

# Compliance of Lung Cancer Patients undergoing Chemotherapy with Nursing Instructions at Alshafa Center for Tumors in AL Amara City

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**Abstract-** Background: Lung Cancer, like all other cancers, results from an acquired abnormality in the body's basic unit of life, the cell. Normally, the body maintains a system of control mechanisms for cell growth, so that cells divide to produce new cells only when new cells are needed. Disruption of this control system results in an uncontrolled division and proliferation of cells that eventually forms a mass known as a tumor.

**Methodology:** descriptive quantitative design is carried out at, AL-Shafa Center for Tumors in AL- Amara City. from 23<sup>th</sup> February to August 14<sup>th</sup> 2016. In order To assess compliance of lung cancer patients chemotherapy with nursing instructions and to find out relationship between the compliance of lung cancer patients with nursing instructions and demographic characteristic including (age, gender, marital status, occupational status, residency, and level of education. A non-probability (purposive) sample of (60) patients with lung cancer, who were patients undergoing chemotherapy in AL-Shafa Center for Tumors. The data were collected through the utilization of the constructed questionnaire depending on literature review and previous study, which consists of three parts [1] demographic characteristics sheet, consisted of (6) items, [2] medical history which comprised of (11) items, and [3]nursing instructions, which comprised of (13) items, by means of direct interview technique with lung cancer patients. The data collection process has been performed from 11th May, 2016 to the July 3rd, 2016. Reliability of the questionnaire is determined through a pilot study and the validity through a panel of (12) experts. The data are described statically and analyzed through use of the descriptive and inferential statistical analysis procedures.

**Results:** Indicate that the compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions is low. The residency, occupational status, level of education, have a high significant with compliance of lung cancer patients undergoing chemotherapy with nursing instructions, while the age have a significant with compliance, and marital statuses no significant association with compliance of lung cancer patients undergoing chemotherapy with nursing instructions.

**Conclusion:** The lung cancer most common occurs among persons in urban residential area than those in rural, males more than females, The study indicates that noncompliance of lung cancer patients undergoing chemotherapy with nursing instructions most common in low level of education.

**Recommendation:** Necessary to do health programs about importance nursing instructions to limited complication of chemotherapy. Increase the level of awareness for lung cancer

patients and their families about the nature and chemotherapy and how to minimize their side effects caused by the drugs.

**Index Terms-** Lung Cancer, Chemotherapy, and Nursing Instructions

## I. INTRODUCTION

Lungs are two sponge-like organs in your chest. Your right lung has 3 sections, called lobes. Your left lung has two lobes. The left lung is smaller because the heart takes up more room on that side of the body. When you breathe in, air enters through your mouth or nose and goes into your lungs through the trachea (windpipe). The trachea divides into tubes called bronchi (singular, bronchus), which enter the lungs and divide into smaller bronchi. These divide to form smaller branches called bronchioles. At the end of the bronchioles are tiny air sacs known as alveoli. The alveoli absorb oxygen from the inhaled air into your blood and remove carbon dioxide from the blood <sup>(1)</sup>. Cancer (ca) is a major public health problem in the United States and many other parts of the world. Currently one in four deaths in United States is due to cancer. And it is the second most common cause of death, accounting for 26% of all deaths <sup>(2)</sup>. Cancer begins in cells, the building blocks that make up all tissues and organs of the body, including the lungs. Normal cells in the lungs and other parts of the body grow and divide to form new cells as they are needed. When normal cells grow old or get damaged, they die, and new cells take their place. Sometimes, this process goes wrong. New cells form when the body doesn't need them, and old or damaged cells don't die as they should. The buildup of extra cells often forms a mass of tissue called a growth or tumor <sup>(3)</sup>. Cancer causes death, which can invade adjoining parts of the body and spread to other organs. This process is referred to as metastasis. Metastasis are the major cause of death from cancer, leading it to worldwide death, accounting for 8.2 million in 2012 <sup>(4)</sup>. Tumor can be benign (not cancer) or malignant (cancer). Benign tumor does not spread to other parts of the body. However, a malignant tumor is made up of cancer cells, which are able to spread. The cancer that first develops in a tissue or organ is called the primary cancer. Cancer cells can spread to other parts of the body by travelling through the bloodstream or the lymphatic system. They may continue to grow into another tumor at this new site. This is called a secondary cancer or metastasis <sup>(5)</sup>. Lung cancer is one of the most common cancers

we have and a large number of people die of this disease every year. The disease is often discovered in a late stage, but also in earlier stages lung cancer patients have worse outcome than patients with other cancers. Even without spreading to other organs, during stage I, the survival rate of lung cancer is under 70%. In comparison, for example, breast cancer there is 95% survival in stage I<sup>(6)</sup>. Lung cancer is the most common cause of cancer mortality for both men and women, causing approximately 1.2 million deaths per year worldwide<sup>(7)</sup>.

## II. METHODOLOGY

### Objectives of the study

1. To assess compliance of lung cancer patients chemotherapy with nursing instructions.
2. To find out relationship between the compliance of lung cancer patients with nursing instructions and demographic characteristic including (age, gender, marital status, occupational status, residency, and level of education).

**Study Design:** A descriptive quantitative design, to assess the compliance of lung cancer patient's chemotherapy with nursing instructions and find out relationship between the compliance of lung cancer patients with nursing instructions and demographic characteristics, was carried out through the present study in order to achieve the early stated objectives. The period of the study was from February 23<sup>th</sup> to August 14<sup>th</sup> 2016.

**Setting of the study:** The study was conducted at Maysan Health Directorate / AL-shafa Center for Tumors in AL- Amara City.

**Sample of the study:** A non-probability (purposive) sample of (60) patients with lung cancer, those who were visits

AL-Shafa center, for treatment and checking health status as a follow – up, were included in the study sample.

**Study instrument:** The measurement was constructed for the purpose of study. It consist the following:

**Part I: Demographic Characteristics:** A demographic characteristics sheet, consisted of (6) items, which included gender, age, marital status, level of education, residency and occupational status.

**Part II: Medical History:** The second part of the questionnaire was comprised of (11) items.

**Part III: Nursing Instructions:** The Third part of the questionnaire was comprised of (13) items.

All items measured on three point likert scales was used for rating the items as always, sometimes, and never. The three point type likert scale were scored as (3) for always, (2) for sometimes, and (1) for never in all items.

**Validity and Reliability:** The validity of an instrument concerns its ability to gather the data. Content validity for the early developed instrument was determined through the use of panel of experts who have more than (5 years) of experience at their jobs field to investigate clarity, relevancy, and adequacy of the questionnaire to measure the concept of interest. The reliability of the items were based on the internal consistency of the questionnaire was assessed by calculating Cronbach s' Alpha which as= 0.90.

### Statistical analysis:

The statistical data analysis approach by using (SPSS-ver.20) is used in order to analyze the data of the study. A descriptive statistical data analysis approach used to describe the study variables: Frequencies , percentages and standard deviation; and Inferential statistical data analysis approach: used by application of the T-test, Levine's test, and ANOVA

## III. RESULTS

**Table (1): Distribution of the Lung Cancer Patients Undergoing Chemotherapy by Their Demographic Characteristics in Al-Amara City**

Variables	Groups	Frequency	Percent
Age (years)	45-49	3	5.0
	50-54	8	13.3
	55-59	13	21.7
	60-64	11	18.3
	65-69	14	23.3
	70-74	11	18.3
	Total	60	100.0
Gender	Male	35	58.3
	Female	25	41.7
	Total	60	100.0
Marital status	Single	2	3.3
	Married	39	65.0
	Divorced	2	3.3
	Widow	17	28.3

	<b>Total</b>	<b>60</b>	<b>100.0</b>
<b>Level of Education</b>	<b>Illiterate</b>	<b>15</b>	<b>25.0</b>
	<b>Read &amp; write</b>	<b>9</b>	<b>15.0</b>
	<b>Primary school graduate</b>	<b>6</b>	<b>10.0</b>
	<b>Intermediate school graduate</b>	<b>13</b>	<b>21.7</b>
	<b>Secondary school graduate</b>	<b>7</b>	<b>11.7</b>
	<b>institute &amp; college</b>	<b>10</b>	<b>16.7</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>
<b>Residency</b>	<b>Urban</b>	<b>39</b>	<b>65.0</b>
	<b>Rural</b>	<b>21</b>	<b>35.0</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>
<b>Occupational Status</b>	<b>Government employee</b>	<b>14</b>	<b>23.3</b>
	<b>Free business</b>	<b>16</b>	<b>26.7</b>
	<b>Retired</b>	<b>10</b>	<b>16.7</b>
	<b>Housewife</b>	<b>11</b>	<b>18.3</b>
	<b>Unemployed</b>	<b>9</b>	<b>15.0</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>

Results revealed that the majority 14(23.3%) of patients in the study sample are within the age group (65 – 69 years) while 35(58.3%) of patients in the study sample were male. In relation to the marital status the majority were married 39(65%). Concerning to the level of educational most of patients in the

study sample were illiterate 15(25%). Regarding to subject of residency represented the majority of patients who living in urban were 39(65%). Concerning occupational status in the study sample were free business 16(26.7%).

**Table (2): Distribution of the Lung Cancer patients Undergoing Chemotherapy According to Their Health History for the Study Sample**

<b>Variables</b>		<b>Groups</b>	<b>Freq.</b>	<b>Percent</b>
<b>Information's about Chemotherapy and side effects</b>	<b>Have you Informations about Chemotherapy and side effects?</b>	<b>Yes</b>	<b>37</b>	<b>61.7</b>
		<b>No</b>	<b>23</b>	<b>38.3</b>
		<b>Total</b>	<b>60</b>	<b>100.0</b>
	<b>Information's Sources</b>	<b>Medical Staff</b>	<b>20</b>	<b>33.3</b>
		<b>Books &amp; Journals</b>	<b>0</b>	<b>0.0</b>
		<b>TV devices</b>	<b>0</b>	<b>0.0</b>
		<b>Family and Friends</b>	<b>29</b>	<b>48.3</b>
<b>Chronic Diseases</b>	<b>Suffering from Chronic Diseases?</b>	<b>Yes</b>	<b>60</b>	<b>100.0</b>
		<b>No</b>	<b>0</b>	<b>0.0</b>
		<b>Total</b>	<b>60</b>	<b>100.0</b>
	<b>Name of Disease</b>	<b>Hypertension</b>	<b>34</b>	<b>56.7</b>
		<b>Diabetes Mellitus</b>	<b>19</b>	<b>31.7</b>
		<b>Cardiovascular Diseases</b>	<b>29</b>	<b>48.3</b>
		<b>Rheumatoid Arthritis</b>	<b>5</b>	<b>8.3</b>

	<b>COPD</b>	<b>45</b>	<b>75.0</b>
<b>Family Cancer</b>	<b>Yes</b>	<b>31</b>	<b>51.7</b>
	<b>No</b>	<b>29</b>	<b>48.3</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>
<b>Smoking</b>	<b>Yes</b>	<b>46</b>	<b>76.7</b>
	<b>No</b>	<b>14</b>	<b>23.3</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>
<b>Number of Cigarettes</b>	<b>(1-19)cigarette</b>	<b>8</b>	<b>13.3</b>
	<b>(20-39)cigarette</b>	<b>6</b>	<b>50.0</b>
	<b>(40-59) cigarette</b>	<b>30</b>	<b>50.0</b>
	<b>(60-79)cigarette</b>	<b>2</b>	<b>3.3</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>
<b>Date of diagnosis</b>	<b>2 Months</b>	<b>8</b>	<b>13.3</b>
	<b>3 Months</b>	<b>20</b>	<b>33.3</b>
	<b>4 Months</b>	<b>21</b>	<b>35.0</b>
	<b>5 Months</b>	<b>6</b>	<b>10.0</b>
	<b>6 Months and above</b>	<b>5</b>	<b>8.3</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>
<b>Location of Diagnosis</b>	<b>Right Side</b>	<b>22</b>	<b>36.7</b>
	<b>Left Side</b>	<b>11</b>	<b>18.3</b>
	<b>Both Sides</b>	<b>27</b>	<b>45.0</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>
<b>Stages of Tumor that Diagnosed</b>	<b>Stage-1</b>	<b>2</b>	<b>3.3</b>
	<b>Stage-2</b>	<b>13</b>	<b>21.7</b>
	<b>Stage-3</b>	<b>9</b>	<b>15.0</b>
	<b>Stage-4</b>	<b>25</b>	<b>41.7</b>
	<b>Stage-5</b>	<b>11</b>	<b>18.3</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>
<b>Type of treatment after the diagnosis directly</b>	<b>Surgical Intervention</b>	<b>12</b>	<b>20.0</b>
	<b>Radiation Therapy</b>	<b>11</b>	<b>18.3</b>
	<b>Chemotherapy</b>	<b>37</b>	<b>61.7</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>
<b>Sequence of Session now</b>	<b>2 Sessions</b>	<b>18</b>	<b>30.0</b>
	<b>3 Sessions</b>	<b>25</b>	<b>41.7</b>
	<b>4 Sessions</b>	<b>11</b>	<b>18.3</b>
	<b>5 Sessions</b>	<b>6</b>	<b>10.0</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>
<b>Course of Sessions</b>	<b>Fourth Session</b>	<b>1</b>	<b>1.7</b>
	<b>Sixth Session</b>	<b>29</b>	<b>48.3</b>
	<b>Eighth Session</b>	<b>30</b>	<b>50.0</b>
	<b>Total</b>	<b>60</b>	<b>100.0</b>

<b>Route of Administration</b>	<b>Intravenous</b>	<b>60</b>	<b>100.0</b>
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**Freq.=frequencies, COPD= Chronic Obstructive Pulmonary Disease**

The results of this table show that the majority of patients who have informations about chemotherapy and side effects were 37(61.7%) to the study sample and were information's sources from family and friend 29(48.3%). The above table also shows that the all participants in the study sample were suffering from chronic diseases and the majority of patients have COPD 45 (75.0%) Also the table revealed that the majority 31(51.7%) of patients in the study sample have family cancer. While 46(76.7%) of patients in the study sample were smoking and majority of them consume number of cigarettes were (40 cigarette) per day 30(50%). In relation to the date of diagnosis the majority were 4 months 21(35%). Concerning to the location

of diagnosis most of patients in the study sample were in both side 27(45%). Regarding to subject of stages of tumor that diagnosed represented the majority of patients in stage-4 were 25(41.7%). Also in regarding to the subjects type of treatment after the diagnosis directly, the results show that more than half of them were undergoing chemotherapy 37(61.7%). In addition, majority of sequence of session them have (3 sessions) of chemotherapy 22(36.7%). In regarding to the subjects course of sessions, the majority of the study sample were (8 sessions) choose to the treatment 30(50%). Finally, in the above table the results show that route of administration of the all participants in the study sample were use the intravenous 60(100%).

**Table (3) : Compliance of Lung Cancer Patients Undergoing Chemotherapy With the Nursing Instructions**

No.	Items	M. S.	S. D.	Ass.
<b>A</b>	<b>Anemia</b>			
1	Get plenty of rest and try to sleep at least eight hours a night in addition to the (1-2 ) during the day	1.87	0.343	<b>M</b>
2	Limit your daily activity and do more importance to activities	1.53	0.536	<b>L</b>
3	Promoting slowly if the patient got up quickly once feel dizzy	1.00	0.000	<b>L</b>
4	Choose a diet that contains all the calories and protein needed by the body	1.03	0.181	<b>L</b>
<b>B</b>	<b>Bleeding</b>			
1	Use a soft brush to the teeth by washed with hot water before brushing	1.68	0.567	<b>M</b>
2	Gently cleans your nose	2.08	0.381	<b>M</b>
3	Use an electric shaver instead of a razor	1.52	0.624	<b>L</b>
4	Wearing shoes all the time, even within the home or the hospital	1.45	1.455	<b>L</b>
5	Avoid the use of floss in teeth cleaning or toothpicks	2.72	0.613	<b>H</b>
6	Avoid the use of enemas , suppositories or rectal thermometer	1.88	0.490	<b>M</b>
<b>C</b>	<b>Infections</b>			
1	Wash hands with soap and water before eating and cooking and after using the bathroom and clean the nose	2.77	0.500	<b>H</b>
2	Use sterilization wipes to clean surfaces and materials composition in contact	1.08	0.279	<b>L</b>
3	Stay away from people with colds , measles or chickenpox	1.20	0.403	<b>L</b>
4	Stay away from crowded places	1.47	0.536	<b>L</b>
5	Cooking well of the meat before eating	2.57	0.789	<b>H</b>
<b>D</b>	<b>Diarrhea</b>			
1	Dealing with five or six small meals and light a day instead of three large meals	1.97	0.367	<b>M</b>
2	Drink 8-12 glasses of fluid every day . These include ginger broth and drenched ... etc.	1.58	0.530	<b>L</b>
3	Dealing with low- fiber foods (such as bananas , toasted white bread , rice	1.08	0.279	<b>L</b>
4	Clean yourself after defecation gently using toilet paper or towels or squirt water spray	2.95	0.220	<b>H</b>

<b>5</b>	Drink beverages too hot or too cold	1.37	0.551	<b>L</b>
<b>E</b>	<b>Nausea and vomiting</b>			
<b>1</b>	Stay away from foods and beverages and powerful scents	1.38	0.490	<b>L</b>
<b>2</b>	Deals with small and light meals instead of large meals a day	1.90	0.399	<b>M</b>
<b>3</b>	Relax before the start of drug and take deep breathing	1.03	0.181	<b>L</b>
<b>4</b>	Avoid the spicy foods and fats	2.18	0.748	<b>M</b>
<b>F</b>	<b>Constipation</b>			
<b>1</b>	Drink at least eight glasses of water and other fluids every day	1.52	0.504	<b>L</b>
<b>2</b>	Dealing with foods rich in fiber like about ( vegetables , fresh fruit )	1.92	0.381	<b>M</b>
<b>3</b>	Trying to be active 15-30 minutes walking and some exercises that fit with the medical condition	1.10	0.303	<b>L</b>
<b>G</b>	<b>Anorexia</b>			
<b>1</b>	Eat 5 to 6 small& light meals a day instead of three large meals and food	1.88	0.324	<b>M</b>
<b>2</b>	Deals with drinks , juices , soups if they do not want to eat solid foods	1.92	0.279	<b>M</b>
<b>3</b>	Using plastic forks and spoons . Some types of chemotherapy give metallic taste	1.00	0.000	<b>L</b>
<b>4</b>	Change your routine and that means eating in a different place , such as the dining room instead of the kitchen	1.03	0.181	<b>L</b>
<b>H</b>	<b>Ulceration of the mouth &amp; pharynx</b>			
<b>1</b>	Examine the mouth and tongue and watch changes such as ulcers or white spots	1.47	0.503	<b>L</b>
<b>2</b>	Maintain on moisture in the mouth and let it dry	1.30	0.497	<b>L</b>
<b>3</b>	Cleaning the mouth , teeth, gums and tongue	1.97	0.450	<b>M</b>
<b>4</b>	Using a soft toothbrush in cleaning teeth	1.73	0.607	<b>M</b>
<b>5</b>	Avoid use mouthwash that contains alcohol	1.02	0.129	<b>L</b>
<b>I</b>	<b>Alopecia</b>			
<b>1</b>	planning to buy a wig before you buy hair loss	1.03	0.181	<b>L</b>
<b>2</b>	cut your hair short you will feel more control over hair loss	1.07	0.252	<b>L</b>
<b>3</b>	wash your hair gently and not to dry them in a way rubbing	2.80	0.443	<b>H</b>
<b>4</b>	wear a hat or scarf to protect against the scalp from the cold	2.68	0.537	<b>H</b>
<b>J</b>	<b>Skin and nail changes</b>			
<b>1</b>	Dry your body after bathing	2.95	0.220	<b>H</b>
<b>2</b>	Use a soap and mild moisturizer	2.87	0.343	<b>H</b>
<b>3</b>	Put the cream on your skin to become wet after washing	1.07	0.312	<b>L</b>
<b>4</b>	Avoid exposure to sunlight directly	1.70	0.561	<b>M</b>
<b>5</b>	Wears gloves when washing dishes and working in the garden or cleaning the house	1.18	0.431	<b>L</b>
<b>K</b>	<b>Nervous system changes(Tingling, Numbness, Weakness and Chills in the hands and feet</b>			
<b>1</b>	carful when dealing with knives , scissors and other sharp instruments	1.67	0.572	<b>M</b>
<b>2</b>	Avoid falling when walking and stick with restrains when using stairs	1.72	0.490	<b>M</b>
<b>3</b>	Verify the degree of shower water temperature	1.28	0.490	<b>L</b>
<b>4</b>	Being cautious when cooking to avoid burning yourself	1.42	0.671	<b>L</b>
<b>L</b>	<b>Fatigue</b>			
<b>1</b>	Trying to seek help from others in the days where you feel tired	2.45	0.565	<b>H</b>
<b>2</b>	Take a vacation from your business	1.12	0.372	<b>L</b>
<b>3</b>	Prefer taking frequent of light snacks instead of mainly meals	1.62	0.490	<b>L</b>
<b>4</b>	Trying to sleep at least eight hours at night	1.45	0.502	<b>L</b>

M	Tightness and difficulty breathing			
1	Doing exercise simple daily	1.10	0.303	L
2	Avoid smoking and presence in places containing fumes	1.18	0.537	L
3	Feel with dyspnea in crowded places and enclosed	1.40	0.494	L
4	Apply the position half- sitting or standing to do when feeling of tightness or difficulty breathing	1.05	0.220	L
	<b>Total</b>	<b>1.65</b>	<b>0.171</b>	<b>L</b>

M.S. =Mean of score , SD = Standard , Ass.= assessment., Level of assessment: (1-1.66) = Low ;( 1.67-2.33) = Moderate; ( 2.34-3.00) = High, L= Low; M = Moderate, H= High.

Table presents that there are low mean of score in all Chemotherapy to the nursing instructions. However the average items of compliance of lung cancer patients undergoing means score (1.65).

**Table (4): Assessment Domains Related to Compliance of Lung Cancer Patients Undergoing Chemotherapy with Nursing Instructions**

No.	Overall Main Domains Related to Nursing Instructions	n=60	M. S.	S. D.	Ass.
A	Anemia	60	1.36	0.192	L
B	Bleeding	60	1.89	0.345	M
C	Infections	60	1.82	0.342	M
D	Diarrhea	60	1.79	0.186	M
E	Nausea and vomiting	60	1.62	0.297	L
F	Constipation	60	1.51	0.284	L
G	Anorexia	60	1.46	0.123	L
H	Ulceration of the mouth & pharynx	60	1.50	0.293	L
I	Alopecia	60	1.90	0.186	M
J	Skin and nail changes	60	1.95	0.203	M
K	Nervous system changes(Tingling, Numbness, Weakness and Chills in the hands and feet	60	1.52	0.415	L
L	Fatigue,	60	1.66	0.268	L
M	Tightness and difficulty breathing	60	1.18	0.264	L

n= sample size , M.s= Mean of Score, S.D= Standard Deviation, Ass.= Assessment, Assessment ' Level: (1.00 - 1.66) = Low ;( 1.67 - 2.33) = Moderate; (2.34 - 3.00) = High

Results shows that there are low level of mean of score in all domains of compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions except the domains (Bleeding; Infections; Diarrhea; Alopecia, and Skin and nail changes) shows that there are moderate level of mean of score.

**Table (5): Assessment of the participants' Level of Compliance for Nursing Instruction Through the " Mean of Score" Related To Their Answers**

Participants' Level	Frequency	Percent
Low : 1	33	55.0
Moderate:2	27	45.0
High : 3	0	0.00
Total	60	100.0
$\bar{x} \mp S.D$	1.45 $\mp$ 0.502	

$\bar{x} \mp S.D$ .=Arithmetic Mean ( $\bar{x}$ ) and Std. Dev. (S.D.) , Participants' Level: (1.00 - 1.66) = Low ;( 1.67 - 2.33) = Moderate; (2.34 - 3.00) = High

This table reveals that the majority of participants have low compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions (n=60; 55%)

**Table (6): Distribution and Association Between Compliance of Lung Cancer Patients Undergoing Chemotherapy to the Nursing Instructions with Their Age**

Nursing Instruction Age (Years)	No.	Mean ± S.D.
45-49	3	1.67 ± 0.577
50-54	8	1.63 ± 0.518
55-59	14	1.79 ± 0.426
60-64	11	1.36 ± 0.505
65-69	13	1.38 ± 0.506
70-74	11	1.00 ± 0.00
<b>Total</b>	<b>60</b>	<b>1.45 ± 0.502</b>
<b>F obs. = 4.444      F crit. = 2.37      d.f. = 5      P = 0.002</b>		

$\bar{x} \pm S.D.$  = Arithmetic Mean ( $\bar{x}$ ) and Std. Dev. (S.D.), No. = Number of frequencies, F = Fisher test, d.f. = degree of freedom, P = probability value. F obs. = F observed value, F crit. = F critical value, P < 0.05 = significant, P < 0.01 = High significant, P > 0.05 = non-significant

This table shows that there is statistical high significant association between compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions and their age at (p value < 0.05), there are differences between age group mean of score for the nursing instructions when analyzed by Leven's test and ANOVA.

**Table (7): Distribution and Association Between Compliance of Lung Cancer Patients Undergoing Chemotherapy to the Nursing Instructions with Their Gender**

Nursing Instruction Gender	No.	Mean ± S.D.
Male	35	1.31 ± 0.471
Female	25	1.64 ± 0.490
<b>Total</b>	<b>60</b>	<b>1.45 ± 0.502</b>
<b>t obs. = 2.597      t crit. = 1.179      d.f. = 58      P = 0.012</b>		

$\bar{x} \pm S.D.$  = Arithmetic Mean ( $\bar{x}$ ) and Std. Dev. (S.D.), No. = Number of frequencies, t = t- test (student), d.f. = degree of freedom, P = probability value. t obs. = t observed value, t crit. = t critical value, P < 0.05 = significant, P < 0.01 = High significant, P > 0.05 = non-significant

This table shows that there is statistical significant association between patients' gender and their compliance of lung cancer patients undergoing chemotherapy to the nursing instructions at (p value < 0.05), there are differences between gender mean of score for the nursing instructions when analyzed by Leven's test and ANOVA.

**Table (8): Distribution and Association Between Compliance of Lung Cancer Patients Undergoing Chemotherapy to the Nursing Instructions with Their Marital Status**

Nursing Instruction Marital Status	No.	Mean ± S.D.
Single	2	1.50 ± 0.707
Married	39	1.51 ± 0.506
Divorced	2	2.00 ± 0.00
Widowed	17	1.24 ± 0.437
<b>Total</b>	<b>60</b>	<b>1.45 ± 0.502</b>
<i>F obs. = 2.170      F crit. = 2.76      d.f. = 3      P = 0.102</i>		

Table shows that there is no statistical significant association between compliance of lung cancer patients undergoing chemotherapy to the nursing instructions and their marital status at ( p value > 0.05), there are no differences between marital status mean of score for the nursing instructions when Analyzed by Leven's test and ANOVA.

**Table (9): Distribution and Association Between Compliance of Lung Cancer Patients Undergoing Chemotherapy to the Nursing Instructions with Their Level of Education**

Nursing Instruction Level of Education	No.	Mean ± S.D.
Illiterate	15	1.60 ± 0.507
Read & write	9	1.44 ± 0.527
Primary school graduate	6	1.67 ± 0.516
Intermediate school graduate	13	1.00 ± 0.00
Secondary school graduate	7	1.43 ± 0.535
institute & college	10	1.70 ± 0.483
<b>Total</b>	<b>60</b>	<b>1.45 ± 0.502</b>
<i>F obs. = 3.820      F crit.= 2.37      d.f.= 5      P = 0.005</i>		

$\bar{x} \pm S. D.$  = Arithmetic Mean ( $\bar{x}$ ) and Std. Dev. (S.D.), No. = Number of frequencies, F = Fisher test, d.f. = degree of freedom, P = probability value. F obs. = F observed value, F crit. = F critical value, P < 0.05 = significant, P < 0.01 = High significant, P > 0.05 = non-significant

This table shows that there is high statistical significant association between patients' level of education and their compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions at ( p value < 0.05), there are differences between level of education mean of score for the nursing instructions when analyzed by Leven's test and ANOVA .

**Table (10): Distribution and Association Between Compliance of Lung Cancer Patients Undergoing Chemotherapy to the Nursing Instructions with Their Residency**

Nursing Instruction Residency	No.	Mean ± S.D.
Urban	39	1.59 ± 0.498
Rural	21	1.19 ± 0.402
Total	60	1.45 ± 0.502
t obs. = 3.156		t crit. =1.179
		d.f. = 58
		P = 0.003

$\bar{x} \pm S.D.$ =Arithmetic Mean ( $\bar{x}$ ) and Std. Dev. (S.D.), No. = Number of frequencies, t = t- test(student) , d.f. = degree of freedom, P = probability value. t obs. = t observed value, t crit. = t critical value, P< 0.05= significant, P< 0.01= High significant, P > 0.05= non-significant

This table shows that there is high statistical significant association between patients' residency and compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions at ( p value < 0.05), there are differences between residency mean of score for the nursing instructions when analyzed by Leven's test and ANOVA.

**Table (11): Distribution and Association Compliance of Lung Cancer Patients Undergoing Chemotherapy to the Nursing Instructions with Their Occupational Status**

Nursing Instruction Occupational Status	No.	Mean ± S.D.
Government employee	14	1.79 ± 0.426
Free business	11	1.45 ± 0.522
Retired	10	1.10 ± 0.316
Housewife	16	1.63 ± 0.500
Unemployed	9	1.00 ± 0.00
Total	25	1.45 ± 0.502
F = 7.226		F crit. =2.53
		d.f. = 4
		P = 0.006

$\bar{x} \pm S.D.$ =Arithmetic Mean ( $\bar{x}$ ) and Std. Dev. (S.D.), No. = Number of frequencies, F = Fisher test , d.f. = degree of freedom, P = probability value. F obs. = F observed value, F crit. = F critical value, P< 0.05= significant, P< 0.01= High significant, P > 0.05= non-significant

This table shows that there is high statistical significant association between patients' occupational status and their compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions at ( p value < 0.05), there are differences between occupational status mean of score for the nursing instructions when analyzed by Leven's test and ANOVA .

#### IV. DISCUSSION

##### Part I: A Discussion of The Demographic Characteristics of the Lung Cancer Patients Undergoing Chemotherapy in AL-Amara City

Analysis of patients' demographic characteristics in our study revealed that the majority of the ages 14(23.3%) of patients in the study sample are within the age group (65 – 69

years). This result of the study is similar with the study of Karla & Baker (2009) in Boston USA, who found that the majority of the study subjects (25.7%). Researcher confirmed that the result appear in old age because cancer more giddy old age. The findings of the present study show that the majority of the study samples 35(58.3%) were male. These results agree with the study by Jennifer, et., al. (2010) in Canada who found that the majority of the study subjects(60.3%) Researcher confirmed that the result appear in male more exposure risk factor in work. Regarding to marital status the majority were married 39(65%). These results agree with the study Kelly & Guswiler, (2005) in Florida who found that the majority of the study subjects(62.3%). This results comes in consistent along with culture where both males and female tend to marry early<sup>(8)(9)</sup>.

Relative to the level of educational most of patients in the study sample were illiterate 15(25%) These results disagree with the study by Kusminsky (2009) who found that the majority of the study subjects(10.3%). people who were not educated, more vulnerable to disease than others because of insufficient of health awareness, which lead to non compliance to treatment and health programs<sup>(10)</sup>.

Our study revealed that the subject of residency represented the majority of patients who living in urban were 39(65%), as well as this result supported by the study of Asad, (2010) in Handia who found that the majority of the study subjects(66.3%). Urban areas characterized by abundance crowding and environmental pollution such smolder of factories, cars, etc, all these factors help to prevalence of lung cancer. Concerning occupational status our study revealed that the majority of the patients in the study sample were free business 16(26.7%). These results agree with the study by Randa, (2012) in California who found that the majority of the study subjects(25.3%)<sup>(11)(12)</sup>.

## **Part II : A Discussion of The Health History of the Lung Cancer Patients Undergoing Chemotherapy in AL-Amara City**

The results of the data Analysis of patients' health history to the compliance of lung cancer patients undergoing Chemotherapy with nursing instructions in study sample. This results show that the majority of patients who have information's about chemotherapy and side effects were 37(61.7%) to the study sample and were information's sources from family and friend 29(48.3%). This result of the study is supported by Lyndsay (2012) in Canada who found that the majority of the sample (61.2%) some of people have information about side effect chemotherapy to lead asking about nursing instruction to limitation of complication of chemotherapy<sup>(13)</sup>.

The above shows that the all participants in the study sample were suffering from chronic diseases and the majority of patients have cod 45 (75.0%). These results agree with the study by Kusminsky (2009) who found that the majority of the sample (70.2%) this disease may be risk factor to lead lung cancer or complication of lung cancer<sup>(10)</sup>.

Also the table revealed that the majority 31(51.7%) of patients in the study sample have family cancer. This result of the study is similar with the study of Margaret, (2011) in Florida who found that the majority of the sample (70.2%). While 46(76.7%) of patients in the study sample were smoking and

majority of them consume number of cigarettes were (40 cigarette) per day 30(50%). These results agree with the study by Jennifer, et. al.,(2010) in Canada. who found that the majority of the sample (73.2%). the cigarette or tobacco to risk highest of lung cancer because contain substance to lead disease. Our study to the date of diagnosis the majority were 4 months 21(35%). This result is supported by the study of Lyndsay (2012) in Canada who found that the majority of the sample (31.2%) the lung cancer appearance late signs and symptom also more disease in chest to similar signs and symptom<sup>(8)(13)(14)</sup>.

Concerning to the location of diagnosis most of patients in the study sample were in both side 27(45%). This result of the study is similar with Karla & Baker, (2009) in Boston USA, who found that the majority of the study subjects (46.7%). The disease of lung cancer metastasis between to lung also author organ from body. Regarding to subject of stages of tumor that diagnosed represented the majority of patients in stage-4 were 25(41.7%). These results agree with the study Jennifer, et. al. (2010) in Canada. who found that the majority of the sample (42.2%). late diagnosis to lead development of disease to discover last stage<sup>(8)</sup>. Also in regarding to the subjects type of treatment after the diagnosis directly, the results our study show that more than half of them were undergoing chemotherapy 37(61.7%). These results agree with the study Randa (2012) in California who found that the majority of the study subjects(25.3%). to treatment by chemotherapy systematic to able kill any cancer cell of body. In addition, majority of sequence of session them have (3 sessions) of chemotherapy 22(36.7%). In regarding to the subjects course of sessions, the majority of the study sample were (8 sessions) choose to the treatment 30(50%). These results agree with Kusminsky (2009) who found that the majority of the sample (70.2%) This treatment of lung cancer by chemotherapy to need long duration because the chemotherapy destroy cancer cell and normal cell to patients need repeated to active body<sup>(10)(12)</sup>.

Finally, in the above table our study the results show that route of administration of the all participants in the study sample were use the intravenous 60(100%). This result of the study is supported by Lyndsay, (2012) in Canada who found that the majority of the sample (88.2%). The chemotherapy give intravenous quickly arrive any from organ body<sup>(13)</sup>.

## **Part III . Discussion of the Compliance of Lung Cancer Patients Undergoing Chemotherapy With the Nursing Instructions**

### **1. Assessment of Compliance of Lung Cancer Patients Undergoing Chemotherapy With the Nursing Instructions**

The analysis of the data (57 items) of the compliance of lung cancer patients undergoing Chemotherapy with nursing instructions. The level of assessment score was divided to (1-1.66) = Low ; (1.67-2.33) = Moderate; (2.34-3.00) = High. The present study that there are low mean of score in all items of compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions. However the average means score (1.65). These results agree with the study Kusminsky, (2005) in Florida. The researcher confirmed that more patients in sample level education illiterate people who were not educated, more vulnerable to disease than others because of insufficient of health

awareness, which lead to non compliance to treatment and health programs<sup>(10)</sup>.

## **2. Assessment of Overall Main Domains Related to Compliance of Lung Cancer Patients Undergoing Chemotherapy with Nursing Instructions**

The analysis of the data (13 domains) Related to the compliance of lung cancer patients undergoing Chemotherapy with nursing instructions. shows that there are low level of mean of score in all domains of compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions except the domains (Bleeding; Infections; Diarrhea; Alopecia, and Skin and nail changes) shows that there are moderate level of mean of score. This result of the study is similar with the study of Margare (2011) in Florida The researcher confirmed that the chemotherapy destroy normal cell to lead appear side effects some side effects common to lead patients asking about management of chemotherapy to decrease complication of chemotherapy<sup>(14)</sup>.

## **3. Assessment of the participants' Level of Compliance for Nursing Instruction Through the " Mean of Score" Related To Their Answers**

As a result of the data analysis (60 participants) of mean of score for noting the level of their Answers. The results reveal that the majority of participants have low compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions (n=60; 55%) This result of the study is agree with the study of Kusminsky (2009) in Boston USA, The researcher confirmed there are many factor to lead low compliance with nursing instruction, decrease level education of patients, few staff in found in centre, old age of patients also health statuses<sup>(10)</sup>.

## **4. Discussion of the relationship between Compliance of Lung Cancer Patients Undergoing Chemotherapy With the Nursing Instructions and demographical characteristics.**

The results revealed that the study sample had comparable compliance of lung cancer patients undergoing chemotherapy to the nursing instructions with regard to various demographical characteristics

### **A. Age**

As a result of the data analysis, show that there was found statistical high significant association between compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions and their age at ( p value < 0.05) it reached ( p value = 0.002), there are differences between age group mean of score for the nursing instructions. This findings agrees with study of Jennifer, et. al., (2010) in Canada. who demonstrated that there is a significant relationship between compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions and their age The researcher believed that the results of this study indicated that some age in sample more than compliance with nursing instruction<sup>(8)</sup>.

### **B. Gender**

The findings of the present study, show that there was significant relationship between patients' gender and their compliance of lung cancer patients undergoing chemotherapy to the nursing instructions at ( p value < 0.05) it reached ( p value = 0.012), there are differences between gender mean of score for the nursing instructions. This result of the study is supported by Lyndsay, (2012) in Canada. who demonstrated that there is a

significant relationship between compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions and their gender<sup>(13)</sup>.

### **C. Marital status**

Our study show that there is no statistical significant association between compliance of lung cancer patients undergoing chemotherapy to the nursing instructions and their marital status at ( p value > 0.05) it reached ( p value = 0.102), there are no differences between marital status mean of score for the nursing instructions. These results agree with the study of Kusminsky, (2005) in Florida. who demonstrated that there is no significant relationship between compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions and their marital status<sup>(10)</sup>.

### **D. Level of Education**

The results in present study revealed that there is high statistical significant association between patients' level of education and their compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions at ( p value < 0.05) it reached ( p value = 0.005), there are differences between level of education mean of score for the nursing instructions. This result of the study is similar with the study of Kusminsky (2009) in Boston USA. who demonstrated that there is a significant relationship between compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions and their level education. The researcher confirmed that the findings provide some patients to have educate and knowledge to help apply nursing instruction<sup>(10)</sup>.

### **E. Residency**

Through the course our study of the data analysis, it has been noted that there was high statistical significant relation between patients' residency and compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions at ( p value < 0.05) it reached ( p value = 0.003), there are differences between residency mean of score for the nursing instructions as well as this result supported by the study of Asad, (2010) in India. who demonstrated that there is a significant relationship between compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions and their residency<sup>(11)</sup>.

### **F. Occupational Status**

The findings of our study show that there is high statistical significant association between patients' occupational status and their compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions at ( p value < 0.05) it reached ( p value = 0.006), there are differences between occupational status mean of score for the nursing instructions. A study of Jennifer, et. al., (2010) in Canada. who demonstrated that there is a significant relationship between compliance of lung cancer patients undergoing Chemotherapy to the nursing instructions and their occupational status<sup>(8)</sup>.

## **V. CONCLUSIONS**

1. The study confirms that the lung cancer most occurs among persons in urban residential area than those in rural.
2. The present study concludes that males are more incidence than females in lung cancer.

3. The study indicates that noncompliance of lung cancer patients undergoing chemotherapy with nursing instructions most common in low level of education.
4. The current study concludes that the most patients with lung cancer have chronic diseases, this indicates that these chronic diseases play an important role in the developing of lung cancer.
5. The study confirms that the lung cancer most common occurs in both side lung .
6. The present study concludes that patients wit
7. lung cancer who undergoing chemotherapy needs a long periods of time for treatment. The residency, occupational status ,level of education , have a high significant with compliance of lung cancer patients undergoing chemotherapy with nursing instructions, while the age have a significant with compliance, and marital statues no significant association with compliance of lung cancer patients undergoing chemotherapy with nursing instructions.
8. The study confirms that the overall measures of compliance of lung cancer patients undergoing chemotherapy with nursing instructions were low .

## VI. RCCOMMENDATIONS

1. Necessary to do health programs about importance nursing instructions to limited complication of chemotherapy .
2. Increase the level of awareness for lung cancer patients and their families about the nature and chemotherapy and how to minimize their side effects caused by the drugs.
3. Availability of scientific using journal or books in Arabic language and emphasis on the importance of motivation for the nurses to this knowledge in the chemotherapy.
4. There is critical need to foundational knowledge of effect chemotherapy will complement for nursing working the in the specialty area of chemotherapy units.

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