

Quality of Life for Adult Patients with Chronic Obstructive Pulmonary Disease

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المستخلص

الهدف: تحديد نوعية الحياة للمرضى البالغين المصابين بمرض الإنسداد الرئوي المزمن. في مدينة بغداد.

المنهجية: دراسة وصفية أجريت على (٨٠) مريض من المرضى المصابين بمرض الإنسداد الرئوي المزمن من كانون الأول ٢٠٠٨ إلى تشرين الأول ٢٠٠٩ وكانت معايير شمول العينة هم المرضى البالغين من ١٨ سنة فأكثر والمرضى المشخصين من سنة فأكثر وأستثنى منهم المرضى الذين لديهم مضاعفات ناتجة عن المرض والمرضى المصابين بأمراض نفسية والذين لديهم أمراض مزمنة. تم تحليل البيانات باستعمال الإحصاء الوصفي والاستنتاجي

النتائج: أشارت الدراسة إلى تحديد نوعية الحياة للمرضى المصابين بالإنسداد الرئوي المزمن اعتمدت على مستوى التأثير وذلك بالاعتماد على درجة الكفاءة النسبية وكان تأثير المرض على المرضى عالٍ في الجانب الجسمي ومستوى الاستقلالية والجانب البيئي وتأثير المرض على مرض الإنسداد الرئوي المزمن كان بدرجة متوسطة في الجانب النفسي والجانب الاجتماعي وتأثير المرض واطئ في الجانب الروحي. أظهرت الدراسة أن هناك علاقة معنوية بين نوعية الحياة بصورة عامة ونوع التدخين والمهنة بعد المرض والتاريخ الأسري للمرض ولا توجد علاقة معنوية بين نوعية الحياة والجنس والعمر والحالة الزوجية والمستوى التعليمي والدخل الشهري وكذلك لا توجد علاقة بين نوعية الحياة ومدة الإصابة بالمرض وعدد مرات دخول المستشفى والبدانة وشدة المرض.

التوصيات: أوصت الدراسة ببناء مركز خاص للتأهيل الرئوي وعمل تصميم برنامج تثقيفي وتوزيع دليل خاص لمرضى الإنسداد الرئوي المزمن.

Abstract:

Objective(s): To determine the quality of life for adults with a chronic obstructive pulmonary disease.

Methodology: A descriptive study was carried out on (80) patients with a chronic obstructive pulmonary disease from December 2008 through October 2009 with special inclusion criteria (adult patients from 18 years and above exclude the patients who suffer complication related of disease and from psychological problems and other chronic illnesses. The data were analyzed through the application of descriptive data analysis approach and inferential data approach.

Result: The study indicated that the determination of QoL for COPD depended on the level of effect. The grades according to R.S are: "high" effect of disease in the physical, level of independence and environmental domain and "moderate" in the psychological domain, social domain and "low" in the spiritual domain. Finally the study revealed that there is significant association between (types of smoking, occupation after disease, family history) with total score QOL and no significance with sex, age, marital status, educational level, income.

Recommendation: The study recommended that the establishment of pulmonary rehabilitation centers for chronic obstructive pulmonary disease, an educational programs and manual guide should be distributed to the chronic obstructive pulmonary disease patients.

Keywords: quality of life; adult, domains; chronic obstructive pulmonary disease

Introduction

The chronic obstructive pulmonary disease (COPD) is a major cause of chronic morbidity and mortality throughout the world. Many people suffer from this disease for years and die prematurely from it or its complications⁽¹⁾. COPD is a disease state characterized by airway limitation that is not fully reversible. The high burden of COPD resulting from coughing, sputum production and shortness of breath, is further contributed to by systemic

effects, leading to a pronounced deterioration in health status and a diminished quality of life⁽²⁻³⁾. In COPD patients, the airflow limitation leads to reduce the capacity for function activities and decrease the performance of daily activities, and ultimately impairment in the quality of life⁽⁴⁾.

Exacerbations of COPD are associated with considerable physiologic deterioration and increased airway inflammatory changes that are caused by various factors such as viruses, bacteria, and possibly common pollutants⁽⁵⁾.

Acute exacerbations are a common reason for hospital admissions and affect health-related quality of life (HRQL) and prognosis ⁽⁶⁾. The researcher stated that the interest in HRQOL over the past decade has increased substantially because of the recognition of the following factors: (1) individual patients are most concerned about their symptoms (e.g., dyspnea) and their functions (e.g., ability to perform physical tasks), rather than objective measures such as expiratory airflow; (2) HRQOL is a unique construct that is different from physiologic measures or survival; and (3) the goals of therapy have been expanded to include the relief of symptoms and improvement in HRQOL, in addition to the standard physiologic outcomes.

Methodology

A descriptive study was carried out to determine the quality of life for adult patients with chronic obstructive pulmonary disease in Baghdad city. The study was initiated from December 2008 through October 2009. A purposive "non-probability" sample was selected of (80) patients who were admitted to hospital with previous diagnosis of COPD attended to Baghdad Teaching Hospital and Al-Yarmuk teaching hospital. The study was conducted on

the patients with chronic obstructive pulmonary diseases who attended the respiratory clinic. A questionnaire was constructed for the purpose of the study throughout the review of relevant literature. The questionnaire consists of three parts; part-1 socio-demographic characteristics, part-2 medical data, part-3 quality of life scale. The investigator adopted and developed QOL domain according to World Health Organization (WHO) scale and St. George's respiratory questionnaire which the investigator adapted to measure physical domain (symptoms of disease), which are concerned with measurement of QOL on rating scoring type likert scale it is scored as 1 for never, 2 for always. So, the cut-off-point was two. To determine the quality of life for COPD, accumulative score was obtained according to previous likert score and presented as acceptable and good, poor quality of life. The data were analyzed through the application of descriptive data analysis approach which included frequency, percentage, standard deviation, mean and mean of scores and inferential data approach (T-test, ANOVA, correlation coefficient).

Results:

Table 1-a. Distributions of COPD Patients according to socio-demographic variables

Characteristics sample		Frequency	Percent
Sex	Male	53	66.2
	Female	27	33.8
Age (years)	30-39	5	6.3
	40-49	9	11.2
	50-59	26	32.5
	60-69	25	31.2
	70-79	15	18.8
	Mean ± SD (Min-Max)	58.80±10.02	(35-79)
Marital states	Married	58	72.5
	Unmarried	3	3.8
	Widowed	19	23.7
Level of education	30-39	5	6.3
	40-49	9	11.2
	50-59	26	32.5
	60-69	25	31.2
	70-79	15	18.8
	Mean ± SD (Min-Max)	58.80±10.02	(35-79)

Table 1-a. (Continued)

Characteristics sample		Frequency	Percent
Marital states	Married	58	72.5
	Unmarried	3	3.8
	Widowed	19	23.7
Level of education	Unable to read and write	38	47.5
	Able to read and write	15	18.8
	Primary school	6	7.5
	Intermediate school	6	7.5
	Secondary school	5	6.3
	Institute Graduate	1	1.2
	University Graduate	9	11.2
Employment status	Government employee	15	18.8
	Self-employed	45	56.2
	housewife	8	10.0
	Unemployed	-	-
	Retired	12	15.0
	Employee	28	35.0
	Unemployed	52	65.0
Monthly income	Sufficient	12	15.0
	Sufficient to some extent	33	41.2
	Not sufficient	35	43.8

Min-Max= Minimum-Maximum; SD=Standard Deviation

This table shows that the highest percentage (66.2 %) of COPD patients was male, (63.7%) at the age group of (50-59) and (60-69) years. Concerning the marital status, the highest percentage (72.5) of COPD patients were married. Regarding the level of education the highest percentage (47.5%) was unable to read

and write. Concerning the occupational status before disease, the results show that the highest percentages (56.2 %) were self-employed and none of patients was unemployed while most (65.0%) of COPD patients after disease were unemployed. Regarding to income the results revealed that the (43.8%) were not sufficient.

Table 1-b. Distribution of COPD patients related to smoking information (n=80)

Smoking Variables		Frequency	Percent
Smoking	Not smoking	20	25.0
	Smoking	11	13.7
	Pervious smoking	49	61.3
Type of smoking	Cigarette	39	65.0
	Pipe	7	11.7
	Both	14	23.3
Number of cigarettes per day	1 pack (20 cig)	41	68.3
	2 pack (40 cig)	13	21.7
	3 pack (60 cig)	6	10.0
Duration of smoking	<20 years	4	6.6
	20-29	22	36.7
	30-39	19	31.7
	≥40	15	25.0
Passive smoking	No	21	30.4
	Yes	48	69.6

This table shows that the highest percentages (61.3%) of the sample were pervious smoking and most of them (65.0%) were smoking. Regarding to the number of cigarettes per day, the highest percentage (68.3%) of

sample smoked one pack per day. Regarding to the duration of smoking the results shows that the highest percentages (36.7%) of patients were smoking 20-29 years ago and (69.6%) lives with smoking people.

Table 2. Distribution of COPD patients according to the clinical characteristics

Clinical characteristics of sample		Frequency	Percent
Duration of diagnosis	< 1-2 years	19	23.8
	2-5 years	45	56.2
	6-10 years	16	20.0
Times of hospitalization	Not admitted	7	8.8
	1-2 times	45	56.2
	>2 times	28	35.0
Family history of COPD	No	52	65.0
	Yes	28	35.0
Relatives who have COPD	Father	16	57.1
	Mother	7	25.0
	Brother	5	17.9
Body mass index (Kg/m2)	Underweight (<18.5)	-	-
	Normal weight (18.5-24.9)	26	32.4
	Overweight (25.0-29.9)	43	53.8
	Obesity (30.0-93.9)	11	13.8
	Extreme obesity ≥40	-	-
Severity of disease *	At risk	-	-
	Mild	21	26.2
	Moderate	31	38.8
	Severe	24	30.0
	Very severe	4	5.0

FVE1= Forced expiratory volume1s, FVC= Forced vital capacity.
 *At risk= normal spirometry, Mild= FEV1/FVC less 70 %and FEV1 % less than 80%, Moderate= FEV1/FVC less 70 % and FEV1 % less than 50-%80%, Severe= FEV1/FVC LESS 70 % and FEV1 %less than 30-%

50%, Very severe= FEV1/FVC less 70 %and FEV1 % less than 30 % or 50% (Pauwels ,et.al)¹⁵

Table (2) shows that the highest percentages (56.2%) of COPD patients' duration of disease were (2-5) years. Regarding to the times of hospitalization, the data show that the highest percentage (56.2%) of sample were 1-2 time. The table also shows that the highest percentage (65.0%) of patients hasn't in the family history any COPD and the highest percentages (57.1%) of the relatives who have

COPD were fathers. Regarding to the body mass index, the data show that the highest percentages (53.8%) of the sample were overweight. According to the severity of disease, the result shows that the highest percentages (38.8%) were moderate (FEV1/FVC less 70 % and FEV1 % less than 50-%80%).

Table 3. Distribution of the patient regarding to quality of life domains

QoL domains	Mean±SD	(Min-Max)	R.S	Grades
Physical domain score	45.01±3.16	(36-51)	90	High
Psychological domain score	40.66±3.10	(33-48)	80	Moderate
Level of independence domain score	42.28±3.55	(29-48)	90	High
Social domain score	14.74±2.29)	(8-18)	83.3	Moderate
Environmental domain score	26.09±2.10	(21-30)	90	High
Spiritual domain score	13.24±1.59	(8-18)	73.3	Low

Min-Max= minimum-maximum, **R.S**=relative sufficiency **No effect** of disease on Quality of life less than 66.67, **Low** effect of disease on Quality of life 66.67-77.67, **Moderate** effect of disease on Quality of life 77.78-88.89, **High** effect of disease on Quality of life 89-100; **R.S**=Relative sufficiency; **SD**= Standard deviation

This table indicates that the physical domain score and level of independence domain and environmental was highly mean of score and more effected from disease, psychological

domain and social domain mean score was recorded grades moderate effected and low effected of disease was founded in spiritual domain.

Table 4. Distribution of the patient regarding to quality of life grads (poor and acceptable and good) by number and percentages

Quality of Life domains	Frequency	Percent	
Physical domain score	Poor (≥ 34)	80	100.0
	Acceptable and good (< 34)	-	-
Psychological domain score	Poor (≥ 34)	78	97.5
	Acceptable and good (< 34)	2	2.5
Level of independence domain score	Poor (≥ 32)	78	97.5
	Acceptable and good (< 32)	2	2.5
Social domain score	Poor (≥ 12)	76	95.0
	Acceptable and good (< 12)	4	5.0
Environmental domain score	Poor (≥ 20)	80	100.0
	Acceptable and good (< 20)	-	-
Spiritual domain score	Poor (≥ 12)	76	95.0
	Acceptable and good (< 12)	4	5.0
Total score	Poor (≥ 144)	80	100.0
	Acceptable and good (< 144)	-	-

This table shows QoL domains according to poor and acceptable and good. All domains of

QoL of COPD patients were 100%, 97.5%, 95% for poor QoL.

Table 5. Significant differences between total score of the QoL domains and Socio-demographic characteristics

Total score QOL with variable of the study		Mean±SD	Min-Max	P value	Sig.
Sex	Male	181.30±7.95	163-200	0.227	N.S
	Female	183.41±8.47	165-200		
Age (years)	30-39	175.60±5.03	170-183	0.109	N.S
	40-49	179.00±8.03	165-193		
	50-59	181.73±7.42	166-197		
	60-69	182.48±8.70	167-200		
	70-79	185.67±8.14	163-197		
Level of education	Unable to read and write	182.97±8.70	163-200	0.154	N.S
	Able to read and write	184.33±7.73	170-197		
	Primary school	178.33±7.12	165-184		
	Intermediate school	183.83±3.66	179-189		
	Secondary school	179.40±9.56	170-193		
	Institute Graduate	166.00±	-		
	University Graduate	178.56±6.09	170-190		
Marital states	Married	181.52±8.19	165-200	0.357	N.S
	Unmarried	178.33±7.77	172-187		
	Widowed	184.11±8.00	163-197		
Occupation	Government employee	180.80±8.41	166-197	0.809	N.S
	Self-employed	181.78±8.23	163-200		
	housewife	183.38±7.67	172-193		
	Unemployed	-	-		
	Retired	183.50±8.43	170-197		
Occupation after disease	Employee	177.32±6.74	166-197	0.0001*	H.S
	Unemployed	184.54±7.74	163-200		
Income	Sufficient	180.05±7.04	169-197	0.550	N.S
	Sufficient to some extent	179.45±11.0	163-197		
	Not sufficient	183.39±7.69	165-200		

H.S=Highly significant; Min-Max= minimum–maximum; N.S=Not significant; P-value=Level of Probability; QOL=Quality of life, SD= Standard deviation; Sig=Significance

This table demonstrates there is no significant differences between socio-demographic characteristics and QOL domains,

except in occupation of patients after disease there is statistical significant with QOL of COPD $p < (0.001)$.

Table 6. Significant differences between the total score of the QoL domains and smoking

Total score QOL with variable of the study		Mean±SD	Min-Max	P-value	Sig
Smoking status	Not smoking	180.05±7.04	169-197	0.162	N.S
	Smoking	179.45±11.0	163-197		
	Pervious smoking	183.39±7.69	165-200		
Type of smoking	Cigarette	184.21±7.24	165-200	0.0001*	H.S
	Pipe	169.86±4.56	163-175		
	Both	184.79±7.69	170-200		
Number of cigarette per day	1 pack (20 cig)	182.32±8.15	163-194	0.773	N.S
	2 packs (40 cig)	182.69±9.17	170-200		
	3 packs (60 cig)	185.00±9.88	170-200		
Duration of smoking	<20 years	182.25±7.09	176-191	0.639	N.S
	20-29	184.18±8.67	166-200		
	30-39	180.74±9.10	165-197		
	≥40	183.00±7.77	163-194		
Passive smoking	No	180.90±7.13	166-193	0.227	N.S
	Yes	183.08±7.79	165-200		

H.S=Highly significant; Min-Max= minimum–maximum; N.S=Not significant; P-value=Level of Probability; QOL=Quality of life, SD= Standard deviation; Sig=Significance

This table demonstrates that there is no significant differences between smoking status and QOL domains, except type of smoking there

is significant differences between QOL with COPD $p < (0.001)$.

Table 7. Significant differences between the total score of the QoL domains and clinical characteristics

Total score QOL with variable of the study	Mean±SD	Min-Max	P value	Sig.	
Period of diagnosis	<1 yrs	181.26±5.88	167-191	0.837	N.S
	2-5yrs	182.49±7.92	163-200		
	6-10yrs	181.56±11.04	165-200		
Hospitalization	Not admitted	178.00±8.45	167-191	0.334	N.S
	1-2 time	182.84±7.98	163-200		
	>2 times	181.68±8.30	170-200		
History to COPD	No	183.52±8.44	163-200	0.023*	H.S
	Yes	179.21±6.83	169-192		
Relatives have COPD	Father	179.56±6.71	169-192	0.156	N.S
	Mother	175.57±5.00	170-185		
	Brother	183.20±8.07	171-190		
Body mass index (Kg/m ²)	< 18.5	-	-	0.168	N.S
	18.5-24.9	184.27±7.93	169-200		
	25.0-29.9	180.49±8.14	163-200		
	30.0 –39.9	182.64±8.02	165-191		
	≥ 40.0	-	-		
Severity of disease	At risk	-	-	0.081	N.S
	Mild	182.29±6.69	167-194		
	Moderate	180.06±7.58	163-197		
	Severe	182.83±9.53	170-200		
	Very severe	190.75±5.38	184-197		

H.S=Highly significant; Min-Max= minimum–maximum; N.S=Not significant; P-value=Level of Probability; QOL=Quality of life, SD= Standard deviation; Sig=Significance

This table demonstrates that there are no significant differences between clinical characteristics and QOL domains, except history

of COPD there is significant between QOL with COPD p< (0.023).

Discussion:

The aims in treatment of COPD are to decrease the rate of disease progression and of exacerbations, to ameliorate the symptoms, to improve the performance of physical activities and also to improve the quality of life. For this reason, the use of health-related quality of life measures in COPD has currently achieved widespread acceptance. It has been found that (66.2%) of COPD patients were males at the age group (50-59), (60-69) years and them Mean age was 58.80±10.02 years. These findings were supported by ⁽⁷⁾, who indicated that the mean (±SD) age of subjects was 58.3±11.0 years (range, 45-82 years). Out of 131 patients, (61%) were men. Regarding the marital status the results of present study indicated that (72.5%) of the sample were married. This result agrees with a

study done by Aslani ⁽⁷⁾ who indicated that (88%) were married, (6%) were single, and (6%) were widows. The finding of the present study revealed that a high percentage (56.2%) of COPD patients had occupations before disease ,were self employee (working in shop work during exposure to chemical agent such as acid in batteries, others drive diesel car and others works with wool or cotton , metal workers) while most of them (65.0%) unemployed after disease. the researcher ⁽⁸⁾ reported that the occupations include coal miners, metal workers, grain handlers, cotton workers and workers in paper mills. other research⁽⁹⁾ stated that the occupational factors are believed to contribute to the population burden of chronic obstructive pulmonary diseases. Regarding smoking behavior the results present the majority of study

sample(61.2%), were previously smoking and most of them (65%) were smoking cigarettes and the majority(68.3) of COPD patients were smoking one pack and the majority of them(36.7)smoked for 20-29 years and most of them (69.6%) were subjected to an exposure to passive smoking. In support of this study stated that there were 50 current smokers (19%),194 (73%) former smokers, 20 (8%) had never smoked⁽¹⁰⁾. other research⁽¹¹⁾ reported that the patients had a smoking history of >10 pack-years17also stated that 61% of the study sample showed that was ex-smokers. Blackler, et al.⁽⁸⁾ who stated that the exposure to cigarette smoke also can contribute to respiratory symptoms and COPD.

According to Socio-demographic status, the results of present study showed that the incomes of most (43.8%) of the sample were not sufficient. In support of these result the research⁽⁷⁾ reported that the study sample showed low incomes. The findings of the clinical characteristics of chronic obstructive pulmonary disease show that most of the sample (56.3%) were (1-2) years of duration of diagnosis. The patients with COPD are more obsessive about their health during the first years of disease .This is expressed by the patients by visiting the clinics frequently (Researcher). The outcome of the study revealed that most of study samples (56.3) were admitted to hospital (1-2) times. In support of this result Almagro⁽¹²⁾ mention that 75(58.5%) patients were readmitted. was associated with previous hospitalization for COPD in the past year. The results of present study show that most of the sample (56.0%) didn't have a family history of COPD.Alpha 1- antitrypsin deficiency (AAT deficiency) is a rare disorder and is the only known genetic (inherited) factor that increases the risk of developing COPD⁽¹³⁾. The findings of the present study revealed that the highest percentage (53.7%) of the sample their Body mass index was 25.0-29.9 Kg/m² (over weight). the researcher⁽¹⁴⁾ reported that 77% had a body mass index (BMI) 25 kg/m². According to Severity of disease the results show that the highest percentages (38.8%) were Moderate (FEV1/FVC less 70 %and FEV1 %less than 50-%80%). The measurement of FEV1 is essential for the diagnosis and quantification of the respiratory

impairment resulting from COPD⁽¹⁵⁾. In addition, the rate of decline in FEV1 is a good marker of disease progression and mortality). However, FEV1 does not adequately reflect all the systemic manifestations of the disease. The research⁽¹⁴⁾ reported that the last spirometric measurement of the mean FEV1 value was 55.1 -±14.3%. The severity of disease was mild in 33.8% of cases, moderate in 49.3% and severe in16.8%. the research⁽¹⁶⁾ stated that according to the GOLD guideline, most (72%) of the patients were in stage 2 (mean: FEV1 1.9 ± 0.75 L, 53.1% ± 18.5% predicted). the state⁽¹⁷⁾ mentioned that 10 of the study sample showed that had mild, 12 had moderate, and 5 had a severe disease

. The results of the study show that the quality of life domains were three levels of effect: higher effect of disease on QOL was in physical domain, level of independence, and environmental domain. While, the effect is moderate in the psychological domain and social domains, low in the spiritual domain. In a study carried out by Chan-Yeung⁽¹⁸⁾, who reported that 90% of individuals in the COPD group thought that the physical capacity was the most important domain indicated that the symptom which has the most profound effect on their quality of life and other research stated that the physical activity allows normal functioning during daily life, both at home and at work. In healthy subjects, the regular physical activity improves health and prognosis. In patients, reduced physical activity is a marker of disease severity, often a poor prognostic marker, and always a key contributor to reduced health status⁽¹⁹⁾ some research shows that things such as positive beliefs, comfort and strength gained from religion, meditation and prayer can contribute to healing and a sense of well-being. Improving your spiritual health may not cure an illness⁽²⁰⁾.

The results of the present study show that there is significant difference between QOL domain and family history of COPD while other clinical variables such as the period of diagnosis, hospitalization, relatives who have COPD, body mass index, severity of disease have no significant difference with QOL for COPD patients.

Conclusions

1. The majority of study sample were males at (50-59) and (60-69) years and most of them were unable to read and write
2. The majority of samples were married and self employed
3. Most of the sample stopped working after disease.
4. The sample was previously smoking and smoked one pack cigarette for 20 years and the majorities were exposed to passive smoking.
5. The majority of study sample did not have sufficient income in spite of living in their own houses.
6. The study indicated a poor quality of life for adult patients with COPD.
7. Finally, the study indicated that is significant differences between (type of smoking, occupation after disease, family history) with total score QOL and no significant association with sex, age, marital status, education level, income.

Recommendations

1. There must be an establishment or open pulmonary rehabilitation center specific on COPD.
2. An educational programs should be designed with the assistance of mass media to orient people about the risk factor of smoking and instruct them about smoking secession and take productive measure for those employed in industrial and areas with chemical agents, vapor, fire, and smoke.
3. Pamphlets and manuals should be described to COPD patients containing information regarding disease, diet, optimal weight, life style change, treatment and sign and symptoms of complication.
4. A further study should be conducted to measure QOL for COPD patients suffering from complication.

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