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ORIGINAL RESEARCH ARTICLE

Tuberculosis program health care workers knowledge about tuberculosis in Kerbala governorate in 2017

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Abstract

Objective: The problems facing tuberculosis (TB) control are web-shaped multidisciplinary factor, complicated dilemma and part of the problem is denial of facing the truth. A big sum of literature is published to obliterate the proper pathways, mainly for receiving the grants and persuading responsible personals and agencies. For these reasons, this study represents a genuine step in breaking the rules and telling nothing but the truth about caretakers knowledge about TB in Kerbala.

Methods: About 43 caretakers following TB patients in primary health centers in Kerbala/Iraq were asked about TB transmission and dealing with contacts. Each participant answered a self-administered questionnaire based on World Health Organization (WHO) module questionnaire. At the beginning of a training course, TB caretakers personally conducted the primary health sectors in March 2017. The analysis depended on comparing the answers with the standard WHO answers in the module and the National TB program. Analysis depended on Excel an SPSS-21 package at a significance level of 0.05.

Results: The overall findings had indicated a poor level of knowledge among the participants. The majority of them were with a professional diploma qualification. An important defect detected in the study is that most participants report that they know a fact but their answer reveals that they do not know it.

Conclusions: Training programs need to be initiated soon to improve caretakers' knowledge about TB. An important recommendation is that evaluation of control programs implementation needs to be performed from outside the system to avoid bias in measurement.

Keywords: Tuberculosis, Health Personnel, Knowledge, Iraq

Introduction

The assessment of health workers' current knowledge about tuberculosis (TB) provides a basis for developing an informed outreach program and monitoring future progress in implementation. The World Health Organization (WHO) had set the 2020 milestones of the End TB Strategy, 35% reduction in the absolute number of TB deaths and 20% reduction in the TB incidence rate, compared with levels in 2015[1]. WHO stressed the importance of knowledge, attitude and practice of TB caretakers to ascertain success in TB control[2,3].

In a previous national interview study in 2001/2002 of 492 health care workers (HCWs) in Iraq, a good level (almost 100%) of knowledge was reported among the majority of both groups, which was considered by the researchers as an indication of the good impact of the national TB program in Iraq[4]. However, these findings are not consistent with finding in most reviewed surveys in other countries[5–12].

A nationwide survey in Iran among 1016 participants working in TB laboratory in 50 universities in Iran indicated lack of optimum practice among HCWs regarding TB in Iran. The researchers recommend Iran's health system to plan for the continuing and improving in-service training of health care staffs[12].

A systematic review of 31 studies from 14 countries concluded that there is a lack of knowledge of national or international TB treatment guidelines and recommendations[13]. In all 31 studies, HCWs with inappropriate knowledge of treatment regimens (8–100%) or treatment duration (5–99%)

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were observed. Similarly, Junior and his colleagues (2013) found mistaken concepts on TB among HCWs for prisoners. They concluded that basic errors on TB knowledge TB among HCWs pointed out imperfections on training.[8]

Three studies in Nigeria concluded HCWs lack knowledge on the management of TB patients. The first study among 52 rural HCWs in Nigeria found that only 14 (27%) had a good knowledge score about TB. Knowledge gaps existed regarding TB disease and treatment, but most deficits were found in infection control[7]. While the second study among 76 HCWs in Plateau state in Nigeria in 2011 reported that only 43.4% knew when to take action on patients who miss their drugs in the intensive phase, 30.3% and 35.5% knew defaults among categories 1 and 2 in the continuation phases of treatment, respectively. They identified side effects of drugs (80%), daily clinic attendance (76.3%), health workers attitude (73.4%) and lack of knowledge on duration of treatment (71.1%) including their unfriendly attitudes towards the patients as the major barriers to patients' adherence to treatment (Ibrahim et al. 2014). A more recent study among 182 HCWs in nine Directly Observed Treatment Short (DOTS) course chemotherapy centers in Lagos State, Nigeria reported good knowledge score (most of the questions were correctly answered by most participants). However, only one-quarter of the participants answered the question "most multidrug-resistant TB disease inside the hospital" correctly and less than one-third answered the question "surgical masks protect HCWs and visitors by stopping TB particles from being breathed in" correctly[6].

A survey in India found that only 45.0% caregivers of patients had knowledge regarding mode of spread of TB infection to others, 68.9% had knowledge regarding DOTS. The study reached a conclusion that a part of pharmacological treatment, poor knowledge of TB in caregivers of the pediatric TB patients also needs great attention for better control and prevention of TB in pediatric age group[11]. Another study from Ethiopia stressed the importance of training where only 18.8% received in-service training. Among those who were trained, 74.4% were found to have good knowledge and 63.2% good practice on TB[5]. In addition to the impact of HCWs knowledge on TB program implementation, it affects infection control and is significantly associated with nosocomial infection and TB prevalence rates among them[14]. In addition, community members from a wide range of socioeconomic and educational levels require information about TB, and health workers could play a great role in reaching this goal as it increases competence in TB management and compliance with national guidelines.

A recent study among 170 HCWs in Mozambique identified gaps in HCWs knowledge about TB which may result in substandard patient care[9]. The average knowledge score was 14.89 points out of a total possible 26 points. The average practice score was 3.2 out of 9 points. A survey in Russia in 2008 among 96 physicians, nurses, laboratory workers and support staff employed in five TB care facilities reported similarly low overall knowledge score[10].

This study provides essential information, as a first step in rebuilding Karbala's TB surveillance and care systems through training and correcting wrong health workers knowledge, about TB[15]. In this governorate, 32 main Primary Health Care Centers (PHCs) and 23 sub-centers service a population of 1,185,930.

Materials and Methods

A descriptive cross-sectional study was performed through the use of a specifically designed TB knowledge questionnaire among caretakers in Kerbala governorate, Iraq in March 2017 at the beginning of a training course. The participants were chosen by the PHS directors as they represented responsible personals to follow TB cases in the PHC. The self-administered questionnaire based on WHO module (2), and took 10–15 min to complete without external assistance. The survey contained 18 questions pertaining to two different areas: demographics (seven questions) and TB knowledge (11 questions).

Results

The response rate was high (96%), however, too many questions were left without answer (Table 1). The internal reliability coefficient for all knowledge questions was good (Cronbach's alpha = 0.838). The mean age of the HCWs included in the study was 45.6 ± 9.3 years and most of the respondent's age (70.6%) were 40 years or more. One-fifth of the participants were females ([Fig. 1], Table 1).

The mean duration of work of the participants was 22.5 ± 9.5 years and the majority of them (49%) were with a professional diploma qualification while only 10% hold bachelor degree (pharmacist) and the remaining were dressers.

An important defect detected in the study was that most participants reported that they know a fact, but their answer reveals that they do not know it. When they were asked "'Do you know who is TB contact," about three quarters answered yes; however, only one-fifth (20.6%) to give the correct definition. The same could be said about the next

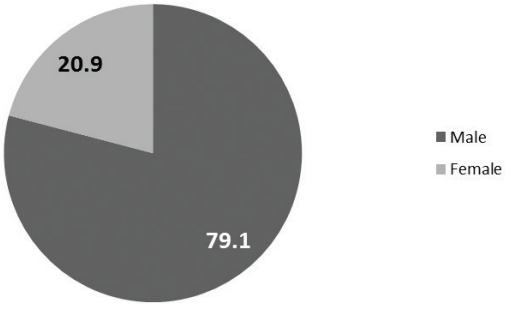

Figure 1 The gender distribution of the HCWs in the PHCs in Kerbala, Iraq included in the study in March 2017 (*n* = 43).

Table 1 The demographic characteristics of TB caretakers in Kerbala governorate, Iraq in March 2017

Variable	Category	Frequency	Percentage
Age	<30 years	3	8.8
	30–39 years	7	20.6
	40–49 years	12	35.3
	50–59 years	12	35.3
Gender	Male	34	79.1
	Female	9	29.9
Duration of work	<10 years	3	8.6
	10–15 years	5	14.3
	16–20 years	6	17.1
	21–29 years	13	37.1
	>30 years	8	22.9
Qualification	Dresser	17	39.5
	Professional Diploma	23	53.5
	Bachelor	3	7.0

question "the tests have to be done for TB patient's contact" where 52% reported knowing while only 17.9% gave the correct definition (Table 2).

For TB index case definition, only one-third of the participants answered the correct answer, while a second third has partially correct answers (Table 1). For adult TB patient's contacts investigation, one-fifth gave correct answers and the second fifth gave partially correct answers. Whilst for children TB patient's contacts investigation, the sum of correct and partial answers was 32%. Additionally, about two-fifth of the participants reported that they know about TB preventive treatment; however, only 15% gave correct answers about its indications and its benefits, while only 10% know the dose. Only 28% gave correct answers about TB preventive treatment duration. As TB cases are registered in the PHC sectors, only one-fifth reported to deal with registration and less than one-half answered the question about TB contacts registration correctly (Table 2). When the knowledge score was calculated, one mark was appointed for the correct answer and zero for incorrect answer, while a partial answer got 0.5 marks. The total mean

Table 2 Tuberculosis caretakers' answers about TB index case definition in Kerbala governorate in March 2017 (*n* = 43, frequency and percentage in brackets)

	Question	No	Yes	Partial	Do not know	Total
1.	What is TB index case?	11 (27.5)	13 (32.5)	14 (35)	2 (5.0)	40 (100.0)
2.	Do you know anything about tuberculosis patient's contact?	12 (28.6)	30 (71.4)	–	–	34 (100.0)
3.	If your answer was yes, who is considered as TB patient's contact?	7 (20.6)	7 (20.6)	20 (58.8)	–	34 (100.0)
4.	Do you know anything about the tests done for TB patient's contact?	17 (48.8)	21 (51.2)	–	–	41 (100.0)
5.	If your answer was yes, how are TB patient's contacts investigated?	12 (62.5)	5 (17.9)	11(39.3)	–	28 (100.0)
6.	What do you do for TB patient's contact?	20 (27.5)	5 (15.6)	4 (12.5)	3 (9.4)	32 (100.0)
7.	How are adult TB patient's contacts investigated?	15 (45.5)	7 (21.2)	7 (21.2)	4 (12.1)	33 (100.0)
8.	How are children TB patient's contacts investigated?[8]	15 (53.6)	5 (17.9)	4 (14.3)	4 (14.3)	28 (100.0)
9.	Do you know anything about TB preventive treatment (INH)?[9]	18 (50.0)	14 (38.9)	3 (8.3)	1 (2.8)	36 (100.0)
10.	Who receives TB preventive treatment?	23 (60.5)	5 (13.2)	6 (15.8)	4 (10.5)	38 (100.0)
11.	What are the benefits of TB preventive treatment?	2 3(67.6)	5 (14.7)	2 (5.9)	4 (11.8)	34 (100.0)
12.	What is the duration of TB preventive treatment?	16 (50.0)	9(28.1)	7 (21.9)	–	32 (100.0)
13.	Do you know anything about the dose of TB preventive treatment?	18 (60.0)	3 (10.0)	5(16.7)	4 (13.3)	30 (100.0)
14.	Is there any registration for TB patient's contact in your PHC?	25 (71.4)	9 (25.7)	–	1 (2.9)	35 (100.0)
15.	If your answer was yes, how are TB patient's contacts are registered?	8 (57.1)	6 (42.9)	–	–	14 (100.0)

score of knowledge was low and it was found by summation and was 5.85 out of 15. The least mean was for the question about the benefits of TB preventive treatment (0.217) and next was for its dose (0.289). While the highest mean was for the question "Do you know anything about TB patient's contact" (0.779) and next was for the question "Do you know anything about the tests done for TB patient's contact" (0.561).

Age, gender and qualification showed no significant effect on participants' answers, while the duration of work showed such effects. The duration of work was significantly positively associated with correct answers for two definition questions (TB definition and TB contact definition) and four other questions (test done for TB contact, adult TB contact investigation, child TB contact investigation and TB preventive treatment duration (Table 3). Significant direct linear correlation was found between the duration of work and total knowledge score ($r = 0.65$, $P = 0.024$), however, no such correlation was found with age ($r = 0.27$, $P = 0.516$).

Discussion

This study is part of an ongoing operational research aimed at improving TB contact management in Kerbala governorate started in 2017, which is mainly dependent on caretakers' knowledge, attitude and practice. It is aimed at defining a baseline data before starting the educational program for further monitoring. The study questionnaire was a reliable measurement tool as the internal reliability was acceptable (Cronbach's alpha = 0.838). The results reflect poor baselines that necessitate a profound active training through lectures, training courses and on the job training. A major defect is a poor insight, where caretakers report that they know a fact but they truly do not (encountered for two questions, Table 1).

Most participants carried a professional diploma qualification and this was consistent with the previous national study. The previous national study in 2001–2002 in Iraq reported that 98.4% had "good" scores for knowledge about TB[4]; however, no details were provided about the methods used to select 500 health workers from thousands of HCWs in 975 PHC in Iraq and how the random sample was selected. The difference between the two studies might be attributed to the different methods adopted. Additionally, the national study reported that in spite nearly 100% knowledge, only 38.2% handled suspected TB cases correctly[4]. This last finding was similar to the conclusion of a study in Al Anbar, Iraq in 2013 to assess DOTs program that there was no daily supply of medication to TB patients under supervision and also reported a low (52%) HCWs satisfaction rate[16].

The mean scores for all the questions in the present study were low and the mean of total knowledge score was low (5.85 points out of a total possible 15). Similarly, a recent study among HCWs in Mozambique reported a low score of 14.89 points out of a total possible 26 points which indicates gaps in HCWs knowledge.[9]

The significant association of knowledge with age and duration of work found in the present study was reported in most reviewed studies[4,7], and this might be related to the small sample size with wide age range (25–59) in the present study.

Surveys in Russia in 2008 and in Malawi in 2014 detected significant higher scores among physician[3,10]. Similarly, a study in Nigeria significant difference among mean knowledge scores across different job categories[7], and also significantly higher scores among physician was reported in India[11]. While no difference was detected in the present study, and the reason might be related to the small number of bachelor holders in this study or to their shorter duration of work compared to other caretaker groups.

Conclusions and Recommendations

Wide gaps were noticed between the national program national educational standard and actual educational level of PHCs working in TB services. Interventions should address a combination of the varying influences on behavior, focusing on specific gaps identified to improve their impact. Well-prepared training programs with proper evaluation are needed urgently to improve caretakers' knowledge. Additionally, the evaluation of control programs implementation needs to be performed by neutral agencies from outside the health system to avoid bias in measurement.

Conflict of Interest
None.

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