

## Assessment of Nursing Care for Children Undergoing Open Heart Surgery

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### Abstract

This study aimed: to assess the pediatric nurses' knowledge and skills regarding care of children undergoing open heart surgery. **Design:** A descriptive design was utilized in conducting the study. **Setting:** This study was conducted at Abou El-Resh Talabah Hospital Affiliated to health insurance and Cardiac Surgery Academy affiliated to Ain Shams University Hospitals. **Subject:** A purposive sample of nurses who give care to children undergoing open heart surgery, they were all (80) nurses. **Tools of data collection:** questionnaire sheet and observational checklists. **Results:** This study revealed that more than half of the studied nurses in the age between 20-30 years and married also, not attended any training programs, more than half of them (61.3%) had unsatisfactory knowledge, while the majority of them (77.5%) had competent performance regarding caring of children undergoing open heart surgery. **Conclusion:** this study concluded that more than half of the studied nurses had unsatisfied knowledge although the majority of them have competent practices during providing nursing care for children undergoing open heart surgery. **Recommendation:** Educational program should be carried out in order to improve quality of care that was provided to children undergoing open heart surgery.

**Key words:** Open heart surgery, congenital heart disease, congenital heart defects, nurses knowledge and skills.

### Introduction

Congenital heart defect (CHD) is a defect in the structure of the heart and great vessels which is present at birth. Many types of heart defects exist, most of which either obstruct blood flow in the heart or vessels near it, or cause blood to flow through the heart in an abnormal pattern (Lozano, 2012).

Congenital heart disease (CHD) happens because of incomplete or abnormal development of the fetus' heart

during early weeks of pregnancy. Some are known to be associated with genetic disorders, such as Down syndrome, but the cause of most CHDs is unknown (Baffa, 2012).

It has an estimated prevalence of 4 to 50 per 1000 live births, with more than 2 million Americans living with a CHD, Approximately 8 out of every 1,000 newborns have CHDs, which can range from mild to severe. In Egypt, the incidence of congenital heart disease (CHD) is ranged from 7 to 8 children/1000 live birth (American Heart Association [AHA], 2015)

The role of nurses is to provide information regarding the disease, its treatment, prognosis and complication, also adjusting the child emotional as well as physical reaction to illness and hospitalization. The nurse should become familiar with parent and learn how to reassure them without minimizing the danger of the defective surgery. The nurse should teach the parents how to deal their cardiac children before and after operation until the discharge from the hospital (*Wong, 2014*).

### **Significance of the Study:**

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Congenital heart disease (CHD) covers a wide spectrum from small defects, which may be totally asymptomatic and compatible with a normal lifespan, to more severe forms which require urgent intervention. Many defects are possible, but most defects either obstruct flow of blood in the heart or in vessels near to it or cause blood to take an abnormal route through the heart.

### **Aim of the study**

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This study aimed to assess the Pediatric Nurses knowledge and skills regarding care of children undergoing open heart surgery.

### **Research Questions**

1-What is nurses' knowledge about nursing care of open heart surgery for children.

2-What are nurses' skills about nursing care of open heart surgery for children.

#### **I. Research design**

A descriptive design was used to conduct this study.

#### **A. Study Setting**

The study was conducted in two different settings, Abou El-Resh Talabah Hospital affiliated to Cairo University and Cardiothorathic Surgery Unit, Academic Cardiac Surgery; affiliated to Ain shams University Hospital

#### **B. Sampling**

The subjects of this study composed of (80) nurses are working in the previously mentioned setting regardless of their residence, age or gender.

#### **Technical Design**

##### **Tools of data collection**

Data were collected through use of the following tools:

**I. Interview questionnaire form (Appendix I):** this tool was designed by the researcher and written in simple Arabic language based on scientific literature review to assess data about the following:

**Part I:** It was used to assess demographic characteristics of nurses include age, education, years of experiences.....etc.

**Part II:** It was developed by the researcher based on the related literature review and was written in Arabic language. It was used to assess knowledge about open heart surgery such as definition, indication, preoperative, postoperative, postoperative care and complication.

##### **Scoring system for knowledge questions:**

The right answers were scored one, and those wrong were scored zero. These scores were summed-up and converted into a percent score. Satisfy answer if the

percent score was 75% or more and unsatisfied if less than 75%.

**II. Observational checklist (Appendix II):** It was designed to assess the nurses performance (pre, during, and post-surgery) it will include vital signs, lower extremity pulse, weight and height dorsal pedis pulse, fluid balance and physical observation. Nurses will be observed and evaluated continuously during their actual care.

**Scoring system:**

- Score from 0 <75 referred to unsatisfied practice.
- Score from 75 ≤ 100 referred to satisfied practice.

**II. Operation design**

The operational design for this study consisted of three phases, namely preparatory phase, pilot study, and field work.

**Preparatory Phase**

This phase included reviewing of literature related to nurses' knowledge about open heart surgery by using books, articles, journals, and internet. This served to develop the study tools for data collection. During this phase, the researcher also visited the selected places to get acquainted with the personnel and the study settings. Development of the tools was under supervisors' guidance and experts' opinions were considered.

**Pilot Study**

Pilot study was carried out on 10% of children in Abou El-Resh Talabah Hospital affiliated to Health Insurance and Cardiothorathic Surgery Unit, Academic Cardiac Surgery; affiliated to Ain shams University Hospital in order to test the applicability of the constructed tools and

the clarity of the included questions related to nurses' knowledge about open heart surgery. The pilot has also served to estimate the time needed for each subject to fill in the questions. According to the results of the pilot, some corrections and omissions of items were performed as needed. The pilot participants were not included in the main study sample.

**Field work**

To carry out the study, an approval was obtained from the medical and nursing director of Abou El-Resh Talabah Hospital affiliated to Health Insurance and Cardiothorathic Surgery Unit, Academic Cardiac Surgery; affiliated to Ain shams University Hospital. A letter was issued to them from the Faculty of Nursing, Ain-Shams University, explaining the aim of the study in order to obtain their permission and cooperation. Data were collected in six months, from November 2014 to April 2015.

The researcher first met with the nurses were worked in the previously mentioned setting, explained the purpose of the study after introducing herself. The nurses were assured that information collected would be treated confidentially, and it would be used only for the purpose of the research. Then, individual interviewing was done after obtaining nurses consent to participate. The researcher was visiting the study setting 3days / weekly at morning shift to collect data and implement this study.

**Content and Face Validity and Reliability:**

It was ascertained by a group of experts in pediatric nursing. Their opinions elicited regarding the format, layout, consistency, accuracy and relevancy of the tools.

**III. Administrative design**

An official permission to conduct the study obtained from the medical and nursing director of Abou El-Resh Talabah Hospital affiliated to Health Insurance and Cardiothorathic Surgery Unit, Academic Cardiac Surgery; affiliated to Ain shams University Hospital. The researcher then met the hospital director and explained the purpose and the methods of the data collection.

**Ethical consideration:**

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Verbal approval was obtained from the nurses before inclusion in the study; a clear and simple explanation was given according to their level of understanding, physical and mental readiness. They secured that all the gathered data was confidential and used for research purpose only.

*The ethical research considerations include the following:*

- The research approval was obtained from the faculty ethical committee before starting the study.

- The researcher was clarify the objectives and aim of the study to nurses included in the study before starting
- The researcher was assuring maintaining anonymity and confidentiality of subjects' data included in the study
- The Subjects was informed that they are allowed to choose to participate or not in the study and they have the right to withdraw from the study at any time.

**IV. Statistical analysis**

Data collected from the studied sample was revised, coded and entered using. PC. Computerized data entry and statistical analysis were fulfilled using the statistical package for social sciences (SPSS) version 20. Data were presented using descriptive statistics in the form of frequencies, percentages. Chi-square test ( $X^2$ ) was used for comparisons between qualitative variables. Statistical significant was considered at p-value <0.05.

**Results:**

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**Table (1):** Number and percentage distribution of the studied nurses according to their qualification, position and previous training (No= 80)

<b>Item</b>	<b>No</b>	<b>%</b>
<b>Qualification</b>		
Diploma nursing	22	27.5
Technique institute	27	33.8
BSN	31	38.8
<b>Hospital</b>		
Abou El-Resh Talabah Hospital	30	37.5
Academic Cardiac Surgery	50	62.5
<b>Position</b>		
Technician	26	32.5
Staff Nurse	28	35.0
Head nurse	13	16.2
Supervisor	13	16.2
<b>Previous Training</b>		
Yes	36	45.0
No	44	55.0

It is clear from this table that,38.8% of the studied nurse has bachelor degree,35.0 %were staff nurse and55.0% of them were not attended on open heart surgery training.

**Table (2):** Number and percentage distribution of the studied nurses according to their total knowledge score regarding heart surgery (No= 80).

Total knowledge score	No	%
Satisfied	31	38.7
Unsatisfied	49	61.3

It is clear from this table revealed that, 61.3% of the studied nurses had unsatisfied total knowledge score.

**Table (3):** Number and percentage distribution of the studied nurses regarding care of children of heart surgery (No= 80)

Total practice	No	%
Competent	62	77.5
Not competent	18	22.5

It is clear from this table revealed that, 77.5% of the studied nurses were competent to provide care children post heart surgery.

**Table (4):** Correlation between total knowledge of the studied nurses and their total practices regarding open heart surgery

Item	Knowledge	
	R	P Value
<b>Practices</b>		
Competent	0.43	0.0001
Not competent		

Table (4) illustrates positive correlation between practices l of the studied nurses and their knowledge regarding open heart surgery with statistically significant differences at  $p < 0.0001$ .

**Discussion:**

It was clear from this result that, more than one third of the studied sample had bachelor degree and was staff nurse also; it was obvious from the current study that more than half of them were not attended training regarding open heart surgery. This finding was not in accordance with the study of *Colak, 2008*, who study Health related quality of life following cardiac surgery, mentioned that most of the study sample attend the training course and from high school, this may be due to the protocol of specialty

nurse outside Arab countries, which reported that no nurse can be in a special unites without take the orientation program regarding such specialty.

The current study illustrated that there was statistically significant differences between age, professional position, qualification and previous training of the studied nurses and their knowledge regarding open heart surgery at  $p < 0.05$ . This study was in an agreement with the study of *Fayad, 2009* who study assessment of preoperative and postoperative care given to children with intussusception at Ain Shams

University, mentioned that there was relation between age qualification and previous training of the studied sample and their knowledge.

According to the relation between the studied sample demographic data and their practice, it was cleared that illustrates there was statistically significant differences between age, qualification and previous training of the studied nurses and their practices regarding open heart surgery at  $p < 0.05$ . These study was in an agreement with the study of **Tantawi, 2007**, who study drug administration practices of nurses in pediatric care settings: Effect of nursing intervention, mentioned that nurses performance was influenced by the demographic data namely age, qualification, the experiences and previous training. The investigator believes. those increase the age, give the chance to the nurses to get more training programs and increase their experiences which improve their performance regarding care in ICU.

Concerning the studied sample correlation between the studied sample knowledge and practices this study finding illustrated that there was positive correlation between practices of the studied nurses and their knowledge regarding open heart surgery with statistically significant differences at  $p < 0.0001$ . This study was highly supported with the study of **Nadir, 2010**, who study evidence based guidelines for care of neonates with respiratory distress at Ain Shams University hospitals and **Fohey, 2014**, mentioned that there was statistically significance relation with correlation between knowledge and practices of the studied sample

### **Conclusion:**

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This study concluded that more than half of the studied nurses had unsatisfied knowledge although the

majority of them have competent practices during providing nursing care for children undergoing open heart surgery.

### **Recommendation:**

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1. Educational program about preoperative and postoperative preparations for children undergoing open heart surgery must be conducted for all nursing and medical staff.
2. Development of policy and procedure protocol for nurses give care of children undergoing cardiac surgery.
3. Qualitative research could be conducted on the same issue so that the perceptions of the nurses on the knowledge-practice gaps could be explored in-depth.

### **References:**

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- American Heart Association [AHA] (2015):** Bio-statistical fact sheet, congenital cardio-vascular diseases. Available at: [www.Americanheart.org](http://www.Americanheart.org).
- Baffa, G. (2012):** Congenital heart defects. Available at: <http://kidshealth.org/parent/medical/heart/congenitalheartdefects>.
- Colak Z. (2008):** Health related quality of life following cardiac surgery-- correlation with Euro SCORE. *European journal of cardiothoracic surgery*; 33(1):72-76.
- Fayad S. (2009):** Assessment of preoperative and postoperative care given to children with intussusception at Ain Shams University, Master Thesis, Faculty of Nursing, Ain Shams University.

**Fohey, A. (2014):** Clinical assessment of the vascular system, 6th ed., Philadelphia, W.B. Saunders, pp. 511-527.

**Lozano, R. (2012):** Global and Regional Mortality from 235 Causes of Death for 20 Age Groups in 1990 and 2010: A Systematic Analysis for the Global Burden of Disease Study 2010. Lancet; 380 (9859): 2095- 128.

**Nadir B (2010):** Evidence based guidelines for care of neonates with respiratory distress at Ain Shams

University hospitals, Doctorate Thesis, Faculty of Nursing, Ain Shams University.

**Tantawi H. (2007):** Drug administration practices of nurses in pediatric care settings: Effect of nursing intervention at Ain Shams University Hospitals, Doctorate Thesis, Faculty of Nursing, Ain Shams University pp. 90-103.

**Wong, D. (2014):** Essentials of Pediatric Nursing, 9<sup>th</sup> ed, Chicago: Mosby Co, pp. 122.