

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



Shendi University



Faculty of Post Graduate Studies and Scientific Research

Research about:

**Assessment of Nurses Knowledge & Practice
Regarding Chest Physiotherapy in Elmek
Nimer University Hospital 2016**

A thesis submitted as partial fulfillment requirement of
master degree in medical surgical nursing

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بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ

الآیة

قال تعالى:-

﴿وَإِنَّ رَبَّكَ لَيَعْلَمُ مَا تُكِنُّ صُدُورُهُمْ وَمَا

يُغْلِبُونَ

صدق الله العظيم

سورة النمل - الآية (74)



Dedication

**I have dedicated this research to my dear parents
Who gave me all efforts and facilities to my study from
childhood until adulthood.**

Father and Mother

**To the soul of my heart really you are terrific and gentleman
and thank you for supporting through out the process of
completing this degree**

My husband

**To my children you are treasures from god and I'm blessed
(my daughters)**

To my dear husband who encourage me to reach this stage

To all my teachers:

**Who are teaching me giving without take and patience
without tedium.**

**Also I would like to dedicate it to my remaining brothers
and sisters for their continuous assistance and help.**

To all my friends:

Those who precede me and no longer with me,

Those who precede me and are still among me,

Those with me,

And to those who will follow me



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care unit in Elmak, Nimer hospital for their greater helps.*

*And finally I would like to extend our thanks to our families,
friend's classmate.*

List of abbreviation

Abbreviation	Mean
CPT	Chest physiotherapy
COPD	Chronic obstructive pulmonary disease
ICU	Intensive care unit
CCU	Cardiac care unit
RT	Respiratory therapist
CVA	Cerebral vascular accident

ملخص الدراسة

العلاج الطبيعي للصدر واسع الانتشار في المرضى الذين يعانون من مشاكل في

الصدر والغرض منه إزالة الإفرازات المخاطية من المجاري التنفسية.

أجريت هذه الدراسة الوصفية في الفترة من أغسطس - ديسمبر 2016م بمستشفى المك

نمر الجامعي لتقييم معرفة الممرضين بأهمية العلاج الطبيعي للصدر شملت الدراسة ثلاثون

ممرضا تم جمع البيانات عن طريق استبيان وقائمة تحقق وتم تحليله بواسطة التحليل

الإحصائي.

أوضحت الدراسة (53%) من الممرضين كانت لديهم معرفة بتعريف العلاج الطبيعي

للصدر و (57%) معرفتهم عن تعريف التصريف بالجازيه بينما اغلب مجتمع الدراسة مستوي

معرفتهم كان متدني فيما يخص عمليه تعريف طرق الصدر (67%) ودواعيه (57%) وعمليه

دواعي التصريف بالجابيه (67%) والمضاعفات (73%) والأثر (63%) بينما من ناحية

المهارة كان مستواهم جيد.

وتوصلت الدراسة إلى عدة توصيات، منها علي المستشفى منح برامج تعليميه لمساعدة

الممرضين في زياده معرفتهم عن العلاج الطبيعي للصدر واجراء مزيد من البحوث والدراسات

وأيضاً إعطاء كورسات تطويريه لجميع الممرضين، وعلي السلطات القومية والمحلية دعم البرامج

القائمة علي أمر العلاج الطبيعي للصدر.

Abstract

Chest physiotherapy is widely used in people with chest problem in order to clear mucus from the air way.

This study was descriptive cross sectional based research done to assess nurse knowledge, practices regarding chest physiotherapy in period extended from August to December 2016, 30 nurses working (ICU - CCU) were selected, data was collected by questionnaire filled by nurse and chick list, and analyzed by statistical package for social sciences (SPSS), and present inform of table and figures.

The study reflect that nurses were knowledge about definition of chest physiotherapy (53%) and postural drainage (57%) while poor knowledge about (indication of postural drainage (67%), (76%) percussion/vibration, indication of percussion (57%) complication (73%), (63%) effect) of chest physiotherapy, also had reflect high Skills in their practices.

The study recommended that the hospital should provide education program to help nurses to increase their knowledge about nursing procedures especially chest physiotherapy.

Provide continuous professional development courses for nurse. Both national government and local governments need to support physiotherapy services in their programmers.

More studies in other settings should be carried out to obtain adequate information about the importance of chest physiotherapy.

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Chapter One

Introduction

Justification

Objectives

1-1 Introduction

Chest physiotherapy is widely used in people with chest problem in order to clear mucus from the air way. Chest physiotherapy (CPT) includes postural drainage, Percussion and vibration, and breathing exercises/breathing retraining. In addition, teaching the patient effective coughing technique is an important part of chest physiotherapy. The goals of chest physiotherapy are to remove bronchial secretions, improve ventilation, and increase the efficiency of the respiratory muscles ⁽¹⁾.

Chest physiotherapy (CPT), which includes postural drainage, percussion, and vibration, helps move secretions from deep inside the lungs. It is indicated for the patient who has a weak or ineffective cough and is therefore at risk for retaining secretions. Patients with COPD, cystic fibrosis, or bronchiectasis and patients on ventilators benefit from CPT.

CPT is performed by a respiratory therapist (RT) or specially trained nurse. For postural drainage, the patient is placed in various positions (head down to help drain secretions) and turned periodically during the treatment so all lobes of the lungs are drained. The therapist uses cupped hands to strike the chest repeatedly (percussion), producing sound waves that are transmitted through the chest, loosening secretions. The therapist may also apply vibration to the patient's chest, using the hands or a vibrator, to loosen secretions. A nebulizer treatment should be given before CPT to humidify secretions. The patient is instructed to cough and deep breathe at intervals during and after the treatment ⁽²⁾.

Chest physiotherapy is techniques in tented to promote the drainage of secretion from the lung position drainage of each of the lung lobe is accompanied by percussion and/or vibration applied to chest wall loosen secretion percussion in valve using a cupped hand to beat firmly on the chest ⁽³⁾.

Chest physiotherapy which inculcate postural drainage percussion and vibration, help more secretion form deep inside the lung it is indicated for the patient who has weak or patient which chronic obstructive pulmonary disease cystic fibers and patient or ventilators benefit chest physiotherapy ⁽⁴⁾.

Chest physiotherapy is air way clearance technique that combines manual percussion of chest wall by care giver strategic positing of the patient for mucus drainage and cough breathing techniques the technique is sometimes called percussion to various areas of the chest and back transmits shocks waves through the chest wall, thus loosening secretion ⁽⁵⁾.

Chest physiotherapy is highly effective immobilizing mucus and facilitating airway clearance and is indicate for patient in whom cough is insufficient to clear thick localized secretion. Therapy is modified to improve result, pain and discomfort, therapy according to the patient need tolerance, condition and therapeutic goal ⁽⁶⁾.

The nurse rule to beware of the patient diagnosis as well as the lung lobs, nurse family members who will assist the patient at home to or segments involved, the cardiac status and any structural of chest wall and spine, auscultation the chest before and after the procedure is used to identify areas that need drainage and assess effectiveness of treatment ⁽⁷⁾.

1-2 Justification

Chest physiotherapy is very important procedure and this study done to increase nurses' knowledge about chest physiotherapy because nurses have insufficient knowledge about chest physiotherapy.

It is nursing procedure chest physiotherapy in the form of airway clearance techniques and exercise has played an important role in the treatment of cystic fibrosis. Until the 1990s the primary airway clearance technique used was postural drainage combined with percussion and vibration.

These techniques include the Active cycle of breathing technique, formally called the Forced expiration technique and Autogenic drainage. Both these breathing techniques aim at using expiratory airflow to mobilize secretions up the airways and incorporate breathing strategies to assist in the homogeneity of ventilation.

When exercise is used in addition to an airway clearance technique there is enhanced secretion removal and an overall benefit to the patient⁽⁶⁾.

1-3 Objectives

1-3-1 General objective:

Study the nurse knowledge and practice regarding chest physiotherapy.

1-3-2 Specific objective:

- ❖ To identify nurse knowledge about indication of chest physiotherapy.
- ❖ To assess the nurses practices regarding chest physiotherapy

2- Literature review

2-1 Chest physiotherapy:

Is one aspect of bronchial hygiene and may include turning, postural drainage, chest percussion and vibration, and specialized cough techniques known as directed cough ⁽⁶⁾.

Any or all of these techniques may be performed in conjunction with medicinal aerosol therapy (i.e., bronchodilators or mucolytics). The goals of CPT are to move bronchial secretions to the central airways via gravity, external manipulation of the chest, and to eliminate secretions by cough or aspiration with a catheter. Improved mobilization of bronchial secretions contributes to improved ventilation-perfusion matching and the normalization of the functional residual capacity ⁽¹⁾.

May have short-term beneficial effects on pulmonary Function, but it may also adversely affect the hemodynamic and metabolic status of intubated patients receiving mechanical ventilation, improve mucus clearance, to decrease the risk of pulmonary infection, improve quality of life to prevent complication in the post operative, treat atactus ⁽⁷⁾.

Techniques such as intermittent positive pressure ventilation and positive expiratory pressure may benefit patients with COPD requiring assistance with sputum clearance ⁽⁸⁾.

Postoperative upper abdominal surgery improving ventilator function, reducing pulmonary complications and postoperative hospital stay, To facilitate weaning and to improve function and outcomes of intubated ICU patients receiving mechanical ventilation ⁽⁹⁾.

Behavior change strategies: Have been found to be useful in improving patient adherence to their Physiotherapy, because they strengthen self-efficacy and hence Patients perceive they can cope with the programmed requirements.

To ensure that the strategies are effective they must suit the needs of the patients, the activities they are required to undertake and whether the programmed is long-term or short ⁽¹⁰⁾.

2- 2 Postural drainage:

Uses specific positions that allow the force of gravity to assist in the removal of bronchial secretions. The secretions drain from the affected bronchioles into the bronchi and trachea and are removed by coughing or suctioning. Postural drainage is used to prevent or relieve bronchial obstruction caused by accumulation of secretions ⁽¹⁾.

2-3 Postural drainage:

Exercises can be directed at any of the segments of the lungs. The lower and middle lobe bronchi drain more effectively when the head is down; the upper lobe bronchi drain more effectively when the head is up. Frequently, five positions are used, one for drainage of each lobe: head down, prone, right and left lateral, and sitting upright ⁽²⁾.

2-4 Indication of postural drainage:

2-4-1 Evidence or suggestion of difficulty with secretion clearance. Adult having difficult expectorating sputum volume greater than approximate 35% ml\day.

2-4-2 Suggestion of retained secretion in a patient with an artificial airway.

2-4-3 Presence of atelectasis caused by mucus plugging.

2-4-4 Diseases such as cystic fibrosis, bronchi ecstasies, lung disease foreign ^(6,12).

2-5 Contraindication of postural drainage:

2-5-1 Head and \or neck injury.

2-5-2 Active hemorrhage with hemodynamic instability - Intracranial pressure greater than 20mmhg.

2-5-3 recent spinal surgery.

2-5-4 acute spinal injury.

2-5-5 Active hem patsies.

2-5-6 Emphysema.

2-5-7 Carcinogenic pulmonary edema.

2-5-8 large pleural effusion.

2-5-9 pulmonary embolism.

2-5-10 Rib fracture with or without flail chest or other significant chest injury.

2-5-11 Surgical wound or healing tissue.

2-5-12 Head:

Neck or head swelling/ surgery/ burns, facial fractures, esophageal surgery/ tracheoesophageal fistula, recent eye surgery, recent CVA - (cerebral vascular accident/ stroke), cerebral edema and cerebral aneurysm.

2-5-13 Cardio Vascular System:

Arrhythmia –bradycardia.

Congestive cardiac failure.

Acute myocardial infarction.

Hypertension ion tropic drugs, aortic aneurysm.

2-5-14 Abdominal:

Gastro-oesophageal reflux.

Hiatus hernia.

Gross as cites).

Haematemesis.

Recent feeds or current nose-gastric tube feed.

Peritoneal dialysis.

2-5-15 Other:

Any child under 2 years of age ^(6,12).

2-6 Nursing management:

The nurse to evaluate breath sound before and after treatment and nurse explore strategies that will enable the patient to assume the indicated position at home this require the creative use of object readily available at home, such as pillow cushion or cardboard boxes.

Postural drainage is usually performed two to four times daily before meals and at bedtime prescribed bronchodilators water or saline may be nebulizer and inhaled before postural drainage to dilate bronchioles reduce branch -spasm ,decrease thickness of mucus and sputum and combat edema of the bronchial walls .the recommend sequence starts with position to drain the upper lobes.

The nurse make the patient as comfortable as possible in each position and provides an emesis basin ,sputum up and paper tissue, the nurse instructs the patient to remain in each position 10 to 15 minutes and to breath in slowly through nose and out slowly through purred lips to help keep the airways open so that secretions can drainage while in each position, if position cannot be tolerated the nurse help the patient assume modified position, when the patient changes position .the nurse explain how to cough and remove secretions.^(1,12)

If patient cannot cough the nurse may need to suction the secretion mechanically, it also may be necessary to us chest percussion and vibration or high frequency chest wall oscillation vest to loosen bronchial and mucus plugs that adhere to the bronchioles and bronchi and to propel sputum in direction of gravity drainage .if suctioning is required at home the equipment.

After the procedure nurse note the mount, color, viscosity and character of expelled sputum it is important to evaluate the patient's skin color and pulse the first few time the procedure is performed it and administer oxygen during postural drainage. It the sputum is foul –smelling it is important to perform postural drainage in room away from other patient or family remembers after the procedure the patient may find it refreshing to brush the teeth and use a mouth wash before resting⁽¹³⁾.

2-7 Percussion/Vibration:

Sputum volume or consistency suggesting a need for additional manipulation (percussion and/or vibration) to assist movement of sputum in a patient receiving postural drainage Vibration is the placement of hands along the ribs in the direction of expiratory movement of the chest. A small rapid vibration

(tremor) and slight pressure is applied during exhalation to accentuate this phase of the respiratory cycle. The maneuver mimics the forced exhalation of a cough. A vigorous form of this manual vibration combined with positive pressure ventilation is called an "artificial cough". This is used as an assist technique for sputum removal in paralyzed patients on ventilators. Mechanical devices used to perform vibration differ from the manual method in that the mechanical device is continuously applied during both inspiration and exhalation ⁽¹⁾.

2-8 Indication of percussion\ vibration:

2-8-1 Sputum volume or consistency suggestion a need for additional manipulation to assist movement of sputum in patient receiving postural drainage.

2-8-2 Improve and maintain chest wall mobility.

2-8-3 Improve cardiopulmonary exercise tolerance.

2-8-4 Increase coughs efficiency.

2-8-5 Change in vital signs.

2-8-6 abnormal chest radiograph suggesting atelectasis, mucus plugging, or infiltrates.

2-8-7 significant deterioration in the indices of gas exchange from baseline status ^(6,12).

2-9 Contraindications of percussion and vibration:

2-9-1 recent epidural anesthesia or recent epidural or intrathecal drug administration.

2-9-2 recent skin grafts or flaps on the thorax.

2-9-3 Burn, open wound, and skin infection of thorax.

2-9-4 recently placed transvenous or subcutaneous pacemaker.

2-9-5 Suspected or known active pulmonary tuberculosis.

2-9-6 Lung contusion.

2-9-7 Worsening broncho –spasm.

2-9-8 Osteomyelitis of the thorax.

2-9-9 Complaints of chest wall pain.

2-9-10 Osteogenesis imperfect or other bone disease associated with brittle or extremely fragile bone^(6,12).

2-10 Nursing management:

When performing chest physiotherapy the nurse ensures that the patient is comfortable, is not wearing restrictive clothing, and has not eaten. The nurse gives medication for pain as prescribed, before percussion and vibration and splints any incision and provide pillow for support need the position are varied but focus placed on the affected areas on completion of treatment the nurse assists patient to assume comfortable position, the patient may assume whatever position is most comfortable and may even continue to perform light activity during therapy within the length of the compressed air hose –it is not necessary for the patient to assume specific position for vest to be effective the nurse must monitor if any of the following occur, increased pain increased shortness of breath weakness light headedness, or hemo-ptysis therapy is indicated until the patient normal respiratory can mobilize secretion and has normal breath sounds and until the chest x-ray findings are normal.

Promoting home and community –based care teaching patient self-care chest physiotherapy is frequency indication at home for patient with COPD, bronchiectasis, or cystic fibrosis. The techniques are the same as described previously, but gravity drainage is achieved by placing the hips over a box or pillows (unless a hospital bed is unavailable). The nurse instructs the patients and family in the positions and techniques of percussion and vibration so that therapy can be continued in home, in addition the nurse instructs the patient to maintain an adequate fluid intake and air humidity to prevent secretion from becoming thick and tenacious it is also important to teach the patient to recognize early signs of infection, such as fever and change in color or character of sputum.

Resting 5 to 10 minute in each postural drainage position before chest physiotherapy maximizes the amount of secretion obtained.

Continuing chest physiotherapy may be carried out during visits by at home care nurse, the nurse also assess the patients physical status, understanding of the treatment plan compliance with recommend therapy and the effective of therapy.

Is it important to reinforce patient and family teaching during visit ^(1,12)

2-11 Equipment:

2-11-1Trendelenberg positions

2-11-2Pillows for position and/or cough support and patient comfort

2-11-3Patient gown or light towel to cover per cussed area Tissues and/or basin for sputum disposal

2-11-4 functioning suction equipment including a Yankauer suction catheter.

2-11-5 Stethoscope.

2-11-6 cardiopulmonary monitor.

2-11-7 Pulse ox meter.

2-11-8 Emergency airway equipment including manual resuscitator.

Universal precautions.

2-11-9 most recent chest radiograph ⁽¹³⁾.

2-12 Procedure:

2-12-1 assess the patient's chest radiograph for pulmonary findings and assess the indications for bronchial hygiene therapy and chest physiotherapy for the patient.

2-12-2 Prior to implementing CPT procedure, assess the patient for respiratory rate and work of breathing, heart rate and rhythm, skin color, blood pressure, pulse oximetry, and breath sounds.

2-12-3Perform CPT techniques appropriate for the patient.

2-12-4 Monitor the following throughout the therapy session and immediately.

2-13 following therapy:

2-13-1 the patient's reaction to the therapy including subjective responses to pain.

2-13-2 discomfort and dyspnea.

2-13-3 heart rate and rhythm.

2-13-4 respiratory rate and pattern including work of breathing.

2-13-5 cough and sputum production including color, quantity, consistency, and odor.

2-13-6 breath sounds.

2-13-7 skin color.

2-13-8 mental status.

2-13-9 oxygen saturation by pulse ox meter.

2-13-10 blood pressure.

2-13-11 use of splinting, external cough supports" ⁽¹³⁾.

3-Material and Methodology

3.1 Study design:

This study was descriptive, cross sectional, hospital based research, done in period extended from August to Desember2016 to assess nurses knowledge, attitude, practice about chest physiotherapy.

3. 2 Study area:

The study was done in Sudan Shendi town which is located 172 Km North to Khartoum city, it is the southern part of the River Nile state, lies in the east of the River Nile and covering area of 30Km square.

Most of the people in Shendi working in agriculture, simple in industrial works, employers, and trading. The town considered as center of Galilean tribe and some other tribes.

There are different centers for general services, also there Shendi University with its different faculties. Shendi has two big hospitals, the teaching hospital, and Elmek Nimes university hospital.

3.3 Study setting:

Elmek Nimes university hospital was established in July 2002.and consist of the following parts: theater, male/female surgery wards, male/female medicine wards, obis /gynecologic wards, pediatrics wards, laboratory, x-ray, u/s, renal part, radiation and chemotherapy, dialysis, endoscope, ICU and CCU. Thereare130 nurses in the hospital. CCU/ICU was specific setting for the study, the CCU unit composed of (13), Beds, (8) beds in CCU and (5) beds in intermediate CCU, .the total number of staff (17) nurses (5) of them in morning shift while (12) nurses were distributed to three groups in afternoon and night shift each group composed of (4) nurses.

3.4 Study population:

All nurses who work in Elmek Nimer university hospital. In (icu-ccu) during period of data collection

3.5 Sample size:

(30) Nurses were participated.

3.6 Data collection tool:

The data was collected by questionnaire, check list designed by the researcher to fulfill the purpose of knowledge and practice assessment of the study based on literature review.

3.7 Data collection technique:

The data was collected within three weeks during morning and afternoon and night shift. Every questionnaire takes 3-5 minutes, nurses were allowed to fill the questionnaire by their self, and the practice check lists vary between 10 – 15 minutes,

3.8 Sampling technique:

All nurses whom worked in CCU, ICU were enrolled in the study.

3.9 Data analysis:

The data was analyzed by statistical package for social sciences (SPSS version21) and presented in forms of tables and figures.

3.10 Lay-out questionnaire and check-lists:

3.10.1 Questionnaire:

Composed of (10) closed ended questions to fulfill the purpose of knowledge assessment of the study. The questions from (1-3) about demographic data, questions (4) about definition of chest physiotherapy, question (5) about definition of postural drainage, question (6) about indication of postural drainage, question (7) about definition of percussion/vibration, question (8) about indication of percussion/vibration, question (9) about complication, question (10) about effect.

3.10.2 Performance check lists:

To assess nursing practice regarding chest physiotherapy-pre procedures three item (introduced himself-prepared the equipment-loosen tight). six item about assessing performing postural drainage(lower head-sputum container-

position for 3-15 min-expectorate-turn to other-sitting after coughing). To assess performing percussion seven items (covered area-hold arm-clap over-listen sound-perused area-dot perused-encouraged to cough). six items assessing performing vibration(performed following-instructed client-placed-kept his/her-instructed inhales-performed vibration). Eight items assessing post procedure(auscultated chest-wear gloves-noted character-removed gloves-performed hand-offered oral-retuned -documented).

3.11 Scoring system:

3.11.1 Questionnaire:

Scoring system was established by researcher which the data was distributed three categories to measure the level of nurses knowledge about chest physiotherapy, if the nurse respond to (3,2) choice it consider good knowledge, (1) choice consider fair knowledge, (0) choice consider poor knowledge.

3.11.2 Performance checklist scoring:

- (1) Assessing pre procedure by (3) steps. (7 – 9 good, 4- 6 fair, 3 poor).
- (2) Performing postural drainage by (6) steps (15-18 good, 10-14 fair, and 6-9 poor).
- (3) Performing percussion by (8) steps (18-21 good, 11-17 fair, and 7-10 poor).
- (4) Performing vibration by (6) steps (15-18 good, 10-14 fair, and 6-9 poor).
- (5) Post procedure by (8) steps (20-24 good, 12-19 fair, and 8-11 poor).

3.12 Ethical consideration:

The study was approved by ethical committee of research in faculty of post graduate and scientific research, before conduction the study. Verbal Permission has been taken from original director of the hospital and then head nursing.

The researcher was explained the purpose of the study to the nurse's participant and has assured them that data collected from questionnaire and check lists will remain confidential and it is not allowed for any person to identify it.

4. Results

Tables (1) Distribution of study group according to their ages.

Age	Frequency	Percent
20-30 years	18	60%
30-40 years	9	30%
over 40 years	3	10%
Qualification	Frequency	Percent
Diploma	1	3%
Bachelor	21	70%
Master	8	27%
Experience	Frequency	Percent
Less than 2 years	4	13%
3-4 years	16	53%
More than 5 years	10	34%

Table (1) Illustrated less than two third of study group (60%) their age between 20-30year, (70%) of their qualification was baccalaureate, more than half (53%) of them experience between 3-4years.

Table (2) Distribution of study group according to their knowledge about definition of chest physiotherapy:

Definition of chest physiotherapy	Frequency	Percent
Knowledgeable	16	53%
Satisfying	0	0
Poor knowledge	14	47%
Total	30	100%

Table (2) Clarified that more than half (53%) of study group aware about definition of chest physiotherapy.

Table (3) Distribution of study group according to their knowledge about definition of postural drainage.

Definition of postural drainage	Frequency	Percent
Knowledgeable	17	57%
Satisfying	13	43%
Poor knowledge	0	0
Total	30	100%

Table (3) Clarified that more than half (57%) of study group aware about definition of postural drainage.

Table (4) Distribution of study group according to their knowledge about indication of postural drainage:

Application	Frequency	Percent
Knowledgeable	7	23%
Satisfying	3	10%
poor knowledge	20	67%
Total	30	100%

Table (4) Illustrated that more than two third (67%) of them poor knowledge about indication of postural drainage.

Table (5) Distribution of study group according to their knowledge about definition of percussion/ vibration:

Definition of percussion/ vibration	Frequency	Percent
Knowledgeable	5	17%
Satisfying	2	7%
poor knowledge	23	76%
Total	30	100%

Table (5) Illustrated the most study group (76%) poor knowledge about definition of percussion\vibration.

Table (6) Distribution of study group according to their knowledge about Indication of postural / vibration:

Indication of postural / vibration	Frequency	Percent
Knowledgeable	6	20%
Satisfying	7	23%
Poor knowledge	17	57%
Total	30	100%

Table (6) Illustrate more than half (57%) poor knowledge about indication of postural \vibration.

Table (7) Distribution study group according to their knowledge about complication of chest physiotherapy.

Complication	Frequency	Percent
Knowledgeable	6	20%
Satisfying	2	7%
Poor knowledge	22	73%
Total	30	100%

Table (7) Showed that most of study (73%) poor knowledge and fifth (20%) knowledgeable about complication of chest physiotherapy.

Table (8) Distribution study group according to their knowledge effect of chest physiotherapy.

Effect	Frequency	Percent
Knowledgeable	8	27%
Satisfying	3	10%
Poor knowledge	19	63%
Total	30	100%

Table (8) Illustrated that less than two third (63%) of them had poor knowledge about effect of chest physiotherapy.

Table (9) Description of study group according to their performance for chest physiotherapy practices about (pre procedure-performing postural drainage-performing percussion-performing vibration-post procedure).

Items	Performance scaling level					
	Good		Fair		poor	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Pre procedure	30	100%	0	0	0	0
Performing postural drainage	28	93%	2	7%	0	0
Performing percussion	24	80%	6	20%	0	0
Performing vibration	23	77%	6	20%	1	3%
Post procedure	29	97%	1	3%	0	0

Table (9) Showed that majority of study group was good performance about (pre procedure 100%, performing posture 93%, performing percussion 80%, performing vibration 77%, post procedure 97%).



Table (10) Cross tabulation between study group level of education and definition of chest physiotherapy:

N=30

Degree		Chest physiotherapy		Total	p. value
		Knowledgeable	Poor knowledge		
Diploma	Count	0	1	1	.491
	% of Total	0.0%	3.3%	3.3%	
Bachelor	Count	11	10	21	.405
	% of Total	36.7%	33.3%	70.0%	
Master	Count	5	3	8	.358
	% of Total	16.7%	10.0%	26.7%	
Total	Count	16	14	30	
	% of Total	53.3%	46.7%	100.0%	

p-value (0.491)

Table (11) Cross tabulation between study group level of education and definition of postural drainage

N=30

Degree		Postural drainage is		Total	p. value
		Knowledgeable	Satisfying		
Diploma	Count	1	0	1	.597
	% of Total	3.3%	0.0%	3.3%	
Bachelor	Count	11	10	21	.496
	% of Total	36.7%	33.3%	70.0%	
Master	Count	5	3	8	.981
	% of Total	16.7%	10.0%	26.7%	
Total	Count	17	13	30	
	% of Total	56.7%	43.3%	100.0%	

p-value (0.597).

Table (12) Cross tabulation between study group level of education and indication of postural drainage

N=30

Degree		Indication of postural drainage			Total	p. value
		Knowledgeable	Satisfying	Poor knowledge		
Diploma	Count	1	0	0	1	.250
	% of Total	3.3%	0.0%	0.0%	3.3%	
Bachelor	Count	3	2	16	21	.284
	% of Total	10.0%	6.7%	53.3%	70.0%	
Master	Count	3	1	4	8	.657
	% of Total	10.0%	3.3%	13.3%	26.7%	
Total	Count	7	3	20	30	
	% of Total	23.3%	10.0%	66.7%	100.0%	

p-value(0.250)

Table (13) Cross tabulation between study group level of education and definition of percussion/vibration:

N=30

Degree		Percussion / vibration			Total	p. value
		Knowledgeable	Satisfying	poor knowledge		
Diploma	Count	0	0	1	1	.826
	% of Total	0.0%	0.0%	3.3%	3.3%	
Bachelor	Count	3	2	16	21	.701
	% of Total	10.0%	6.7%	53.3%	70.0%	
Master	Count	2	0	6	8	.566
	% of Total	6.7%	0.0%	20.0%	26.7%	
Total	Count	5	2	23	30	
	% of Total	16.7%	6.7%	76.7%	100.0%	

p-value (0.826)

Table (14) Cross tabulation between study group level of education and indication of percussion/vibration:

N=30

Degree		Indication of percussion/ vibration			Total	p. value
		Knowledgeable	Satisfying	poor knowledge		
Diploma	Count	1	0	0	1	.008
	% of Total	3.3%	0.0%	0.0%	3.3%	
Bachelor	Count	2	3	16	21	.009
	% of Total	6.7%	10.0%	53.3%	70.0%	
Master	Count	3	4	1	8	.104
	% of Total	10.0%	13.3%	3.3%	26.7%	
Total	Count	6	7	17	30	
	% of Total	20.0%	23.3%	56.7%	100.0%	

p-value (0.08)

Table (15) Cross tabulation between study group level of education and complication

N=30

Degree		Complication			Total	p. value
		Knowledgeable	Satisfying	poor knowledge		
Diploma	Count	1	0	0	1	.262
	% of Total	3.3%	0.0%	0.0%	3.3%	
Bachelor	Count	3	2	16	21	.286
	% of Total	10.0%	6.7%	53.3%	70.0%	
Master	Count	2	0	6	8	.569
	% of Total	6.7%	0.0%	20.0%	26.7%	
Total	Count	6	2	22	30	
	% of Total	20.0%	6.7%	73.3%	100.0%	

p-value (0.262)

Table (16) Cross tabulation between study group level of education and effect of chest physiotherapy:

N=30

Degree		Effect of chest physiotherapy			Total	p. value
		Knowledgeable	Satisfying	Poor knowledge		
Diploma	Count	0	0	1	1	.436
	% of Total	0.0%	0.0%	3.3%	3.3%	
Bachelor	Count	4	2	15	21	.411
	% of Total	13.3%	6.7%	50.0%	70.0%	
Master	Count	4	1	3	8	.059
	% of Total	13.3%	3.3%	10.0%	26.7%	
Total	Count	8	3	19	30	
	% of Total	26.7%	10.0%	63.3%	100.0%	

p-value (0.436)

Table (17) Cross tabulation between study group experience and pre procedure

N=30

Years of experience		Pre procedure	Total	p. value
		Good		
less than 2 years	Count	4	4	.451
	% of Total	13.3%	13.3%	
3-4 years	Count	16	16	.520
	% of Total	53.3%	53.3%	
more than 5 years	Count	10	10	.309
	% of Total	33.3%	33.3%	
Total	Count	30	30	
	% of Total	100.0%	100.0%	

p-value (0.451)

Table (18) Cross tabulation between study group experience and performing postural drainage.

N=30

Years of experience		Performing postural drainage		Total	p. value
		Good	Fair		
Less than 2 years	Count	4	0	4	.791
	% of Total	13.3%	0.0%	13.3%	
3-4 years	Count	15	1	16	.700
	% of Total	50.0%	3.3%	53.3%	
More than 5 years	Count	9	1	10	.509
	% of Total	30.0%	3.3%	33.3%	
Total	Count	28	2	30	
	% of Total	93.3%	6.7%	100.0%	

p-value(0.791)

Table (19) Cross tabulation between study group experience and performing percussion.

N=30

Years of experience		Performing percussion		Total	p. value
		Good	Fair		
Less than 2 years	Count	4	0	4	.535
	% of Total	13.3%	0.0%	13.3%	
3-4 years	Count	12	4	16	.364
	% of Total	40.0%	13.3%	53.3%	
More than 5 years	Count	8	2	10	.583
	% of Total	26.7%	6.7%	33.3%	
Total	Count	24	6	30	
	% of Total	80.0%	20.0%	100.0%	

p-value (0.535).

Table (20) Cross tabulation between study group experience and performing vibration

N=30

years of experience		Performing vibration			Total	p. value
		Good	fair	poor		
Less than 2 years	Count	4	0	0	4	.501
	% of Total	13.3%	0.0%	0.0%	13.3%	
3-4 years	Count	12	4	0	16	.366
	% of Total	40.0%	13.3%	0.0%	53.3%	
More than 5 years	Count	7	2	1	10	.198
	% of Total	23.3%	6.7%	3.3%	33.3%	
Total	Count	23	6	1	30	
	% of Total	76.7%	20.0%	3.3%	100.0%	

p-value (0.501)

Table (21) Cross tabulation between study group experience and post procedure.

N=30

Years of experience		Post procedure		Total	p. value
		Good	Fair		
Less than 2 years	Count	4	0	4	.355
	% of Total	13.3%	0.0%	13.3%	
3-4 years	Count	16	0	16	.322
	% of Total	53.3%	0.0%	53.3%	
More than 5 years	Count	9	1	10	.221
	% of Total	30.0%	3.3%	33.3%	
Total	Count	29	1	30	
	% of Total	96.7%	3.3%	100.0%	

p-value (0.355)

5.1 Discussion

Intensive care patients often need help to get their lungs working properly. The physiotherapists will look at your breathing pattern, depth of breath and whether or not you have any phlegm to clear.

This study showed more than half (60%) of study group age 20-30 year the a study reflect that majority (70%) qualified bachelors. The study explained more than half (53%) experience between 3- 4 year.

The present study indicated that more than half (57%) aware about definition of postural drainage this information similar to scientific evidence ⁽²⁾ *Which state that is allows the force of gravity to assist in the removal bronchial secretion*, while near than two third (67%) not aware about indication of postural drainage similar to scientific evidence ^(6,12) *explain that retain secretion patient with artificial airway, disease such as lung disease, cystic fibrosis, foreign body in the air way*. The present study indicated that most of study (76%) not aware about definition of percussion and vibration this information like similar to scientific evidence ⁽¹⁾ which clarify that is placement of hand along the ribs in the direction of the chest. While more than half (57%) not aware about indication of percussion \vibration this information like similar to scientific evidence. ^(6, 12) state that to improve and maintain chest mobility, increase cough efficiency, and improve cardiopulmonary exercise. The study reflects (73%) poor knowledge about incidence of complication. the study explain less than two thirty (63%) not aware about effect of chest physiotherapy this information similar to scientific evidence. ⁽⁹⁾

The a study clarified that majority of study group was good performance practices about (pre procedure 100%, performing posture 93%, performing percussion 80%, performing vibration 77%, post procedure 97%).

There is significant relationship between level of education and knowledge about indication of percussion/vibration (p0.08).

There was no significant relationship between experience and practices of chest physiotherapy (p0.451, 0.791, 0.535, 0.501, and 0.355) this disagrees with fact of increase skill practices with experience years.

5.2 Conclusion

Based on the finding of the present study, it was concluded that the nurses were not aware or knowledge about chest physiotherapy in general. And the most of study group aware about practices required for patient need physiotherapy.

5.3 Recommendations

The study recommended that:

- ❖ The hospital should provide education program to help nurses to increase their knowledge about nursing procedures especially chest physiotherapy.
- ❖ Provide continuous professional development courses for nurse.
- ❖ Both national government and local governments need to support physiotherapy services in their programmers.
- ❖ More research by physiotherapists in this field is recommended.
- ❖ More studies in other settings should be carried out to obtain adequate information about the importance of chest physiotherapy

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Shendi university

Faculty of Graduate Studies and Scientific

Questionnaire about Assessment Nurses Knowledge & Practice

Regarding to Chest Physiotherapy in Elmek Nimer Hospital University

Part one: demographic data:

1- Age:

a- 20 – 30 () b- 30 – 40 () c- over ()

2- Degree of certification:

a- diploma () b- bachelor () c- master ()

3- Years of experience:

a-less than 2year () b- 3-5years () c. more than 5years ()

Part tow: about knowledge:

4- Chest physiotherapy:

a-is one aspect of bronchial hygiene ()

b- Is techniques in tented to promote the drainage of secretion from the lung position for drainage of each lung lobes ()

c- Is physical chest maneuvers such as percussion vibration and postural ()

d-all the above ()

5- Postural drainage is:

a-is the positing of the patient and bed each away as to have carina inferior to the lung segment to be drained ()

b- Is allow the force of gravity to assist in the removal of bronchial secretion()

c-a and b ()

6- Indication of postural drainage:

A-retained secretion in patient with artificial airway ()

b-a telecasts cause d by mucus plugging ()

c- Presence of foreign body in airway ()

7- Percussion/ vibration:

A-are help dislodge mucus adhering to the bronchioles and bronchi ()

B-are performed with goal the moving secretion from small distal airway into larger central airway ()

c- Placement of hands along the ribs in the direction of expiratory movement of the chest ()

8- Indication of percussion/vibration:

A-patient receiving postural drainage ()

b- Improve cardiopulmonary exercise tolerance ()

c-improve chest wall mobility ()

9-Complication:

a-unusual () b-aspiration () c-hypoxia ()

10-Effect of chest physiotherapy:

a-reduce pulmonary complication () b-treat atalactus ()

c-improve hemodynamic as tutus ()

Checklist for practice for chest physiotherapy

The candidate did the following	Good	Fair	Poor
Pre procedure:			
1. Greeted the patient, introduced himself / herself, and explained what is going to do			
2. prepared the equipments			
3. Loosen any tight clothing.			
Performing postural drainage.			
4. Lower head of bed slowly so that client's head is positioned at greater than a 25 downward angle.			
5. Place sputum container and tissues in client's reach.			
6. Tell client to remain in position for 3 – 15 min.			
7. Instruct client to expectorate secretions.			
8. Instruct client to turn to other side, then to supine position, then repeat procedure.			
9. Assist client to slowly return to normal sitting position after coughing in dependent positions.			
Performing percussion:			
4. Covered area to be percussed with gown or cloth towel.			
5. Hold arms with elbows slightly flexed, cup your hands with thumbs and fingers closed.			
6. Kept wrists loose and relaxed rhythmically flex and extent wrists to clap over to be drained.			
7. Percussed by alternative hands and listen for hollow sound with strikes.			
8. Slowly and rhythmically percussed each area for 3-5 min.			
9. Don not percussed over bony prominence, breast or tender area.			
10. Encouraged client to cough.			
Performing vibration:			
4. Performed vibration following postural drainage and percussion each position.			
5. Instructed client to breathe in through nose and exhale slowly.			
6. Placed your hands flat over area to be vibrated.			
7. Kept his/her arms and shoulders straight and wrists stiff.			
8. Instructed the patient inhales deeply.			
9. Performed vibration following postural drainage and percussion in each position.			
Post procedure:			
1. Auscultated chest areas for improved breath sounds.			
2. Wear gloves			
3. Noted character and measure sputum, then discard.			
4. Removed gloves.			
5. Performed hand hygiene.			
6. Offered oral hygiene following secretion expectoration.			
7. Retuned the equipment.			
8. Documented the procedure.			

