Coping Strategies for Patients with Pleural Effusion

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Abstract

Background: Coping strategies are essential for patients with pleural effusion which improve performance of daily living activity, decrease pain and improve breathing. **Aim of the study:** Was to assess coping strategies for patients with pleural effusion. **Research design:** Descriptive design study was used for this study. **Setting:** The study was conducted at Chest Outpatient Clinic in Benha University. **Sample:** A convenience sample was used in this study includes 267 patients. **Tools:** Two tools were used; **I:** A structured interviewing questionnaire which consists of four parts. **Part I:** Socio-demographic characteristics of the studied patients. **Part II:** Medical history of the studied patients with pleural effusion. **Part III:** Knowledge of the studied patients about pleural effusion. **Part IV:** Reported practices with pleural effusion patients**. Tool II:** Coping strategies questionnaire. **Result:** 33.3% of the studied patients aged from 40 to less than 50 years old, 63.3% of the studied patients had pleural effusion caused by chest diseases, 84.3% of them diagnosed by doctor, X-rays and analysis performed, 15.7% of the studied patients had correct and complete knowledge regarding meaning of pleural effusion, 50.9% of the studied patients had sometimes adapting that focus on the problem regarding pleural effusion and 52.4% of the studied patients had sometimes total psychological problems level regarding active adaption. **Conclusion:** There were statistically significant relation between total coping strategies level of studied patient and all items of socio demographic. More than half of studied patients had average total knowledge level regarding pleural effusion, more than third of the studied patients had poor total knowledge level and minority of the studied patients had good total knowledge level regarding pleural effusion. **Recommendations:** Develop health educational and training programs to improve patients knowledge, practices and coping strategies. Develop rehabilitation program for pleural effusion patient to stay active and restore optimal level of function.

Keywords: Coping strategies, Patients, Pleural effusion.

Introduction

A pleural effusion is a collection of fluid between the parietal and visceral pleural layers of the lung. Several types of Pleural effusions occur including transudative and exudative. Some patients experience breathing difficulties due to the presence of excess fluid in the pleural space (the space between chest wall and lungs). Normally, this space contains about 4 teaspoons full of fluid. Excess fluids brought about by lung infections, carcinoma of the lung, heart failure and injury can lead to pleural effusion – the accommodation of fluid in the chest or lungs. In order to make breathing effortless again, the fluid should be removed from the pleural space **(Abastar 2020).**

The most common causes of pleural effusion are Congestive Heart Failure (CHF), pneumonia, malignancy, pulmonary embolism, and pleural infections. Pleural effusion can be classified as either transudates or exudates. Once the doctor determines, there is fluid in the pleural cavity, may collect a sample to differentiation of a transudate from an exudate using a technique called thoracentesis **(Jany& Welte, 2021).**

Coping strategies is a constantly changing cognitive and/ or behavior efforts to manage specific external and internal demands that are taxing or exceeding individual resources. Also play an important role in the psychosocial adaptions of the patients with pleural effusion which include returning to normalcy, mediating and predicting Post-Traumatic Stress Disorder (PTSD), and managing depression after occur pleural effusion **(Bjorndal et al., 2021).**

Community Health Nurse (CHN) plays an important role regarding controlling of pleural effusion and limiting the complication through early diagnosis and early treatment for high-risk individuals. CHN should advise patients with pleural effusion about the important lifestyle changes suitable for condition, such as the use of proper body mechanics during routine activities, maintaining ideal body weight, stop smoking, sleep on the side affected with a pleural effusion, try to sleep in a semi-sitting position when feeling short of breath, maintain good ventilation at home, avoid heavy lifting. The CHN can also teach the patients with pleural effusion coping strategies and encourage to use strategies which help the patients to promote adjustment with pain/ condition, improve outcome, restoration of function within family, society, and work **(Marshall et al., 2021; Taylor et al., 2021).**

Significance of the study:

Pleural effusion can be serious and life-threating. Most require hospitalized treatment and some require surgery. Pleural effusions are diagnosed in over 1.5 million people in the United States annually **(DeBiasi et al., 2022).** Thoracentesis is one of the most common procedures performed in United States hospitals. In Egypt rate of pleural effusion during 1-year period was 12.7%. There are about 173000 thoracenteses performed each year in the United States. The male to female ratio is approximately 2:1 **(Esherick, 2022).** This study is important because most of pleural effusion patients have lack of knowledge about pleural effusion and coping strategies with pleural effusion, when pleural effusion patients learn more about effusion and how to cope with pleural effusion, more complication of pleural effusion will be avoided.

Aim of the study:

Was aimed to assess coping strategies for patient with pleural effusion.

Research questions:

- What are the patients' knowledge regarding pleural effusion?
- What are the patients practices regarding pleural effusion?
- What are the patients coping strategies regarding pleural effusion?
- Is there a relation between the studies patients' knowledge regarding pleural effusion and their socio demographic characteristic?
- Is there a relation between the studies patients' practices regarding pleural effusion and their socio demographic characteristic?
- Is there a correlation between the studied patients' knowledge, practices and their coping strategies regarding pleural effusion?

Subjects and method:

Research design:

A descriptive research design was utilized to conduct this study. "Descriptive research design is a research method that describes and analyze the characteristics of the population or phenomenon that is being studied without influence on it in any way".

Setting:

The study was conducted at Chest Outpatient Clinic in Benha University because increase attendance rate of patients associated with pleural effusion. Chest Surgery Outpatient Clinic is one of the Outpatient Clinics in Banha University Hospital which consist of one room divided to two parts first part for examination and other part for thoracentesis and works two days per week (Saturday and Monday).

Sample:

A convenience sample was used in this study and included 267 patients, (the total number of sample was 267 patients. The sample was chosen from previously mentioned setting. Adult patients with pleural effusion attending to the Outpatient Clinic for follow up were taken through a period of six months, according the following criteria: Accepted to practice the study diagnosed with pleural effusion age 20<50year.Where the total patients admitted to Out Patient Clinic last year were 800 patients.

Tools of data collection

Two tools were used to collect the data.

Tool I: A Structured Interviewing Questionnaire: It was developed by the investigator and revised by supervisor staff based on reviewing related literatures, and it was written in simple clear Arabic language: It was consisted of four parts to assess the following;

First part: It was concerned with socio-demographic characteristics of the studied patients and consisted of 8 items such as (age, sex, educational level, marital status, residence place, occupation, type of occupation, income).

Second part: It was concerned with medical history of the studied patients with pleural effusion divided as the following;

Past medical history: Consisted of 3 items such as (previous diseases, previous hospitalization, and previous thoracentesis or samples before).

Present medical history: Consisted of 12 items (causes of pleural effusion, method of diagnosis, onset of pleural effusion, signs and symptoms, action toward symptoms, exposure to accident before affected the chest, type of accident, are you smoking, kind of smoking, feel pain in the chest when making an effort und when, severity of pain, wake up from pain).

Third part: It was concerned with the knowledge of the studied patients about pleural effusion which consisted of 6 questions such as (meaning, causes, signs and symptoms, risk factor, diagnosis, method of treatment).

Scoring system:

The scoring system of the studied patients' knowledge was calculated as follows (2) score for correct and complete answer, and (1) score for correct and incomplete answer, while (0) score for incorrect or don't know. For each question of knowledge, the score of the items was summed- up and the total divided by the number of items. These scores were converted into a percent score.

The total knowledge score = 12 points and classified as the following:

- Good when total score was >75% (more than 10 points).
- Average when the total score was 50 – 75% its equal (6-10 points).
- Poor when total score was <50% less than< 6 points.

Fourth part: It is concerned with the reported practices of the studied patients regarding pleural effusion which consisted of (4 questions) about nutrition, exercise,

commitment to the treatment, and caring for disease.

Scoring system for the studied patients' reported practices:

Each step of the patients' reported practices has two level of answer: done or not done. These were respectively 1, 0. The scores of the items were summed-up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into a present score.

The total patients' reported practices score= (20 points).The total practices scores were considered satisfactory if the score of the total practices ≥ 50% (≥ 10 points) and considered unsatisfactory if it is< 50% (>10 points).

Tool II: Coping Strategy Questionnaire (CSQ): It was adapted from **(Mario, 2019),** and modified by investigator to assess coping strategies among pleural effusion patients which divided into 3 strategies as following; **Cognitive** (self-coping with pain, attractive attention, ignoring pain, and prayer). **Adaptation** that focus on the problem. **Psychological** (active adaptation, negative coping, and avoiding problem).

Scoring system:

The scoring system for patients' coping strategies regarding pleural effusion was calculated as follow (2) score for always coping, and (1) score for sometimes coping while (0) for rarely coping. These scores were converted into a present score. The total coping strategies score = (104 points). The total coping strategies score consider high when total score was (>75%) more than 78 points, consider sometimes when the total score was (50 – 75%) its equal 52-77 points, and consider rerly when total score was (<50%) less than 52 point.

Reliability of the tools:

Reliability of the tool was applied by the investigator for test the internal consistency of the tool by administration of the same tools to the same subjects under similar condition on one or more occasion. Answers from repeated testing were compared (test-re-test reliability). The reliability was done Cronbach Alpha coefficients test which revealed that the tool consisted of relatively homogenous items as indicated by moderate to high reliability of each tool. The internal consistency of the knowledge was 0.721, while: reliability of practices was 0.834.

Content validity of the tool:

Content validity of the tool was done by five of Faculty's Staff Nursing Experts from the Community Health Nursing specialties of Benha University who reviewed the tools for clarity, relevance, comprehensiveness, applicability and give their opinion.

Ethical considerations:

All subjects were informed that participation in the study is voluntary; no name will be included in the questionnaire sheet. Anonymity confidentiality of each participant was respected and protected, confidentiality was assured and subjects was informed that the content of the tool was used for research purpose only and they have the right of refuse to participate in the study or withdrawal at any time without any consequences.

Pilot study:

A pilot study was carried out on 10% (27 patients) from the total sample, no modification were done so the pilot study were included in the total number of the study sample. The aim of pilot study was to test the applicability and clarity of the tools and estimate the time for tool data collection.

Field work:

Data were collected at a period of 6 months which started from the beginning July to December 2022; the investigator conducted the questionnaire at Chest Outpatient Clinic in Benha University Hospital. The investigator visited the Benha University Hospital 2 days/week (Saturday and Monday) from 9 am to 1 pm, to collect data and interviewed the patients during visits sitting. The average time needed to fill the questionnaire takes ranged from 20-30 minutes depending on the patient understanding and response. The investigator explained the purpose and importance of the study to the patients and obtain consent. The average number of interviewed patient was between 6-7 patients/day depending on their response and understanding.

Statistical analysis:

The collected data were organized, tabulated, scored and analyzed and presented in figures using the number and percentage distribution, mean and stander deviation using Statistical Analysis Package for Social Science (SPSS) version 20. Data were presented using proper statistical tests there were positive correlation or not. The following statistical tests that were used: Number and percentage: Mean and Stander Deviation (SD) and Chi-square x2 was used for qualitative data and spearman Correlation test.

Statistical significance was considered at:

- Highly significant result when p-value < 0.001.
- Significant result when p-value <0.05.
- Non-significant when p-value >0.05.

Results:

Table (1): Shows that, 33.3 % of the studied patients aged from 40 to less than 50 years old, 69.3% of them were males, 79.0% of them were married. Concerning educational level, 46.4 % of them had basic education. Concerning occupation, 79.8% of the studied patients are working, 51.6% of them had free working, and 68.9% of them had sufficient income.

Table (2): Clarifies that, 45.7% of the studied patients had frequent common cold, 64.8% of them had previous hospitalization, 52.6% of them hospitalized once only. Concerning thoracentasis, 55.1% of the studied patients perform thoracentasis or samples twice before.

Table (3): Presents that, 63.3% of the studied patients' pleural effusion caused by chest diseases, 84.3% of them diagnosed by doctor, X-rays and analysis performed. Concerning onset of pleural effusion, 60.3% of the studied patients had pleural effusion from less than 1 years. Regarding signs and symptoms, 85.0% of the studied patients had chest pain, 74.9% of them went to hospital or doctor. When feeling any symptoms, 9.7 % of the studied patients exposed to accident before chest effect, and 42.3% were due to car accident.

Figure (1): Shows that, 56.5% of studied patients had average total knowledge level regarding pleural effusion while, 34.1% of them had poor total knowledge level, and only 9.4% of them had good total knowledge level regarding pleural effusion.

Figure (2): Clarifies that, 56.9% of the studied patients had satisfactory total level of practices regarding pleural effusion, while 43.1 % of them had unsatisfactory total level of practices.

Figure (3): Illustrates that, 56.2% of the studied patients had middle coping with pleural effusion disease, while 24.0% of them had low coping with the disease, and 19.8% of them had high coping with the disease.

Table (4): Illustrates that, there were highly statistically significant relations between total knowledge level of the studied patients' regarding pleural effusion and their age, sex, educational level and income at (P<0.001), while there were statistically significant relations between total knowledge level of the studied patients and their occupation and type of occupation at (p<0.05).

Table (5): Illustrates that, there were highly statistically significant relations between total practices level of the studied patient regarding pleural effusion and their age, sex, educational level, marital status, and type of occupation at (p<0.001), while there was statistically significant relation between total practices level of the studied patient regarding pleural effusion and their income.

Table (6): Shows that, there was a highly statistically positive correlation found between total the studied patients' total level of knowledge and total level of practices at (p<0.001), and there was a highly statistically significant positive correlation found between the studied patients' total level of knowledge and their coping strategies regarding plural effusion (p<0.05).

Table (1): Frequency distribution of the studied patients regarding their socio-demographic characteristics (n=267).

Socio demographics characteristics	No.	%
Age / years		
20 -<30	39	14.6
30 - < 40	66	24.7
40 - < 50	**89**	**33.3**
≥ 50	73	27.4
Mean ±SD	**50.45±9.22**	
Sex		
Male	**185**	**69.3**
Female	82	30.7
Educational level		
Can't read and write	16	6.0
Basic education	**124**	**46.4**
Secondary education	102	38.2
High education	25	9.4
Marital status		
Single	14	5.2
Married	**211**	**79.0**
Divorced	17	6.4
Widow	25	9.4
Occupation		
Work	**213**	**79.8**
Doesn't work	54	20.2
Type of occupation (n= 213)		
Governmental employee	103	48.4
Free working	**110**	**51.6**
Income / Month		
Insufficient	70	26.2
Sufficient	**184**	**68.9**
Sufficient and save	13	4.9

Table (2): Frequency distribution of the studied patients regarding their past medical history (n=267).

Past medical history	No.	%
***Previous diseases**		
Frequent common cold	**122**	**45.7**
Pneumonia	100	37.5
Bronchial asthma	78	29.2
Tuberculosis	16	6.0
Previous hospitalization		
Yes	**173**	**64.8**
No	94	35.2
Frequency of hospitalization (n=173)		
Once	**91**	**52.6**
Twice	62	35.8
More than two	20	11.6
Previous thoracentasis or samples		
Yes	**147**	**55.1**
No	120	44.9
Frequency of thoracentesis (n= 147)		
Once	66	44.9
Twice	**81**	**55.1**

Table (3): Frequency distribution of the studied patients regarding their present medical history (n=267).

Present medical history	No.	%
Causes of pleural effusion		
Liver diseases	14	5.2
Heart diseases	68	25.6
Renal diseases	14	5.2
Tumors	2	0.7
Chest diseases	**169**	**63.3**
*** Method of diagnosis (disease discovered)**		
Signs and symptoms	68	25.4
Doctor visit and perform x rays and analysis according to his instructions	**225**	**84.3**
Onset of pleural effusion disease		
< one year	**161**	**60.3**
1≤ 3 years	79	29.6
4≤ 6 years	27	10.1
***Signs and symptoms**		
Chest pain	**227**	**85.0**
Difficulty breathing	143	53.6
Feel exhausted more times	110	41.2
Feel heaviness in the chest	39	14.6
Exposure to accident before effect chest		
Yes	26	9.7
No	**241**	**90.3**
Kind of accident (n = 26)		
Car accident	**11**	**42.3**
Fight	7	26.9
Falling from high place	8	30.8

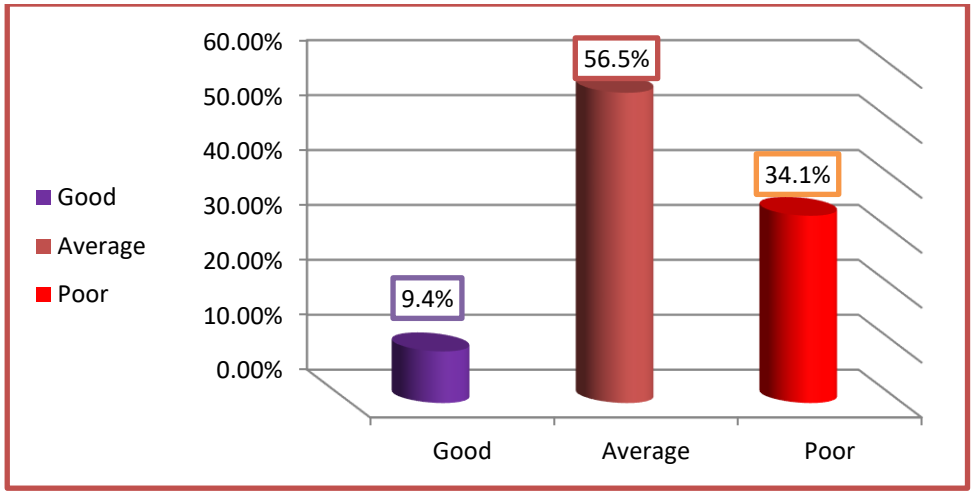

Figure (1): Percentage distribution of the studied patients' total knowledge level regarding pleural effusion (n=267).

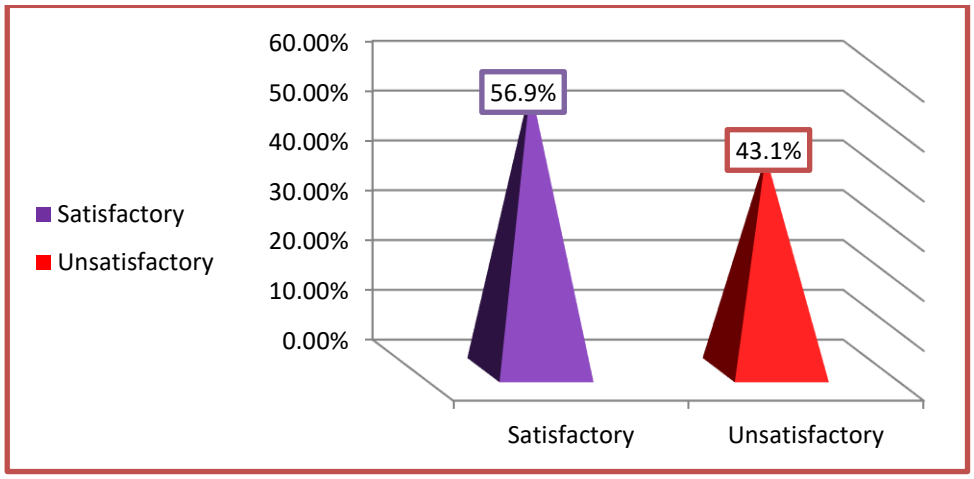

Figure (2): Percentage distribution of the studied Patients' total reported practices level regarding pleural effusion (n=267).

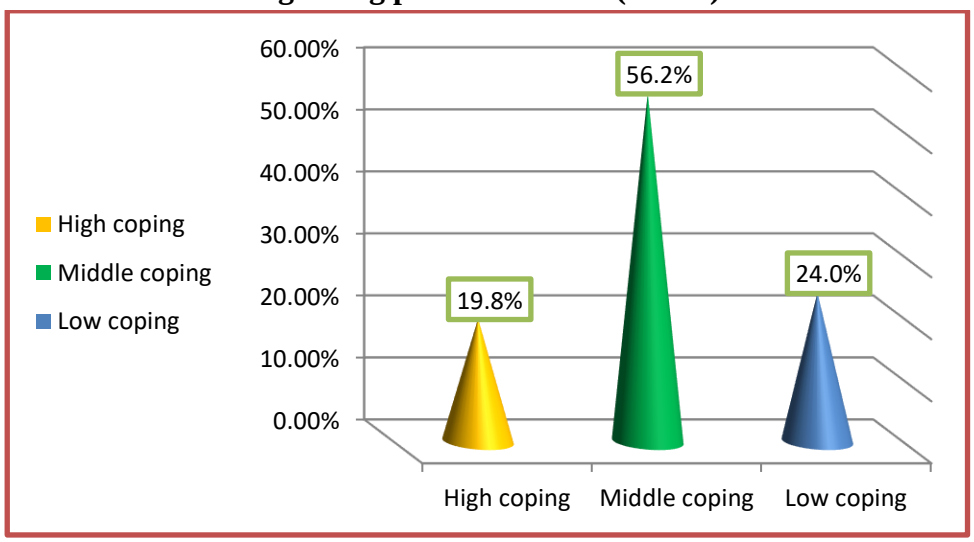

Figure (3): Percentage distribution of the studied patients' total coping strategies regarding pleural effusion (n=267).

Table (4): Statistically relation between socio-demographic characteristics of the studied patients & their total knowledge level regarding pleural effusion (n=267).

Socio demographics characteristics	Total knowledge level							
	Good (n=25)		Average (n= 151)		Poor (n=91)		X^2	p-value
Age / years	**No.**	**%**	**No.**	**%**	**No.**	**%**		
20 -<30	2	8.0	3	1.9	34	37.4	81.198	0.000**
30 - < 40	2	8.0	26	17.2	38	41.8		
40 - < 50	20	80.0	64	42.4	5	5.5		
≥ 50	1	4.0	58	38.5	14	15.4		
Sex								
Male	13	52.0	132	87.4	40	43.9	54.276	0.000**
Female	12	48.o	19	12.6	51	56.1		
Educational level								
Can't read and write	1	4.0	2	1.3	13	14.3	37.336	0.000**
Basic education	3	12.0	96	63.6	25	27.5		
Secondary education	5	20.0	45	29.8	52	57.1		
High education	16	64.0	8	5.3	1	1.1		
Marital status								
Single	1	4.0	2	1.3	11	12.2	6.268	0.18
Married	20	80.0	132	87.4	59	64.8		
Divorced	2	8.0	14	9.3	1	1.1		
Widow	2	8.0	3	2.0	20	21.9		
Residence								
Urban	5	20.0	61	40.4	49	53.9	10.309	0.112
Rural	20	80.0	90	59.6	42	46.1		
Occupation								
Work	21	84.0	115	76.2	77	84.6	11.333	0.003*
Doesn't work	4	16.0	36	23.8	14	15.4		
Type of occupation								
Governmental employee	3	12.0	37	33.3	63	81.8	17.227	0.008*
Free working	22	88.0	74	66.7	14	18.2		
Income / Month								
Insufficient	4	16.0	54	35.8	12	13.2	91.120	0.000**
Sufficient	12	48.0	95	62.9	77	84.6		
Sufficient and save	9	36.0	2	1.3	2	2.2		

Table (5): Statistically relation between socio-demographic characteristics of the studied patients & their total practices level regarding pleural effusion (n=267).

Socio demographics characteristics	Total practices level				X^2	p-value
	Satisfactory (n=115)		Unsatisfactory (n= 152)			
Age / years	No.	%	No.	%		
20 -<30	5	3.3	34	29.3	98.940	0.000**
30 - < 40	44	28.9	22	19.1		
40 - < 50	81	53.3	8	6.9		
≥ 50	32	21.5	41	35.7		
Sex						
Male	131	86.2	54	46.9	47.343	0.000**
Female	21	13.8	61	53.1		
Educational level						
Can't read and write	2	1.3	14	12.2	32.887	0.000**
Basic education	72	47.37	52	45.2		
Secondary education	56	36.8	46	40.0		
High education	22	14.4	3	2.6		
Marital status						
Single	2	1.3	12	10.4	74.306	0.000**
Married	144	94.7	67	58.3		
Divorced	4	2.7	13	11.3		
Widow	2	1.3	23	20.0		
Residence						
Urban	56	36.8	59	51.3	5.584	.018
Rural	96	63.2	56	48.7		
Occupation						
Work	126	82.9	87	75.6	2.128	.145
Doesn't work	26	17.1	28	24.4		
Type of occupation						
Governmental employee	43	34.1	60	68.9	26.776	0.000**
Free working	83	65.9	27	31.1		
Income / month						
In sufficient	42	27.7	28	24.4	11.436	0.003*
Sufficient	99	65.1	85	73.9		
Sufficient and save	11	7.2	2	1.7		

Table (6): Correlation between the studied patients' total knowledge, practices and their coping strategies regarding pleural effusion (n=267).

Items	Total knowledge	
	r.	p-value
Total practices level	.550	0.000**
Total coping strategies	.186	0.002*

Discussion:

According the studied patients' socio-demographic characteristics; the present study result showed that one third of them aged from 40 to less than 50 years old with mean age ± SD of 50.45±9.22 years (table, 1).This result agreed with **Yousaf et al., (2022)**, who developed a study about "Etiology, pathological characteristics, and clinical management of black pleural effusion in Qatar (n=31)", and found that the mean age of all the studied patients was 53.03±17.9. This might be because the studied patients in these age group were suffering from respiratory diseases.

The current study result showed that more than two thirds of them were males. This result was in the same line with **Yılmaz et al., (2019)**, who performed a study about "Analysis of epidemiological, clinical and laboratory characteristics of patients with pleural effusion in Turkey (n=285)", and found that slightly less than two thirds of the studied patients were males. This might be because pleural effusion is most commonly seen among the heavy smoker's male patients.

As for the studied patients' educational level; the present study result indicated that less than half of them had basic education. This result was against **Ibrahim (2016)**, who performed a study about " Impact of an educational program on knowledge and practices of nurses about caring of patient with chest tube in Egypt (n=40)", and found that more than half of the studied patients had technical education. This might be because the studied patients had old age patients so that they don't complete their education.

Concerning the studied patients' marital status; the present study result showed that more than three quarters of them were married. This result similar to **Nilsson et al., (2017)**, who performed a study about "A comparative correlational study of coping strategies and quality of life in patients with chronic heart failure and the general Swedish population (n=124)", and found that the majority of the studied patients were married. This might be because it is the most appropriate age for marriage for them.

Regarding the studied patients' occupation, and type of occupation; the present study findings denoted that more than three quarters of them were working, and more than half of them had free working. These findings similar to **Kotb et al., (2022)**, who applied a "Comparative study of aspiration cytology, video-assisted thoracoscope and open biopsy in undiagnosed pleural effusion in Egypt (n=48)", and found that more than three quarters of the studied patients were working, while disagreed with them as they found that more than one fourth of the studied patients were administrative employees.

As regards the studied patients' monthly income; the present study result indicated that more than two thirds of them had a sufficient monthly income. This result was in the same line with **Saber et al. (2023)**, who developed a study about "An observational study on clinical profiles of tuberculosis pleural effusion patients in a tertiary care teaching hospital, Dhanmondi, Dhaka, Bangladesh (n=182)", and found that more than three quarters of the studied patients had a sufficient monthly income.

According the studied patients' past medical history; the present study result clarified that less than half of them had a frequent common cold. This result was in the same line with **Beaudoin & Gonzalez (2018)**, who carried out a study about "Evaluation of the patient with pleural effusion in Canada", and mentioned that the frequent respiratory tract infection is one of the major risk factors for developing pleural effusion. This might be

because the studied patients may have a low immunity.

As for the previous hospitalization, and frequency; the present study findings clarified that less than two thirds of the studied patients had a previous history of hospitalization, and more than half of them hospitalized only once. These findings agreed with **Yang et al., (2018)**, who applied a study about "Patient- and hospital-level factors associated with readmission for malignant pleural effusion in China (n=290)", and found that less than two thirds of the studied patients had a previous history of hospitalization and more than one readmission due to the presence of malignant pleural effusion. This might be because of the severity of the studied patients' condition.

Concerning the previous thoracentesis or samples, and frequency; the present study results clarified that more than half of the studied patients perform thoracentasis twice. These results agreed with **Fjæreide et al., (2023)**, who developed a study about "Pleural effusion and thoracentesis in ICU patients: A longitudinal observational cross-sectional study in Denmark (n=81)", and found that more than half of the studied patients perform thoracentesis more than one time. This might be because of the presence of large amount of fluids in the pleural cavity of the studied patients.

In relation to the studied patients' present medical history; the present study result illustrated that less than two thirds of them were suffering from pleural effusion due to chest diseases. This result was in the same line with **Krishna et al., (2023)**, who conducted a study in India about "Pleural effusion", and mentioned that the most common causes of pleural effusion are infections like pneumonia or tuberculosis, malignancy, and inflammatory disorders. This might be because the lung diseases is the primary cause for developing pleural effusion.

As for the method of diagnosis; the present study result described that the majority of the studied patients diagnosed with X- rays and analysis. This result supported with **Kumari & Jaseemudheen (2023)**, who conducted a study about "Assessment of pleural effusion by means of imaging modalities in India", and stated that benign and malignant pleural effusion can be diagnosed using an X-ray, CT scan, or ultrasound. This might be because the chest X-rays is the most appropriate method for detecting any abnormality within the thoracic cavity.

Concerning the onset of pleural effusion; the present study denoted that less than two thirds of the studied patients had pleural effusion from less than one year. This result was in agreement with **Razazi et al., (2018)**, who performed a study about the "Effects of pleural effusion drainage on oxygenation, respiratory mechanics, and hemodynamics in mechanically ventilated patients in France (n=477)", and found that the majority of the studied patients hospitalized in the intensive care unit due to pleural effusion as a heart failure complication which started from less than a year. This might be because pleural effusion is one of the most commonly seen complications among patients with respiratory diseases, as well as patients with heart failure.

Regarding the signs and symptoms; the study result presented that the majority of the studied patients were suffering from chest pain. This result disagreed with **Shalaby & Ezzelrega (2022)**, who performed a study about "Assessment of diaphragmatic role in dyspneic patients with pleural effusion in Egypt (n=30)", and found that almost all of the studied patients were suffering from shortness of breathing. This might be because of the

accumulation of large amount of fluid in the pleural cavity.

Concerning the action towards symptoms; the present study result showed that about three quarters of the studied patients went to the hospital or to the doctor. This result was similar to **Light (2022)**,who studied "Pleural effusion", and mentioned that shortens of breathing, and chest pain are usually the first symptoms of pleural effusion which require rapid management through hospitalization in order to perform chest x-ray and/or ultrasonography, which shows the fluid collection in the pleural space. This might be because it is the best solution to understand the causes of this symptoms.

The present study findings also indicated that; the minority of the studied patients exposed to accidents, and less than half of those who exposed to accidents were due to car accidents. These results were in the same line with **Liu et al., (2016)**, who developed a study about "Differentiate pleural effusion from hemo-thorax after blunt chest trauma; comparison of computed tomography attenuation values in China (n=991)", and found that most of the studied patients developed pleural effusion after the exposure to motor vehicle crashes. This might be because pleural effusion may be developed as result of chest trauma after motor car accidents.

As regards the studied patients' total knowledge score regarding pleural effusion; the current study results represented that more than half of them had average total knowledge score, and more than one third of them had poor total knowledge score while, less than one tenth of them had good total knowledge score. These results supported with **Psallidas et al., (2017)**, who conducted a study about the "Assessment of patient' knowledge and reported outcome measures in pleural interventions in Oxford (n=158)", and found that less than two thirds of the studied patients had an average total knowledge score, and less than one third of them had poor total knowledge score while, only of them had good total knowledge score. This might reflect the studied patients experience with the disease as well as their educational level.

Concerning the studied patients' total reported practices regarding pleural effusion; the present study findings indicated that more than half of them had satisfactory total practices, while less than half of them had unsatisfactory total practices. These findings disagreed with **Beaudoin & Gonzalez (2018)**, who found that more than three quarters of the studied patients had unsatisfactory total level of practices regarding pleural effusion. This might be because the studied patients received more attention and support from their caregivers.

Concerning the studied patients' total coping strategies regarding pleural effusion; the present study findings illustrated that more than half of them had middle total coping, less than one fourth of them had low total coping, and one fifth of them had high total coping. These findings disagreed with **Fahmy et al., (2023)**, who performed a study about "Coping strategies among elderly women suffering from knee osteoarthritis pain at Beni-Suef City Egypt (n=300)", and found that half of studied women had low total coping, less than one third of them had moderate total coping, and less than one fourth of them had high total coping. This might be because the studied patients need to be instructed about the methods of effective coping.

According the statistically relation between the studied patients' total level of knowledge regarding pleural effusion and their socio-demographic characteristics; the present study results indicated that there were highly

statistically significant relations found between the studied patients' total level of knowledge and their age, sex, educational level, and income. These results were similar to **Psallidas et al. (2017)**, who found that there were highly statistically significant relations between the studied patients' total level of knowledge and their age, sex, educational level, and income. This might be because the young age patients, and those with basic education usually have a low level of knowledge and the opposite is true.

In addition, the same table represented that there were no statistically significant relations found between the studied patients' total level of knowledge regarding pleural effusion and their residence, and marital status. These results disagreed with **He et al., (2016)**, who performed a study about "Factors influencing health knowledge and behaviors among the elderly in rural China (n=1593)", and found that there were highly statistically significant relations found between the studied patients and their place of residence, and marital status. This might be because the patients who live in urban areas usually have the opportunity and accessibility of health services and health information than those who live in rural areas.

Concerning the statistically relation between the studied patients' total level of practices regarding pleural effusion and their socio-demographic characteristics; the present study results showed that there were highly statistically significant relations found between the studied patients' total practices level and their age , sex, educational level, marital status, and type of occupation. These results disagreed with **Elsayed et al. (2016)**, who performed a study about "Effect of implementing nursing management guidelines for patients with chest tube drainage on nurses' performance at Mansoura university hospitals in Egypt (n=44)", and found that there were no statistically significant relations between the studied nurses' sex, age, qualifications, and their total score of practices. This might be because the total level of practices is usually affected by many factors such as age, education, and
occupation.

In addition, the study results described that there were no statistically significant relations found between the studied patients' total practices level regarding pleural effusion and their residence and occupation. These results disagreed with the **Public Health Agency of Canada, (2023)**, who stated that there are many determinants which have a strong influence on the patients' health practices, and added these determinants may be personal, social, economic and environmental. Hence, the place of residence, income and social status are examples of these determinants. This might be because any health practices and services is strongly associated with both the availability of health services and the presence of money gotten through work.

Regarding the correlation between the studied patients' total level of knowledge and total level of practices regarding pleural effusion; the present study finding clarified that there was a highly statistically significant positive correlation found between the studied patients' total level of knowledge and total level of practices. This finding agreed with **Goni et al., (2019)**, who developed a study about "Assessment of knowledge, attitude and practice towards prevention of respiratory tract infections complications among Hajj and Umrah pilgrims from Malaysia (n=225)", and found that there was a highly statistically significant positive correlation between the studied patients' total level of knowledge and total level of practices. This might be because the high level of knowledge is usually

associated with high satisfactory practices and the opposite is true.

Concerning the correlation between the studied patients' total level of knowledge and their coping strategies regarding pleural effusion; the present study result denoted that there was a highly statistically significant positive correlation found between the studied patients' total level of knowledge and their coping strategies regarding pleural effusion. This result was similar to **Troviscoa et al., (2022)**, who performed a study about "Predictors of lung entrapment and coping strategies in patients with malignant pleural effusion in Portugal (n=400)", and found that there was a highly statistically significant correlation found between the patients' total level of knowledge and their coping strategies regarding malignant pleural effusion. This might be because the high level of knowledge regarding any health problem can build a strong coping strategies with this problem.

Conclusion:

More than half of studied patients had average total knowledge level regarding pleural effusion, more than third of the studied patients had poor total knowledge level and minority of the studied patients had good total knowledge level regarding pleural effusion. More than half of the studied patients had satisfactory level of practices regarding pleural effusion and more than third of the studied patients had unsatisfactory level of practices regarding pleural effusion. In addition more than half of the studied patients had middle coping with pleural effusion disease, less than third of them had low coping with disease and less than third of the studied patients had high coping with the disease. There was high statistically significance relation between total knowledge level and their residence and material status. There were positive correlation between total knowledge level and total practices level. There was highly statistically significance relation between total coping strategies level of studied patient and all items of socio demographic characteristics.

Recommendations:

- Develop health educational and training programs to improve patients knowledge, practices and coping strategies with pleural effusion.
- Develop rehabilitation program for pleural effusion patient to stay active and restore optimal level of function .
- Further studies regarding pleural effusion coping strategies for patient's at large size of sample.

References:

Abastar, D. (2020). Definition of pleural effusion, Thoracentesis nursing responsibility. Available at: www.rnspeak.com. Accessed on 17/6/2023 at 10:30 P.M .

Beaudoin, S., & Gonzalez, A. (2018). Evaluation of the patient with pleural effusion. Canadian Medical Association Journal; 190(10): E291–E295.doi: 10.1503/cmaj.170420.

Bjorndal, K., Antonsen, Y., and Jakhelln, R. (2021). Stress-coping stratiges amongst newly qualified primary and lower secondary school teachers with a master's degree In Norway. Scandinavian Journal of educational research, 1-16.

DeBiasi, M., Pisani, M., & Murphy, T. (2022). Mortality among patients with pleural effusion undergoing thoracentesis, EurRespir J, 46 (2): 495.

Elsayed, N., Hassani, A., & Mohammed, H. (2016). Effect of implementing nursing management guidelines for patients with chest tube drainage on nurses' performance at Mansoura university hospitals. Mansoura Nursing Journal (MNJ); 3(1): P. 330.

Esherik, J. FHM (2022). WWW.hospitalproceures.org, Accessed at 11/7/2022.

Fahmy, M., Hassan, H., & Alsherbieny, E. (2023). Coping strategies among elderly women suffering from knee osteoarthritis pain at Beni-Suef city. National Institute of Longevity Sciences Journal of Geriatric and Gerontology; 6(1): Pp.161 .

Fjæreide, K., Petersen, P., Mahdi, A., Crescioli, E., Nielsen, F., Rasmussen, B., & Schjørring, O. (2023). Pleural effusion and thoracentesis in ICU patients: A longitudinal observational cross-sectional study. Available at: https://onlinelibrary.wiley.com/. Accessed on 8 May 2023.

Goni, M., Hasan, H., Naing, N., Wan-Arfah, N., Deris, Z., Arifin, W., & Baaba, A. (2019). Assessment of knowledge, attitude and practice towards prevention of respiratory tract infections complications among Hajj and Umrah pilgrims from Malaysia in 2018. International Journal of Environmental Research Public Health; 16(22): P.4569.Doi: 10.3390/ijerph16224569.

He, Z., Cheng, Z., Shao, T., Liu, C., Shao, P., Bishwajit, G., Feng, D., & Feng, Z. (2016). Factors influencing health knowledge and behaviors among the elderly in rural China. International Journal of Environmental Research Public Health; 13(10): P.975. Doi: 10.3390/ijerph13100975.

Ibrahim, R. (2016). Impact of an educational program on knowledge and practices of nurses about caring of patient with chest tube. Journal of Nursing and Health Science; 5(6): Pp. 24-32. DOI:10.9790/1959-0506032432.

Jany, B., & Welte, T. (2019). Pleural effusion in adults—etiology, diagnosis, and treatment. Deutsches Ärzteblatt International; 116(21), 377.

Kotb, M., AbdRabouh, M., Abouiznied, M., & Osman, D. (2022). Comparative study of aspiration cytology,video-assisted thoracoscope and open biopsy in undiagnosed pleural effusion. The Egyptian Journal of Hospital Medicine; 89(7): Pp.5207- 5212.

Krishna, R., Antoine, M., & Rudrappa, M. (2023). Pleural effusion. Available at: https://www.ncbi.nlm.nih.gov/books/NBK448189/. Accessed on 15 July 2023.

Kumari, S., & Jaseemudheen, M. (2023). Assessment of pleural effusion by means of imaging modalities. Journal of Health Allied Sciences; 13(2): Pp.301–305. DOI https://doi.org/10.1055/s-0042-1757446.

Light, R. (2022). Pleural effusion. Availableat:https://www.msdmanuals.com/home/lung-and-airway-disorders/pleural-and mediastinal-disorders/pleural-effusion. Accessed on 20 July 2023.

Liu, F., Huang, Y., Ng, Y., & Liang, J. (2016). Differentiate pleural effusion from hemothorax after blunt chest trauma; comparison of computed tomography attenuation values. Journal of Acute Medicine; 6 (1): Pp.1-6.

Mario F., Giancarlo L., (2019). Coping stratiges. Mediterrananean Journal of Social Sciences.43 (6).p. (479..(

Marshall, E., Wuite, s., Lawson, Andrew, M., Edwards, L., Mackenzie, A., & Peddle, S. (2021). A qualitative study of the myriad consequences for unattached patients awaiting primary care attachement, available at: https://doi.org/10.1101/2021.07.07.21260143.

Nilsson, A., Carlsson, M., Lindqvist, R., & Kristofferzon, M. (2017). A comparative correlational study of coping strategies and quality of life in patients with chronic heart failure and the general Swedish population. Nursing Open;4(6):Pp.157–167.

Psallidas, I., Yousuf, A., Talwar, A., Hallifax, R., Mishra, E., Corcoran, J., Ali, N., & Rahman, N. (2017). Assessment of patient' knowledge and reported outcome measures in

pleural interventions. BMJ; 4(1):P. 1. Doi.org/10.1136/bmjresp-2016-000171.

Public Health Agency of Canada (PHA), (2023). Social determinants of health and health inequalities. Available at: https://www.canada.ca/en/public-health/services/health promotion/population-health/what-determines-health.html. Accessed on 26 July 2023.

Razazi, K., Thille, A., Carteaux, G., Beji, O., Brun-Buisson, C., Brochard, L., & Dessap, A. (2018). Effects of pleural effusion drainage on oxygenation, respiratory mechanics, and hemodynamics in mechanically ventilated patients. Annals of the American Thoracic Society; 11(7): P. 5. https://doi.org/10.1513/AnnalsATS.201404-152OC.

Saber, S., Chowdhury, M., Hossain, M., & Islam, R. (2023). An observational study on clinical profiles of tuberculosis pleural effusion patients in a tertiary care teaching hospital, Dhanmondi, Dhaka, Bangladesh. European Journal of Medical and Health Sciences; 5(1): P. 1 .

Shalaby, H., & Ezzelrega, H. (2022). Assessment of diaphragmatic role in dyspneic patients with pleural effusion .The Egyptian Journal of Bronchology; 16(69): P.1.

Taylor, D., Sherry, S., & Toney-Butler, T. (2021). Lumber puncture and drainage. In interventional critical care: a manual for advanced practice providers. 279-288.

Troviscoa, C., Freitasa, M., Serinob, P., Ferreirab, B., Martinsb, D., Coelhoa, N., Melob, G., Fernandesa, A., Magalhãesb, N., & Bastos, H. (2022). Predictors of lung entrapment and coping strategies in patients with malignant pleural effusion in Portugal. Pulomonology Journal; 11(22): P.1. DOI: 10.1016/j.pulmoe.2022.08.001.

Yang, T., Hsia, D., & Chang, D. (2018). Patient- and hospital-level factors associated with readmission for malignant pleural effusion. Journal of Oncology Practice; 14(9): e547-e556. DOI: 10.1200/JOP.18.00201.

Yılmaz, S., Yıldırım, H., Ak, G., Metintaş, S., Boğar, F., & Metintaş, M. (2019). Analysis of epidemiological, clinical and laboratory characteristics of patients with pleural effusion. Thoracic Research Practice; 20: Supplement 338-338. DOI: 10.5152/TurkThoracJ.2019.338.

Yousaf, Z., Ata, F., Chaudhary, H., Krause, F., Illigens, B., & Siepmann, T. (2022). Etiology, pathological characteristics, and clinical management of black pleural effusion. Medicine (Baltimore); 101(8): e28130. Doi: 10.1097/MD.0000000000028130.

إستراتيجيات التكيف مع مرضى الانسكاب البللوري

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تعتبر استراتيجيات التكيف ضرورية للمرضى الذين يعانون من الانسكاب البللوري والتي تعمل على تحسين أداء أنشطة الحياة اليومية وتقليل الألم وتحسين التنفس. هدفت هذة الدراسة إلى تقييم استراتيجيات التكيف للمرضى الذين يعانون من الانسكاب البللوري. تم استخدام دراسة التصميم الوصفي لهذه الدراسة. أجريت الدراسة بعيادة الصدر الخارجية بمستشفى بنها الجامعي. و تم استخدام عينة عشوائية بسيطة في هذه الدراسة شملت ٢٦٧ مريضا. بناء علي نتائج الدراسة الحالية وأسئلة البحث يمكن إستنتاج ما يلي: توجد علاقة ذات دلالة إحصائية بين مستوى استراتيجيات المواجهة الكلية للمريض المدروس وجميع فقرات الديموغرافية الاجتماعية. أكثر من نصف المرضى الذين شملتهم الدراسة لديهم مستوى معرفة إجمالي متوسط فيما يتعلق بالانسكاب البللوري، وأكثر من ثلث المرضى الذين شملتهم الدراسة لديهم مستوى معرفة إجمالي ضعيف وأقلية من المرضى الذين شملتهم الدراسة لديهم مستوى معرفة إجمالي جيد فيما يتعلق بالانسكاب البللوري. اوصت الدراسة بتطوير برامج تعليمية وتدريبية صحية لتحسين معرفة المريض وممارساته واستراتيجيات التعامل مع الإنسكاب البللوري. وضع برنامج تأهيلي لبقاء مريض الإنسكاب البللوري نشط واستعادة المستوى الأمثل للوظيفة.