

## Nurses' Knowledge and Practices concerning Physiotherapy Protocol at Intensive Care Units in AL-Nasiriyah City

معارف وممارسات الممرضين تجاه بروتوكول العلاج الطبيعي في وحدات العناية المركزة في مدينة الناصرية

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### المستخلص:

**الأهداف:** تهدف الدراسة الى تقييم معارف وممارسات الممرضين تجاه بروتوكول العلاج الطبيعي في وحدات العناية المركزة .  
**المنهجية:** تم تنفيذ تصميم الدراسة المقطعية الوصفية في وحدات العناية المركزة بمستشفيات مدينة الناصرية للفترة من ١٣ تشرين الاول / ٢٠٢١ إلى ٧ نيسان / ٢٠٢٢ . تم جمع البيانات من خلال استبيان تم ملؤه من قبل ٧٥ ممرض يعملون في وحدة العناية المركزة الذين اختبروا عن طريق الاختبار غير الاحتمالي (الهادف). ثم استخدم الباحث قائمة الملاحظة لتقويم ممارسة الممرضين. تم تحليل البيانات بالحزمة الإحصائية للعلوم الاجتماعية الوصفي.  
**النتائج:** وجدت الدراسة أن هناك نقصاً في معرفة وممارسات الممرضين فيما يتعلق ببروتوكول العلاج الطبيعي في وحدات العناية المركزة. ان الممرضين ليسوا على دراية كاملة بتقنيات العلاج الطبيعي بشكل عام، وهو ما يعكس انخفاض مستوى الأداء.  
**الاستنتاجات:** تقتصر الممرضات في هذه الدراسة الى المعارف الكافية والممارسات ذات المستوى الواطئ فيما يتعلق ببروتوكول العلاج الطبيعي في وحدة العناية المركزة.

**التوصيات:** توفير برنامج تعليمي لزيادة معارف وممارسات الممرضين فيما يتعلق بتقنيات العلاج الطبيعي. هناك حاجة للقيام بدراسات أخرى عن العلاج الطبيعي في أماكن أخرى.

**الكلمات المفتاحية:** وحدة العناية المركزة، معارف الممرضين، العلاج الطبيعي، الممارسات

### Abstract:

**Objective (s):** This study aims to assess nurses' knowledge and practice regarding physiotherapy protocol at intensive care units

**Methodology:** Descriptive cross-sectional design was executed at the ICU in the city hospitals of AL-Nasiriyah city from October 13<sup>th</sup>, 2021 to April 7<sup>th</sup>, 2022. Questionnaire filled by 75 nurses who work in ICU chosen by non-probability (purposive) selection for the purpose of data collection. Then the researcher used an observational checklist to evaluate nurses' practice. The data was analyzed using descriptive statistics and SPSS version 23.

**Results:** The study found a deficit in nurses' knowledge and practices regarding physiotherapy protocol in intensive care units. The nurses are not fully familiar with physiotherapy a technique, which is reflected in the low level of performance.

**Conclusions:** The nurses in this study lacked sufficient knowledge and had a low level of practice regarding physiotherapy protocol in intensive care unit.

**Recommendations:** Providing an educational program to increase nurses' knowledge and practices regarding physical therapy techniques. Making other studies on physical therapy in other settings is needed.

**Keyword:** Intensive care units, nurses knowledge, physiotherapy, practices

## Introduction

Chest physiotherapy is a group of physical techniques that improve lung function and help breathe better <sup>(1)</sup>.

Physiotherapy techniques are utilized to improve ventilation and perfusion (V/Q) matching, enhance alveolar recruitment, decrease lung shunt, and promote airway secretion clearance <sup>(2)</sup>. Chest percussion include deliver energy waves over the chest wall to improve secretion clearance, which are hypothesized to help remove mucus from the upper airway Percussion is done manually tapping over the lung area that has been damaged during both the inspiratory and expiratory phases <sup>(3)</sup>. Vibrations are the application of compressing, cyclic pressure on the patient's thoracic cage at the onset of exhalation in order to shift dislodged discharges and facilitate their passage from distal to upper airway for evacuation by Endotracheal tube suction <sup>(4)</sup>. Postural drainage is a type of posture that relies on gravity to help with secretion clearance <sup>(5)</sup>. Positioning of ICU patient on other hand can enhance V/Q matching, increased lung volume, reduced breathing effort, reduced heart strain, as well as better airway cleaning can all be used to optimize oxygen delivery in critically ill patients <sup>(5)</sup>. Manual hyperinflation may help to reduce airway obstruction and increase alveolar recruitment by utilizing a higher tidal volume with a lower inspiratory volume, an inspiratory interrupt, and a high-flow expiration to simulate a cough as a result, airway secretions travel from the smaller bronchioles to the trachea, where they can be suctioned out <sup>(6)</sup>. Ventilator hyperinflation Includes adjusting the ventilator's settings to provide tidal volumes greater than the established standard while keeping the patient's ventilator connection <sup>(7)</sup>. Tracheal suctioning is. It is one of the types of physical therapy for the critical patient who has an artificial airway. Deep tracheal

suctioning is used for the patient who cannot cough secretions to the distal part of the tracheal tube <sup>(8)</sup>.

In each hospital, nurses play the most significant function among health care workers <sup>(9)</sup>. The Intensive Care Unit (ICU) is a specialized setting where a critical patient is treated <sup>(10)</sup>. The nurse plays an important role in the critical care units worldwidethus critical care nurses must be have a specialist knowledge in order to provide safe and optimal level of care for critically ill patient <sup>(11)</sup>.

## Methodology

### Study Design:

The study design was descriptive cross sectional conducted for the timeframe from 13th October/ 2021 to 7<sup>th</sup> April /2022.

### Study Setting

It has been executed at AL-Nasiriyah Heart Center and AL-Nasiriyah General Hospital.

### Study Sample

The sample was non-probability (purposive), the study subject consists of (75) nurses working in AL-Nasiriyah Heart Center and AL-Nasiriyah General Hospital in AL- Nasiriya city, which is selected based on the study criteria.

### Ethical consideration:

After the approval of the College of Nursing Council / University of Baghdad and the Ethical Research Committee, the nurses' written permission (official consent) was received from study participant.

### Instrument of the study:

#### Part I: Nurses' socio-demographic characteristics

This section is devoted with gathering socio-demographic information from nurses using an interview questionnaire sheet,

which contains (7) items such as gender, age, level of education, and years of practice in the ICU, related educational / training courses and Self-dependent education for physiotherapy protocol in intensive care unit.

### **Part II: Nursing Staff Knowledge regarding Physiotherapy Protocol in Intensive Care Unit**

This section was utilized to evaluate the nurses' understanding of the physiotherapy protocol in the intensive care unit. It is divided into four domains, each of which contains twenty-five multiple-choice questions.

### **Part III: Practices Checklist regarding Physiotherapy Protocol in Intensive Care Unit**

To evaluate nursing staffs' practices with respect to procedures of physiotherapy protocol, the researcher observed and checked for correct or incorrect performance.

### **Validity and reliability of study instrument**

A panel of 16 professionals with more than five years of experience in their industry decided on the validity questioner and practice checklist. To determine the reliability of study tools, Alpha Cronbach was used. The calculated result showed that the questionnaire was reliable. In addition; Inter examiner reliability was used to determine the equivalence between examiners of the research tools.

### **Statistical data analysis**

Descriptive statistics and SPSS were used to examine the data.

## **Results**

**Table (1): Distribution of Nurses by their Socio-Demographic data. N= 75**

<b>Age groups</b>	<b>F</b>	<b>%</b>
20 – 25 years	32	42.7
26 – 30 years	<b>34</b>	<b>45.3</b>
31 – 35 years	3	4
36 – 40 years	6	8
Total	75	100
<b>Mean age : 26 ± 4.056</b>		
<b>Gender</b>	<b>F</b>	<b>%</b>
Male	30	40
Female	<b>45</b>	<b>60</b>
Total	75	100
<b>Level of Education</b>	<b>F</b>	<b>%</b>
Secondary school	<b>3</b>	<b>4</b>
Diploma	<b>26</b>	<b>34.7</b>

Bachelor's	<b>45</b>	<b>60</b>
Postgraduate	<b>1</b>	<b>1.3</b>
Total	<b>75</b>	<b>100</b>
<b>Years of experience in ICU</b>	<b>F</b>	<b>%</b>
1-5 years	<b>59</b>	<b>78.7</b>
6-10 years	14	18.7
11-15 years	1	1.3
15-20 years	1	1.3
Total	75	100
<b>self-learning source</b>	<b>F</b>	<b>%</b>
Social Media	<b>15</b>	<b>50</b>
scientific websites	10	33.3
Hospital library	5	16.7
Total	30	100

**F= Frequency, %= percentage**

The demographic characteristics of the nurses Indicated that (45.3 %) of the age group (26 – 30 years), (60%) of the study subject were females. In relation to the educational level; the table demonstrates that (60%) of the nurses have Bachelor's degree and most of them (78.7%) have (1 -5) years of experience in the ICU. Half of study sample (50%) depends on the social media as a self-learning source.

**Table (2): Total Nurses' Knowledge and Practice Concerning Physiotherapy Program. N= 75**

<b>nurses' knowledge and practice</b>		
<b>Items</b>	<b>Mean</b>	<b>%</b>
<b>anatomy and physiology of lung</b>	1.9600	33.8%
<b>indication of phototherapy</b>	2.2400	44.8%
<b>types of physiotherapy</b>	1.8933	37.86 %
<b>Suctioning</b>	3.6400	36.4 %
<b>Total knowledge of physiotherapy</b>	9.73	38.9 %
<b>percussions</b>	1.18	39.5%
<b>vibrations</b>	0.0	0.0 %
<b>shaking</b>	0.0	0.0 %
<b>Positioning a patient in bed</b>	1.05	35 %

<b>Airway suctioning</b>	1.29	43 %
<b>Deep breathing exercises</b>	0.64	21.3 %
<b>Positioning a patient out of bed</b>	0.866	28.8 %
<b>Postural drainage</b>	0.56	18.6 %
<b>Nebulization</b>	1.28	42.6 %
<b>Incentive spirometer</b>	0.0	0 %
<b>Blowing up a glove</b>	<b>0.64</b>	<b>21.3 %</b>
<b>Inspiratory muscle training</b>	0.013	0.4 %
<b>CPAP</b>	1.5	50 %
<b>Active involvement in weaning a patient from MV</b>	1.3	43.3 %
<b>Total nurses' practice</b>	10.38	24.7 %

This table demonstrates that the nurses' knowledge and practice toward physiotherapy program are low.

## Discussion

Part I: Discussion Distributions of the Study Sample According to the Socio-Demographic Data (Table 1):

The study show that the sample consists of 75 nurses who were the mean age of the nurses was (26 + 4.056) years which ranged from (20-40) years. The results are similar to a pre-experimental study conducted in India at 2013 to evaluate the effectiveness of self-instructional module on knowledge regarding airway management modalities. Non-probability purposive sampling used to select a 60 nurse. The researcher found that the majority of age grope 83.33% is range from (21-30) years<sup>(12)</sup>. The results are not surprising sines the old handle the administrative work or head the departments and units.

Regarding the gender of the study participants, more than half of the subjects are female. Females made up a significant portion of the population (60%). These finding are similar to a quasi-experimental study conducted in Egypt at 2019 to determine the effect of education

intervention on nurse's knowledge and practices about endotracheal tube suctioning. A convenience sample to select 100 nurses who working in intensive care units. The study stated that female nurse form 59% out from 100 nurse participating in the study<sup>(13)</sup>. These results reflect reality that the majority of nurses in the world are female.

According to the study's findings, 4% of participants were from secondary schools of nursing and 60% were from colleges of nursing. This finding was comparable to a descriptive cross sectional Sudanese study conducted at 2016 to assess nurse knowledge, practices regarding chest physiotherapy 30 nurses working (ICU - CCU) were selected, data was collected by questionnaire filled by nurse and check list, and analyzed by statistical package for social sciences (SPSS). The result shows that 3 percent of participants were from secondary schools of nursing and 70% from colleges of nursing<sup>(14)</sup>.

Regarding years of experience, 78.7% of participants had worked in an intensive care unit for 1 to 5 years,

according to the findings. Which consists of a quality improvement study conducted in Melissa to evaluate registered nurses' knowledge related to incentive spirometer (IS) which found that 60% of study subjects had a 0-5 experience<sup>(15)</sup>.

Regarding self-learning source the majority (50%) depend on the social media which is from the researcher's point of view that is because availability of a lot medical flogs on social media which is more easy and interested than other sources in addition to that the Hospital library have only a limited number of books.

Part-II: Discussion Nursing Staff Knowledge and practice regarding Physiotherapy Protocol (Table 1):

The study's findings revealed that the nursing staff's awareness of the Physiotherapy Protocol in the ICU was low in the pretest test. (the mean was 9.73, 38.9 %).

There are many studies that agree with this result one of them is a pre-experimental study conducted in Iraq at 2021 to evaluate the effectiveness of educational program on improve nurse's knowledge about using physiotherapy to remove sputum for children with pneumonia by using non probability sampling on nurses working at children's hospitals in Babylon. the study showed a highly significant differences toward effect of program through raising knowledge grades of studied respondents at the post1 period, where the results of pretest (42%), post-test 1 (80%), and post-test 2 (78%) and that could be enable confirms importance and successfulness of applying a proposed program<sup>(16)</sup>.

Regarding the practices, quasi-experimental study conducted in Egypt at 2014 to evaluate the effect of the

educational training program on the nurse's performance regarding physiotherapeutic techniques for bed ridden children in the intensive care units. Convenient sample of 60 nurses working in at Tanta and Mansoura university children hospital. The study results showed that the nursing staff practices related Physiotherapy Protocol in Intensive Care Unit in the pretest were low<sup>(17)</sup>.

## Conclusions

The nurses in this study lacked sufficient knowledge and had a low practice regarding physiotherapy protocol in intensive care unit.

## Recommendations

- 1- Nurses in intensive care units should participate in an educational program to improve their knowledge and practice regarding physiotherapy protocol.
- 2- The need to place practice guidelines and teaching program to be perform and up dated in all Iraq hospitals.
- 3- The same study would be performed in other intensive care units, with the sample size increased, at other Iraqi teaching hospitals.

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