The Egyptian Journal of Hospital Medicine (July 2017) Vol.68 (3), Page 1462-1468

Awareness of Tuberculosis Among General Populations in Riyadh Region and Its Surroundings

Faisal K Alkulaib[1], Ibrahim M AlFuraih[2], Zainab M Alabbad[3], Mohammed N Almusaad[4], Ahmed A ALmeshari[3], Ahmed S ALwesaibie[3], Faisal N Alshuwair[2], Zaid A Alhamdan[3], Kawthar H Alsaleh[3], Hanadi H AL-Thobiati[5], Nouf Alqahtani[6], Nawaf M Alamri[7], Mohammed A Shaikh[5], Mohammed S Alharthi[8], Ali H Alhawaj[9], Ali M AlJazzar[3],

[1]AL Maarefa Colleges for science and technology, [2] King Saud University, [3]King Faisal University, [4]Al Imam Mohammad Ibn Saud Islamic University, [5]Umm Al-Qura University, [6]Princess Nourah Bint Abdulrahman University, [7]Taif University, [8]Najran University, [9]Ibn Sina National College for Medical Studies.

ABSTRACT

Background: 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, even though the percentage of TB has been decreased. In Saudi Arabia, annual TB incidence rate is 12/100,000 population. Even though incidence rate of TB has been decreased in Saudi Arabia, still TB not fully control. Getting the world free from TB will not happen if general populations don't aware about TB.

Aim: To evaluate knowledge, attitude and practice towards TB among general populations in Riyadh region of Saudi Arabia. **Method:** This is a cross-sectional study done by selection of general populations in Riyadh region by random sample. The study was done by a self-administrated questionnaire that contains demographic data part and other parts that evaluate the awareness of TB. Comparison of results between many variables by Chi-Square Test and P-value < 0.05 was considered as a significant level.

Result: Around 519 participants in this study (Response rate 94.36%) by mean age 33. Only 3.3% have a history of TB and 21.1% have relative with a history of TB. Only 19.4% of participants have good knowledge, only 18.0% have favorable attitude and most of the participants have a good practice (67.6%). People with high degree educational level have better knowledge than others. Non-Saudi people are better than Saudis in practice and people who have relative with a history of TB are better in attitude than others. In practice, Female are better than male, married people also better than single, people with a history of TB or relative with a history of TB are better than others.

Conclusion: Papulations in Riyadh and its surroundings have a very low level of knowledge toward TB. Most people have unfavorable attitude level. Even though there is a high level of good practice but still it needs to be increased. Education has an important role to increase the level of knowledge about TB.

Keywords: tuberculosis, TB, Saudi Arabia, General papulation, Riyadh region.

INTRODUCTION

Tuberculosis (TB) is an infectious disease caused by bacteria called Mycobacterium tuberculosis, is affecting lungs mostly [1]. In the past, and until the end of the twentieth century, TB was one of the major causes of death. And that was because of many factors like the high prevalence of Human Immune Deficiency Virus (HIV/AIDs); changing of socioeconomic status, migration, the growth of populations and many other causes [2]. Nowadays, the world is still in challenges with TB control, even though the percentage of TB has been decreased [3, 4]. We have more than 10 million cases have been recorded in 2015, most of them in Asia (61%) [4].

Saudi Arabia is the third largest country in the Middle East, with total population number more than 31 million according to last demographic scan done at 2016 which done by General Authority for Statistics [5,6]. According to the World Health Organization (WHO), in 2016, Saudi Arabia reported an annual TB incidence rate of 12/100,000 population [7]. Even though the incidence rate of TB has been decreased in Saudi Arabia from 2000 till now, still TB in Saudi Arabia not fully control regardless our government effort to do. Treatment success rate is still 62% registered in 2014 which is under WHO target (85%) [5, 7, 8].

The World is going on to eradicate TB in the future, and this is the WHO's Plan to get the world free from TB. And this plan contains reducing death cases from TB by percentage 95% and preventing new cases by percentage 90% in the period between 2015 to 2035 [9].

This will not happen if general populations don't know what is TB, and what the cause of it, what is the mode of transmission of it, and how to

Received:22 / 6 /2017 DOI: 10.12816/0039689
Accepted:30 / 6 /2017

prevent it. Many documented studies approved that high level of knowledge is positively related to treatment compliance. However, sociocultural differences, gender, and multiple factors affect populations' knowledge, attitude and practice with TB [3].

We found that there are poor sources of information about TB level of knowledge, attitude, and practice among Saudis.

So, in this Study, we aim to evaluate knowledge, attitude and practice towards Tuberculosis among general populations in Riyadh region of Saudi Arabia.

Methodology

This study was conducted in Saudi Arabia, specifically in Riyadh and its Surrounding in which total population in this region are more than 8 million according to last demographic scan done at 2016 which done by General Authority for Statistics [6].

It was a cross-sectional study, directed to general populations. So, we selected our participants by random sample. Selection of sample was done in public places at different cities and villages like malls, mosques, cafes, clubs, hospitals, etc.

A self-administrated questionnaire was made containing two parts. First part is specifically asking for demographic data (Age, Gender, Job, Nationality, Educational level, Residency, Marital State) and the second part is about TB, which was made to evaluate TB knowledge, attitude and practice [Table 1]. Assessment of awareness is done by giving score for each question, in which we consider participant is having good knowledge if he can identify these five elements; bacteria as the cause of TB, airborne as the route of transmission, cough more than two weeks or more as symptom, covering mouth & nose at the time of sneezing or coughing as prevention and the availability of free treatment. We consider participant as having poor knowledge when he can't identify one of previous five elements. We applied the same thing for attitude assessment, in which we can consider participant as having a favorable attitude when he can point out these three items; TB is a very serious disease, preferring to seek health care when he has any TB symptoms instead of being hopeless or ashamed and having the desire to help TB patients. Participants considered as having an unfavorable attitude when he can't point out one of the previous items. Finally, we assess practice by two questions and participants is considered to have good practice if he prefers modern health care to treat TB and prefer to visit a doctor whenever he has TB symptoms. However, any participants who don't prefer these two elements is considered to have poor practice.

After evaluation of knowledge, attitude, and practice, we used to compare results between many variables by Chi-Square Test and P-value < 0.05 was considered as a significant level.

The questionnaire has been translated to the Arabic language to facilitate communications and increase the response rate as the Arabic language is the main language in Saudi Arabia.

Ethical considerations: as questionnaires are self-administrated; we tried our best to explain the goal of research and its benefits to the community. We assured that their personal data will be secret.

Data analysis: IBM.SPSS Statistics version 24 computer applications is the tool then has been used for analysis.

RESULT

This research is targeted to 550 participants, but there are 31 persons apologized to complete questionnaires (response rate is 94.36%). The mean age of participants is 33, younger one is 13 years and older is 65 years. Female people are most of our participants, in which females are 385 (74.6%) and males are 131 (25.4%). Around a quarter of participants are students (25.8%), percentage 38.6% are employees, 10.9% are retired, 1.9% have free bias ness and 22.9% have no job. Saudi people are more than 97% of our participants. By asking about educational level, we found that around 54% have a bachelor degree, 9.9% are at primary school level, 27.3% are in high school level, 8.3% have higher than bachelor degree level and remaining (0.4%) did not enter school. Most of the participants are married; they are more than 300 persons (59.3%). We could not find more than 67 participants from villages
(13%), remaining 449 persons (87%) are from cities **[Table 1].**

Regarding to history of TB, only 17 persons of our participants (3.3%) had history of TB and 109 (21.1%) persons of participants had relative with history of TB **[Table 1]**.

Table 1

Age Mean: 33	Minimum = 13 Maximum =65	
	Frequency (%)	
Gender	Male	131(25.4)
	Female	385(74.6)
Job status of responders	Student	133(25.8)
	Employee	199(38.6)
	Retired	56(10.9)
	Free business	10(1.9)
	No Job	118(22.9)
Nationality	Saudi	501(97.1)
	Non-Saudi	15(2.9)
Educational level	Did not enter school	2(0.4)
	Primary school	51(9.9)
	high school	141(27.3)
	Bachelor	279(54.1)
	High degrees	43(8.3)
Marital status	Married	306(59.3)
	Single	210(40.7)
Residency	City	449(87)
	Village	67(13)
Had History of TB	Yes	17(3.3)
	No	499(96.7)
Had relative with History of TB	Yes	109(21.1)
	No	407(78.9)
Total		516(100)

By asking participants seven questions, we evaluate the level of knowledge. In which 180 people (34.9%) 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. We found the 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. Around 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. Preventive methods according to point of view of our participants is variable, in which 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. Most of the participants (74.0%) agreed that TB is curable, but a still quarter of participants are either disagree or don't know (.8% and 25.2% respectively). Around half of the participants only (52.3%) agreed that there is a free treatment for TB and remaining are either disagree or don't know (2.3% and 45.3% respectively) [Table 2].

Table 2

Knowledge Assessments	**Frequency**	**Percent %**	
What is the cause of TB?			
Cold Air	22	4.3	
Smoking	22	4.3	
Bacteria	180	34.9	
Spoiled soil	7	1.4	
Poor hygiene	24	4.7	
I don't Know	261	50.6	
What is the mode of transmission TB?			
Handshake	12	2.3	
Coughing droplets	308	59.7	
Sharing Dish	23	4.5	
I don't know	173	33.5	
What are signs and symptoms of TB?	**Yes (%)**	**No (%)**	**I don't Know**
Hemoptysis	315(61.0)	13(2.5)	188(36.4)
Weight Loss	252(48.8)	40(7.8)	224(43.4)
Tiredness	327(63.4)	19(3.7)	170(32.9)
Cough for more than 2 weeks	292(56.6)	27(5.2)	197(38.2)
Fever	250(48.4)	36(7.0)	230(44.6)
What are preventions methods of TB?			
Washing Hands	369(71.5)	20(3.9)	127(24.6)
Avoid Handshaking	206(39.9)	139(26.9)	171(33.1)
Cover mouth when coughing/sneezing	405(78.5)	7(1.4)	104(20.2)
Close Windows	83(16.1)	255(49.4)	178(34.5)
Isolating of TB patients	328(63.6)	40(7.8)	148(28.7)
Avoid Sharing Dishes	295(57.2)	59(11.4)	162(31.4)
Vaccinations	383(74.2)	15(2.9)	118(22.9)
Good Nutrition	333(64.5)	39(7.6)	144(27.9)
Is TB curable?	382(74.0)	4(.8)	130(25.2)
Is there a free treatment for TB?	270(52.3)	12(2.3)	234(45.3)
Risk of defaulting from treatment			
Death	265(51.4)	38(7.4)	213(41.3)
Relapsing	332(64.3)	20(3.9)	164(31.8)
Drug resistance	188(36.4)	53(10.3)	175(53.3)
No Cure	261(50.6)	54(10.5)	201(39.0)

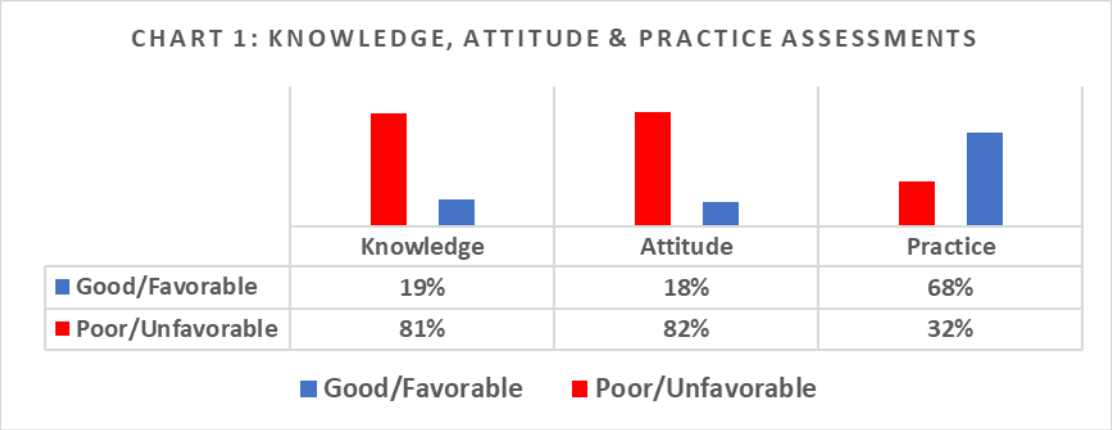
Assessment of attitude and practice of participants as follow: there are 194 participants (37.6%) only believe that TB is very serious disease, also 36.8% believe that it is somewhat serious, remaining are either don't believe in its seriousness or don't know how to appreciate its seriousness (1.6% and 24.0% respectively). Fear is the reaction of more than 10% of participants once they have had any TB symptoms, but most of them (89.7%) prefer to visit health facility once they had TB symptoms. There are only 254 people (49.2%) who have compassion and a desire to help TB patients, about 163 people (31.6%) have compassion but want to stay away from TB patient, 57 fears them because of infection (11.0%), and around 42 don't have exact feeling toward them (8.1%) [Table 3].

Practice with TB evaluation as follow: most of the participants (78.9%) believe that modern health care is the choice of TB treatment, but around one hundred people (19.6%) don't know what is the choice of treatment and one percent traditional healer and holy water as the choice of treatment. Unfortunately, most of the participants (82.9%) prefer to visit health facility once they have symptoms may relate to TB and some of the participants (11.4%) prefer to visit health facility after trying their own treatment and it doesn't work [Table 3].

Table 3

Attitude & Practice Assessments	Frequency	Percent %
What is your thought on seriousness of TB?		
Very serious	194	37.6
Somewhat serious	190	36.8
Not serious	8	1.6
I don't know	124	24.0
What is your reaction if you had TB symptoms?		
Fear	52	10.1
Shame	1	.2
Sadness/Hopelessness	0	0
Visit health facility	463	89.7
What is your feeling about TB patients?		
Compassion and a desire to help	254	49.2
Compassion and stay away from them	163	31.6
I fear them because they may infect me	57	11.0
I have no exact feeling	42	8.1
What is your Choice for TB treatment?		
Modern health care	407	78.9
Traditional healers	1	.2
Holy water	4	.8
I don’t know	101	19.6
I will not treat	3	.6
When you will visit health facility?		
Once my own treatment does not work	59	11.4
Once realizing the symptoms may related to TB	428	82.9
After 3–4 weeks of having symptoms	23	4.5
I will not go to a doctor	6	1.2

Evaluation's scores for knowledge, attitude and practice with TB result is mentioned as follow: Only 100 people (19.4%) of participants have good knowledge and remaining 416 (80.6%) have poor knowledge. About 93 people (18.0%) have favorable attitude and remaining 423 (82.0%) have unfavorable attitude. Most of participants have good practice (67.6%) **[Chart 1]**.



Regarding to Chi-Square test; people with high degree level of education are better in knowledge than others (P-value < 0.05), no differences in knowledge between remaining variables. By looking at attitude score; non-Saudi people have a better attitude than Saudis (P-value < 0.05), people who have relative with a history of TB have a better attitude than others (P-value < 0.05), no differences in attitude between remaining variables. Practice scores showed difference between male and female, in which female is good in practice more than males (P-value < 0.05), married people also better than single in practice (P-value < 0.05), people with history of TB are better in practice (P-value < 0.05), people who have relative with

Table 4: Chi-Square Test for Knowledge, Attitude & Practice Assessment

	P – Value When you compare with							
	Gender	**Job**	**Nationality**	**Educational level**	**Residency**	**Marital Status**	**History of TB**	**Relative with History of TB**
Knowledge Score	.151	.111	.054	.033*	.323	.945	.854	.811
Attitude Score	.492	.779	.025**	.941	.084	.666	.214	.009**
Practice Score	.022***	.281	.078	.135	.930	.000***	.018***	.000***

* people with high degree education have better knowledge than others.

** Non Saudi people have better attitude than Saudis – people who have relative with history of TB have better attitude.

*** Females are better in practice than male – Married people also better than single – people with history of TB are better in practice - people who have relative with history of TB have better practice.

history of TB have better practice (P-value < 0.05), no differences in practice between remaining variables [Table 4].

DISCUSSION

In this study, we tried to reach most of the general population by selection of public places as the study site. There is variety of number between male and female in which females are more than males because most of our data collector were female and most of the male on public place don't have the desire to pay any attention to our data collector and sometimes they refuse to complete the questionnaire or they don't return it back to us. Some of the jobs are less than others like retired and people with free business (10.9% & 1.9% respectively), also this can be applied on nationality, educational level marital state and residency and this can make some bias in our result. However, making data equal in all variety was very difficult for us.

Unfortunately, awareness assessments showed that low level of TB knowledge and attitude among Riyadh populations. Less than four out of ten of participants know that bacteria are the cause of TB. Most of the people don't know the real cause of TB or they have wrong beliefs like TB happen because of cold air, smoking, spoiled soil or poor hygiene. Important information about multi-drug resistance strain because of treatment noncompliance is almost unknown, in which only 188 persons (36.4%) know this fact. In general, only 19.4% have good knowledge and 18.0% have a favorable attitude. Practice is a little bit good in assessment in comparison to knowledge and attitude, as 67.6% of participants have good practice with TB. Level of knowledge about TB is positively related to the level of education, and this is logical. Practice is positively related to the history of TB and relative with the history of TB, and this is also logical.

After comparing our study to study which has been done among prisons in Africa, we found that percentage of people in our study who know that bacteria are the cause of TB is less (34.9% vs. 37.7%). Also, the percentage of people who know the mode of transmission (59.7% vs. 88.0%) and free treatment availability is less (52.3% vs. 64.5%). A score of knowledge assessment also lower (19.4% vs. 24.0%). Level of favorable attitude is highly low (18.0% vs 41.0%). Unfortunately, level of practice in this study is better (67.6% vs. 55.0%) [3].Differences in demographic data between both study and difference of study site may explain this variation .

However, we could not find such this study in Riyadh or even in Saudi Arabia to make the comparison between results.

CONCLUSION

Populations in Riyadh and its surroundings have a very low level of knowledge about TB. There are few people who have wrong believes about TB that may increase the incidence of getting infected from TB patients and will lead to noncompliance to treatment and its complications. Also, a high percentage of people have unfavorable attitude level which prevents them to seek care because of fear and prevent them to help TB patents. Even though, high level of good practice but still it needs to be increased. Education has an important rule to increase the level of knowledge about TB.

We suggest increasing the level of awareness among people in Saudi Arabia, and this is a duty of doctors, government, media, and schools

ACKNOWLEDGEMENTS

At the end of our study, we must thank Dr. Layla Anwar ALMarzooq for her efforts on data collections.

.

REFERENCES

1. **Storla DG, Yimer S and Bjune GA (2008):** A systematic review of delay in the diagnosis and treatment of tuberculosis. BMC Public Health,8:15.
2. **Adane K, Spigt M, Johanna L, Noortje D, Abera SF, Dinant GJ(2017):** Tuberculosis knowledge, attitudes, and practices among northern Ethiopian prisoners: Implications for TB control efforts. PLoS ONE,12(3):e0174692.
3. **Pelissari DM, Diaz-quijano FA(2017):** Household crowding as a potential mediator of socioeconomic determinants of tuberculosis incidence in Brazil. PLoS ONE,12(4):e0176116.
4. **Al-Hajoj S, Varghese B (2015):** Tuberculosis in Saudi Arabia: the journey across time. The Journal Of Infection In Developing Countries ,9 (03): 222-231.https://doi.org/10.3855/jidc.5296
5. **Available at: https://www.stats.gov.sa/sites/default/files/ar-demographic-research-2016_5.pdf**
6. **World Health Organization, Global Tuberculosis Report. Available at: http://data.worldbank.org/indicator/SH.TBS.INCD**
7. **Global tuberculosis report (2016): available at; http://www.who.int/tb/publications/global_report/en/**
8. **Prasad A, Ross A, Rosenberg P, Dye C(2016):** A world of cities and the end of TB. Trans R Soc Trop Med Hyg. ,110(3):151-2