

## Practices of Pediatric Nurses Versus Mothers Having Children With Respiratory Problems regarding Chest Physiotherapy

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### Abstract

**Background:** Respiratory problems are the commonest illness of childhood they account for 30-40% of acute medical admission to the hospital in children **Aim of the study:** the aim of the study was to assess the practices of nurses versus mothers having children suffering from respiratory problems regarding chest physiotherapy. **Design:** A descriptive design. **Subjects & Methods:** This study was conducted at emergency pediatric department and outpatient clinic and pediatric intensive care unit at Children's Hospital, affiliated to Ain Shams University's Hospital. The total sample was 150 pediatric nurses and 150 mothers having children suffering from respiratory problems. **Tools:** data collection involved: structured interviewing questionnaire sheet to assess characteristics of the studied nurses and mothers of children as well, their knowledge about chest physiotherapy, observation checklists to assess the practices of the pediatric nurses as well as mothers regarding the procedure of chest physiotherapy. **Results:** The present study revealed that, the mean age of the studied nurses 25.56±5.73, while, the mean age of the studied mothers was 26.07±2.04. There was statistically significant relation between characteristics nurses and their total level of Knowledge about chest physiotherapy. There was no statistically significant relation between characteristics of nurses' and their total level of practices regarding chest physiotherapy. Also, there was statistically significant relation between characteristics mothers and their Knowledge about chest physiotherapy. **Conclusion:** nurses and mothers were had satisfactory or sufficient regarding chest physiotherapy. Almost, the majority of studied nurses had incompetent or incorrect practice meanwhile; all mothers had incompetent practice regarding chest physiotherapy. there is difference between practices of nurses and mothers regarding chest physiotherapy for children suffering from respiratory problems **Recommendation:** Training programs should be on a regular basis for pediatric nurses with professional physiotherapists and conduction for awareness session about chest physiotherapy for mothers having children suffering from respiratory problems.

**Keyword:** Practices, Knowledge, Pediatric nurses, Mothers, Children, Respiratory problems, Chest physiotherapy

### Introduction:

Respiratory problem (RPs) is a medical term that it encompasses pathological condition affecting the organs and tissue that make gas exchange possible in human. They also, affect any part of respiratory tract. In children, the

common respiratory problems are pneumonia, bronchitis and bronchial asthma (Drysdale et al., 2012).

The incidence of RPs: is highest in infant and young children especially of those the living in urban areas and increased in winter months (Ranganthan and Sonnappa, 2009 and Wright and

**Piedimonte2011&).Respiratory problems are emphasized by World Health Organization (2013).**

It is leading causes of children's morbidity and mortality in the developing world. However, in Egypt, RPs becomes the leading causes of death, it account for 30% of all infant death. There are many factors that contribute to respiratory problems including: malnutrition of

Children, unsanitary environmental condition, low socioeconomic standards of living, ignorance of the mothers together with lack of health assessment of children **(Postiaux et al., 2011).**

Chest physical therapy is normally done in conjunction with other treatments to rid the airways of secretions. Also, present other treatments include suctioning, nebulizer and the administering expectorant drugs. Nurses and mothers are plays a role in assessment of the child's condition before performing chest physiotherapy, precautions of the chest physiotherapy and sequence the aseptic technique for the children to avoid the exposure of infection **(Garmen et al., 2010 and Borchers et al., 2013).**

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

Chest physiotherapy is composed of basic element in management of children suffering from respiratory problems; it prevents the accumulation of pulmonary secretion to improve the cough mechanism **(Wilson &Hocken, 2007).** Nurses and mothers should be aware with the importance of chest physiotherapy and its accurate intervention for effective management to children with respiratory problems.

### **Aim of the Study:**

This study aimed to assess practices of pediatric nurses versus mothers having children suffering from respiratory problems regarding chest physiotherapy.

### **Research Questions:**

- Are the nurses and mothers having sufficient knowledge about chest physiotherapy for their children who are suffering from respiratory problems?
- Are the nurses and mothers having correct practices of chest physiotherapy for children who are suffering from respiratory problems?
- Is there difference between practices of nurses and mothers regarding chest physiotherapy for children suffering from respiratory problems?

### **Subjects and Methods:**

The subject and methods for this study will be discussed under four main designs as follow:

- I: Technical design.
- II: Operational design.
- III: Satirical design.
- IV: Administrative design.

### **Technical design:**

**Research design:** This study is a descriptive study.

**Research settings:**

This study was conducted at emergency pediatric department, outpatient clinic, and pediatric Intensive Care Unit at Children's Hospital affiliated to Ain Shams University Hospitals.

**Research subjects:****Sample size and Characteristics:**

Convenience sample was selected of all pediatric nurses working in the previously mentioned setting, the total number of nurses was composed of 150 (Intensive care unit (71) & Emergency (60) and Outpatient clinic (19).

A purposive sample was selected of mothers attending with their children suffering from respiratory problems and having chest physiotherapy, the total number of mothers was composed of 150. Characteristics of nurses and mothers was selected in the study regardless undergoing indicated for chest physiotherapy age, gender, marital status, qualification, level of education, years of experience or attendance of training program relevant to chest physiotherapy for nurse. A purposive sample of children was selected in the study over five years.

**Tools of data collection:** Data collection through using the following tools:

**1-Interviewing Questionnaire Sheet:**

It was designed by the researcher in the light of the relevant

literature and written in a simple Arabic language. It includes the following parts:-

**Part I:-**

■ Characteristics of the studied nurses: such as age, years of experience, qualifications and the attendance of training program

■ Nurse's knowledge about, the definition, benefits, methods, contraindications, indications, positions, technique, contraindication, complications, precautions, practice of chest physiotherapy, equipment of devices and drug used of nebulizer session.

**Part II:-**

■ Characteristics of the studied mothers, such as age, level education, history of the respiratory Problems among the family members and data about the home environment.

■ Mother's knowledge about, the definition, benefits, methods, contraindications, indications, positions technique, contraindication, complications, precautions, practices of chest physiotherapy, equipment of devices and drug used of nebulizer session

**Part III:**

■ Characteristics of the studied children such as age, sex, diagnosis and the history of previous admission due to respiratory problems.

**Scoring system:**

The obtained knowledge from both nurses and mothers were evaluated either as satisfactory or sufficient and unsatisfactory or insufficient. The responses were evaluated using the model key answer sheet prepared by the researcher. Accordingly, the total score was calculated as follow:

**For nurses;** less than 60% (unsatisfactory), more than an equal 60% (satisfactory) for **mothers;** less than 50% (unsatisfactory) while more than an equal 50% (satisfactory), according to the answers obtained from nurses and mothers about knowledge, zero degree was given to each incorrect answer, one degree was given to each correct but incomplete answer and two degree was given to each complete answer.

#### **Observation checklist:**

It was adopted from **Marlow and Redding, (2008)** to assess pediatric nurses and mothers having children suffering from respiratory problems actual practices regarding their practice of chest physiotherapy.

#### **Scoring system:**

Each step in the procedure was scored according to its correct performance, the total evaluation was either: competent or correct and incompetent or incorrect.

**For nurses:** Less than 85% (incompetent), more than an equal 85% was (competent) level of practice. **For mothers:** less than 60% (incompetent), more than an equal 60% was (competent) level of practice. According to answer on practice obtained from nurses and mothers, one degree given to each

incorrect answer, two degree was given to each correct answer.

### **Operational design**

#### **Preparatory phase**

A review of the past, current related literature covering various aspects of the research problem was done by using available books, articles, periodicals, magazines and on line references and to develop the tools for data collection.

Validity of tool was assessed by jury of three experts in pediatric department nursing. To achieve criteria of trust worthiness for data collection in the study, it was tested and evaluated for face and content validity and to assess the experts its relevance and clarity, and completeness elicited responses were either agree or disagree for face and content validity was done.

### **Ethical consideration**

The study subjects were informed about the purpose and expected outcome of the study and their participation is voluntary. They were assured, also that, anonymity, confidentially was guaranteed. Also all the gathered data was used for research purpose only, and they have the right to withdraw the study at any time and without given any reason.

#### **Pilot study:**

Pilot study was conducted on 10% of pediatric nurses (15) and also, 10% of mothers (15) having children with RPs and subjected for physiotherapy

procedure, to assess the study tool for its clarity, applicability and time required for fulfilling. The result of the data obtained from the pilot study helped in modifications of study tools where items were corrected, omitted or /and added as necessary.

#### **Field work:**

The actual field work was carried out over ten months, from the first week of June, (2016) up to the end of March (2017). The aim of the study was explained for the studied nurses and mothers to obtain their approval to be included in the study.

The researcher was available in the study settings three days weekly by rotation. The nurses were interviewed individually by the researchers. The time of data collection was at the end of each shift. The practice of the studied nurses was assessed throughout their implementation for chest physiotherapy of nursing care. Meanwhile the mothers were asked to demonstrate chest physiotherapy procedure on the children if their condition allowed or by using doll. As regards the mothers individually were interviewing according to their suitable time required.

#### **Administrative design:**

An official permission to carry out the study was obtained from the administrator of each study setting through an issued letter from the Dean of Faculty of Nursing / Ain Shams University to conduct the study.

#### **Statistical design:**

Data were organized; revised, coded, tabulated and analyzed using number and percentage distribution, and carried out in the computer. Proper statistical tests were used to determine whether there was a significant statistical difference or not. The following statistical tests were used: percentage,  $\bar{X} \pm SD$ , chi-square, coefficient correlation (r).

#### **Significance of the results:**

- When P value > 0.05 there is no significant statistical differences.
- When P value < 0.05 there is significant statistical differences.
- When P value < 0.001 there is highly significant statistical.

## Results

**Table (1):**Distribution of the studied nurses regarding their characteristics (n=150)

Nurses characteristics	No	%
<b>Age in years</b>		
20<25	88	<b>58.7</b>
25-<30	33	22.0
30-<45	29	19.3
$\bar{x} + SD$		<b>25.56+5.73</b>
<b>Qualification</b>		
Nursing diploma	24	16.0
Technical nursing diploma	80	<b>53.3</b>
Bachelor of nursing science	38	<b>25.3</b>
(Master/PhD) Having /students	8	5.3

Table (1) shows that, 58.7% of the studied nurses' age were ranged from 20- < 25 years, with mean age 25.56+5.73 years. Regarding to their qualifications, it was found that 53.3% of them had technical nursing diploma.

**Table (2):** Distribution of the studied mothers according to their characteristics (n=150)

Mothers' characteristics	No	%
<b>Age in years</b>		
20<25	57	<b>38.0</b>
25<30	57	<b>38.0</b>
30<45	36	<b>24.0</b>
$\bar{X} +SD$		<b>26.07 +2.04</b>
<b>Educational level</b>		
Illiterate	29	<b>19.3</b>
Diploma	40	26.7
school education (Average education)	<b>54</b>	<b>36.0</b>
High Education	27	18.0

Table (2) shows that, 38.0% of the studied mothers were in the age group of 20 - < 30 and 24.0% were 30 - <45 years with mean age 26.07 + 2.04years. As regards their level of educations it was found that, 19.3% of them was illiterate, 36 % were school education.

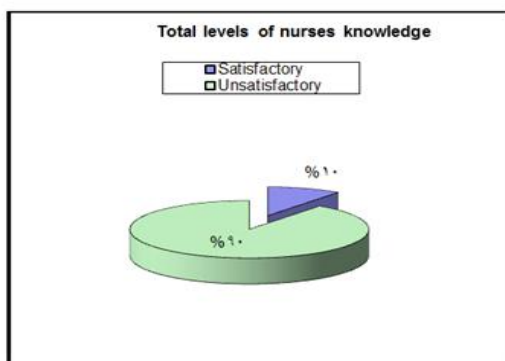
**Table (3):** Distribution of the studied children according to their characteristics (150=n).

Children characteristics	No	%
<b>Age in years</b>		
5 - < 10	111	<b>74.0</b>
10 - < 15	36	24.0
15-<18	3	2.0
$\bar{X}$ +SD	6.34+ 1.22	
<b>Sex</b>		
Male	84	<b>56.0</b>
Female	66	44.0

Table (3): Shows that, near to three quarters of the studied children 74.0 % were in the age group of 5 - < 10 years. In relation to their sex it was found that, 56% of children were boys.

#### Distribution Total Level of the Studied Nurses and Mothers according to their Level of Knowledge about Chest Physiotherapy.

**Figure (1): Total level of nurse's knowledge**



**Figure (2): Total level of mothers knowledge**

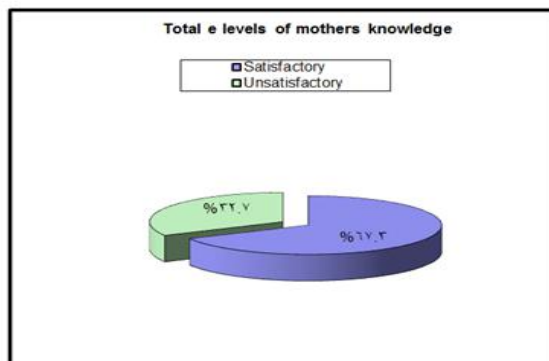


Figure (1, 2) shows that 90% of the studied nurses have satisfactory level of the total knowledge regarding chest physiotherapy, compared to 67.3% of the studied mothers who had satisfactory level of the total knowledge.

**Distribution Total Level of the Studied Nurses and Mothers according to their Level of Practice about Chest Physiotherapy.**

Figure (3): Total performance levels in the studied nurses

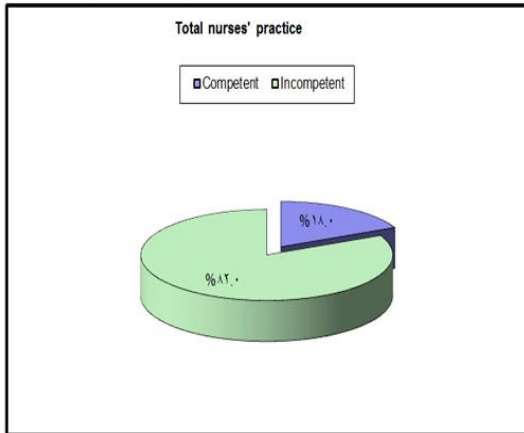
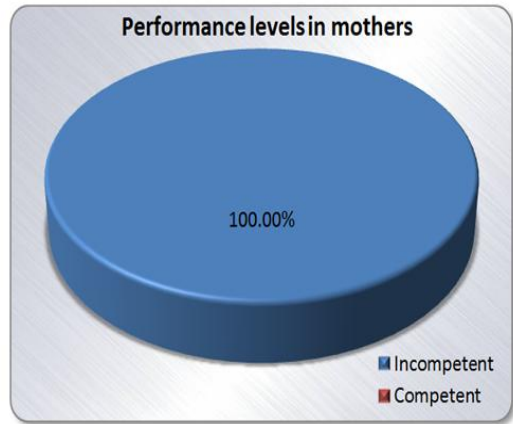


Figure (4): Total performance levels in the studied mothers



**Figure (3, 4):** clarifies that the practice level in chest physiotherapy of 82% of the studied nurses was incompetent while the performance level of all the studied mothers (100%) was incompetent.

**Table (4): Correlation between knowledge and performance of the studied Nurses**

Correlations		Knowledge	Performance
Knowledge	Pearson Correlation	1	.269
	Sig. (2-tailed)		.001**
Performance	Pearson Correlation	.269	1
	Sig. (2-tailed)	.001**	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table (4) shows that there was statistically significant correlation between knowledge and performance of the studied nurses (P value < 0.05) as illustrated.

**Table (5): Correlation between knowledge and performance of the studied mothers**

Correlations		Knowledge	Performance
Knowledge	Pearson Correlation	1	.a
	Sig. (2-tailed)		.
Performance	Pearson Correlation	1	.a
	Sig. (2-tailed)		.

Statistics cannot be computed as all mothers were incompetent and total ob score = 0

Table (5): This table there is no statistically significant correlation between knowledge and performance of the studied nurses (P value < 0.05)



**Discussion:**

Optimum respiration is not possible without clearing secretions in the airway. Normally, a healthy child can get rid of these secretions in two ways, mucociliary clearance system and coughing (**Munkholm and Mortensen, 2014**).

Respiratory physiotherapy has been used for many years to help in removal of secretions. However the denial of the pediatric patients to do daily physiotherapy especially in chronic obstructive diseases leads to the creation of regimens which provide independent application. Physiotherapists should be in

formed about current devices of respiratory illustrated us physiotherapy in order to choose the appropriate device for each pediatric patient, according to patient's age and clinical condition. Also they should teach pediatric patient the direct use of the device and give practical advices. Also the pediatric patient must be informed that these devices must not replace the programme of respiratory physiotherapy, because they have a supplemental role to respiratory physiotherapy, contributing to better results in pulmonary function. Alternation of using the devices, according to the pediatric patient's condition will give a motivation to the patients in order to continue their treatment (**Anton-Martin et al., 2014**).

The aim of the study was to assess practices of the pediatric nurses versus mothers having children suffering from RPs regarding chest physiotherapy.

The study was carried out at emergency pediatric department, outpatient clinic and ICU / Ain shams

children's hospital affiliated to Ain shams university hospitals.

Regarding the studied nurse's characteristics, the finding of present study revealed that, the mean age of them was mean SD 25.56 +5.73 years, near to two thirds of them were aged from 20- <25. These results were similar with **Salem (2010)**, who conducted a study titled as Evidence- Based guidelines for care of neonates with respiratory distress, and the found that mean age of the nurses was mean SD 25.48+5.74 years.

The result of the present study showed that, more than half of the studied nurses were graduated from technical nursing institutes. This finding was agreed with study done by **Abd El-Aziz (2010)**, entitled assessment of the nursing care of children under mechanical ventilation and found that, the majority of nurses were graduated from nursing schools.

In the present study the characteristic of the studied mothers revealed that, less than half of the studied mothers were in the age group between 20- <25 years and more than one third of them have school education. The researcher can illustrate this finding as; the mothers in this age are more ability on understanding any things especially of the child and that, to help giving care of child efficiency.

In the present study the characteristic of studied children revealed that, almost three quarters of the children were between 5- <10 years, with the mean age 6.34+1.22 years, half of them ranked as the second child. This finding was disagree by **Morinec et al. (2010)** who studied the risk factors and intervention for ventilator - Associated Pneumonia in pediatric patient, they found that, most

pediatric patient were between one and twelve month of age and were males. As regard gender, about two thirds of children were boys. Characteristic of studied children revealed that, almost three quarters of the children were between 5- < 10 years, because this ages more exposure of respiratory problems between children. As regards the total knowledge of the studied nurses, the present study revealed that, the majority of them had satisfactory level of knowledge.

From the researcher point to view, this result reflects the importance of continuous nurses training and competent supervising nurses is mandatory for effective pediatric care increase in knowledge. As regards the total level of nurses' practice, that result of the present study clarified that, near the majority of the studied nurses had incompetent practice regarding chest physiotherapy ,while total level of mothers This result is similar **Sriram et al. (2013)**, who observed during actual practice that nurses the total practice all incompetent. Mothers' level of education has a positive impact on their pediatric patient, health practices and adherence to what is good for them.

By investigation the mothers' knowledge and practices the study in relation to chest physiotherapy. The results clarified that a minority of the mothers had satisfactory level of knowledge and the surprising result is, that all studied mothers had incompetent level of practice related to chest physiotherapy for their children. This result emphasizes the necessity for mothers' involvement in care of their children with health problems. That may achieve the continuity of care at home and as a consequence reduce further bad consequence of the Childs' health problems (**Hondres et al., 2013**)

The present study revealed that there was positive correlation between nurse's knowledge level score and their practices. Also, the present study revealed that the correlation between mothers' knowledge score and their practices score cannot compute as all of the studied mothers were incompetent in their practice. This finding was consistent with to the finding of **El-Ghadban (2010)**, who found that there was an insignificant statistical difference between nurses' level education and their total knowledge and practice

However repeated intervention may strength the correlation between knowledge and practice. However, such intervention may be beneficial in improving nurses and mothers' knowledge and practice regarding respiratory secretions and its management. From the researchers' opinion, this result emphasizes the implementation of training program for nurses in addition to awareness session for mothers having children with respiratory problems (**Bohe, 2014**).

### **Conclusion:**

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Based on the findings of the present study, nurses and mothers were had satisfactory or sufficient regarding chest physiotherapy. Almost, the majority of studied nurses had incompetent or incorrect practice meanwhile; all mothers had incompetent practice regarding chest physiotherapy. There were positive correlation between knowledge and practice of the studied nurses. While the correlation between mothers' knowledge and practices cannot be computed as all of the studied mothers. There is difference between practices of nurses and mothers regarding chest physiotherapy for children suffering from respiratory problems

**Recommendation:**

▪ Training programs should be on a regular basis for pediatric nurses with professional physiotherapists.

▪ Availability and dissemination of handout and pamphlets for mothers having children with respiratory problems with the aim of raising their level of knowledge and practice.

▪ Further studies about chest physiotherapeutic techniques

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