Hilla University College Journal For Medical Science

Volume 2 | Issue 1 Article 5

2024

Study of Scio-demographic and Medical Issues Related to Tuberculosis in Baghdad, Iraq 2012-2016

Ali Kareem Durib
Department of Anesthesia/Medical Institute Baghdad, Middle Technical University, Baghdad, Iraq (MTU), Ali_kareem37@yahoo.com

Loqman Juma Tawfiq
Department of Anesthesia/Medical Institute Baghdad, Middle Technical University, Baghdad, Iraq (MTU)

Z.A. Hassan
Department of Anesthesia/Medical Institute Baghdad, Middle Technical University, Baghdad, Iraq (MTU)

How to Cite This Article

Durib, Ali Kareem; Tawfiq, Loqman Juma; and Hassan, Z.A. (2024) "Study of Scio-demographic and Medical Issues Related to Tuberculosis in Baghdad, Iraq 2012-2016," *Hilla University College Journal For Medical Science*: Vol. 2: Iss. 1, Article 5.
DOI: https://doi.org/10.62445/2958-4515.1009

SHORT COMMUNICATION

Hilla Univ Coll J Med Sci

Study of Scio-demographic and Medical Issues Related to Tuberculosis in Baghdad, Iraq 2012–2016

Ali Kareem Durib *, Loqman Juma Tawfiq, Hassan Z. A.

Department of Anesthesia/Medical Institute Baghdad, Middle Technical University, Baghdad, Iraq (MTU)

Abstract

Objective: The present study aimed at investigating socio-demographic issues of gender, living place, marital status, education and type of Tuberculosis, and medical issues, such as new smear positive cases, causes, treatment and new pulmonary positive cases in Baghdad City, Iraq for 2012–2016.

Methodology: A descriptive "retrospective" design was employed throughout the present study from the period of November 12th 2017 to February 13th 2018 in order to investigate socio-demographic and medical issues related to Tuberculosis. A convenient sample of (11680) registered patients with tuberculosis in Baghdad, Iraq for the period of 2012-2016. These patients were males and females and they were one year to over than 65 year of age. An instrument was constructed for the purpose of the study. It is comprised of items that focused on patients' socio-demographic characteristics of age, gender and type of Tuberculosis (Part I) and items related to tuberculosis, such as causes of Tuberculosis, new smear positive cases, incidence rate of new pulmonary positive Tuberculosis and treatment of drug resistance cases (Part II). A pilot study was conducted for the determination of the study instrument's content validity, internal consistency reliability and adequacy. The study was carried out for the period of December 10th to 20th 2017. Content validity of the instrument was determined through panel of (15) experts. They were presented with copy of the study instrument and asked to review it and provide comments for its modification to be more appropriate measure of the study. They had reviewed the instrument and presented their comments with an agreement that the instrument is content valid. Internal consistency reliability was determined for the study instrument through the use of split-half technique and measurement of Cronbach alpha correlation coefficient. The result indicated that Cronbach alpha correlation coefficient was r = 0.85 which adequately reliable measure for the problem underlying the present study. Data were collected from the health records at the National Tuberculosis Center, State TB center, and district TB center for the period of 2012 to 2016 with the use of the study instrument. Data were analyzed through the application of descriptive statistical data analysis approach of frequency, percent, incidence rate and ratio.

Results: The study indicated that female patients were slightly larger than male ones. Patients living in the urban area were accounted for the most (91.85%). 41.92%, 18.53%, 31.05% and 8.50% of the patients were married, single, divorced and patients with deceased spouses, and there was a significant difference among them pairwise from this point of view; i.e., the number of married people is more than single, more than divorced and more than a patient with a dead spouse. the literacy level of TB patients is significantly different, with 59.77% of illiterate patients, 2.27% of elementary education, 18.30% of secondary education, 19.04% of secondary education and diploma and 0.61% university degree. Most of the patients had experienced Extra-pulmonary Tuberculosis (52.36%). The study revealed that most of the new smear positive cases are accounted for the age group of (15–24) year old during the years of 2012–2016. Causes of Tuberculosis in the rural area were accounted for poverty (39.95%), smoking (22.39%), untreated cases (12.4%), alcoholism (11.32%), malnutrition (10.30%) and overcrowded (3.57%) respectively, and accounted for alcoholism (27.77%), overcrowded (27.16%), malnutrition (24.69%), smoking (11.93%), poverty (7.62%) and untreated cases of Tuberculosis (0.80%) respectively in the urban area. So, poverty and smoking are considered the most effective causes for patients in the rural area. In contrast, alcoholism, overcrowded and malnutrition are considered as the most effective causes for patients in the urban area. Success rate was (69%) in 2014, (61%) in 2013 and (51%) in 2012 respectively. Such rate can present evidence that patients in 2014 have benefited out of the program more than others. age specific incidence numbers, percentage and incidence rate by gender. The percentage and the numbers in age group 15–24 years old was

Received 20 October 2023; accepted 26 November 2023.
Available online 18 June 2024

* Corresponding author.
E-mail address: Ali_kareem37@yahoo.com (A. Kareem Durib).

https://doi.org/10.62445/2958-4515.1009

the highest and declined thereafter while age was increasing for both male and female. But the incidence cases in age group 0–14 in both male and female were almost the same. Though the incidence rate of both male and female cases the same in the age group 0–14 years old and difference was much higher as age groups increased from 15–24, 25–34, 35–44, and the highest was found among the age group 55–64 years old while the rapid decreasing was found in the age group 65+ years old.

Conclusion: The study concluded that the gender ratio was accounted for the most (2.14:1) in the year of 2015. The urban zone the incidence rate was greater than that of the rural zone. Most of the new smear positive cases were accounted for the age group of (15–24) year old during the years of 2012–2016. The urban zone's incidence rate was greater than that of the rural zone. Poverty and smoking were considered the most effective causes for patients in the rural area. In contrast, alcoholism, overcrowded and malnutrition were considered as the most effective causes for patients in the urban area. Patients in 2014 had benefited out of the Tuberculosis Program more than others based on the success rate. The incidence rate of both male and female cases the same in the age group of (0–14) years old and difference was much higher as age groups increased from (15–24), (25–34), (35–44), and the highest was found among the age group (55–64) years old while the rapid decreasing was found in the age group 65+ years old.

Recommendations: The study recommended that The study recommended that patients who were young males and females, married, illiterates and urban area residents can be provided with all means of treatment and preventive measures. The Ministry of Health and Environment in Iraq can present appropriate and effective attention to people who were at risk of Tuberculosis. Further research with a large sample size and wide range of variables can be conducted.

Keywords: Socio-demographic issues, Medical issues, Tuberculosis, Baghdad city, Iraq

1. Introduction

Roughly one-third of the world's population has been infected with M. tuberculosis, and new infections occur at a rate of one per second [1]. However, not all infections with M. tuberculosis cause tuberculosis disease and many infections are asymptomatic [2]. In 2007 there were an estimated 13.7 million chronic active cases, and in 2010 there were 8.8 million new cases, and 1.45 million deaths, mostly in developing countries [3, 4]. 0.35 million of these deaths occur in those co-infected with HIV. In 2015, across the world 1.8 million out of 10.4 million people affected by the disease died [5, 6].

Any person who coughs and who was in contact with smear positive index case (smear positive pulmonary TB patient) should have three sputum examinations. Children aged less than 5 years: any contact aged less than 5 years who has a positive tuberculin that not previously vaccinated with BCG with signs or symptoms of TB should be treated as suffering from active TB. Those without signs or symptoms of disease should be given preventive chemotherapy (INH for 6 months) Children under one year of age with mothers who are being treated for smear positive pulmonary TB should be given Isoniazid if the tuberculin test is negative at the end of three months, INH may be stopped and BCG may be given [7–9].

Drug Resistance Tuberculosis is a man - made disease (due to non - compliance, improper drug regimen, etc.). Primary resistance is prevented by giving the patient combination of drugs. Secondary (acquired) TB resistance is expected to be developed in [10, 11]:

1. A large bacillary population such as patient with cavitations.
2. Inadequate drug regimens (inappropriate drugs, insufficient dosage), drug side effects and complications.
3. Treatment of DR TB should be done by or in close consultation with an expert in the management of these cases and on hospitalization bases.
4. A single new drug should never be added to a failing regimen.
5. Treatment duration for DR TB patient may last 18–24 months by using 4–6 drugs (capriomycin, cyclocerin, ethionamide, levofloxacine, and PAS).
6. Second line regimens often represent the patient's last hope for being cured inappropriate management can thus have life threatening sequences.

Based on the early stated facts, the present study ought to carry out a retrospective study to investigate related socio-demographic and medical issues to detected cases of tuberculosis in Baghdad, Iraq for 2012–2016.

2. Methodology

A descriptive "retrospective" design was employed throughout the present study from the period of November 12th 2017 to February 13th 2018 in order to investigate related issues to Tuberculosis, such as new smear positive cases, causes, treatment and new pulmonary positive cases in Baghdad City, Iraq for 2012–2016. A convenient sample of (11680) registered patients with tuberculosis in Baghdad, Iraq for the period of 2012–2016. These patients were males and

females and they were one year to over than 65 year of age.

An instrument was constructed for the purpose of the study. It was comprised of items that focused on patients' characteristics of age, gender and type of Tuberculosis. A pilot study was conducted for the determination of the study instrument's content validity, internal consistency reliability and adequacy. The study was carried out for the period of December 10^{th}–20^{th} 2017. Content validity of the instrument was determined through panel of (15) experts. These experts were (5) faculty members at the College of Nursing University of Baghdad, (5) Faculty members at the College of Medicine University of Baghdad and (5) epidemiologists at the Ministry of Health and Environment. They were presented with copy of the study instrument and asked to review it and provide comments for its modification to be more appropriate measure of the study. They had reviewed the instrument and presented their comments with an agreement that the instrument is content valid. Internal consistency reliability was determined for the study instrument through the use of split-half technique and measurement of Cronbach alpha correlation coefficient. The results indicated that Cronbach alpha correlation coefficient was r = 0.85 which adequately reliable measure for the problem underlying the present study.

Data were collected from the health records at the National Tuberculosis Center, State TB center, and district TB center for the period of 2012 to 2016 with the use of the study instrument. Data were analyzed through the application of descriptive statistical data analysis approach of frequency, percent, incidence rate and ratio.

3. Results

Table 1. Distribution of demographic characteristics of tuberculosis patients referred to Baghdad Health Centers.

a. Gender

Demographic characteristic	Frequency	Percent
Gender		
Male	5747	5933
Female	49.5	50.5

From the statistical analysis presented in Table 1a, this table presents that female patients were slightly larger than male ones.

b. Living place

Demographic characteristic	Frequency	Percent
Living place		
Urban	10729	91.85
Rural	951	8.15

Relative to the living place, from the statistical analysis presented in Table 1b, this table depicts that patients living in the urban area were accounted for the most (91.85%).

c. Marital status

Demographic characteristic	Frequency	Percent
Marital Status		
Married	4897	41.92
Single	2165	18.53
Divorced	3627	31.05
Other	991	8.50
Total	11680	

The results reveal from the statistical analysis presented in Table 1c that 41.92%, 18.53%, 31.05% and 8.50% of the patients were married, single, divorced and patients with deceased spouses, and there was a significant difference among them pairwise from this point of view; i.e., the number of married people is more than single, more than divorced and more than a patient with a dead spouse.

d. Education

Demographic characteristic	Frequency	Percent
Education		
Illiterate	6980	59.77
Primary	266	2.27
Secondary	2137	18.30
Diploma	2225	19.04
University	72	0.61
Total	11680	

The data from the statistical analysis presented in Table 1d, show that the literacy level of TB patients is significantly different, with 59.77% of illiterate patients, 2.27% of elementary education, 18.30% of secondary education, 19.04% of secondary education and diploma and 0.61% university degree.

e. Tuberculosis type

Demographic characteristic	Frequency	Percent
TB type		
Exta-pulmonary TB	4539	52.36
Pulmonary TB	4129	47.64

The data from the statistical analysis presented in Table 1e, this table indicates that most of the

Table 2. IR or TB in Iraq Baghdad during (2012-2016) by urban and rural areas.

IR/100000/Year

Years	Rural	Urban
2012	619	1649
2013	631	1576
2014	671	1708
2015	712	1860
2016	699	1555

Table 3. Percentage of new smear positive cases in different age groups (2012–2016).

Age group (years)	Number of cases	Percentage
0–14	102	2.5
15–24	1025	24.9
25–34	815	19.8
35–44	676	16.5
45–54	642	15.6
55–64	479	11.6
65+	366	8.9

As show in Table 3 from the statistical analysis presented that results out of this table indicate that most of the new smear positive cases are accounted for the age group of (15–24) year old during the years of 2012–2016.

Table 6. New pulmonary positive cases by age groups and gender in Baghdad during (2012–2016).

Age groups (year)	Male	Female	Total
0–14	29	73	102
15–24	392	633	1025
25–34	478	336	814
35–44	479	197	676
45–54	385	257	642
55–64	278	201	479
65+	190	176	366
Total	2231	1873	4104

Table 4. Causes of tuberculosis in urban and rural areas.

	Rural		Urban	
Causes	Frequency	Percentage	Frequency	Percentage
Poverty	380	39.95%	818	7.62%
Alcoholism	108	11.35%	2980	27.77%
Malnutrition	98	10.30%	2650	24.69%
Smoking	213	22.39%	1280	11.93%
Overcrowded	34	3.57%	2915	27.16%
Untreated cases of tuberculosis	118	12.40%	86	0.80%
Total	951		10729	

Table 5. Results of treatment of drug resistance cases detected among tuberculosis patients during (2012–2016).

Years	Total enrolled	Cure	Completed treatment	Defaulted	Died	Failure	Treatment extended	NA	Success rate
2012	114	47	11	26	20	10	0	0	51%
2013	79	38	10	21	8	1	1	0	61%
2014	55	12	3	16	8	0	1	15	69%
2015	58	2	0	2	7	0	0	47	……
2016	63	1	0	2	5	0	0	56	……

Table 5 still Positive after 24 months of treatment (and extended is extended) not applicable, result should appear after following two years

patients had experienced Extra-pulmonary Tuberculosis (52.36%).

This table reveals that reported incidence rate of TB cases according to the geographically in Baghdad during 2012-2016. The rural area incidence rate was as show in Table 2 from the statistical analysis presented that 66/100,000 per year and Urban area 166/100,000 per year. The incidence rate of rural area was almost same since 2012 to 2016. Among the urban zone the incidence rate was slightly decreasing during 2012–2016.

As show in Table 4 from the statistical analysis presented that this table depicts that causes of Tuberculosis in the rural area are accounted for poverty (39.95%), smoking (22.39%), untreated cases (12.4%), alcoholism (11.32%), malnutrition (10.30%) and overcrowded (3.57%) respectively, and accounted for alcoholism (27.77%), overcrowded (27.16%), malnutrition (24.69%), smoking (11.93%), poverty (7.62%) and untreated cases of Tuberculosis (0.80%) respectively in the urban area. So, poverty and smoking are considered the most effective causes for patients in the rural area. In contrast, alcoholism, overcrowded and malnutrition are considered as the most effective causes for patients in the urban area.

As show in Table 5 from the statistical analysis presented that results of treatment out of this table reveal that success rate are (69%) in 2014, (61%) in 2013 and (51%) in 2012 respectively. Such rate can present evidence that patients in 2014 have benefited out of the program more than others.

As show in Table 6 from the statistical analysis presented that this table showed that age specific incidence numbers, percentage and incidence rate by gender. The percentage and the numbers in age group 15–24 years old was the highest and declined thereafter while age was increasing for both male and female. But the incidence cases in age group 0–14 in both male and female were almost the same.

Though the incidence rate of both male and female cases the same in the age group 0-14 years old and difference was much higher as age groups increased from 15–24, 25–34, 35–44, and the highest was found among the age group 55–64 years old while the rapid decreasing was found in the age group 65+ years old.

4. Conclusion

Based on the interpretation of the study findings, the study can conclude that female patients were slightly larger than male ones, most of the patients were married, urban area residents, illiterate and having Extra Pulmonary Tuberculosis, the gender ratio was accounted for the most (2.14:1) in the year of 2015, and the urban zone the incidence rate was greater than that of the rural zone.

Most of the new smear positive cases are accounted for the age group of (15–24) year old during the years of 2012–2016. The urban zone's incidence rate was greater than that of the rural zone. Poverty and smoking were considered the most effective causes for patients in the rural area. In contrast, alcoholism, overcrowded and malnutrition were considered as the most effective causes for patients in the urban area. Patients in 2014 had benefited out of the Tuberculosis Program more than others based on the success rate. The incidence rate of both male and female cases the same in the age group of (0–14) years old and difference was much higher as age groups increased from (15–24), (25–34), (35–44), and the highest was found among the age group (55–64) years old while the rapid decreasing was found in the age group 65+ years old.

5. Recommendations

Based on the early stated conclusion, the present study recommended that:

1. An educational program can be designed, constructed and implemented public-wide to increase individuals and patients' awareness toward tuberculosis as public health problem and the benefits of its treatment.
2. The Ministry of Health and Environment in Iraq can present appropriate and effective attention to people who were at risk of Tuberculosis.
3. Patients who were young males and females, married, illiterates and urban area residents can be provided with all means of treatment and preventive measures.
4. Further research with a large sample size and wide range of variables can be conducted.

References

1. World Health Organization (WHO). Global Tuberculosis Control. 2011a.
2. World Health Organization (WHO). Tuberculosis Fact Sheet. 2011b.
3. World Health Organization (WHO). The Sixteenth Global Report on Tuberculosis. 2011c.
4. World Health Organization (WHO). Global Tuberculosis Report. 2009a.
5. Sinha, P and Heysell, S. What killed half a million indians? The New York Times. 2017.
6. World Health Organization (WHO). WHO Global Tuberculosis Report. 2016.
7. World Health Organization (WHO). Tuberculosis. The Eastern Mediterranean Regional Office. 2018.
8. World Health Organization (WHO). Tuberculosis Diagnosis. Fact Sheet. 2013a.
9. World Health Organization (WHO). The use of molecular line probe assay for the detection of resistance to second–line anti–tuberculosis drug. Expert Group Meeting Report, Switzerland: Geneva. 2013b.
10. World Health Organization (WHO). Global Tuberculosis Report. 2012.
11. World Health Organization (WHO). Global Tuberculosis Report. 2009a.