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Research Article

TUBERCULOSIS AWARENESS AMONG THE GENERAL POPULATION OF TABOUK, KSA

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Abstract:

Background: Tuberculosis (TB) is an infectious disease caused by bacteria called *Mycobacterium tuberculosis*, it is a chronic systemic disease but mostly affects the lungs. Getting the world free from TB will not happen if general populations don't aware about TB. **Objective:** The study aimed to assess the knowledge, attitude and practice towards Tuberculosis among the general populations in Tabouk city, Northern Saudi Arabia. **Methods:** This cross-sectional Knowledge, Attitude, and Practice (KAP) study was conducted on teachers and parents of primary school students in Tabuk, Saudi Arabia, from 1 March to 31 May 2019. Data were collected through personal interviews using a predesigned questionnaire, including all the relevant questions to address the study objectives. The questionnaire collected data on gender, relation to the child, educational level of the respondent, In addition, the questionnaire includes questions about items that guide us to knowledge, attitude and practice towards TB. **Results:** In total, 391 respondents comprised the study sample. Of the respondents, 56.5% of participants think it is caused by bacteria, 5.6% poor hygiene, 5.4% by soil and dust, 4.3% cold air, 4.1% by smoking, and 23.8% didn't know. 66.8% of participants said that sneezing and coughing cause transmission of infection, 22% didn't know what causes infection transmission, 5.9% shaking hands, and 5.1% eating from the same dish. About signs and symptoms of TB, 70.1% knew that fever is a symptom of TB, 81.6% reported cough with blood, 69.1% weight loss, 78.8% fatigue, and 68.5% cough more than two weeks. 41.9% of the respondents feel compassion and desire to help towards TB patients and 37.9% feel compassion but stay away from them. Most (70.1%) of the participants knew that fever is a symptom of TB, 81.6% reported cough with blood, 69.1% weight loss, 78.8% fatigue, and 68.5% cough more than two weeks. Also most (84.9%) of the respondents reported a preventable way of TB is to cover the nose and mouth during sneeze and coughing.. Most of the respondents 76.7% know that TB can be cured, 73.9% know that vaccination is a way to prevent, 65.5% know that good nutrition is a way to prevention, 78.8% reported isolation of TB patient until he is cured. 55% know that Lack of treatment and failure to continue it leads to resistance to treatment. **Conclusion:** Populations in Tabouk have a good level of knowledge about the cause, mode of transmission and prevention of TB. There are few people who have wrong believes about TB. Also, about half of people have a good attitude towards TB patents. Most of the people know that TB can be cured vaccination and good are ways to prevent it and know that lack of treatment and failure to continue it leads to resistance to treatment.

Key-words: Tuberculosis, knowledge, attitude, practice, general population, Tabuk, Saudi Arabia

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INTRODUCTION:

Tuberculosis (TB) is an infectious disease caused by bacteria called *Mycobacterium tuberculosis*, it is a chronic systemic disease but mostly affects the lungs [1]. In the past, and until the end of the twentieth century, TB was one of the major causes of death, that was because of many factors like; changing of socioeconomic status, migration, the growth of populations and many other causes [2].

TB constitutes a significant and major public health emergency globally. In the past, and until the end of the twentieth century, TB was one of the major causes of death [1, 2].

According to the World Health Organization (WHO), in 2016, Saudi Arabia reported an annual TB incidence rate of 12/100,000 population [3].

Although the prevalence and incidence rates of TB has been decreased in many countries including Saudi Arabia, the world is still in challenges with TB control, and Saudi Arabia still not fully controlled and response rate to its treatment is still 62% [4]. TB eradication in the future is a world wide goal. This is the WHO's Plan to get the world free from TB by the year 2035 [5].

High level of knowledge is positively related to treatment compliance. However, sociocultural differences, gender, educational level, residency, occupation, economic status, efficiency of health system and multiple other factors affect populations' knowledge, attitude and practice with TB [3].

On the other hand, lack of knowledge is likely to prevent appropriate positive healthcare seeking behaviors. Like other chronic illness, appropriate knowledge towards TB was significantly associated with positive healthcare seeking action in early symptomatic cases of the disease [6].

So, general populations must be informed about the causative agent, reservoir, mode of transmission, complications and preventive measures of TB including the importance of its vaccine and its timing. On the other hand, general populations must know the importance of seeking medical advice as early as possible if get symptoms suggesting TB infection.

So, carried out this Study, aiming to assess the knowledge, attitude and practice towards

Tuberculosis among the general populations in Tabouk city, Northern Saudi Arabia.

MATERIALS AND METHODS:

It was a cross-sectional KAP study, directed to general populations of Tabuk, Saudi Arabia, during the period from 1 March to 31 May, 2019.

The sample size was calculated using the sample size equation: $n = z^2 p(1-p) / e^2$. A systematic random sampling technique was used; we included adults above 18 years, of every 10th family till the required sample completed. The study included 391 participants.

Data collection:

Data were collected through personal interviews using a predesigned questionnaire, including all the relevant questions to address the study objectives. The questionnaire collected data on gender, relation to the child, educational level of the respondent, In addition, the questionnaire includes questions about items that guide us to knowledge, attitude and practice towards TB.

Ethical considerations:

Ethical approval to carry out the study was obtained from the research ethics committee of Tabuk University. The study objectives were briefly explained, and informed consent was obtained in a special section of the questionnaire. Respondent confidentiality was maintained as no names were included in the questionnaire or responses.

Statistical analysis:

Data were analyzed using IBM SPSS Statistics for Windows version 20.0 (Armonk, NY: IBM Corp.). Qualitative data were expressed as number and percentage. Percentages and frequencies were used to describe the demographic profile of the respondents and the answers regarding the knowledge, attitude and practice towards TB.

RESULTS:

Table 1 contains respondent demographic data. Most of the respondents (58.1%) were women. 41.7% were aged 30 to 40 years, and most (71.4%) had at least a university-level education. Among the respondents, 38.1% were employee, and 37.9% were students. The majority of the respondents (49.1%) were single, 43.2% were married. Most of the respondents (89.8%) live in Urban area.

Table (1): socio-demographic characteristics of the studied population, Tabouk, KSA (N=391)

Sociodemographic characteristic	Frequency (No.)	Percent (%)
Age group		
<21	70	17.9
21-30	157	40.2
31-40	163	41.7
Sex		
Female	227	58.1
Male	163	41.7
Working status		
Private work	5	1.3
Student	148	37.9
Not working	66	16.9
Retired	22	5.6
Employee	149	38.1
Educational level		
Primary or less	16	4.1
Secondary	95	24.3
University or more	279	71.4
Social status		
Widowed	4	1.0
Single	192	49.1
Married	169	43.2
Divorced	25	6.4
Residence		
Urban area	351	89.8
In a village	39	10.0

Table 2 contains the TB awareness related questions and answers of the studied population. 2.8% of the respondents have a history of TB and 11.3% have a family history of TB. 56.5% of participants think it is caused by bacteria, 5.6% poor hygiene, 5.4% by soil and dust, 4.3% cold air, 4.1% by smoking, and 23.8% didn't know. 66.8% of participants said that sneezing and coughing cause transmission of infection, 22% didn't know what causes infection transmission, 5.9% shaking hands, and 5.1% eating from the same dish. About signs and symptoms of TB, 70.1% knew that fever is a symptom of TB, 81.6% reported cough with blood, 69.1% weight loss, 78.8% fatigue, and 68.5% cough more than two weeks. 41.9% of the respondents feel compassion and desire to help towards TB patients and 37.9% feel compassion but stay away from them.

Table (2): Tuberculosis awareness related questions and answers of the studied population, Tabouk, KSA (N=391)

Variables	Frequency (No.)	Percent (%)
Do you have a history of tuberculosis?		
No	379	96.9
Yeas	11	2.8
Do you have a family history of tuberculosis?		
No	346	88.5
Yeas	44	11.3
What is the cause of TB		
Smoking	16	4.1
Soil and dust	21	5.4
Cold air	17	4.3
Bacteria	221	56.5
Poor hygiene	22	5.6
I do not know	93	23.8
Mode of transmission		
Eating from the same dish	20	5.1
Shaking hands	23	5.9
Sneezing and coughing	261	66.8
I do not know	86	22.0
What do you think about the seriousness of TB		
Dangerous	184	47.1
Very dangerous	168	43.0
Not dangerous	6	1.5
I do not know	32	8.2
What to do if you know you have symptoms of TB		
Seek medical help	360	92.1
Grieve	4	1.0
I'm afraid	22	5.6
I do not care	4	1.0
What are your feelings towards TB patients?		
I fear them because they might hit me	16	4.1
Compassion and desire to help	164	41.9
I have no careful feeling	62	15.9
Compassion but stay away from them	148	37.9
What do you need for TB treatment		
I'm looking for medical care	11	2.8
Asking for modern health care	337	86.2
Traditional treatment methods	6	1.5
I do not know	33	8.4
Seeking traditional help	3	.8
When you must go to the hospital		
If there was no response to the treatment	41	10.5
After 3-4 weeks of symptoms	26	6.6
Once we realize that this is TB	313	80.1
I won't go to the doctor	10	2.6

Table 2 contains the questions and answers of TB awareness of the studied population. Most (70.1%) of the participants knew that fever is a symptom of TB, 81.6% reported cough with blood, 69.1% weight loss, 78.8% fatigue, and 68.5% cough more than two weeks. Also most (84.9%) of the respondents reported a preventable way of TB is to cover the nose and mouth during sneeze and coughing,. Most of the respondents76.7% know that TB can be cured, 73.9% know that vaccination is a way to prevent, 65.5% know that good nutrition is a way to prevention, 78.8% reported isolation of TB patient until he is cured. 55% know that Lack of treatment and failure to continue it leads to resistance to treatment.

Table (3): questions and answers of TB awareness of the studied population, Tabouk, KSA (N=391)

Questions	Yes		No		I do not know	
	No.	%	No.	%	No.	%
Signs and symptoms of tuberculosis include high fever	274	70.1	21	5.4	95	24.3
Signs and symptoms of tuberculosis (tuberculosis) cough with blood	319	81.6	9	2.3	62	15.9
Signs and symptoms of tuberculosis (tuberculosis) weight loss	270	69.1	13	3.3	107	27.4
Signs and symptoms of tuberculosis (tuberculosis) fatigue	308	78.8	8	2.0	74	18.9
Signs and symptoms of tuberculosis (tuberculosis) cough more than two weeks	268	68.5	11	2.8	111	28.4
One of the ways to prevent TB is to wash your hands	228	58.3	49	12.5	113	28.9
One of the ways to prevent tuberculosis is to avoid shaking hands	174	44.5	97	24.8	119	30.4
One of the ways to prevent tuberculosis is to cover your nose and mouth when you sneeze and cough	332	84.9	5	1.3	53	13.6
One of the ways to prevent tuberculosis is to close windows	84	21.5	179	45.8	127	32.5
One of the ways to prevent tuberculosis (TB) is to isolate a TB patient until he is cured	308	78.8	17	4.3	65	16.6
One of the ways to prevent tuberculosis is to avoid sharing and eating in the same dish	277	70.8	26	6.6	87	22.3
One of the ways to prevent tuberculosis is vaccination	289	73.9	17	4.3	84	21.5
One of the ways to prevent tuberculosis is good nutrition	256	65.5	29	7.4	105	26.9
Can Tuberculosis be cured?	300	76.7	8	2.0	82	21.0
Is there a complete cure for tuberculosis?	203	51.9	40	10.2	147	37.6
Lack of treatment and failure to continue it leads to a relapse of the condition	337	86.2	0	0.0	53	13.6
Lack of treatment and failure to continue it, leading to death	276	70.6	10	2.6	104	26.6
Lack of treatment and failure to continue it leads to resistance to treatment	215	55.0	66	16.9	109	27.9
Lack of treatment and failure to continue it leads to non-healing	297	76.0	28	7.2	65	16.6

73.9% know that vaccination is a way to prevent, 65.5% know that good nutrition is a way to prevent, 76.7% know that TB can be cured and 55% know that Lack of treatment and failure to continue it leads to resistance to treatment.

DISCUSSION:

In the past, and until the end of the twentieth century, TB was one of the major causes of death. Nowadays, the world is still challenging with TB control. Getting the world free from TB will not happen if general populations don't aware about TB [7].

It was a cross-sectional KAP study, directed to general populations of Tabuk, Saudi Arabia, during the period from 1 March to 31 May, 2019. The study aimed to assess the knowledge, attitude and practice towards Tuberculosis among the general populations in Tabouk city, Northern Saudi Arabia.

According to the results of our study, only 2.8% of participants had history of TB. This was lower than results of a study conducted in Riyadh, Saudi Arabia [7] which reported 3.3% of participants with history of TB.

As regard knowledge about causes of tuberculosis, 56.5% of participants think it is caused by bacteria, 5.6% poor hygiene, 5.4% by soil and dust, 4.3%

cold air, 4.1% by smoking, and 23.8% didn't know. Another study reported that (34.9%) of participants mentioned that Bacteria is the cause of TB, but most of the participants (50.6%) answer the question about TB causes by saying I don't know and remaining mentioned other causes like cold air, smoking, spoiled soil or poor hygiene [7]. A study in Punjab [8] that nearly 70% were aware that TB is caused by germs, almost equal numbers also held unhygienic food, unclean water, smoking and overcrowding directly responsible for causing TB. On the other hand, another study found that (29.2%) relatives did not know the causal agent of TB and, among the factors that favor sickness, 43 (39.1%) mentioned alcoholism [9]. In other study, smoking was told by 17.24%, poor diet by 06.03%, and mal-nutrition by 42.24%. Other answers were weakness (09.48%) and bad water (04.31%) [10].

In the current study, 66.8% of participants said that sneezing and coughing cause transmission of infection, 22% didn't know what causes infection transmission, 5.9% shaking hands, and 5.1% eating from the same dish. A study in Ethiopia [11] found that only 49.97% of women and 61.84% of men

knew that TB is transmitted by air when coughing or sneezing. There were misconceptions of TB transmission; the common misconception was TB transmission by “sharing utensils” and by exposure to cold, with overall correct responses rate of 68.71% and 79.6%, respectively. Another study reported that, cough, spit, or sputum- droplet, air-borne told by 31.47% of patients. Eating with TB carrier (08.62%), talking face-to-face (05.17%), and unhygienic conditions (05.17%) were also reported. 49.57% of patients didn't have any idea about mode of spread of TB [10]. In Riyadh, acceptable percentage of participants (59.7%) who mentioned coughing droplets as a mode of transmission of TB, around 33.5% of participants don't know the mode of transmission and remaining 6.8% mentioned handshake and sharing dishes as the route of transmission [7].

Regarding knowledge about signs and symptoms of TB, 70.1% knew that fever is a symptom of TB, 81.6% reported cough with blood, 69.1% weight loss, 78.8% fatigue, and 68.5% cough more than two weeks. This was higher than results in Riyadh which found that, round 38% of our participants don't know whether a cough for more than two weeks is a symptom of TB, while also there is a small percentage (5.2%) Deny that idea and most of the participants (56.6%) agree [7]. Another study found that coughing was acknowledged as being the most common symptom by 102 (92.7%) participants, whereas 100 (90.9%) relatives reported pain in the chest, 96 (87.3%) mentioned weight loss, and 86 (78.2%) referred to loss of appetite [9].

This was higher than results of a study in Ethiopia which found that, very small proportion of participants knew major symptoms of a person with tuberculosis: “night sweating” (3.7% of females and 4.16% of males), “chest pain” (6.16% of females and 5.57% of males), and “fever” (9.16% of females and 9.99% of males) and the most commonly identified TB symptom is “persistent cough” (66.6% of females and 77.02 of males, overall: 71.38%) [11]. Another study reported that 62.07% of participants correctly answered that cough was the commonest symptom, followed by hemoptysis (30.17%), fever (25.00%), chest pain (05.17%), weight loss, and breathlessness. 'Not known' was told by 34.48% of participants [10].

In the current study, 84.9% of participants reported a preventable way of TB is to cover your nose and mouth when you sneeze and cough, 78.8% to isolate a TB patient until he is cured, 73.9% vaccination, 70.8% to avoid sharing and eating in the same dish, and 65.5% good nutrition. Another study reported infection prevention behaviors like covering a cough and sleeping separately were less

prevalent [12]. Another study reported acceptable answer like modern treatment was told by 87.07% of respondents, followed by covering mouth during coughing (18.10%) and proper disposal of sputum (12.93%). Isolation of patient (08.62%) and avoidance of sharing of food (06.03%) were reported as preventive measures [10]. In Riyadh, 78.5% of participants approved that covering mouth while coughing or sneezing is a preventive method, while there are some wrong believes such as those 206 people (39.9%) who mentioned avoid handshaking and 83 people (16.1%) who mentioned closing windows as preventive methods [7]. Another study reported that (77.4%) of respondents agreed the avoiding contact with TB patient can halt transmission of TB. (68.2%) respondents agreed that wearing a face mask can prevent transmission of TB from one person to another. Whereas, (76.0%) answered that alcohol avoidance can prevent TB infection [13].

CONCLUSION:

Populations in Tabouk have a good level of knowledge about the cause, mode of transmission and prevention of TB. There are few people who have wrong believes about TB. Also, about half of people have a good attitude towards TB patents. Most of the people know that TB can be cured vaccination and good are ways to prevent it and know that lack of treatment and failure to continue it leads to resistance to treatment. As education has an important rule to increase the level of knowledge about TB, we suggest decision makers to conduct health education sessions to rise the TB awareness among Tabouk population and this is a duty of doctors, government, media, and schools.

Conflict of interest: The authors declare that there is no conflict of interest

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