are contagious, while people with LTBI do not have symptoms and cannot spread the disease to others.² Most people with LTBI will not develop active TB; however, those infected with TB bacteria have a 5-10% lifetime risk of falling ill with active TB. A meta-analysis by Campbell et al. found that the risk of progression to active TB from LTBI is affected by the person's immune system, which can be compromised by medications, intravenous drug use, or underlying conditions such as Human Immunodeficiency Virus (HIV).³ Without proper treatment, 45% of HIV-negative people and nearly 100% of HIV-positive people with active TB will die.¹ Both active TB and LTBI are preventable and treatable.

The Bacille Calmette-Guérin (BCG) is a vaccine for TB but is not routinely used in the United States(US).² However, the BCG vaccine is routinely given to children in countries where TB is endemic, such as Mexico.² A perspective study by Kumar et al. notes that the BCG vaccine is efficacious in preventing extra-pulmonary TB in children; however, its efficacy in preventing adult pulmonary disease is variably low.⁴ Those who received the BCG vaccine may have a false sense of security and believe they have lifelong immunity to TB. A cohort study by Boulter et al. found that misconceptions regarding TB transmission, risk factors, treatment, and vaccine efficacy may lead to adverse outcomes.⁵

A cross-sectional study reported that college students are an especially high-risk population for TB transmission due to crowded living and close-contact classroom environments.⁶ Additionally, while the reasons are not entirely understood, a meta-synthesis by Snow et al. notes that adolescence is an increased time of TB susceptibility.⁷ The authors theorize that sex hormones, changes in social contact, and immunity may play a role in adolescents' increased risk of contracting TB.⁷ Wu et al. conducted a cross-sectional study that evaluated TB knowledge among first-year college students in China, which has a high burden of TB.⁸ The authors found that many students had a significant gap in their knowledge of TB and recommended that TB education be provided to all students upon entry into college. Puspitasari et al. conducted a study to assess knowledge attitudes and practices (KAP) via a questionnaire about TB.⁶ The authors report a knowledge gap regarding TB among Indonesian college students and found that post-graduate students had a better understanding of TB and were more likely to engage in preventative behaviors compared to undergraduate students.⁶ Additionally, a cross-sectional study conducted among university students in Ethiopia found that only about 33% of students could demonstrate a 'good' level of knowledge related to TB.⁹ The authors also recommend that TB education be incorporated at the university level for all incoming students, as providing TB-related health programs can improve TB knowledge and attitudes.⁹

An epidemiological study demonstrated that San Diego's annual TB rate is 7.9 per 100,000 persons, more than twice the national rate of 2.7.¹⁰ Additionally, a study using an individual-based micro-simulation model estimated that 72% of San Diego's active TB cases occurred in persons born outside the US, and 85% of active TB cases are due to the progression of LTBI to active TB.¹¹ The county of San Diego's Health and Human Services Agency (HHS) TB

elimination initiative aims to decrease incidence rates to less than one active TB case per million population by 2040.¹⁰ The Centers for Disease Control and Prevention (CDC) estimates that the cost for active TB treatment is \$35,520 per patient compared to \$563 for a 6-month treatment of LTBI.² San Diego's HHSA recommends promoting LTBI as a major public health concern, specifically in high-risk populations.¹⁰

San Diego County borders Mexico, where TB is endemic. According to the US Census Bureau, 26.5% of residents in San Diego County are foreign-born citizens.¹² There are many foreign-born students from countries where TB is endemic attending community colleges in San Diego County. These community colleges in San Diego County are well-positioned for TB educators to reach many foreign-born students at risk for LTBI.

Evidence Review

A pilot project by Rebecca et al. evaluated the effectiveness of student-led TB education in India in adolescents aged 13-18.¹³ The authors report that the peer-led educational intervention positively impacted the students' knowledge and awareness of TB and conclude that peer-led TB education is effective and easily replicated in other school settings.¹³ Puspitasari et al. found that increased TB knowledge and preventative education were found to influence TB preventive behaviors and recommended that TB education programs be implemented in the college setting.⁶ Another comparative study in a middle school in China compared the effectiveness of TB education through the comparison of peer-led and teacher-led methods via a KAP questionnaire pre- and post-intervention.¹⁴ Interestingly, the authors found that KAP scores immediately after the intervention were higher in the teacher-led group but were higher in the peer-led group 6 months after the intervention.¹⁴ The study's findings suggest that peer-led interventions may lead

to longer knowledge retention, and the authors recommend that a combination of peer-led and teacher-led education programs be used together to achieve optimal long-term effectiveness.¹⁴ A non-randomized control study conducted on adolescents in Malaysia evaluated the effectiveness of a TB educational intervention which was developed to improve the knowledge, attitudes, practices, and stigma.¹⁵ The authors found an improvement in students' knowledge and stigma related to TB and recommend that educational programs should be one of the strategies to control TB in schools.¹⁵ Jiang et al. also note that evidence has shown that TB education on KAP can help reduce the incidence of TB.¹⁶

Most educational studies utilized a KAP survey to gather information about what students know and think about TB. The World Health Organization and Partnership notes that KAP surveys can be conducted at any point during a TB activity but are most helpful if conducted early in a project program.¹⁷ Data from KAP surveys can be valuable in providing TB program managers vital information to make decisions about TB education programs.¹⁷

Community colleges in San Diego should be considered vulnerable to a TB outbreak, given the proximity to the Mexican border and high levels of person-to-person contact. Most of the above studies focus on adolescents versus college students. However, first-year college students generally fall within the late adolescent age range, which Snow et al. defines adolescence as ages 18-24.⁷ The positive impacts of educational interventions in the above articles may be replicable in the college setting in San Diego.

Colson et al. examined the impact of patient characteristics and symptomatology on knowledge, attitudes and beliefs among foreign-born people with TB in the US and Canada.¹⁸ The authors evaluated results using a knowledge, attitudes, and beliefs questionnaire and found

that many participants did not know the answer to many of the knowledge-based questions and suggest that more TB education is needed for foreign-born people.¹⁸ Tolossa et al. utilized a KAP questionnaire to evaluate the knowledge, attitudes, and practices in a town in Ethiopia and found that most people had a basic awareness of TB but most were unaware of the cause of TB and suggested increasing TB-related health education to the local population.¹⁹ The questionnaire used for this project was adapted from studies by Colson et al. and Tolossa et al.^{18,19} Additionally, the evidence suggests that use of a KAP survey can adequately evaluate students' knowledge and beliefs about TB. The literature review suggests that using a peer educator has a positive impact in TB education projects.

Methods

Design and Setting

The current TB project sought to increase LTBI and TB knowledge among college students at a community college in San Diego. This EBP project measured knowledge, attitudes, and practices toward TB of students before and after an educational intervention. **The initial focus based on the request of San Diego County's HHSA** was to focus on Vietnamese students taking an English Language Acquisition Class (ELAC), a population that was identified as being high-risk for TB. However, the goal of the EBP project was to influence TB preventive behaviors within San Diego county and the ELAC class format was changed to online, and many students were not located within San Diego.

At the request of the community college and the county HHSA, a different population at high risk for TB was identified. Twenty students enrolled in a program exploring the Latinx experience of education participated in the TB education project. All the students involved in the

project are enrolled in a program designed to prepare them for a 4-year university. The program provides counseling, writing skills, personal growth, and mentoring. While the program is open to all students, the program specifically explores the Latinx experience of higher education. The educational intervention was presented to students by a Doctor of Nursing Practice (DNP) student with the assistance of a peer educator who worked at the community college's student health center.

The intervention consisted of a one-time 90-minute educational session in-person with a slide presentation in November of 2022. The presentation included short educational videos from the Centers for Disease Control and Prevention (CDC) and entwined knowledge-based quiz questions to assess students understanding throughout the presentation.

Evidenced-Based Project Model

The model used for this project was the “San Diego 8A's EBP Model”, developed by Brown & Ecoff to guide EBP changes.²⁰ The eight steps involved in the 8A's EBP model include assessing, asking, acquiring, appraising, applying, analyzing, adapting, and advancing, creating a comprehensive roadmap for a successful EBP project. Using this multi-step approach, the author assessed the needs of the student health center at the community college and found that students had an inadequate understanding of TB. After asking how this could be improved, the director of student health services agreed that TB knowledge among students could be improved and recommended implementing a TB educational program. Partnering with San Diego's HHS use of a peer educator was recommended for project sustainability. The author acquired, appraised, and applied data to the project curriculum. Expansion of the project will require adapting and advancing based on results.

Data Collection

The students were given a QR code linked to a confidential online demographics survey to gather student participant characteristics. Additionally, the students were provided a QR code to a confidential online pre- and post-intervention KAP questionnaire consisting of the same questions to complete before and after the educational intervention, respectively. The item pool for the KAP consisted of five knowledge questions, three attitude questions, and two questions regarding practices (See Tables 3-7).

Results

Student Characteristics

Eighteen of the 20 participants completed the survey of demographics, known TB risks, and vaccine status (Table 1). Most students (72%) were between ages 18-29 and the remaining 28% were less than age 18. Two-thirds of respondents reported their gender as female and one-third as male. Most participants (83%) identified as Latino/Hispanic. The majority of students (94%) reported being born in the US.

When asked about their risk for TB, most (72%) denied being told they were ever at high risk for TB, and only one student reported being told they were high risk. An additional three were unsure if they had ever been told they were at high risk for TB, and one preferred not to answer the question.

Two-thirds of students were unsure if they had received the BCG vaccine, and 6% students preferred to keep their vaccination status private. Only 11% of students reported they had received the (BCG) vaccine for TB, while 17% students reported never receiving the vaccine. None of the students reported a history of TB treatment. Several (17%) students

reported they had a family member who had suffered from TB. In comparison, 33% students denied having family members who suffered from TB, 44% students were unsure, and 6% students preferred not to say.

Students' Knowledge of TB

Students were asked a total of 5 questions testing their knowledge of TB. Sixteen of the 20 students participated in the pre-test and 20 students in the post-intervention test. Tables 2 and 3 show the student's knowledge of TB pre- and post-intervention, respectively.

Students' Understanding of the Cause of TB.

Before the educational intervention, 44% compared to 95% after the educational intervention, correctly identified bacteria as the cause of TB.

Students' Understanding of how TB is transmitted

Before the educational intervention, 63% of students correctly identified that TB is 'transmitted through the air when a person with TB coughs or sneezes', however, almost a third responded that TB is 'transmitted through touching items in public places.' Post-intervention, 100% of students correctly identified that TB is transmitted by airborne means.

Students' Understanding of Common Signs and Symptoms of TB

Students were asked to identify some common signs and symptoms of TB through a 'select all that apply' formatted question. Prior to the intervention, 100% of students were able to correctly identify a cough for three or more weeks as a common sign or symptom of TB. Additionally, 38% correctly identified weight loss as a common sign or symptom, 69% of students correctly identified fever and sweating at night as common signs or symptoms, and 44%

correctly identified sputum with blood as a common sign or symptom. Finally, 75% of students correctly identified chest pain as a common sign or symptom of TB.

Post- intervention, all were able to correctly identify a persistent cough, weight loss, fever and night sweats, and chest pain as common signs or symptoms of TB. All but one correctly identified sputum with blood as a common sign or symptom.

Students' Understanding of TB Infectivity

Prior to the intervention, when asked 'Who can be infected with TB,' 94% of students correctly answered 'anybody' and 6% chose 'Don't Know' as a response; post-intervention, all correctly identified that anybody can be infected.

Students' Understanding of LTBI Infectivity

Students were asked a true/false formatted question that stated, 'if someone has TB germs sleeping (AKA latent TB) in their body, they can give TB to other people.' Pre-intervention, only 19% correctly answered 'false,' while post-intervention, 85% correctly answered the question.

Students' Attitudes on TB

Tables 4 and 5 show the students' attitudes toward TB pre- and post-intervention, respectively. A total of 16 responded to the pre-intervention and 20 students responded to the post-intervention attitudes questions.

Students' Attitude on BCG vaccine

The students were asked if they thought the BCG vaccine could protect them from TB for their whole life. Prior to the intervention, only 56% answered 'no', post-intervention 95% believed that BCG does not provide lifetime protection.

Students' attitudes toward the seriousness of TB in San Diego

The students were also asked how serious of a problem they believe TB is in San Diego. Before the intervention, only 38% of students believed that TB is a 'very serious' problem in San Diego, compared with 90% post-intervention.

Student's Belief on how a person with TB is Regarded in their Community

Before the intervention, when asked how a person with TB is usually regarded within their community, only 31% responded that 'the community mostly supports him or her'. Post-intervention, these attitudes changed with fewer noting rejection or avoidance and over twice as many (60%) responded that the community mostly supports him or her.

Students' Practices on TB

Tables 6 and 7 show the TB practices of students pre- and post-intervention, respectively. A total of 16 students responded to the pre-intervention practices and 20 to the post-intervention practice questions.

Students' Practices on TB Treatment

Before the intervention, 75% of students believed that someone with TB could be cured with modern drugs given by health care providers. Post-intervention, these practices changed and 95% of students believed that TB could be cured with modern drugs.

Students' Practices on Seeking Medical Help with TB Symptoms

Before the intervention, when asked at what point they would seek medical help if they had symptoms of TB, 100% of students responded that they would seek medical help 'as soon as they realized they had symptoms that might be related to TB' while afterwards there 85% responded this, and 15% responded that they would seek medical help when 'signs that looked like TB lasted 3-4 weeks'.

Discussion

The one-time educational intervention was successful in increasing knowledge among the student participants. The increase in scores in the post-intervention results indicates that the education format was impactful.

The intervention had a positive impact on the attitudes of the participants. There was also an improvement in the belief that the BCG vaccine would protect students from TB their whole lives, with more understanding that it does not provide lifelong protection. Additionally, there was an improvement in the way students believed people with TB would be regarded within their community.

The students appeared to have good healthcare-seeking practices before and after the intervention. Most had appropriate responses to seeking medical help as soon as they thought they had symptoms of TB both before and after the intervention.

Though not captured in formal data collection, students appeared interested in the topic of TB. The students asked engaging questions that could be used to develop future TB education interventions. Some examples of student inquiries included "who can get treatment for TB?", "what contraindications exist to TB treatment?" and "how is TB treatment affected by pregnancy?" Other students inquired how co-morbidities such as asthma may affect their chances of becoming infected with TB. Another student asked how smoking and vaping can affect TB transmission as well as how ill they could become with TB. These topics would likely be relevant to students in a larger more diverse group and should be considered as topics for discussion.

Although screening and testing for TB were covered in this one-time educational session, many students still had questions on how to proceed with screening and testing, indicating that this topic could be discussed more thoroughly in future educational interventions. During the presentation, a few students disclosed they had family who lived in Mexico and reported frequent travel to visit family and had questions regarding their risks of TB transmission after learning that Mexico has a higher rate of TB than the US. The risk of travel to high-burdened TB countries, particularly Mexico, given the proximity, could also be better emphasized in future educational interventions.

Due to the possible stigma regarding TB and the high rates of immigration in San Diego, great care should be used when discussing risk factors related to foreign-born citizens. Additionally, given the complicated nature of medical language, it may be helpful to offer education sessions in Spanish and other languages to those who prefer to discuss healthcare in their native tongue.

Clinical Implications

Efforts made to increase TB knowledge among college students in San Diego county have the potential to positively impact TB preventive behaviors, including treatment of LTBI before it progresses to active TB. Given the high burden of TB within San Diego County, educational interventions that reach students could be an impactful in reducing the rates of active TB in this population.

Utilizing peer-educators should be considered for future educational interventions as the literature shows they can be impactful in improving knowledge, attitudes, and practices among

fellow students. A peer-educator may also contribute to the sustainability of TB education programs.

With the success of this one-time educational intervention, this project should be considered for use in other classes or expansion to reach a larger body of students within the community college as well as other community colleges within San Diego County. Ideally, expansion of this project would reach all students at the community college; this could be achieved by inclusion in student orientation.

Limitations

There have been no published TB education projects in the community colleges in San Diego or within the US. This project was based on research performed in other countries. The initial focus was to have been on immigrant (foreign-born) students from a high-risk population. Switching focus from students in ELAC courses to the students in the program that focused on the Latinx experience seemed that it would also capture high-risk students as the thought was that many of them may have been foreign-born. However, although most of the students identified as Hispanic, all but one student were born in the US.

The sample size was small, not diverse. There are over 20,000 students enrolled at the community college. Thus, the results may not accurately reflect the entire campus population. Additionally, fewer completed the pre-intervention questionnaire. The discrepancy was likely due to some students coming in late. While the one-time intervention had an immediate positive impact, the longevity of retained knowledge was not assessed. Building long-term follow-ups to assess the KAP of the students should be considered for future projects.

The project was aimed to influence TB preventive behaviors. While the post-KAP questionnaires indicated improved knowledge, attitudes, and practices, there was no evaluation of actual student practices in being screened for TB after the education. Incorporating follow-up assessments that include specific practices of students following an educational intervention should also be considered for future projects.

Conclusion

The one-time TB educational intervention successfully improved the participants' knowledge and attitudes, with less impact on self-reported health practices. A larger, more diverse body of students is needed to accurately assess the campus population's overall knowledge, attitudes, and practices related to TB. Expanding TB educational interventions to reach a larger body of students within San Diego County coincides with San Diego HHSA's recommendations of promoting TB as a major public health concern and has the potential to contribute to decreasing rates of active TB within the San Diego County community.

Conflicts of Interest

The authors have no conflicts of interest to disclose.

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Appendix

Table 1
Demographics

Demographics		n (%)
Age	<18	5 (27.78)
	18-29	13 (72.22)
	30-45	0 (0)
	45-64	0 (0)
	65+	0 (0)
Gender	Male	6 (33.33)
	Female	12 (66.67)
	Non-binary	0 (0)
	Trans	0 (0)
	Prefer not to say	0 (0)
Race	Caucasian	0 (0)
	African-American	0 (0)
	Latino or Hispanic	15 (83.33)
	Asian	0 (0)
	Native American	0 (0)
	Native Hawaiian or Pacific Islander	0 (0)
	Two or More	2 (11.11)
	Prefer not to say	1 (5.56)
Born in US	Yes	17 (94.44)
	No	0 (0)
	Unsure	0 (0)
	Prefer not to say	1 (5.56)
Been told they are high risk for TB	Yes	1 (5.56)
	No	13 (72.22)
	Unsure	3 (16.67)
	Prefer not to say	1 (5.56)
Received the BCG vaccine	Yes	2 (11.11)
	No	3 (16.67)
	Unsure	12 (66.67)
	Prefer not to say	1 (5.56)
History of TB treatment	Yes	0 (0)
	No	14 (17.78)
	Unsure	3 (16.67)
	Prefer not to say	1 (5.56)
Family history of TB	Yes	3 (16.67)
	No	6 (33.33)
	Unsure	8 (44.44)
	Prefer not to say	1 (5.56)

Table 2

Pre-Intervention Knowledge Questionnaire

Pre-Intervention Knowledge Questions	n (%)	
What Causes TB?	Virus	5 (27.78)
	Bacteria	7 (43.75)
	Fungus	0 (0)
	Protozoa	1 (6.25)
	Supernatural	0 (0)
	Don't Know	3 (18.75)
How is TB transmitted?	Through handshakes	0 (0)
	Through the air when a person with TB coughs or sneezes	10 (62.50)
	Through sharing dishes	0 (0)
	Through eating on the same plate	0 (0)
	Through touching items in public places (doorknobs, handles in transportation, etc.)	1 (6.25)
	Don't know	0 (0)
What are some common signs and symptoms of TB? (select all that apply)	Cough for 3 or more weeks	16 (100)
	Weight loss	6 (37.50)
	Fever and sweating at night	11 (68.75)
	Sputum with blood	7 (43.75)
	Chest pain	12 (75)
	Don't Know	0 (0)
	Other (specify)	0 (0)
Who can be infected with TB?	Anybody	15 (93.75)
	Only poor people	0 (0)
	Only homeless people	0 (0)
	Only alcoholics	0 (0)
	Only people with HIV/AIDS	0 (0)
	Only people who have been in prison	0 (0)
If someone has TB germs "sleeping" in their body, they can give TB to other people.	Don't Know	1 (6.25)
	True	7 (43.75)
	False	3 (18.75)
	Don't Know	6 (37.50)

Table 3***Post-Intervention Knowledge Questionnaire***

Post-Intervention Knowledge Questions		n (%)
What Causes TB?	Virus	1 (5)
	Bacteria	19 (95)
	Fungus	0 (0)
	Protozoa	0 (0)
	Supernatural	0 (0)
	Don't Know	0 (0)
How is TB transmitted?	Through handshakes	0 (0)
	Through the air when a person with TB coughs or sneezes	20(100)
	Through sharing dishes	0 (0)
	Through eating on the same plate	0 (0)
	Through touching items in public places (doorknobs, handles in transportation, etc.)	0 (0)
	Don't know	0 (0)
	Others	0 (0)
What are some common signs and symptoms of TB? (select all that apply)	Cough for 3 or more weeks	20 (100)
	Weight loss	20 (100)
	Fever and sweating at night	20 (100)
	Sputum with blood	19 (95)
	Chest pain	20 (100)
	Don't Know	0 (0)
	Other (specify)	0 (0)
Who can be infected with TB?	Anybody	20 (100)
	Only poor people	0 (0)
	Only homeless people	0 (0)
	Only alcoholics	0 (0)
	Only people with HIV/AIDS	0 (0)
	Only people who have been in prison	0 (0)
	Don't Know	0 (0)
If someone has TB germs "sleeping" in their body, they can give TB to other people.	True	3 (15)
	False	17 (85)
	Don't Know	0 (0)

Table 4*Pre-Intervention Attitudes Questionnaire*

Pre-Intervention Attitudes Questions	n (%)	
Do you think the BCG vaccine can protect you from TB your whole life?	Yes	4 (25)
	No	9 (56.25)
	Don't Know	3 (18.75)
How serious of a problem do you think TB is in San Diego?	Very serious	6 (37.50)
	Somewhat serious	9 (56.25)
	Not very serious	0 (0)
	Don't Know	1 (6.25)
In your community, how is a person who has TB usually regarded/treated?	Most people reject him or her	3 (18.75)
	Most people are friendly, but they generally try to avoid him or her	8 (50)
	The community mostly supports and helps him or her	5 (31.25)
	Other (please explain)	0 (0)

Table 5*Post-Interventions Attitudes Questionnaire*

Post-Intervention Attitudes Questions	n (%)	
Do you think the BCG vaccine can protect you from TB your whole life?	Yes	1 (5)
	No	19 (95)
	Don't Know	0 (0)
How serious of a problem do you think TB is in San Diego?	Very serious	18 (90)
	Somewhat serious	2 (10)
	Not very serious	0 (0)
	Don't Know	0 (0)
In your community, how is a person who has TB usually regarded/treated?	Most people reject him or her	2 (10)
	Most people are friendly, but they generally try to avoid him or her	6 (30)
	The community mostly supports and helps him or her	12 (60)
	Other (please explain)	0 (0)

Table 6*Pre-Interventions Practices Questionnaire*

Pre-Intervention Practices Questions		n (%)
How can someone with TB be cured?	Modern drugs given by health institutions health personals	12 (75)
	Herbal remedies	0 (0)
	Home rest without medicine	0 (0)
	Praying	0 (0)
	Self-treatment	1 (6.25)
	Don't Know	3 (18.75)
If you had symptoms of TB, at what point would you seek medical help?	When treatment on my own does not work.	0 (0)
	When symptoms that look like TB last for 3-4 weeks	0 (0)
	As soon as I realize that my symptoms might be related to TB	16 (100)
	I would go to a health facility or contact health personals	0 (0)
	Don't Know	0 (0)

*Table 7**Post-Interventions Practices Questionnaire*

Post-Intervention Practices Questions		n (%)
How can someone with TB be cured?	Modern drugs given by health institutions health personals	19 (95)
	Herbal remedies	0 (0)
	Home rest without medicine	1 (5)
	Praying	0 (0)
	Self-treatment	0 (0)
	Don't Know	0 (0)
If you had symptoms of TB, at what point would you seek medical help?	When treatment on my own does not work.	0 (0)
	When symptoms that look like TB last for 3-4 weeks	3 (15)
	As soon as I realize that my symptoms might be related to TB	17 (85)
	I would go to a health facility or contact health personals	0 (0)
	Don't Know	0 (0)

