

Prevalence of Tuberculosis in Baghdad, Iraq 2012-2016

Ali Kareem Durib, MScPH*

* Lecturer, Medical Institute Baghdad, Middle Technical University

Abstract

Objective: The present study aimed at studying the prevalence of Tuberculosis in Baghdad City, Iraq for the period of 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 detect the tuberculosis 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 is 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 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 and total scores.

Results: Results out of this table depict that patients of age group of (15-24) year old had experienced detected Tuberculosis cases of New PTB (SS+), New Extra-pul. EP and New PTB (SS-) more than others in the year of 2012. Female patients of age group of (15-24) year old had experienced detected Tuberculosis cases of New PTB (SS+), females in age group of (25-34) year old had experienced detected Tuberculosis cases of New Extra-pul. EP and New PTB (SS-) more than males in the year of 2013. Patients of age group of (15-24) year old had experienced detected Tuberculosis cases of New PTB (S+), New PTB (S-) and New Extra-pul. (EP) more than others in the year of 2014. female patients of age group (15-24) year old had experienced more case finding of New PTB (S+) and New Extra-pul. (EP) more than others in 2015. In contrast, Male patients of age group (25-34) year old had experienced case finding of New Extra-pul. (EP) and New PTB (S-), (ND) and male patients of age group (35-44) year old had experienced case findings of New PTB (S+) more than others in 2015. female patients of age group of (15-24) year old had experienced more case finding of New PTB (S+), New Extra-pul. (EP) and New PTB (S-), (ND) than others but male patients of age group of (35-44) year old had experienced New PTB (S+), age group of (25-34) year old had experienced New Extra-pul. (EP) and age group of (65 and more) year old had experienced New PTB (S-), (ND) more than others in 2016.

Conclusion: The present study concluded that female patients had experienced more detected cases of Tuberculosis than male ones.

Recommendations: 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.

Key Word: Prevalence, Tuberculosis, Baghdad City, Iraq

I. Introduction:

Tuberculosis is the ninth leading cause of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS. In 2016, there were an estimated 1.3 million TB deaths among HIV-negative people (down from 1.7 million in 2000) and an additional 374, 000 million deaths resulting from TB disease among people who were HIV positive. So, there were a total of 1,674,000 million TB related deaths. An estimated 10.4 million people fell ill with TB in 2016: 90% were adults, 65% were male, 10% were people living with HIV (74% in Africa) and 56% were in five countries: India, Indonesia, China, the Philippines and Pakistan. An estimated 250,000 children died of TB in 2016 including children with HIV associated TB⁽¹⁾.

Incidence of tuberculosis is the estimated number of new and relapse tuberculosis cases arising in a given year, expressed as the rate per 100,000 populations. The incidence of tuberculosis (per 100,000 people) varies by country in the Middle East. The country with the highest value in the region is Pakistan, with a value of 268.00. The country with the lowest value in the region is United Arab Emirates, with a value of 0.79⁽²⁾.

Iraq is an upper middle-income country in the Eastern Mediterranean Region. The Region accounts for 25% of the global burden in 2014. TB is a public health priority in Iraq. The country is among 7 of the countries of the Region with a high burden of TB, and accounts for 3% of the total number of cases. There are an estimated 20 000 TB patients in Iraq. Estimated deaths due to TB are more than 4000 annually⁽³⁾.

Iraq is considered to be a middle burden country with TB, and occupies rank 108 globally and 7 in eastern Mediterranean region among countries with TB burden size. According to WHO report, the estimated incidence of TB in Iraq is 45/100000 population (I.e. estimated total new TB cases is around 15000 per year), while the prevalence is 74/100000 and the mortality is 3/100000⁽⁴⁾.

Based on the early presented evidence, the present study attempted to investigate the prevalence of Tuberculosis detected cases in Baghdad city, Iraq for the period of 2012-2016.

II. 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 detect the tuberculosis 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 is 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 10th -20th 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 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 and total scores.

III. Results:

Table (1). Detected TB Cases According to Age and Gender in Baghdad, Iraq Year (2012)

Type of Tuberculosis	Age Groups and Gender																Total		
	1-4		5-14		15-24		25-34		35-44		45-54		55-64		65 and More				
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	T
New PTB (SS+)	1	0	6	5	79	116	58	62	71	39	65	48	47	32	37	28	399	330	729
Relapse	0	0	0	0	9	8	11	8	17	4	10	4	8	3	11	3	73	30	103
After Failure	0	1	0	0	2	7	4	3	6	1	2	1	6	2	3	0	25	15	40
After Default	0	0	0	0	0	2	4	3	9	0	2	1	0	0	0	1	18	7	25
New PTB (SS-)	0	1	4	10	26	36	16	17	20	16	24	13	20	23	39	21	158	137	295
New PTB(ND,NA)	2	2	3	5	15	17	7	15	9	1	4	3	5	13	9	7	67	63	130
New Extra-pul. EP	14	9	21	29	70	104	45	100	62	100	34	85	36	44	31	38	347	509	856
Other of	0	0	1	0	8	16	2	12	4	7	6	5	6	8	6	3	39	51	90

Cat.2																				
Total	17	13	45	49	209	306	147	220	198	168	147	160	130	125	136	101	1126	1142	2268	

Results out of this table depict those patients of age group of (15-24) year old had experienced detected Tuberculosis cases of New PTB (SS+), New Extra-pul. EP and New PTB (SS-) more than others in the year of 2012. Females were accounted for greater case finding than males.

Table (2). Detected TB Cases According to Age and Gender in Baghdad, Iraq Year (2013)

Type of Tuberculosis	Age Groups and Gender																Total		
	1-4		5-14		15-24		25-34		35-44		45-54		55-64		65 and more				
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	T
New PTB (SS+)	2	1	3	13	70	115	87	70	79	33	63	51	46	29	38	39	388	341	729
Relapse	0	0	0	0	4	9	12	10	22	5	13	2	11	6	9	4	71	36	107
After Failure	0	0	0	0	0	3	6	0	6	3	3	0	2	1	2	3	19	10	29
After Default	0	0	0	0	2	1	2	3	6	1	2	1	0	1	1	1	13	8	21
New PTB (SS-)	0	1	4	5	26	30	19	30	23	16	17	20	23	23	29	21	141	146	287
New PTB(ND,NA)	2	6	1	9	7	8	8	4	5	3	7	6	3	3	3	7	36	46	82
New Extra-pul. EP	20	19	1	3	72	104	70	108	63	90	58	73	31	54	45	27	377	506	883
Other of Cat.2	0	1	0	2	1	9	5	4	6	8	5	7	7	6	6	2	30	39	69
Total	24	28	24	60	184	279	209	219	210	159	166	166	123	123	133	104	1075	1132	2207

Results out of this table reveal those female patients of age group of (15-24) year old had experienced detected Tuberculosis cases of New PTB (SS+), females in age group of (25-34) year old had experienced detected Tuberculosis cases of New Extra-pul. EP and New PTB (SS-) more than males in the year of 2013.

Table (3). Detected TB Cases According to Age and Gender in Baghdad Iraq Year (2014)

Type of Tuberculosis	Age Groups and Gender																Total		
	1-4		5-14		15-24		25-34		35-44		45-54		55-64		65 and more				
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	T
New PTB (S+)	1	1	5	16	96	124	116	54	95	40	74	52	65	49	36	29	488	365	853
New PTB (S-),(ND)	2	1	8	13	28	61	34	27	34	22	24	21	19	36	22	31	171	212	383
New Extra-pul.(EP)	20	16	25	48	79	126	73	123	70	72	46	80	28	47	32	25	373	537	910
Relapse (S+)	0	0	0	1	9	11	18	5	16	9	15	3	10	7	10	3	78	39	117
Relapse (S-)	0	0	0	0	0	0	5	1	6	2	2	4	3	0	6	6	22	13	35

), (ND)																			
Relapse (EP)	1	0	1	1	1	6	2	9	3	4	3	7	2	2	1	1	14	30	44
After Failure (S+)	0	0	0	0	1	1	2	2	3	2	1	2	1	4	0	0	8	11	19
After Default (S+)	0	0	0	0	0	0	1	4	1	0	4	0	0	0	0	0	6	4	10
After Default (S-), (ND)	0	0	0	0	0	1	1	1	0	0	0	0	1	0	2	0	4	2	6
After Default (EP)	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2	2
Rif Resist (Rif.R)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	24	18	39	79	214	330	252	227	228	152	169	169	129	145	109	95	1164	1215	2379

Results out of this table indicate those patients of age group of (15-24) year old had experienced detected Tuberculosis cases of New PTB (S+), New PTB (S-) and New Extra-pul. (EP) more than others in the year of 2014. Females were accounted for greater case finding than males.

Table (4). Detected TB Cases According to Age and Gender in Baghdad, Iraq Year (2015)

Results out of this table present that female patients of age group (15-24) year old had experienced more case finding of New

Type of Tuberculosis	Age Groups and Gender																Total		
	1-4		5-14		15-24		25-34		35-44		45-54		55-64		65 and more				
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	T
New PTB (S+)	2	1	4	16	86	152	119	75	125	41	92	60	57	43	39	38	524	426	950
New PTB (S-), (ND)	5	5	8	10	36	39	61	19	50	17	20	22	25	30	28	29	233	171	404
New Extra-pul. (EP)	16	17	29	52	67	134	97	114	65	91	51	82	42	46	31	45	398	581	979
Relapse (S+)	0	1	0	1	8	9	13	5	24	6	10	10	7	5	5	5	67	42	109
Relapse (S-), (ND)	0	0	0	1	1	3	1	1	2	3	3	3	3	6	7	1	17	18	35
Relapse (EP)	0	0	0	3	1	6	4	11	6	8	3	5	1	1	1	2	16	36	52
After Failure (S+)	0	0	0	0	2	2	4	1	3	0	1	2	4	1	2	2	16	8	24
After Default (S+)	0	0	0	0	0	2	0	1	5	0	0	1	0	0	0	0	5	4	9
After Default (S-), (ND)	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2	3
After Default (EP)	0	0	1	0	1	3	0	0	0	1	0	0	1	0	0	0	3	4	7
Rif Resist (Rif.R)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	23	24	42	83	202	351	307	227	280	167	188	185	143	133	113	123	1280	1292	2572

PTB (S+) and New Extra-pul. (EP) more than others in 2015. In contrast, Male patients of age group (25-34) year old had experienced case finding of New Extra-pul. (EP) and New PTB (S-), (ND) and male patients of age group (35-44) year old had experienced case findings of New PTB (S+) more than others in 2015.

Table (5). Detected TB Cases According to Age and Gender in Baghdad, Iraq Year (2016)

Type of Tuberculosis	Age Groups and Gender																Total		
	1-4		5-14		15-24		25-34		35-44		45-54		55-64		65 and more		M	F	T
	M	F	M	F	M	F	M	F	M	F	M	F	M	F					
New PTB (S+)	1	0	4	20	61	126	98	75	109	44	91	46	63	48	40	42	467	401	868
New PTB (S-),(ND)	1	2	7	9	21	44	24	26	21	17	19	13	13	16	26	17	132	144	276
New Extra-pul.(EP)	18	13	27	36	70	103	95	93	73	89	41	88	30	56	41	38	395	516	911
Relapse (S+)	0	0	0	0	6	8	9	11	11	2	14	7	9	6	8	2	57	36	93
Relapse (S-),(ND)	0	0	0	0	1	2	1	0	2	6	2	1	0	1	1	3	7	13	20
Relapse (EP)	0	0	2	3	1	4	4	6	5	4	3	7	4	3	2	1	21	28	49
After Failure (S+)	0	0	0	0	1	2	2	1	3	0	1	1	0	3	1	1	8	8	16
After Default (S+)	0	0	0	0	3	0	1	0	5	1	1	0	1	1	1	1	12	3	15
After Default (S-),(ND)	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2
After Default (EP)	0	0	0	1	0	1	0	0	1	1	0	0	0	0	0	0	1	3	4
Rif Resist (Rif.R)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	20	15	40	69	164	290	234	212	230	164	172	163	121	134	121	105	1102	1152	2254

Results out of this table indicate that female patients of age group of (15-24) year old had experienced more case finding of New PTB (S+), New Extra-pul. (EP) and New PTB (S-), (ND) than others but male patients of age group of (35-44) year old had experienced New PTB (S+), age group of (25-34) year old had experienced New Extra-pul. (EP) and age group of (65 and more) year old had experienced New PTB (S-), (ND) more than others in 2016.

IV. Conclusion:

Based on the interpretation and discussion of the study findings, the study can conclude that:

1. Female patients of (15-24) year old had experienced detected cases of tuberculosis more than males of all age groups.
2. Females in age group of (25-34) year old had experienced detected Tuberculosis cases of New Extra-pul. EP and New PTB (SS-) more than males in the year of 2013.
3. Male patients of age group of (35-44) year old had experienced New PTB (S+), age group of (25-34) year old had experienced New Extra Pulmonary (EP) and age group of (65 and more) year old had experienced New PTB (S-), (ND) more than others in 2016.

V. Recommendations:

Based on the early stated conclusion, the present study can recommend 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 at risk.

References:

1. Global Health Observatory Data (GHOD). (2018). **Tuberculosis**. Geneva: World Health Organization. Available at: <http://www.who.int/gho/tb/en/>
2. World Health Organization (WHO). (2016). **WHO Global Tuberculosis Report**.
3. World Health Organization (WHO). (2018). **Tuberculosis**. The Eastern Mediterranean Regional Office.
4. World Health Organization (WHO). (2009). Epidemiology (PDF). **Global Tuberculosis Control: Epidemiology, Strategy, Financing**. p.p. 6–33.