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Quality of life of the tuberculosis patients attended The National Specialized Centre of the Chest and Respiratory Diseases.

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Abstract

Background:
Tuberculosis (TB) is one of the major public health problems. Apart from physical symptoms, TB patients have various general physical activities, social environmental and psychological problems. This is important to consider the overall TB on patients' perception of health and wellbeing.

Aim of the study:
To estimate the quality of life of TB patients, beside the routine clinical, radiological and bacteriological assessments and we want to determine the effects of socioeconomic, demographic and the adjectives of the Tb diseases on the domains of the quality of life (QOL).

Methods:
A cross sectional study involving 67 TB patients with or without comorbid diseases, pulmonary and extra pulmonary Tb attending The National Specialized Centre of the Chest and Respiratory Diseases in Baghdad. Data obtained through direct interview using a standard questionnaire of WHOQOLBREF (26 questions) highlighting four domains: physical, psychological, social and environmental, and also using of a structured form of identity information, socioeconomic and demographic information, we estimate the effects of various aspect in this structured form on the four domains of WHOQOL- BREF (26Questions).

Results:
Regarding our results we found that general aspect of quality of life was (48.9%) of the quality of life rating, and (32.9%) of the general aspect of health satisfaction, concerning specific part of quality of life of TB patients, Physical domain (29.2 ± 12.3), Psychological domain (46.1±16.2), Social domain (47.4±20.6) and Environmental domain (38.6±13.8), with variation within each domain according to demographic and socioeconomic variation with significant correlation between domains of quality of life.

Conclusions:
Tb is a disease associated with low scoring of quality of life specially when associated with low socioeconomic state, while the marriage give positive effort to total perception of the QOL especially social domain. And the financial state of the TB patients is with direct effect on social domain of the QOL. And also highly educated TB patients and those with low crowded index have better environmental domain in their QOL among the other TB patients.

Keywords: Quality of life, pulmonary tuberculosis.

INTRODUCTION:

Tuberculosis (TB) is the second leading infectious cause of death worldwide (after AIDS), despite it regarded potentially curable disease, It kills about 1.4 million people per year, of whom 0.43 million HIV +ve and 64,000 are children (1).Tuberculosis (TB) is one of the major public health problem. Control has been accorded with a high priority within the health sector. The Revised National Tuberculosis Control Program (NTP) with Directly Observed

Treatment Short Course (DOTS) as the strategy was done in 1998 (2). Which is an aim to increase compliance by nurse-supervised, they observe daily or weekly tablet swallowing. This has been shown to increase treatment completion with success, reduce relapses, and reduce development of drug resistance, this is recommended for patients unlikely to comply, like in alcoholics, drug abusers, the homeless, those with mental illness (the so-called _hard to reach‘), and also those with

MDR-TB. Some areas consider other incentives to improve adherence, such as giving them food and transport costs (1). According to the WHO, health is defined as a state of complete physical, mental, and social wellbeing and not only absence of the illnesses symptoms. The effects of any disease, especially a chronic disease like TB, on a patient is therefore often all-encompassing, affecting not only his physical health but it is also affect his psychological, economic, and social health (3). In European countries the incidence and specific mortalities of Tb start to decrease since 1850 by 5 to 6% per year that is the date of era of starting TB vaccination and TB antimicrobial treatments as well as improvement of socioeconomic, nutritional and all living conditions of this populations, but still affect the other parts of the world specially the most disadvantage Socioeconomic populations (4).

Quality of life by WHO (19)**:**

WHO defines Quality of Life as individual‘s perception of their position in the life in the context of the culture and value systems in which they live and in relation to their targets, expectations, and

Standards. It is a broad ranging concept affected in a complex way by the patient's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment. WHO, with the aid of 15 collaborating centers in the world, has developed two instruments for measuring quality of life (the WHOQOL-100 and the WHOQOLBREF), that can be used in a variety of cultures. The important aspects of QOL and ways of asking about quality of life were drafted on the basis of statements made by patients with a range of diseases, by well people and by health professionals in a variety of cultures. This instruments ware rigorously tested to assess its validity and reliability in each of the field centers and

is from different populations and countries to be compared. These instruments have many uses, including use in medical practice, research, audit, and in policy making. Currently it been tested to assess responsiveness to change. The WHOQOL-BREF, an abbreviated 26 item version of the WHOQOL-100, was developed using data from the field trial version of the WHOQOL-100. Most assessments in medicine are obtained by examinations by health workers and laboratory tests. The

WHOQOL instruments, by focusing on individuals' own views of their wellbeing, provide a new perspective on disease. For example, that diabetes involves poor body regulation of blood glucose is well understood, but the effect of the illness on the perception that individuals have of their social relationships, working capacity, and financial status has received a small systematic attention. The WHOQOL instruments are tools that will enable this type of research to be carried out. They not only

Study about the functioning of people with diabetes, across a range of areas but also how satisfied the patients are with their functioning and with effects of managements.

WHOQOL-BREF (20)**:**

The WHOQOL-100 allows detailed evaluation of each individual facet relating to quality of life. In certain

instances however, the WHOQOL-100 may be too prolonged for practical use. The WHOQOL

BREF Field Trial Version has therefore been developed to provide a short form quality of life assessment that looks at the important domain level, using all available data from the Field Trial Version of the WHOQOL- 100; The WHOQOL-BREF contains a total of 26 questions (Annex 2).

To provide a broad assessment, one item from each of the 24 facets contained in the WHOQOL-100 has been included.

Also there are two items from the Overall quality of Life and General Health facet have been found in WHO QOL BREF. WHO QOL (BREF) has the four domains was used to assess the impact

of TB on the QOL (annex 3), which is important to incorporate the measurement of QOL of TB patients which give the understanding of the effects of the illness on various dimensions of the health. This would enable the health care professionals and the system to devise relevant interventions to improve the quality of the program.

Aim of the study:

1. To assessment the QOL of Tb patients as physical, psychological, Social and environmental domains.
2. To describe demographic, socio-economic, education, type and Phase of treatment and clinical factors associated with QOL outcomes in

TB patients.

METHODOLOGY

Study Design and setting:

A cross sectional study that TB patients from national center of respiratory and chest diseases in Baghdad medical city, who diagnosed during or before data collection period we interviewed them in the outpatients clinic of this center using a structured questionnaire form and WHOQOL-BREF to assess their quality of life.

Period of data collection: Interviews were conducted for about two months during the period 2nd of April, 2017 to 7th of June, 2017.

Eligibility Criteria:

Eligible TB patients having pulmonary or extra pulmonary disease, who attended outpatient clinic of the national center of respiratory and chest diseases in the medical city, during the period of data collection were included in this study.

Inclusion criteria:

1. All TB patients who are on anti-TB treatment or just now confirm diagnosis with TB by their authorized seniors.
2. Age 14 - 70 years.

Exclusion criteria:

1. Prisoner TB patients.
2. TB patient who refuse to participate or complete our questionnaire.

Tool of Data Collection:

The data of our study will be obtained through direct interview with patients using structured questionnaire form for each of personal information and for data required for assessing QOL.

The structural questionnaire form contains information about TB patient included name, sex, age, occupation, address, type of residence, family size, education, marital status, type and phase of TB treatment, smoking history, and any history of other chronic illnesses (annex 1), while data concerned with QOL followed the standard questionnaire WHOQOLBREF (Annex 2).

Ethical Considerations:

1- Verbal agreement obtained from the all participants patients after assuring confidentiality of data and clarifying the type of required data and the aim of the study.

2- Names of participants kept anonymous.

Scoring of the WHOQOL-BREF:

The WHOQOL-BREF produces four domain scores. There are also two items that are examined separately: question 1 asks about an individual‘s overall perception of quality of life, and question 2 which asks about an individual‘s overall perception of his or her health.

Domain scores are scaled in a positive direction (i.e. higher scores denote higher quality of life). The mean score of items within each domain is used to calculate the domain score. A method for the manual calculation of individual scores is below:

Physical domain= Mean.6 ((6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18)

Psychological domain= Mean.5 (Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26))

Social Relationships domain=Mean.2 (Q20 + Q21 + Q22)

Environment domain= Mean.6 (Q8 + Q9 + Q12 + Q13 + Q14 + Q23 +

Q24 + Q25).

The _.6‘ in _mean.6‘ specifies that at least 6 items must be endorsed or not missing for the score to be calculated).

If we want to transform the domain score into a scale of 16-40, then we need only to multiply the domain score by four. Since this study expressed QOL related data only in a scale of 0-100, then we directly transformed scores into 0-100 scale using the formula below:

TRANSFORMED SCORE= ((SCORE*4)-4) x (100/16).

Example on transformed score is:

Q1-How would you rate your quality of life?

Response Very poor Poor

Neither poor

Nor good

Good Very good

Answer code 1 2 3 4 5

Converted Score 0 25 50 75 100

Data analysis:

Data first were entered into excel file, transferred then for statistical analysis into a file of statistical package for social sciences

Version 22 (SPSS v22).

Continuous variables presented as means with standard deviation and discrete variables presented as numbers and percentages. T test for two independent samples and ANOVA test were used to detect the significance of difference in means.

Testing with Pearson‘s correlation coefficient (r) was used to detect the significant correlations between two continuous variables. Level of **significance** was set at **P value of 0.05**.

RESULTS:

Interviewed 71 Patients, and there was 67 of them accepted to participate and completed filling of our questionnaire. Response rate was 94.4%.

The results presented in this chapter were based on the analysis of 67 tuberculosis patients participated in the study.

Description of study sample:

In all study samples, a male constitutes (38.8%), and females were (61.2%), the current smokers were (22.4%). The majority of subjects enrolled in the study were in age group 15-55 years (82.1%), then (14.9%) in those >55 years old group, when the age group of <15 years were (3%) of them. The mean age of our sample is 39.8 years (Table 1), (Figure 1).

Regarding the occupations of participated patients of our sample, the main is housewives (40.3%) and employers (25.4%), unemployed were the least (6%). Most of our sample patients were having their owned house (71.2%), the mean family size was (7.7 members), the crowded index was (equal or less than 3) in (59.1%), and (more than 3) in (40.9%)

Of our sample (Table 1).

Regarding the education status of them, the majority were up to primary school (56.7%), illiterates (19.4%), and the minority were higher than secondary schools (10.4%).

Regarding the marital status most of them was single (58.2%), married were (28.4%), divorced (13.4%) (Table I).

Regarding total monthly family incomes of our sample, (40.3%) were of between 500000-1000000 Iraqi dinars, (34.3%) of them were less than 500000 Iraqi dinars, (25.4%) of them more than 1000000 Iraqi dinars (Table 1).

In our sample the patients who were previously healthy without any chronic disease (55.2%), and with chronic diseases (44.8%) (Table 1), most of them had DM (23.9% of overall our sample), (9%) had hypertension, iron deficiency anemia were (7.5%), while asthma were

(3%) (Table 2).

Regarding the characteristic feature of the TB disease, (41.8%) of our sample had history of contact with pulmonary TB patients (Table 1).

Most of our sample patients were pulmonary TB (65.7%), (62.7%) of them were smear positive, while the extra pulmonary were (34.3%) (Table 3).

The majority of all of them were in category I (86.6%), While (13.4%) were in the category II, most of the category II cases were relapse TB cases (77.8% of all category II cases) (Table 3).

The majority of our sample was in the intensive phase of their treatment (67.2%). While the time of lag diagnosis was 5 – 8 weeks in (46.3%) of them, (26.9%) were from 0 – 4 weeks, and (26.9%) were more than 8weeks (Table 3).

Scoring of WHO quality of life

General scoring:

Regarding our sample the general scoring of them in the WHOQOL-100 was (48.0 ± 21.1) in the general aspect of self-rating of the quality of life, and they scored (23.9 ± 17.6) in their general satisfaction in their health.

They scored (47.4 ± 20.6) in the social domain, and scored (46.1 ± 16.2) in the psychological domain, and they scored (38.6 ± 13.8) in the environmental domain, While they scored (29.2 ± 12.3) in the physical domain (Table 4) (Figure 2).

Specific effects of variation of social factors (age, gender and occupation) on each domain, (Level of significance was set at P value of 0.05):

Regarding social factors of our sample we found there are two significant effects on the quality of life domains:

1- By age of our sampled patients we saw significant decrease in the mean scoring of psychological domain through the age > 55 years old, comparing with the age group 15 -55 years were the best (Table 4).

2- By the occupation we saw significant decrease in the mean scoring of the environmental domain especially in housewives and freelance, comparing with the retired and the students were the best (Table 4).

Overall domain plus question 1 and 2, No significant change in the mean scoring regarding the variation of gender (Table 4).

Specific effects of variation of residence, education and marital status on quality of life scoring (Level of significance was set at P value of 0.05):

Regarding the other features of our sample which are residence, education and marital status we found:

1- Significant decrease in the mean scoring of the environmental domain when there is increase in the crowded index more than 3 (crowded index equal to the number of patient‘s family divided by their bed rooms), comparing with when it was equal or less than 3 (Table 5).

2- Significant decrease in the mean scoring of both psychological and environmental domain when the education of patients were illiterates or up to the primary schools, comparing with the best when the patients were higher than the secondary schools (Table 5).

3- Significant decrease in the mean of both the general rating of the quality of life and the social domain when the patients were singles or divorced or widows, comparing with when the patient were married (Table 5).

No Significant change detected with the variation of Residence type (Table 5).

Specific effects of variation of family monthly incomes, smoking, TB contact and presence of other chronic diseases on the quality of life scoring (level of significance was set at P value of 0.05):

Regarding the other features of our sample which are family monthly incomes, smoking, TB contact and presence of other chronic diseases we found two significant effects on quality of life scoring:

1- Significant decrease in the mean scoring of the social domain of those with low monthly family incomes (up to 500000 Iraqi dinars group), in comparing with the other two groups (500000 – 1000000 Iraqi) and (more than 1000000 Iraqi dinars) (Table 6).

2- Significant decrease in the mean scoring of the social domain in those who had a history of contact with the pulmonary TB patients in comparing with those hadn‘t this history (Table 6).

But we did not found any significant effect of the smoking history or history of the previous chronic illnesses on the scoring of the quality of life (Table 6).

Specific effects of variation of category of the treatment, phase of the treatment, and lag period of diagnosis, on the scoring in the quality of life of the sampled patients:

Regarding the other features of our sample which are the category of the treatment, phase of the treatment, and lag period of diagnosis, we found four significant effect on the quality of life:

1- Significant decrease in the mean scoring of the physical domain in the pulmonary TB cases in comparing with the cases of extra pulmonary TB (Table 7).

2- Significant decrease in the mean scoring of the physical domain in the cases of intensive phase of the treatment in comparing with the cases of continuation phase (Table 7).

3- Significant decrease in the mean scoring of the social domain in the patients of shorter lag periods (0 – 4 weeks) in comparing with the cases of longer lag periods (5 – 8 weeks and more than 8 weeks) (Table 7).

4- Significant decrease in the mean scoring of social domain in the category II patients in the comparing with the patient of category I (Table 7). But there was no significant change in the mean scorings of the quality of life under the effect of variation in the reasons which put the patients in the category II (Table 7).

Correlations of QOL domains' scores with the other QOL domains' scores of the sampled patients:

About the correlations we found multiple significant correlations among QOL scorings which were:

1- Significant correlations between Q1 mean scoring (general self-evaluation of their QOL scoring), with each of the following:

A – Q2 means scoring (self-evaluation of their general health scoring).

B – Physical domain means scoring.

C - Psychological domain means scoring.

D – Social domain means scoring.

E – Environmental domain means scoring.

2- Significant correlations between Q2 mean scoring, with each of the following:

A - Physical domain means scoring.

B - Psychological domain means scoring.

C - Environmental domain means scoring.

3- Significant correlations between physical domains mean scoring with Psychological domain mean scoring.

4- Significant correlations among psychological, social and environmental domain mean scorings (Table 8).

Table 1: Characteristics of sampled TB patients:

	● Male	41	61.2%
	● Female	26	
Age Group	● < 15 y	2	3.0%
	☐ 15 - 55 y	55	82.1%
	● > 55 y	10	14.9%
	Mean±SD	39.8 ± 14.9 y	
Occupation	● Freelance	8	11.9%
	● Housewife	27	40.3%
	☐ Employee	17	25.4%
	● Unemployed	4	6.0%
	● Retired	5	7.5%
	● Student	6	9.0%
Residence	● Own	47	71.2%
	☐ Rent	18	27.3%
	● Others	1	1.5%
Family Size	Mean±SD	7.7 ± 4.4	
Crowding Index	● ≤ 3	39	59.1%
	● > 3	27	40.9%
Education	● Illiterate	13	19.4%
	● Up to Primary	38	56.7%
	● Secondary	9	13.4%
	● Higher than secondary	7	10.4%
Marital status	● Married	19	28.4%
	☐ Single	39	58.2%
	● Divorced	9	13.4%
	● Widow	0	0.0%
Family monthly income (ID)	● Up to 500,000	23	34.3%
	☐ 500,000-1000,000	27	40.3%
	● > 1000,000	17	25.4%
Current smoker	☐ No	52	77.6%
	● Yes	15	22.4%
Presence of chronic disease	☐ Yes	30	44.8%
	● No	37	55.2%
History of contact to index TB case	☐ Yes	28	41.8%
	☐ No	39	58.2%

Table 2: Observed comorbid chronic diseases in sampled patients:

Chronic Disease	N=67	100.0%
● Diabetes*	16	23.9%
● Hypertension*	6	9.0%
● IDA	5	7.5%
● Asthma	2	3.0%
● Ischemic Heart Disease	2	3.0%
● Mental disorder	2	3.0%
● Alcohol	1	1.5%
No chronic disease	37	55.2%

*Four patients (6.0%) have both diabetes and hypertension.

Table 3: Characteristics of sampled TB patients in relation to TB disease:

Category	Variable	N=67	100.0%
Category of treatment	Category I	58	86.6%
	Category II	9	13.4%
Site of TB	● Pulmonary (S+)	42	62.7%
	● Pulmonary (S-)	2	3.0%
	□ Pulmonary (ND)	0	0.0%
	● Extrapulmonary	23	34.3%
Category II	● Relapse	7	77.8%
	● Failure	1	11.1%
	□ Defaulter	0	0.0%
	● Others	1	11.1%
Phase of treatment	● Intensive phase	45	67.2%
	□ Continuation phase	22	32.8%
Lag to Diagnosis	● 0-4 wk	18	26.9%
	□ 5-8 wk	31	46.3%
	● > 8 wk	18	26.9%
	Min-Max	1 – 80 wk	
	Mean±SD	9.2 ± 12.2	

Table 4: Mean QOL scores according to age, sex and occupation of sampled patients:

Variable	Q1 Score		Q2 Score		Physical Domain		Psychological Domain		Social Domain		Environment Domain	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Gender												
Male	43.3	20.7	20.2	20.0	27.9	11.1	43.6	17.0	47.8	22.1	37.3	12.4
Female	52.4	21.5	26.2	15.8	30.0	13.0	47.8	15.7	47.2	19.9	39.4	14.7
P value	0.089			0.175		0.489		0.309		0.908		0.539
Age												
< 15 y	62.5	17.7	25.0	0.0	25.0	4.4	43.8	20.6	25.0	0.0	48.5	28.8
15 - 55 y	50.0	21.0	25.5	17.7	30.4	11.9	48.5	14.6	47.9	21.0	37.3	12.6
> 55 y	40.0	24.2	15.0	17.5	23.8	14.4	33.8	20.3	49.2	19.0	43.4	16.8
P value	0.269			0.228		0.264		0.027		0.296		0.261
Occupation												
Freelance	46.9	28.1	18.8	11.6	27.0	6.0	44.8	18.7	45.8	23.6	36.3	8.2
Housewife	46.3	19.2	27.8	16.0	29.8	13.6	44.0	14.6	44.8	19.9	34.1	10.0
Employee			16.2	17.5	28.0	12.5	47.1	15.1	53.4	22.8	37.7	14.4
Unemployed	51.5	22.5	43.8	31.5	44.6	12.9	56.3	28.6	52.1	17.2	44.5	14.3
Retired	43.8	31.5	25.0	17.7	21.9	9.9	39.2	14.3	53.3	20.9	51.2	18.8
Student	50.0	17.7	20.8	10.2	29.2	5.5	54.2	16.2	36.1	14.6	49.5	19.2
P value	0.846			0.055		0.122		0.487		0.511		0.031

Table 5: Mean QOL scores according to residence, education and marital status of sampled patients:

Variable	Q1 Score		Q2 Score		Physical Domain		Psychological Domain		Social Domain		Environment Domain	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Residence type												
Own	48.4	19.8	22.3	16.7	27.0	11.4	46.2	16.4	47.2	19.9	39.6	14.4
Rent	51.4	23.4	27.8	19.0	33.7	12.7	46.8	15.2	48.6	23.8	35.8	12.4
Others	0.0	---	0.0	---	28.1	---	16.7	---	33.3	---	28.1	---
P value	0.063		0.215		0.131		0.194		0.774		0.458	
Crowding Index												
≤ 3	50.6	23.3	25.6	18.6	27.6	13.4	45.1	18.5	47.9	22.6	43.5	14.6
> 3	48.1	16.9	22.2	16.0	31.6	10.5	48.8	11.4	47.2	18.1	31.8	9.1
P value	0.636		0.440		0.196		0.359		0.902		< 0.001	
Education Illiterate	44.2	25.3	21.2	20.0	26.2	14.4	34.6	18.1	37.2	21.1	31.7	15.7
Up to Primary	46.7	19.4	25.0	18.4	30.4	11.4	48.3	15.3	50.4	18.3	36.5	10.1
Secondary	55.6	20.8	25.0	12.5	34.0	13.6	46.8	12.8	42.6	24.1	49.0	12.0
Higher than secondary	60.7	24.4	21.4	17.3	22.3	8.2	55.4	12.7	55.9	23.4	49.1	18.5
P value	0.267		0.893		0.194		0.020		0.125		0.003	
Marital status												
Married	50.0	27.6	25.0	22.0	31.8	13.6	45.8	24.1	39.0	17.6	40.6	15.0
Single	52.6	16.0	25.0	15.2	28.5	11.6	47.7	10.9	53.4	20.4	37.9	13.3
Divorced or widow	30.6	20.8	16.7	17.7	27.1	12.3	40.3	15.9	38.9	20.4	37.2	14.3
P value	0.019		0.426		0.546		0.475		0.016		0.742	

Table 6: Mean QOL scores according to monthly income, smoking, and presence of chronic disease and history of contact to TB patient of sampled patients:

Variable	Q1 Score		Q2 Score		Physical Domain		Psychological Domain		Social Domain		Environment Domain	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Monthly Income												
Up to 500,000	47.8	16.7	21.7	15.6	27.2	12.2	45.7	15.0	37.7	20.4	35.7	14.3
500,000-1000,000	47.2	21.2	21.3	18.0	30.3	12.0	47.1	16.5	48.8	16.1	38.0	11.1
> 1000,000	52.9	27.8	30.9	18.8	30.2	13.0	45.3	18.2	58.3	22.2	43.4	16.4
P value	0.670		0.166		0.626		0.929		0.005		0.215	
Current smoker												
Yes	50.0	21.0	25.0	17.1	28.0	12.6	47.3	17.4	45.8	21.0	38.8	14.4
No	45.0	23.5	20.0	19.4	33.6	10.3	42.2	11.0	52.8	19.1	37.9	11.7
P value	0.432		0.337		0.120		0.292		0.254		0.836	
Chronic Disease												
Yes, diabetes	45.3	22.8	15.6	18.0	25.8	10.5	46.6	14.8	52.1	21.0	37.7	17.1
Yes, others	46.4	25.7	25.0	17.0	25.9	11.1	42.6	18.3	44.1	22.7	40.0	12.2
No	51.4	19.5	27.0	17.1	31.9	13.0	47.3	16.3	46.6	19.9	38.4	13.1
P value	0.581		0.092		0.129		0.650		0.543		0.904	
Contact to TB patient												
Yes	47.3	24.9	27.7	17.1	32.6	12.5	45.5	16.7	41.1	19.9	39.2	14.1
No	50.0	19.0	21.2	17.7	26.8	11.6	46.6	16.1	51.9	20.2	38.1	13.7
P value	0.619		0.137		0.054		0.798		0.033		0.765	

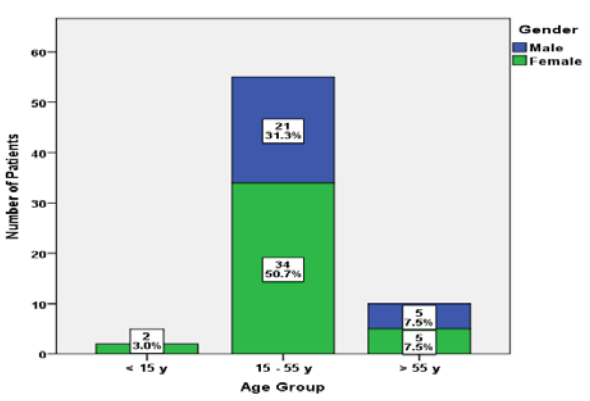

Figure 1: Age and sex distribution of sampled patients.

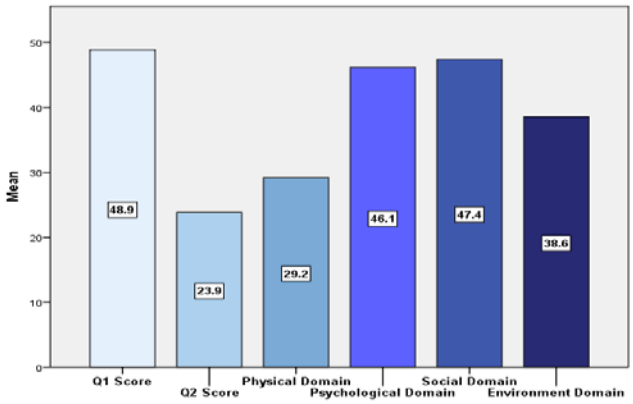

Figure 2: Mean QOL score for sampled patients:

Table 7: Mean QOL scores according to category of the treatment, phase of the treatment type of the TB disease, and lag period of diagnosis, of the sampled patients:

Variable	Q1 Score		Q2 Score		Physical Domain		Psychological Domain		Social Domain		Environment Domain	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Treatment Category												
Category I	49.6	21.2	24.6	17.2	29.3	11.8	46.9	14.8	49.9	20.1	39.1	14.3
Category II	44.4	24.3	19.4	20.8	28.9	15.8	41.2	24.1	31.5	17.1	35.4	9.8
P value		0.510		0.422		0.926		0.331		0.012		0.464
Type of TB disease												
Pulmonary (S+)	50.0	20.7	20.8	15.5	26.4	11.0	46.2	16.9	44.8	21.8	38.0	14.2
Pulmonary (S-)	50.0	0.0	12.5	17.7	18.8	0.0	39.6	14.7	37.5	29.4	37.5	0.0
Extrapulmonary	46.7	24.2	30.4	19.9	35.3	12.7	46.6	15.6	52.9	17.3	39.8	13.9
P value		0.845		0.070		0.007		0.847		0.257		0.872
Reason for Category II												
Relapse	50.0	25.0	25.0	20.4	28.2	18.2	45.2	24.8	31.0	17.2	34.8	8.5
Failure	25.0	---	0.0	---	31.3	---	12.5	---	16.7	---	25.0	---
Others	25.0	---	0.0	---	31.3	---	41.7	---	50.0	---	50.0	---
P value		0.501		0.373		0.977		0.507		0.436		0.190
Phase of treatment												
Intensive phase	47.8	21.2	22.8	17.5	26.3	10.7	45.1	15.5	48.7	20.3	40.6	14.0
Continuation phase	51.1	22.5	26.1	18.1	35.2	13.2	48.3	17.8	44.7	21.6	34.4	12.5
P value		0.552		0.468		0.004		0.453		0.460		0.081
Lag to diagnosis												
0-4 wk	47.2	20.8	22.2	19.0	28.1	12.2	39.3	13.9	37.5	20.7	41.0	18.0
5-8 wk	50.0	21.4	25.8	18.8	28.5	12.4	50.3	17.2	48.7	19.7	35.9	11.4
> 8 wk	48.6	23.4	22.2	14.6	31.4	12.5	45.8	15.2	55.1	19.2	40.8	12.6
P value		0.910		0.715		0.669		0.074		0.032		0.340

Table 8: Correlations of QOL scores with the other QOL scores

		Q1	Q2	Physical Domain	Psychological Domain	Social Domain	Environment Domain
Q1 Score	r P		0.496 <0.001	0.364 0.002	0.620 <0.001	0.342 0.005	0.376 0.002
Q2 Score	r P	0.496 <0.001		0.543 <0.001	0.420 <0.001	0.174 0.159	0.346 0.004
Physical Domain Score	r	0.341	0.316		0.301	-0.030	-0.033
	P	0.005	0.009		0.013	0.808	0.788
Psychological Domain Score	r	0.620	0.420	0.323		0.379	0.323
	P	<0.001	<0.001	0.008		0.002	0.008
Social Domain Score	r	0.342	0.174	0.114	0.379		0.246
	P	0.005	0.159	0.357	0.002		0.045
Environment Domain Score	r	0.376	0.346	0.104	0.323	0.246	
	P	0.002	0.004	0.402	0.008	0.045	

r; Pearson's correlation coefficient, P; P value

DISCUSSION:

Currently there are many types of instruments for assessing or evaluating QOL that share the same purpose of that in our instrument (WHOQOL_BREF), but differ in their construction and analysis.

Many studies were conducted to evaluate QOL of TB patients, and their results were various according to socioeconomic status, safety, general circumstances of their countries, believes and cultural and educational variation of population being investigated. According to our study sample, most of subjects enrolled were female (Table 1), although that many studies dealing with TB disease; males were more than females, but in the current study that endorsed referred data of the national specialized center of the chest and respiratory diseases females attended the clinic and TB Management basic unit were

More than males. But also we should supposed that it may be due to selection bias, or small

Sample size or other social factors that determine access to health facility.

In this study the mean age in years was 39.8 which is similar to many the

Studies (21), (22), (23), (24). The patients with pulmonary TB category (I) were more frequently than category (II) this finding is similar to other studies (3), (21). Housewives were registered as the most frequent occupation; which is similar to some other studies (3), (21), (25).

Concerning smoking; it was found that 22% of our sample which was less than of that in the other study in Iraq (21), may be because of selection bias or due to the large females'percentage in our sample, females may deny smoking history for social and cultural reasons. The results of this study were consistent with many studies conducted in different countries of different socio-economic and cultural background.

A prospective cohort study by Juman Dujaili and Syed Azhar Sulaiman participated by 305 patients lasted for 11 months till the middle of 2013 in Baghdad presented for the International medical university of Malaysia/ Kualalampur, who use different instrument for evaluation of the QOL in pulmonary TB which

was FACIT-TB which is using only for the pulmonary TB, and they used similar structured form for the identity and socioeconomic state (22), they found that the education, economic and smoking situations with no effects on the general aspect of the QOL, that was after exclusion of patients of other chronic illnesses, and they found that all domain of the QOL elevated their mean scoring with the

continuation of the TB treatments, according our study the education, economic and smoking history also were not significantly effect on general aspect of self-evaluation of the QOL, as in Q1, but there were significant effect on the domains of the QOL (Table 5), (Table 6).

Another cross sectional study in Baghdad, Karkh 2013 by Ayad Huwaiz, (21), by using of similar instruments to us for 100 TB patients, found that the most decreasing domain was the mean scoring of the physical domain and least decreasing was in the social domain, and found that the age was with no effect on the scoring of general health perception (Q2), and gender type with no effect on the scoring of the general self-rating of the QOL (Q1), and found that marriage with positive effect on the mean scoring of the social domain, which is similar to that in our study, and this study found the increasing in the crowded index effect negatively on psychological, social, and environmental domains, while our study found

Only negatively effect on environmental domain, and they found that significant decrease in both physical and environmental domains mean scoring by low educational status, while our study showed negative effects on psychological and environmental domains, that is may be

Smallest sample number.

Another study in Hamadan, Western Iran, by Mojgan Mamani, Mohammad Majzoobi (25), which was a case control study lasted till 2011, of 64 TB patients and 120 normal control persons, by using different instrument for measuring of the QOL which was SF-36 questionnaire, overall their TB patients the mean score of the QOL were 54, while their

Control persons scored 71, which was a significant decrease result confirming the fact of low QOL in the TB patients.

And they found that the patients of the intensive phase of the treatment were with decreased general scoring of the QOL and in those of with the continuation phase only the physical domain scoring improved, while in our study we found that there was decreasing in the scoring of the physical domain of in the intensive phase's patients but no effect on the

Mean scoring of the general self-rating of the QOL that is may be due to the difference in the instruments which used.

Another new study South Africa published at 2017, by T. Kastien-Hilka, B. Rosenkranz, E. Sinanovic (24), which was a retrospective cohort study, included 131 patients of pulmonary TB only, 90% of them black persons, 82% of them without marriage, with 68% of high education, by using different instruments from our instrument, they use 4 instruments; EQ-5D-5L questionnaire, SF12 questionnaire, SGR questionnaire (specific respiratory diseases questionnaire) and hospital anxiety and depression scale (the last is specific also), they found that the young and middle age patients were with better psychological domain mean scoring in comparison advanced ages, and better psychological domain mean

Scoring with higher education group, which was similar to our study. But they also found significant decrease in the general aspect of QOL in women and the advance age groups which differ from our results, may be due to smaller number of our sample or difference in the races or countries or higher education of their sample or simply due to difference

In the instruments which used.

Another new study in in Indonesia, by W. Shariefuddin, Sri Y. Irda, Sari, T. Pandji (26), published by Althea Medical Journal / 2016, which was a case control study to detect of the effect of TB on the QOL among diabetes patients, using the same our instrument (WHOQOL-BREF), they select a control sample of 53 diabetes patients, and a case sample of 53 diabetic tuberculosis patients, they found significant decrease in the mean scoring of the general self-rating of the QOL without effect on the social domain, that is differ from our study in which there was no significantly effect of the diabetes on the mean of the QOL scoring,

which may be smaller sample or due to small number of our diabetic patients in the

Sample or due to difference in the races.

From Canada, another study lasted from 2008 till 2011, of prospective cohort type by Melissa E. Bauer (23), including 48 active TB patients, 105 latent TB patients, and 110 normal control persons, 90% of them born out of Canada, by using different instruments which were; SF6D and SF36.

They found the TB treatment gave significant improvement in the overall QOL till the end of the intensive phase, but with no significant change in the QOL from the third till the sixth month of the treatment. Lastly we view another study from India, by Aggarwal A.

(3), published during 2013, which was a prospective cohort study for 1034 pulmonary

TB only smear positive 68% of them by using the of our instrument, the study was lasting for 1 year. They found that there were significant correlation between the mean score of the general perception of the QOL and the perception of the health, which is similar to that in our study.

Also they found improvement of in all QOL domain in the smear negative group, which is differ from our study, may be due to small number of smear negative patients our sample (only 2 patients).

In this study the found significant increasing of all domains except the psychological in the urban residence group, in comparison with the rural group, while there were no similar effect in our study, may be due to very small number of rural group (only 1 patient).

CONCLUSIONS:

The significant conclusions are:

1. Overcrowding with direct effect on the environmental domain of the QOL among TB patients.
2. In our sample, the marriage gives positive effort to total perception of the QOL especially social domain.
3. In our sample, the financial state of the TB patients is with direct effect on social domain of the QOL.
4. Pulmonary TB patients are with worse physical domains among Iraqi TB patients.
5. Highly educated TB patients have better environmental domain among other TB patients.

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