RESEARCH ARTICLE

Knowledge and perception about tuberculosis among general population attending community pharmacies in Mosul: A cross-sectional study

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Abstract

Objective: To evaluate people's knowledge and perceptions regarding tuberculosis.

Method: The cross-sectional study was conducted at 10 community pharmacies in Mosul, Iraq, from December 2021 to March 2022, and comprised individuals of either gender aged >18 years. Data was collected using a 17-item questionnaire, with 12 questions related to knowledge and 5 related to perception regarding tuberculosis. Data was analysed using SPSS 25.

Results: Of the 200 participants with mean age 38.79+/-13.72 years, 113(56.5%) were females and 101(50.5%) had education up to university level. Overall, 85(42.5) subjects could differentiate between tuberculosis and pulmonary tuberculosis, and 176(88%) knew TB was curable. Besides, 135(67.5%) subjects said they would not visit patients with tuberculosis.

Conclusion: The national tuberculosis control programme in Iraq seemed to have improved public awareness regarding tuberculosis.

Key Words: Tuberculosis, Pulmonary

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Introduction

Tuberculosis (TB) is an infectious disease caused by mycobacterium tuberculosis and mainly affects humans. It primarily affects the lung[1]. When an infected individual speaks or coughs, droplet nuclei get aerosolised and spread the disease[2]. Although TB treatment is available and effective, the death rate from TB remains high, especially in developing countries and among patients with human immunodeficiency virus (HIV) infection[3]. In developing countries, TB is associated with a high mortality rate in all infected cases[4].

Between 2011 and 2018, as many as 65,102 TB cases were registered in Iraq. The annual rate of TB cases was seen to be gradually declining across these years[5]. Several factors contribute to the increased incidence of TB in developing countries, like Iraq. These include poor diagnostic tests and management, lack of adherence to prevention strategies, increased migration due to disasters, and co-infection with HIV infection[4]. All of these are exacerbated by the rising figures of population, an increase of multidrug-resistant (MDR) strains, misuse of drugs, low socioeconomic status (SES) and absence of awareness and knowledge about TB[6].

Knowledge is defined as the facts, experiences or feelings known by an individual or group of individuals[7]. Lack of knowledge regarding mode of transmission, aetiology, symptoms and suitable management of TB not only influences the health-seeking action of patients, but also may have an impact on preventive measures, subsequently minimising the spreading of disease throughout the populations[8]. Perception is an idea, image or belief, and is defined as the capability to comprehend the correct nature of something. It is the result of one's understanding of and belief in something[9]. One of the significant barriers to TB management is stigma[10,11]. TB is a social disorder that negatively affects a patient's deep emotions, and causes distancing from people, stigmatisation and isolation[9].

The current study was planned to assess people's knowledge and perceptions regarding TB.

Subjects and Methods

The cross-sectional study was conducted at 10 community pharmacies in Mosul, Iraq, from December 2021 to March 2022, and comprised individuals of either gender aged >18 years who came to the participating community pharmacies. The sample comprised any adult subject who could read and understand the study questionnaire. Healthcare providers and patients with current or previous infection with TB were excluded. The sample size was calculated using the Cohen's table with 95% confidence interval (CI) and 5% margin of error while avoiding type II errors[12]. The participation was

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completely voluntary and the research complied with the Declaration of Helsinki's ethical guidelines[13].

Data was collected using a three–part questionnaire. The first part related to socio-demographic characteristics, while knowledge and perception parts were developed in the light of literature[11,14-18].

The knowledge scale covered 3 main domains; mechanism of disease transmission, the severity of the disease, and its treatment. It had 12 questions with multiple answering options. The scale was translated into Arabic language using the forward-backward translation method after which the original English version and the back-translated versions were compared.

The perception section comprised 5 closed questions with two response options. The translation process was also applied to the perception scale.

The questionnaire was administered during face-to-face interviews.

Data was coded and analysed using Microsoft Excel and SPSS 25. Chi-square test was used to compare the knowledge and perception levels according to educational background of the participants. P<0.05 was taken as significant.

Table-1: Socio-demographic characteristics.

Demographic Data	N (%)
Age(years)	38.79 (13.723)
Gender	
Male	87 (43.5)
Female	113 (56.5)
Residence	
Urban	173 (86.5)
Rural	27 (13.5)
Educational level	
Primary	19 (9.5)
Secondary	80 (40.0)
University	101 (50.5)
Occupation	
Government employer	83 (41.5)
Retired	18 (9.0)
Student	37 (18.5)
Private works	47 (23.5)
Not working	15 (7.5)
Have you ever seen/heard a person who is suffering from TB?	
Yes	102 (51.0)
No	98 (49.0)
Have you been told about TB in the past 12 months?	
Yes	24 (12.0)
No	176 (88.0)

TB: Tuberculosis.

Table-2: Knowledge of the participants, and its correlation with the level of education.

Questions of knowledge	Educational level n (%)				
	Primary	Secondary	University	Total n(%)	P value
Q1: Is there a difference between TB and pulmonary TB?					
Yes	7 (36.8)	45 (44.6)	33 (41.3)	85 (42.5)	0.707
No	12 (63.2)	52 (51.5)	42 (52.5)	106(53.0)	
I don't know	0 (0.0)	4 (4.0)	5 (6.3)	9 (4.5)	
Q2: What symptoms can show that a person has TB?					
I don't know	7 (36.8)	12 (11.9)	11 (13.8)	30 (15.0)	0.053
Cough and bloody sputum	7 (36.8)	30 (29.7)	27 (33.8)	64(32.0)	
Anorexia and weight loss	1 (5.3)	38 (37.6)	25 (31.3)	64(32.0)	
Fever and malaise	4 (21.1)	21 (20.8)	17 (21.3)	42 (21.0)	
Q3: What do you think about the cause of this disease?					
I don't know	14 (73.7)	6 (5.9)	15 (18.8)	35(17.5)	0.00
Pollution	0 (0.0)	26 (25.7)	32 (40.0)	58(29.0)	
Bacteria and microorganism	2 (10.5)	28 (27.7)	16 (20.0)	46(23.0)	
Cold Weather	3 (15.8)	16 (15.8)	8 (10.0)	27(13.5)	
Smoking	0 (0.0)	25 (24.8)	9 (11.3)	34 (17.0)	
Q4: Does this disease transmit from a patient to another person?					
Yes	11(57.9)	86 (85.1)	70 (87.5)	167(83.5)	0.004
No	5 (26.3)	5 (5.0)	3 (3.8)	13 (6.5)	
I don't know	3 (15.8)	10 (9.9)	7 (8.8)	20 (10.0)	
Q5: If yes, how it can be transmitted from a patient to another person?					
Close Contact	3(12.5)	38 (45.2)	32 (54.2)	73 (43.7)	0.000
Environment	21(87.5)	46 (54.8)	27 (45.8)	94 (56.3)	
Q6: Do you think that the transmission of TB is preventable?					
Yes	9 (47.4)	78 (77.2)	56 (70.0)	143 (71.5)	0.002
No	7 (36.8)	12 (11.9)	6 (7.5)	25 (12.5)	
I don't know	3 (15.8)	11 (10.9)	18 (22.5)	32 (16.0)	
Q7: If yes, what are preventive methods?					
I don't know	1 (7.7)	12(16.6)	11 (19)	24 (16.8)	0.038
Isolation	0 (0.0)	1(1.5)	5 (8.6)	6(4.2)	
Treatment	1(7.7)	12(16.6)	13(22.4)	26 (18.2)	
Sterilization	0 (0.0)	12 (16.6)	7 (12.1)	19 (13.3)	
Vaccination	11 (84.6)	35(48.7)	22 (37.9)	68 (47.5)	
Q8: Does this disease have a treatment?					
Yes	15 (78.9)	84 (83.2)	74 (92.5)	173 (86.5)	0.107
No	0 (0.0)	4 (4.0)	3 (3.8)	7 (3.5)	
I don't know	4 (21.1)	13 (12.9)	3 (3.8)	20 (10.0)	
Q9: Is TB contagious?					
Yes	11 (57.9)	92 (91.1)	72 (90.0)	175 (87.5)	0.001
No	3 (15.8)	5 (5.0)	3 (3.8)	11 (5.5)	
I don't know	5 (26.3)	4 (4.0)	5 (6.3)	14 (7.0)	
Q10: Do you think TB is curable?					
Yes	15 (78.9)	91 (90.1)	70 (87.5)	176 (88.0)	0.483
No	0 (0.0)	2 (2.0)	2 (2.5)	4 (2.0)	
I don't know	4 (21.1)	8 (7.9)	8 (10.0)	20 (10.0)	
Q11: Which body system does TB mainly effect?					
GIT	2 (10.5)	2 (2.0)	4 (5.0)	8 (4.0)	0.001
RT	11 (57.9)	95 (94.1)	66 (82.5)	172 (86.0)	
CVS	3 (15.8)	0 (0.0)	4 (5.0)	7 (3.5)	
I don't know	3 (15.8)	4 (4.0)	6 (7.5)	7 (3.5)	
Q12: Is there vaccination against TB?					
Yes	11 (61.1)	76 (76.0)	51 (63.7)	138 (69.7)	0.012
No	0 (0.0)	1 (1.0)	9 (11.3)	10 (5.1)	
I don't know	7 (38.9)	23 (23.0)	20 (25.0)	50 (25.3)	

TB: Tuberculosis, GIT: Gastrointestinal tract, RT: Respiratory tract, CVS: Cardiovascular system.

Table-3: Perception of the participants, and its correlation with their level of education.

Questions of knowledge	Educational level n (%)				
	Primary	Secondary	University	Total n(%)	P value
Q13: Would you visit an infected person in his/her home?					
Yes	11 (57.9)	28 (35.0)	26 (25.7)	65 (32.5)	0.019
No	8 (42.1)	52 (65.0)	75 (74.3)	135 (67.5)	
Q14: If someone has TB, will they try to hide it form others?					
Yes	13 (68.4)	59 (73.8)	60 (59.4)	132 (66.0)	0.126
No	6 (31.6)	21 (26.3)	41 (40.6)	68 (34.0)	
Q15: Have you had close contact with anyone who was sick with TB?					
Yes	4 (21.1)	13 (16.3)	12 (11.9)	29 (14.5)	0.493
No	15 (78.9)	67 (83.8)	89 (88.1)	171 (85.5)	
Q16: A sick relative has completed TB treatment in a hospital, would you take him to your home for after care?					
Yes	8 (42.1)	45 (56.3)	52 (51.5)	105 (52.5)	0.518
No	11 (57.9)	35 (43.8)	49 (48.5)	95 (47.5)	
Q17: If you had signs and suspected TB, where would you go to get medical service?					
Doctor	12 (63.2)	54 (67.5)	59 (58.4)	125 (62.5)	0.455
Hospital	7 (36.8)	26 (32.5)	42 (41.6)	75 (37.5)	

TB: Tuberculosis.

Results

Of the 200 participants with mean age 38.79+/-13.72 years, 113(56.5%) were females and 101(50.5%) had education up to university level (Table 1).

Overall, 85(42.5) subjects could differentiate between TB and pulmonary TB, and 176(88%) knew TB was curable. Of the 12 knowledge items, education level was significant for 8(66.7%) (Table 2).In terms of perception, 135(67.5%) subjects said they would not visit patients with TB, 105(52.5%) were willing to take care of their relatives if they had TB, and 125(62.5%) said they would consult private doctors rather than a hospital if they had a symptom suspected of TB. Of the 5 perception items, education level was significant for 1(20%) (Table 3)

Discussion

The present study showed that participants with higher education level had better information about aetiology, signs and symptoms, mode of transmission as well as nature of the disease. Around half of the participants knew that TB is caused by bacteria. Contrary to the results, a study in the Philippines reported that only 25% individuals knew that TB is caused by germs. They linked TB infection to poverty and air pollution[15]. However, the findings in both the studies were consistent with respect to the correlation between education level and knowledge of aetiology[15].

Less than half of the current participants knew that TB is transmitted by close contact. Similar results were reported earlier[15].

The majority of the current respondents knew that TB could be transmitted from person to person. Similar results were reported by a study in Libya[18].

The majority of the current respondents said the disease is prevented by isolation, sterilisation and other methods, and there was a significant correlation between their educational and knowledge levels. Less than two-thirds of the participants in an earlier study knew about preventive measures, such as wearing of masks and distance from TB patients[18].

Most of the current respondents knew that the disease could be prevented by vaccination, and their answers were significantly associated with their educational level. Similar findings were reported by a study in Malawi among primary school students[19]. According to another study, the disease prevalence was very low among children with Bacille Calmette-Guerin (BCG) scars[20].

The probably high level of good knowledge shown in the current study was likely due to increased awareness activities carried out by educational TB programmes via multimedia, including radio, television, newspapers and the internet, as well as face-to-face health education programmes. These educational activities highlighted the importance of infectious TB, its aetiology, mode of transmission, as well as prevention and cure.

In terms of TB perception, 67% of the current participants said they would not visit a TB-infected individual as they were aware that TB can spread through close contact with an infected person. On the contrary, 33% of the participants said they would visit TB patients. In a Malawi study, 42% respondents thought that most people in their communities avoid contact with TB-infected individuals[10]. Further, 66% of the current participants believed that patients with TB will attempt to hide it. The concern of social shame which is connected to poverty and low SES is the fundamental cause of this perception. Health education may be an effective strategy to overcome the distinctive stigma associated with TB.

There were 62.5% participants who said they would visit private doctors instead of public hospitals if they suspected TB. Because of inadequate sterilisation and unavailability of many medications in Iraqi hospitals, the finding was not surprising. Also, because of the social stigma, infected people preferred private clinics.

Limitation: The current study has limitations as data was obtained only from community pharmacies in a single city. Some participants, particularly the elderly, struggled to understand some of the questions, but researchers were present to explain any question they had during the

interview. Also, the study did not explore if the participants had ever attended a TB awareness programme.

Conclusion

Regardless of the obstacles faced by people in Iraq, the knowledge of TB among the general population studied in Mosul city was found to be good. Despite the reasonably good knowledge of TB, however, the perception data indicated the prevalence of negative disease-related stigma.

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Conflict of Interest: None.

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