

## Factors Affecting Quality of Life for Patients with Lung Cancer

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### Abstract

Lung cancer is one of the most common cancer types in the world among men and women. In view of the high-symptoms burden and sever morbidity, evaluation of quality of life (QOL) becomes important for these patients **Aim:** of this study was to assess the factors affecting quality of life for patients with lung cancer. **Methods:** This study was conducted at the outpatient clinics in Eldemerdash oncology center, affiliated to Ain Shams University. **Sample:** A purposive sample of (50) Adult patients, from both sex and free from others chronic diseases were recruited for the conduction of this study. **Tools:** 1- Patient's socio demographic characteristics sheet 2- Patient's clinical data sheet 3-An interview questionnaire sheet to assess patients' knowledge about lung cancer .4- quality of life assessment sheet and 5- patients' functional performance assessment sheet. **Results:** the present study revealed that more than half of the studied patients had moderate quality of life. There were statistically significant relations between the patient's Quality of life and their age, gender and educational level. There was a highly statistically significant relation between physical dimension of Quality of life and functional performance among studied patients **Conclusion:** Significant relation was found between patients QOL and their age, gender, educational level, functional performance &some aspect of present history. **Recommendations** Health education programs about disease and its treatment modalities should be provided for lung cancer patients.

**Key words:** Lung cancer, Quality of life.

diagnosis of lung carcinoma (Silverstri GA, Jett JR .,2013)

### Introduction

Lung cancer is the second most common cancer affecting both men and women in the United States, accounting for an estimated 14% of all new cancer diagnoses. Although it has been linked primarily with smoking and environmental factors, this disease can affect patients regardless of their occupation or lifestyle. Within the general diagnosis of lung cancer, there are several types, each with its own clinical course and prognosis. It is important that healthcare professionals understand these differences as they care for patients with the

Lung cancer is a disease in which cancer cells form in the respiratory system and start to grow uncontrollably. According to the World Health Organization (WHO), there are two main categories of lung cancer: small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC), each with their own pathology. NSCLC accounts for approximately 85% of all lung cancers. SCLC accounts for approximately 10% to 15% of all lung cancers. The two main categories of lung cancer, SCLC and NSCLC, have distinctive pathophysiology, which also affect the available treatment and

management options. A comprehensive understanding of the different lung cancer types, how they present, and how they may be treated is an important step in providing the best possible care for patients (NCI, 2014).

Several risk factors for lung cancer have been associated with lifestyle choices, meaning that the risks can be either managed or avoided in many cases. The most common lifestyle risk factor in the development of lung cancer is smoking. There are several other risks that contribute to the development of lung cancer besides smoking, including involuntary or secondhand smoking, industrial and environmental hazards (Hammond EC, Selikoff IJ, Seidman H., 2010).

Lung cancer rarely gives an early indication of its presence. It may be detected accidentally, when viewing a routine chest x-ray, or it may be suspected by symptoms presented by the patient such Cough, especially one that changes or becomes productive, Unilateral wheezing ,Dyspnea ,Pneumonia ,Chest pain or pain in shoulder and arm, Hemoptysis, Vocal cord paralysis, Atelectasis ,Neurologic changes and Weight loss. (Ettinger, 2012).

Multiple treatment options are available to the lung cancer patient. Traditional methods, such as surgery, chemotherapy, and radiation, continue to be the mainstays, but alternative methods are being increasingly developed and used. Many of the treatment options available to lung cancer patients have extensive side effects, which should be discussed and minimized as much as possible (Crawford J ., 2014).

Quality of life is an individuals' perception of their aims, expectations, interests and ideas, satisfaction and happiness among their cultural and values as a whole. Quality of life is the effect of patients' physical (movement, physical activities and

ability to fulfill work and family responsibilities), social (social activities, being beneficial, body image, anxiety and depression) and psychological (life satisfaction, social support need and role performance) for well-being. Symptoms of disease and therapy are pain, respiration difficulty, nausea, alopecia, impotence and, of course, side-effects of the same (Rodrigues AM., 2012).

As with many other patients affected with solid tumors the quality of life (QoL) of lung cancer patients is affected by several factors related to the patient, disease and treatment characteristics. Such determinants are correlated with the type and stage of disease affecting treatment strategy and different treatment strategies )e.g., surgery, radiotherapy, chemotherapy) determining patient acceptance and side effects (Aaronson NK, Fayers p .,2012).

A diagnosis of cancer can be very difficult both for patients and their carers. This is particularly the case for lung cancer patients as not only do they have a complex pathway of investigations, diagnosis and treatment options, but they are often confronted with poor statistics. The disease itself can also have a devastating impact on the physical, social, psychological, emotional and spiritual dimensions of the patient quality of life ( Temel JS, et al. ,2010).

There are numerous factors affecting quality of life for lung cancer patients that including :culture, age ,educational level, diagnosis itself, clinical stage of the disease and treatment pattern .quality of life often deteriorates further due to treatment related side effects. Early treatment of reduced quality of life could be beneficial for some but probably not all patients. However many factors may not be amenable to nursing intervention (e.g., diagnosis, family illness history, predisposing characteristics ,and medical treatment).In addition ,it is also influenced by factors over which nurses have

some control as symptoms management and nursing intervention(Ballatori et al.,2006).

### **Significance of the study:-**

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The incidence of lung cancer is increasing and mortality rate among the affected patients increases (the american cancer association2014). Although advancements in the diagnosis and treatment of lung cancer have been made in the last few decades, it remains the deadliest cancer in the United States. The numbers of patients newly diagnosed with lung cancer were 100 in the year (2013) (According to Ain shams university hospital statistical department, 2014).Acknowledge of lung cancer and its effects on patients will better prepare healthcare professionals for the realities of the disease process and the necessity for compassionate care and patient teaching (Shell J, Bulson KR, Vanderlugt LF., 2012).

### **Aim of the study:**

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**The present study was conducted to fulfill the following aim:**

Assess the factors affecting quality of life for patients with lung cancer through:

1-Assessment of socio-demographic characteristics.

2-Assessment of patient's knowledge related to the disease.

3-Assessment of patient's functional and health status.

4-Assessment of patient's quality of life.

### **Research Question:**

**This study was conducted for answering the following question:**

- What are the factors affecting the quality of life for patients with lung cancer ?

### **Subjects and methods:**

#### **1- Technical design:**

The technical design includes research design, setting, subjects and tools of data collection used in this study.

#### **(A)-Research design:**

A descriptive exploratory design was followed to achieve the aim of this study.

#### **(B)-setting:**

This study was conducted in oncology center at Ain Shams University Hospital.

#### **(C)-Subject:**

A purposive sample of 50 adult patients from whom admitted in the previous mentioned setting at the time of data collection were recruited in this study.

#### **Inclusion Criteria:**

Adult patients, from both sex, diagnosed with lung cancer ,never had been in educational program about the disease and it's management and free from others chronic diseases will be selected..

#### **(D)-Tools of data Collection:**

It was developed by the researcher based on related literature (DeGroot, 2015; kimura, 2015; Üstündag& Zencirci, 2015; Washington&leaver, 2015 ; American Cancer Society, 2014; cunder, urban& perriot, 2014; linton, 2014; National Cancer iInstitute,2014; Eom, 2013; Talley& o'connor, 2013; Sloan,2012), it was written in simple Arabic language, and filled by the researcher.

The data were collected through using the following tools:

**1. Demographic data sheet:**

It aimed to assess the patient's socio demographic characteristics. Including age, sex, occupation, marital status, level of education, cost of treatment, residence and housing condition.

**2. Clinical data sheet:**

It was used to assess and collect data about patients' history which included present, past and family health history.

**3. Interview questionnaire sheet:**

It consist of yes or no questions used to assess Patient's knowledge regarding the following issues:

1-Lung cancer ,its definition, types , causes ,stages, signs &symptoms, diagnostic procedures and complications of lung (12 questions).

2- Types of cancer treatment, factors contribute to choose the line of treatment and possible complications for each line of treatment (20 questions).

3- How to deal with the complications of cancer treatment (13 questions).

**Scoring system**

The total score of knowledge was 45 grades. Each correct answer was given one grade and the incorrect answer was given zero.

It was considered as follows

- $\geq 60\%$  satisfactory level of knowledge when the total grades were  $\geq 27$  grades.

- $< 60\%$  unsatisfactory level of knowledge when the total grades were  $< 27$  grades.

**4- Quality of life Scale FACT-L :** adapted from (Cella.D,2007) and modified by the researcher :to assess all dimensions of quality of life (physical, psychological, social and spiritual) of patients with lung cancer.

**Physical dimension include (29 items)**

**-Family &social dimension include (10 items)**

**-psychological dimension include (13 items)**

**-functional dimension include (5 items)**

**Scoring system:**

The patients will range according their level of quality of as the following:

0-1----- low quality of life

2-3----- moderate quality of life

4----- High quality of life

And calculated as

**Physical dimension**

0-29 low

>29-87 moderate

>87 high quality of life

**Family &Social dimension**

0-10 low

>10-30 moderate

>30 high quality of life

#### **Psychological & Emotional dimension**

0-13 low

>13-39 moderate

>39 high quality of life

#### **Functional dimension**

0-5 low

>5-15 moderate

>15 high quality of life

**5-. Karnofsky performance scale** (Appendix V): This scale was developed by crooks and waler, 1991 and translated by the researcher to Arabic language and back translation was done.it was designed to measure the functional health status of the patients with lung cancer to carryout physical activities and self-care.

#### **Scoring system:**

This scale was ranged from 0% to 100%. Percentage score were given according to the performance ability to carry out physical activities and self-care .the scale consists of 11 items; distributed on 3 main categories as the following:-

1- ( $\geq 80\%$ -100%) was able to carry out normal activity and to work (3subscals).

2- (50%-70%) was unable to work ;and care for most personal needs ;varying amount of assistance needed ( 3subscals)

3- ( $\leq 40\%$ ) wasUnable to care for self ; requires equivalent of institutional or hospital care; disease may be progressing rapidly (4subscals).

## **2-Operational Design:**

It includes preparatory phase, content validity and reliability, pilot study and field work.

### **A. The preparatory Phase:**

It included reviewing of related literature, and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop data collection tools.

### **B. Content validity and Reliability**

**Testing validity** of the proposed tools by using face and content validity. Face validity aimed at inspecting the items to determine whether the tools measure what supposed to measure. Content validity was conducted to determine whether the tools cover the aim. The stage developed by a jury of 7 experts from different academic categories (professors and assistant professors) of the medical –surgical nursing at the faculty of nursing, Ain Shams University. The expertise reviewed the tools for clarity, relevance, comprehensiveness, simplicity and applicability and minor modification was done.

**Testing reliability** of proposed tools was done statistically by Cronbach alpha test.

### **C. Pilot Study:**

Before performing the actual study, a pilot study carried out for 10 patients (20%) with lung cancer in the oncology center in Ain Shams University hospital to test clarity, applicability of tools used in this study. Some modifications on tools were done based on pilot study. The patients who included in the pilot study were excluded from the main study group.

#### D. Field Work:

The aim of this stage was to assess factors affecting quality of life for lung cancer patients through collecting the data using the study tools after confirming its validity and reliability and explaining the purpose of the study simply to the patients. 50 patients with the previous mentioned criteria were included in the study.

Data collection took about 6 months started from November 2014 until April 2015, The data were collected by the researcher through 2 days /week (Monday, Wednesday), during morning shift from the outpatient department at oncology center, Ain Shams University Hospital, each patient was interviewed individually by the researcher for about 45-60 minutes. First demographic and clinical data sheet were collected from the patient's medical records and from the patients themselves and sometimes from the patient's relatives it took about 10-15 minutes, then the interview questionnaire sheet filled by the researcher from the patients for collecting data regarding patients' knowledge and it took about 20-30 minutes, lastly quality of life and performance status sheets filled by the researcher from the patients it took about 15-20.

#### 3- Administrative Design:

An official letter was issued from the faculty of nursing-Ain Shams University to the medical and nursing director of El-Demerdash hospital and the medical and nursing director of oncology center at El-DEmerdash hospital at which the study was conducted, explaining the purpose of the study and requesting the permission for data collection from the study group.

#### Ethical Considerations:

**The ethical research considerations in this study included the following:**

- The research approval was obtained from the faculty ethical committee before starting the study.
- The researcher clarified the objectives and aim of the study to patients included in the study before starting
- The researcher assured maintaining anonymity and confidentiality of subjects' data of the patients included in the study
- Patients were informed that they were allowed to choose to participate or not in the study and they had the right to withdraw from the study at any time.

#### **Statistical Design:**

All data were collected, tabulated and subjected to statistical analysis. Statistical analysis is performed by SPSS in general (version 17), also microsoft office excel is used for data handling and graphical presentation. Quantitative variables are described by the Mean, Standard Deviation (SD), while qualitative categorical variables are described by proportions and Percentages. Chi-squared test of independence is used for categorical variables. Test of significance was used and regarding significance of the result, the observed differences and associations were considered as follows:

Non significant (NS)  $P > 0.05$

Significant (S)  $P \leq 0.05$

Highly significant (HS)  $P \leq 0.01$

#### **Results:**

Table (1) shows the number and percentage distribution of socio-demographic characteristics among patients included in the study. The mean age of the studied patients was (55.9 ±8.7) and (56.05%) of them were males affected with lung cancer. Also 74.0%

were not working, the majorities (84.0%) of them were married, 38.0% were illiterate and 84.0% of them resident in urban area.

Table (2): show the Number and percentage distribution of the present history among the study patients. more than half (58.0%, 56.0%) of studied patients complaint symptoms up to 12 months and admitted to hospital up to 6 months, the majority (86.0%) of them had NSCLC, half (50.0%) of the study population were at stage two of tumor and all (100%) of the studied patient were receiving chemotherapy. while, none of them had surgical interventions. Also, only 4% of the studied patient had other disease and admitted to hospital for treatment.

Figure (1): shows that, near two third (64%) of the studied patients had unsatisfactory knowledge regarding lung cancer, treatment, how to deal with the side effects of treatment.

Figure (2): shows that, more than half (56.0%) of the studied patients had moderate quality of life. and (44.0%) of the studied patients had low quality of life while, none (0.0%) of them had high quality of life.

Figure (3): Reveals that, more than the half (58.0%) of the studied patients were Unable to work; able to live at home and care for most personal needs; varying amount of assistance needed. while, (14.0%) of the studied patients were Unable to care for self; requires equivalent of institutional or hospital care; disease may be progressing rapidly.

Table (3) reveals that, there were statistically significant relations between the patient's Quality of life and their age, gender and educational level ( $\chi^2=5.79$  at  $P=0.05544$ ,  $\chi^2=3.61$  at  $P=0.0567$  &  $\chi^2=9.66$  at  $P=0.02169$ ) respectively; On the other hand, there were statistically insignificant relations between the patients' quality of life and marital status, profession, income and residence ( $\chi^2=0.16$  at  $P=0.686$ ,  $\chi^2=1.25$  at  $P=0.264$ ,  $\chi^2=2.92$  at  $P=0.08737$  &  $\chi^2=1.40$  at  $P=0.238$ ) respectively.

Table (4) reveals that, there were statistically insignificant relations between the patient's Quality of life and their level of knowledge.

Table (5) reveals that, there were statistically insignificant relations between the patient's Quality of life and their present history. Except regarding time of symptoms started there was almost ( $\chi^2=5.73$  at  $P=0.057058$ ) statistically significant. muscle, backache, tremors and their performance to work was affected (94.7%, 94.7%, 84% & 94.7%) respectively.

Table (6) reveals that, there were highly statistically significant ( $\chi^2=11.89$  at  $P=0.002626$ ) relations between the patient's Quality of life and their level of functional performance. Also there was a highly statistically significant ( $\chi^2=18.29$  at  $P=0.000107$ ) relation between physical dimension of Quality of life and functional performance among studied patients.

**Table (1): Number and percentage distribution of socio-demographic characteristics of the study patients (n=50)**

Items	N	%
<b>Age</b>		
40-49	11	22%
50-59	21	42.0%
60->	18	36.0%
Mean ± SD	55.9 ± 8.7	
<b>Sex</b>		
Male	28	56.05
Female	22	44.05
<b>Work</b>		
Work	13	26.0%
Does not work	37	74.05
<b>Marital Status</b>		
Single	0	0.0%
Married	42	84.0%
Widow / Divorced	8	16.0%
<b>Educational level</b>		
Illiterate	19	38.0%
Reads & writes	8	16.0%
Basic	11	22.0%
Bachelor	12	24.0%
<b>Residence:-</b>		
Urban	42	84.0%
Rural	8	16.0%



**Table (2): Number and percentage distribution of the present history regarding (time of complain, time of hospitalization, tumor type, stage, type of treatment) and past history among the study patients (n=50).**

Present /past history	N	%
<b>When symptoms started</b>		
Up to 6 months	11	22.0%
Up to 12 months	29	58.0%
More than 12 months	10	20.0%
<b>Mean ± SD</b>	<b>10.9 ± 5.4</b>	
<b>When patient admitted to hospital</b>		
Up to 6 months	28	56.0%
Up to 12 months	17	34.0%
More than 12 months	5	10.0%
<b>Mean ± SD</b>	<b>6.6 ± 5.1</b>	
<b>Type of tumor</b>		
Non-small cell lung cancer( Nscle)	43	86.0%
Small cell lung cancer ( Scle)	7	14.0%
Other	0	0.0%
<b>Stage of disease</b>		
• 1	0	0.0%
• 2	10	32.0%
• 3	25	50.0%
• 4	9	18.0%
<b>Type of treatment</b>		
• Chemotherapy	50	100.0%
• radiation therapy	14	28.0%
• surgery	0	0.0%
<b>Number of patients having other disease</b>	2	4.0%
<b>Hospitalization related to other disease</b>	2	4.0%
<b>Surgery</b>	1	2.0%
<b>Taking medications for any other reason</b>	1	2.0%

Figure (1): Percentage distribution of total patients' level of knowledge regarding lung cancer, treatment, how to deal with the side effects of treatment (n=50).

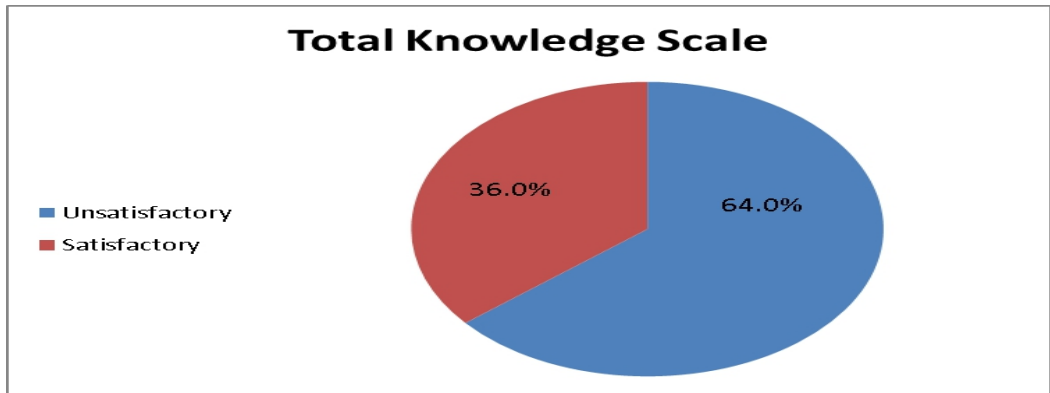


Figure (2): levels of total QOL among studied patients. (N=50).

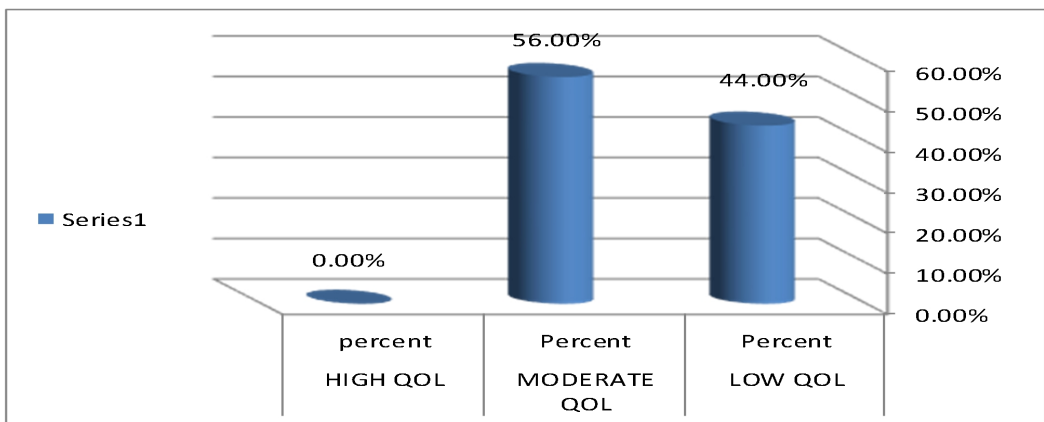


Figure (3): levels of functional performance among studied patients. (N=50)

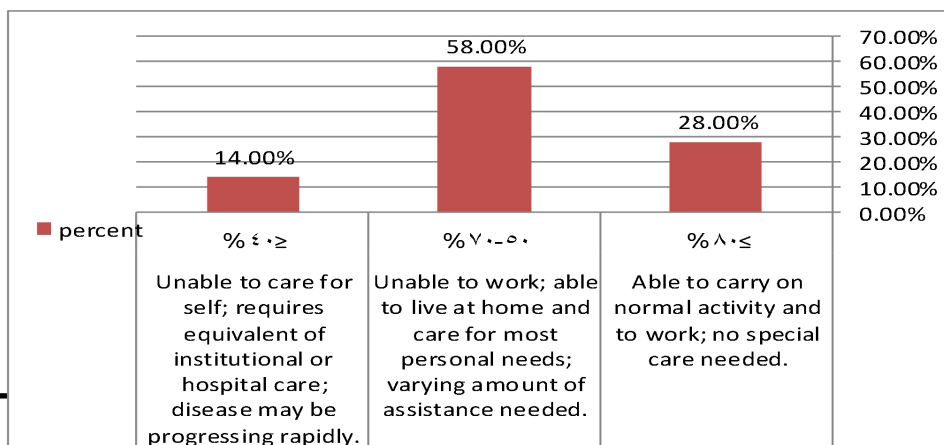


Table (3): Relation between total patients` quality of life and socio-demographic characteristics among the study patients (n=50).

Socio demographic characteristics	LOW		Total QOL MODERATE		chi-square	
	N	%	N	%	X2	P-value
<b>Age</b>						
40 to 49 Years	7	14.0%	4	8.0%	5.79	0.05544
50 to 59 Years	11	22.0%	10	20.0%		
60 Years or more	4	8.0%	14	28.0%		
<b>Gender</b>						
Male	9	18.0%	19	38.0%	3.61	0.0567
Female	13	26.0%	9	18.0%		
<b>Profession</b>						
Work	4	8.0%	9	18.0%	1.25	0.264
Not work	18	36.0%	19	38.0%		
<b>Marital status:</b>						
Single/divorced	3	6.0%	5	10.0%	0.16	0.686
Married	19	38.0%	23	46.0%		
<b>Educational level:</b>						
Illiterate	12	24.0%	7	14.0%	9.66	0.02169
Read & Write	3	6.0%	5	10.0%		
Basic	6	12.0%	5	10.0%		
Bachelor	1	2.0%	11	22.0%		
<b>Income:</b>						
Sufficient	2	4.0%	8	16.0%	2.92	0.08737
Insufficient	20	40.0%	20	40.0%		
<b>Residence:</b>						
Urban	20	40.0%	22	44.0%	1.40	0.238
Rural	2	4.0%	6	12.0%		

> 0.05 insignificant

\*≤ 0.05 significant

\*\*≤ 0.01 highly significant

**Table (4): Relation between total patients` quality of life and level of knowledge among the study patients (n=50).**

Quality of life dimensions	Satisfactory		Knowledge Unsatisfactory		chi-square	
	N	%	N	%	X <sup>2</sup>	P-value
<b>Physical dimension</b>						
Low	5	10.0%	10	20.0%	0.49	0.486
Moderate	13	26.0%	22	44.0%		
<b>Family &amp;social dimension</b>						
Low	2	4.0%	4	8.0%	0.02	0.885
Moderate	16	32.0%	28	56.0%		
<b>Psychological dimension</b>						
Low	5	10.0%	10	20.0%	0.07	0.797
Moderate	13	26.0%	22	44.0%		
<b>Functional dimension</b>						
Low	11	22.0%	15	30.0%	0.94	0.333
Moderate	7	14.0%	17	34.0%		
<b>Total quality of life</b>						
Low	7	14.0%	15	30.0%	0.55	0.585
Moderate	11	22.0%	17	34.0%		

> 0.05 insignificant

\*≤ 0.05 significant

\*\*≤ 0.01 highly significant

**Table (5): Relation between total patients` quality of life and present history among the study patients (n=50).**

Present history`	LOW		Total QOL MODERATE		chi-square	
	N	%	N	%	X <sup>2</sup>	P-value
<b>When symptoms started</b>						
Up to 6 months	2	4.0%	9	18.0%	5.73	0.057058
Up to 12 months	13	26.0%	16	32.0%		
More than 12 months	7	14.0%	3	6.0%		
<b>When patient admitted to hospital</b>						
Up to 6 months	9	18.0%	19	38.0%	3.63	0.163
Up to 12 months	10	20.0%	7	14.0%		
More than 12 months	3	6.0%2	2	4.0%		
<b>Tumor type</b>						
NSCLC	19	38.0%	24	48.0%	0.00	0.948
SCLC	3	6.0%	4	8.0%		
<b>Cancer stage</b>						
Second	5	10.0%	11	22.0%	0.00	0.948
Third	14	56.0%	11	22.0%		
Fourth	3	6.0%	6	12.0%		
<b>Type of treatment</b>						
Chemotherapy	14	28.0%	22	44.0%	1.36	0.197438
Chemo+radiotherapy	8	16.0%	6	12.0%		

> 0.05 insignificant

\*≤ 0.05 significant

\*\*≤ 0.01 highly significant

**Table (6): Relation between total patients` quality of life and functional performance among the study patients (n=50).**

Quality of life dimensions	Functional performance						chi-square	
	Able		Partially able		Unable		X <sup>2</sup>	P-value
	N	%	N	%	N	%		
<b>Physical dimension</b>								
Low	3	6.0%	23	46.0%	7	14.0%	<b>18.29</b>	<b>0.000107</b>
Moderate	11	22.0%	6	12.0%	0	0.0%		
<b>Family &amp;social dimension</b>								
Low	2	4.0%	2	4.0%	2	4.0%	<b>2.61</b>	<b>0.271869</b>
Moderate	12	24.0%	27	54.0%	5	10.0%		
<b>Psychological dimension</b>								
Low	2	4.0%	9	18.0%	4	8.0%	<b>4.12</b>	<b>0.127657</b>
Moderate	12	24.0%	20	40.0%	3	6.0%		
<b>Functional dimension</b>								
Low	5	10.0%	14	28.0%	7	14.0%	<b>8.11</b>	<b>0.017333</b>
Moderate	9	18.0%	15	30.0%	0	0.0%		
<b>Total quality of life</b>								
Low	3	6.0%	12	24.0%	7	14.0%	<b>11.89</b>	<b>0.002626</b>
Moderate	11	22.0%	17	34.0%	0	0.0%		

> 0.05 insignificant

\*≤ 0.05 significant

\*\*≤ 0.01 highly significant

**Discussion:**

Lung cancer is a common malignancy leading to high morbidity and considerable mortality .when a person is diagnosed with it, he/she is faced with the shocking experience of the diagnosis, the burden of a painful, lasting and potential life threatening treatment, and many social problems and financial concerns that had its impact on patient's quality of life. So that, there is a need to assess and evaluate these factors to ensure the best possible quality of life for those patients (**Jhon, Kawachi, Lathan & Ayanian, 2014**).

Regarding the studied patient's socio-demographic characteristics, the results of the present study revealed that all of the studied patients' ages were above forty years old and about half of them were males affected with lung cancer. This is supported by The **American Cancer Society (2014)** who stated that; lung cancer occurs more often in patients between the ages of 40 and 65, and more common in males than females. That

may be because male patients were at greater risk in their work environment and most of them are active smokers.

Related to marital status and work of the studied patients, the majority of them were married and not working some of them because they are in a retirement age or their health condition forced them to stop working or delegated their responsibilities. This finding is in the same line with what was reported by **Sloan, et al.(2012)** who found that ,the majority of the studied patients with lung cancer were married, more than half of them didn't work.

Concerning to educational level among studied patients about one third of them were illiterate that may be related to their social class as most of them from low social class. This finding isn't in consistent with **Üstündag, S., & Zencirci, A. D. (2015)** who stated that only ten percent of study patients with cancer were illiterate.

Regarding present and past history of the studied patients, the results of the current

study indicated that, the majority of studied patients complaint symptoms up to 12 months and admitted to hospital up to 6 months. There is long time interval between times of starting complains and time of hospitalization that may be because unawareness of public about lung cancer symptoms that leads to delay seeking of medical advice. This finding was supported by **Hansen, Vedsted, Sokolowski, Søndergaard, & Olesen (2011)** who stated that time interval or delay from first cancer symptom to diagnosis and treatment, was 98 days. Most of the total delay stemmed from patient (median 21 days) and system delay (median 55 days).

Related to type of tumor, cancer stage and type of treatment the current study showed that the majority of the studied patients had NSCLC and they were at stage there lung cancer and all of them under going chemo therapy while none of them had surgical interventions .this findings supported by by **Provencio, Isla, Sánchez, & Cantos (2011)** who stated that Non-small cell lung cancer accounts for the majority of all new cases diagnosed. Most patients are diagnosed with a non-resectable disease; and near half in advanced stages.

Concerning patients` level of total knowledge regarding disease, treatment and how to deal with the side effects of treatment, the current study revealed that near two thirds of the studied patients had unsatisfactory total level of knowledge. This may be due to low educational level of the majority of studied patients, may be due to lack of continuous educational programs for awareness of the patient.

This finding is consistent with **Aziz (2011)** who found that, unsatisfactory level of total knowledge of the studied patients regarding disease and its management and there were highly statistically significant differences in patient's level of knowledge pre/ post one month and post six months

from the educational intervention about cancer in relation to all items (definition & causes of cancer, treatment of cancer, definition and purpose of chemotherapy, side effects, care to overcome these side effects, and relaxation techniques to reduce the side effects).

Also, this finding is contradicted with **Adenipekun et al. (2012)** who found that, the majority of the studied patients have reasonable level of knowledge about possible side effects of chemotherapy, coping with side effects of chemotherapy, and satisfying with the care provided.

Concerning physical domain of quality of life, the most prominent physical factors had negative effect on quality of life of physical dimension among the studied patients were lack of energy, chest pain, cough, dyspnea and fatigue. While, less effective physical factors on quality of life of physical dimension among the studied patients were hemoptysis, gum/mouth ulcer, sleep disturbance, itching and skin irritation respectively. This finding is consistent with **Harding (2014) & Liles, et al. (2008)**, who stated that chemotherapy or radiotherapy can all cause breathing problems such as breathlessness, dyspnea, etc. Also, this finding is consistence with **Green, Hart-Johnson & Loeffler (2011)** who stated that Cancer-related pain is common and reduces quality of life and is associated with depression and poor functioning.

Concerning social and family dimension of quality of life, the current study revealed that, the important social & family factors lead to high quality of life among the studied patients were good relationship with friends , support from friends , support from family, family acceptance to disease, satisfaction about communication with family about disease and closeness to people around them .While , social and family

factors concerning with low quality of life of social and family dimension was treatment cost as burden on patient's family .This findings are in the same contrast with **Siegel et al. (2012)** who stated that relationships with family and friends, including intimacy and sexuality, employment, insurance, and financial concerns also affect social well-being.

On the other hand, **Abrahamson, Durham & Fox (2010)**, stated that, cancer patients had social isolation, feeling that they cause a burden, hopelessness, conflict in decision making and leisure activity deficits, because of inadequate social care for those patients.

Concerning psychological and emotional dimension of quality of life, the current study revealed that, the important psychological and emotional factors lead to high quality of life among the studied patients were hope in fight against disease, unworried about death ,ability to enjoy life and ability to accept disease, while , emotional &psychological factors that lead to low quality of life of emotional &psychological dimension was un satisfaction of patients coping with disease respectively. These findings consistence with **Siegel, et al. (2012)** who state that Emotional, or psychological, well-being refers to the ability to maintain control over anxiety, depression, fear of cancer recurrence, memory loss, and concentration difficulties.

Concerning functional dimension of quality of life, the current study revealed that, the important functional factors lead to moderate quality of life among the studied patients were patients content with their quality of life at that point of time. While, functional factors that affect quality of life of functional dimension negatively were feel hardness while carrying out work, inability to enjoying things they usually do for fun and inability to carry out assigned work including home based work.

Concerning functional performance of the studied patients the current study revealed that, more than the half of the studied patients were unable to work; able to live at home and care for most personal needs; varying amount

of assistance needed .while, the minority of the studied patients were unable to care for self; requires equivalent of institutional or hospital care; disease may be progressing rapidly. that contribute most patients to leave their jobs and become dependent on their family to fulfill their needs These findings consistence with **Adler & Page (2008)**, who stated that, physical and psychological impairments can lead to substantial social problems, such as the inability to work or fulfill other normative social roles.

Concerning the relation between total patients' quality of life and socio-demographic characteristics, this study revealed that, there were statistically significant relations between the patients' educational level and their quality of life, there was an almost statistically significant relation between the patients' quality of life and age, gender. In contrast, **Üstündag& Zencirci (2015)** found that, Education did not affect the quality of life of the patients. While, **Lis, et al. (2006)** and **Yıldız , et al.(2013)**reported the same results. **Knight, et al.(2007)** found that lower education levels in urinary cancer patients had worse physical, social and role functions and experienced more side-effects.

Concerning the relation between total patients' quality of life and total level of patients' knowledge, this study revealed that, there were statistically insignificant relations between the patients' quality of life and their level of knowledge. This may because most of studied patient had unsatisfactory level of knowledge that affects their quality of life negatively. In this finding, **Husson , Mols & Van de Poll-Franse, (2011)**who stated that, Satisfied patients, with fulfilled information needs, and patients who experience less information barriers, in general have a better HRQoL and less anxiety and depression. Out of eight intervention studies that aimed to improve information provision, only one showed a positive association with better HRQoL.

Regarding relation between total patients' quality of life and present history among studied patients, this study revealed that, there were statistically insignificant relations between the patients' quality of life and their

present history except time of complain started. This may because most of studied patient seek medical advice in relatively advanced disease stage, that affect their quality of life negatively. In this finding, **Belani, et al. (2012)** stated that, Quality of life during maintenance therapy with pemetrexed is similar to placebo, except for a small increase in loss of appetite, and significantly delayed worsening of pain. & **Koo, et al. (2011)** who stated that there were no significant differences or worsening of symptoms between any of the other items after receiving radiotherapy.

Regarding relation between total patients quality of life and functional performance of studied patients, the result of the present study reveals that, there were highly statistically significant relations between the patient's quality of life and their level of functional performance. Also, there was a highly statistically significant relation between physical dimension of Quality of life and functional performance among studied patients. This finding in the same context with **Sloan, et al. (2012)** who stated that Patients who reported a clinically significant deficit in QOL tended to be have worse performance status.

In summary, many factors affect quality of life positively or negatively. Tiredness, anxiety, concern for the future and the family, difficulties to meet basic demands and body image change worsen the quality of life of cancer patients. Social support, economic security and faith in recovery improve the quality of life.

### **Conclusion:**

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**Based on findings of the present study, it can be concluded that:**

- More than half of the studied patients had moderate total QOL and the rest had low total QOL. Also, near two thirds of the studied patients had unsatisfactory total level of knowledge. There were statistically significant relations between the patient's Quality of life and their age, gender and educational level. In addition more than half of the studied patients

were Unable to work; there was a highly statistically significant relation between physical dimension of Quality of life and functional performance among studied patients.

### **Recommendations:**

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**Based on the results of the current research, the following suggestions for future research and practice are proposed:**

1. Health education programs about disease and its treatment modalities should be provided for lung cancer patients.

2. Supportive care services are directed towards meeting bio-psychosocial needs should be provided.

3. Psycho-oncology clinics to meet the lung cancer patients' needs and improve the quality of life of those patients should be provided.

4. Further studies about the effect of self-care guide lines based on bio-psychosocial needs on the patients' quality of life and patients outcomes.

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