Quality of Nursing Services for Heart Problems in Pediatric Hospital Intensive Care Unit

Banw Azad Mohammed[1], Aso Faeq Salih[2]

[1]Assistant Lecturer, University of Sulaimani College of Nursing, [2] MBchB, DCH, FIBMS, Higher Diploma (Pediatric Cardiology), Assistant Professor University of Sulaimani College of Medicine

Abstract

Background: Paediatric cardiac nurses should provide appropriate health information and guiding the parents to take care of their congenital heart diseases children effectively and family wellbeing. The aim of this study is to evaluate nursing management for admitted cardiac patients with congenital heart diseases in Sulaimani Pediatric intensive cardiac unit.

Method: Quantitative design with descriptive study was carried out with evaluation approach and it was conducted on nurses in pediatric intensive care unit of pediatric teaching hospital/Sulaimani city of Kurdistan region from 1st July 2017-1st May 2018. Non-probability sampling was performed, a purposive sample of (35) nurses who are working in Pediatric intensive cardiac unit of pediatric hospital and (105) convenience sample of the pediatric patient with congenital heart disease was involved in the study.

Results: Generally, the level of nurses' practice in total care management was 90.5% in fair level and only 9.5% in good level.

Conclusion: Nursing care management for child with congenital heart disease has been considered to be poor practiced in Kurdistan. More specifically, the nursing intervention to reduce child's heart load was poorly practice. The nurse's academic background and experience were not good qualified.

Keywords: *Heart problems, Pediatric hospital, Nursing services.*

Introduction

Congenital heart diseases (CHD) is structural or functional heart problems, which onset at birth. Some of these may be detect in later life. Cardiovascular disorders in children are divided into two major groups, congenital heart disease and acquired heart disorders. Congenital heart disease (CHD) includes primarily anatomic abnormalities present at birth that result in abnormal cardiac function. The clinical consequences of congenital heart defects fall into two broad categories, heart failure (HF) and hypoxemia. Congenital heart disease (CHD) is one of the master group of illness that, if treated, can get back health and promote quality of life. While the child admitted in the hospital, the most important role is that nurses have to perform dynamic clinical nursing care to this group of patient, specifically the ones with complex situations e.g., congestive heart failure and anoxic spells. This role will result in survival and quality of life[17] . The nursing management for children with congenital heart diseases must be built up and carried out early, when the diagnosis of congenital heart disease is detected, in order to maintain the child in a stable or hemodynamically compensated state [12].Assessment of service delivery is an important aspect of nursing practice, service evaluation is being increasingly used and led by nurses, who are well placed to evaluate service and practice delivery. Evaluation in the healthcare context can be a complicated activity and some of the potential challenges of evaluation are described, alongside possible solutions. Further resources and guidance on evaluation activity to support nurses' ongoing development are identified [14]

Methodology

Design of the Study: Quantitative design with descriptive study was carried out with evaluation approach and it was conducted on nurses in Pediatric Intensive Care Unit of Pediatric Teaching Hospital/ Sulaimani city from 1st July 2017-1st May 2018. The study carried out to evaluate nursing management regarding children with congenital heart diseases.

Setting of the Study: Pediatric Intensive Care Unit has been established between 2011-2012 . Most of serious pediatric patient admitting in this unit in order to performing better caring and services . The most critical cases includes : Congenital heart diseases, Pneumonia, Nephrotic syndrome, Sever dehydration, Bleeding, Sepsis, Convulsion, Croop, live fail, and encephalitis.

The sample of the study: Non-probability sampling was performed, a purposive sample of (35) nurses and (105) convenience sample of the pediatric patient with CHD were recruit to the study.

The inclusion criteria for sample selection:

1. All nurses who work at PICU, university nurse, institute nurse, school nurse with both gender (male and female) and all nurses who work at both shifts (morning and evening).
2. Children who have congenital heart diseases either admitted to interventional purpose or clinical.

Tools: It is regarding patient socio-demographic data which are (age, gender, sequence child among sibling, residential area, type of CHD, Period and reason of hospitalization, and medication) .

The observational check list scale includes (40) items concerning practice and activities that should be provided from the nurses to the children with CHD in Pediatric Intensive Care Unit. This scale consist of nursing Assessment (12 items), provide adequate nutritional intake to maintain growth and development (5 items), prevent infection (5 items), reduce the workload of the heart (5 items), manage respiratory distress (10 items), and provide health education to patient and family (3 items) .

Method of data collection: The data were collected throw the utilization of adopted and constructed questionnaire, interviewing technique, and observational technique . Data were collected from (1st July 2017 - 1st April 2018).

Rating scales and scores: In this study using 3 types of rating scales:

Two points likert scale (Yes and NO): Three points likert scale (Always, Some time, and Never) is used in the section three of part one.

Five point likert scale: Poor (1), Fair (2), Good (3), Very good (4), Excellent (5)

Five is the highest score regarding nursing management in the (observational check list part) performed to the children with congenital heart disease in Pediatric Intensive Care Unit. To make understanding scoring system more clearly, mean of nursing care management were calculate for each subscale, then the score of each subscales have been unified in (0-100). And each item of the observational tools has been rated to three categories based on the mean of each distinct item, the category rated as Low practice (mean less than 1.65), Medium practice (mean lie between 1.65 to 3.3), High practice (mean greater than 3.3).

Descriptive Statistics: The P-value at 5% level indicates the degree of significance. Data were shown and tabled in frequencies and percentage, and mean of scores was calculated from ordinal data in five level (5, 4, 3, 2, 1) . In the present study the highest mean of score indicates the highest level of practice regarding nursing management.

Inferential Statistics: Independent T- test and ANOVA have been utilized to find out the significant relationship of nursing care management with socio-demographic characteristics, and nurse's skill and experiences.

Results

The table 1 socio-demographic profile of participants presented. Out of 35 participants studied 21 (60%) were from age group 20 – 30 years, with mean age of 30.4 years. Majority of participants studied 77.1% were female and 62.9% of the participants were married whereas 37.1% were single. Total 21(60%) participants had experience of more than 10 years as a nurse, the experience of working in ICU was more than 5 years was 88.6%. Regarding education, majority of the nurses were graduated from institute 16 (45.7%).

Table 1: Distribution of the sample according to nurse's socio-demographic data

Characteristics	Frequency	Percentage
Age group		
20-30	21	60.0
31-40	10	28.6
More than 40	6	11.4
Total	35	100
Mean± SD for age: 30.4±8.2		
Gender		
Male	8	22.9
Female	27	77.1
Total	**35**	**100**
Years of experience as a nurse		
< 5	4	11.4
5-10	10	28.6
>10	21	60
Total	**35**	**100**
Years of experience in ICU		
1-5	4	11.4
> 5	31	88.6
Total	**35**	**100**
Level of education		
Graduate from primary nursing school	4	11.4
Graduate from secondary nursing school	5	14.3
Graduate from medical institute	16	45.7
Graduate from college of nursing	10	28.6
Total	**35**	**100**
Marital status		
Single	13	37.1
Married	22	62.9
Total	**35**	**100**

The socio-demographic profile and medical conditions of patients is given in Table 2 Out of 105 patients studied 51 (48.6%) were from infants age group, with mean age of 16.11 months. Patients studied 51% were female and total 67 (63.8%) patients were suffering from acyanotic congenital heart disease however.

Table 2: Distribution patient's socio-demographic data and medical conditions :

Characteristics	Frequency	Percentage
Age group		
Infant	51	48.6
Toddlers	32	30.5
Preschool	20	19.0
School	2	1.9
Total	**105**	**100**

Characteristics	Frequency	Percentage
Mean± SD for age :16.11±18.647		
Gender		
Male	51	48.6
Female	54	51.4
Total	**105**	**100**
Type of congenital heart disease		
Cyanotic	38	36.2
A cyanotic	67	63.8
Total	**105**	**100**
Reason of hospitalization		
Interventional	87	82.9
Clinical	18	17.1
Total	**105**	**100**

The Table 3 demonstrated the nurse's practices means for various steps of nursing management. Mean for practice was measured based on "observational check list score". The overall nursing management mean was 53.99. The mean for nursing assessment was 49. 44. The mean for nurse's intervention for prevent infections was highest with value 91.39. Furthermore, means for nurse's intervention for nutritional intake to promote children's growth and development was 55.62 and nurse's intervention reduce pulmonary distress was 49.60.

Table 3: Mean of nursing care management for each of assessment and intervention dimensions according to observational check list scale:

Variable	Mean	SD
Nurse's assessment for patients (12 items)	49.44	5.02
Nurse's intervention for nutritional intake to promote children's growth and development (5 items)	55.62	8.58
Nurse's intervention to prevent infections (5 items)	91.39	12.30
Nurse's intervention to reduce child's heart load (5 items)	37.48	9.06
Nurse's intervention to reduce pulmonary distress (10 items)	49.60	8.24
Nurse's intervention to providing education for child and family (3 items)	49.26	13.05
Intervention Total	55.93	6.23
Management Total	53.99	4.66

Table 4 gives the practice level of various nursing practices performed by participants during the study. It was found that the practice level of observation for clubbing fingers and chest deformities was low with mean value of (1.50) and (1.46) respectively. Meanwhile the mean for practice to assess respiratory patterns, records the vital sign and prepare the child for diagnostic and treatment procedures was high (3.31, 4.53) and (3.38) respectively.

However, practice of try to feed child was low with mean value (1.60). Socio-demographic profile of nurse's staff could have such relation on nursing care management. In this study mean age of nurses 30.4 years, 60% of nurses were from age group 20 – 30 years, (77.1%) were female and married (62.9%). (60%) participants had experience of more than 10 years as a nurse, and 88.6% of nurse's experience of working in ICU was more than 5 years. However, the

staff had much experiences while the staff education background was considerably less, sinceonly few of them was college graduated nurse. Regarding to nursing degree and experience, the staff were not qualified well accordingly in this study. in US study revealed on that bachelor degree in nursing level or higher, and highly experienced nurse is require for PICU[3]. Same study has showed that a diploma nurse had made challenges to nursing care management in the PICU. Developed countries have almost high workforce of qualified nurse in PICU. A study has shown that in PICU in the US hospitals, almost more than 95% of nurse are registered nurse with high mixed skill for deliver care to child with CHD [7]. And some other studies indicated that, seventy-one per cent of the nurses held a baccalaureate degree in nursing in the US, and nearly half of the nurses had more than 5 experience in PICU [4], [18].

Table 4: Assessment of means in respect to various nursing practices:

Nursing Assessment	Mean	Practice Level
The nurse obtain nursing history to become familiar with the child and his family to recognize normal and abnormal patterns	2.17±0.67	M
The nurse discuss with the physician about plan of medical care	2.73±0.69	M
The nurse observe and record information relevant to the child's growth and development	2.33±0.66	M
The nurse observe and record child's level of exercise tolerance	1.82±0.60	M
The nurse observe child's skin and mucous membranes for color and temperature changes	2.71±0.82	M
The nurse observe for clubbing fingers	1.50±0.65	L
The nurse observe chest deformities	1.46±0.60	L
The nurse assess respiratory patterns	3.31±0.96	H
The nurse palpate the child's pulses in all extremities	2.13±0.95	M
The nurse auscultate the child's heart	1.57±0.83	M
The nurse records the vital sign	4.53±0.94	H
The nurse prepare the child for diagnostic and treatment procedures	3.38±0.83	H
L= mean less than 1.65, M= mean lie between 1.65 to 3.3, H= mean greater than 3.3		

Children with CHD are required to particular nursing care regarding to nutritional intake, prevention of infection, reduce child's heart load, reduce pulmonary distress, immunization, education for child and family and coordinate care [9]. For each of aspect of nursing care there is a specific nursing intervention and procedure that nurses have to implement them soundly. In this study, the only nursing intervention done for provision of adequate nutritional intake to maintain the growth and developmental which highly practice by nurses was "measure intake and output", meanwhile, nurses poor practice in involving try to feed the children. Since, these patient have limited ability for oral intake because of heart failure. potential complications such as gastro-esophageal reflux, aspiration risk, osmotic diarrhoea, constipation may develop in these children[9]. Poor nutrition status also maylead to stunting, underweight, and wasting in the CHD children [15]. Better nursing care management may protect child with CHD from death, and reduce mortality rate ([4],[5]). Practice of nursing care management may be affected by the socio-demographic characteristic of nurse's, work experiences, skills about the PICU's materials. This study found among socio-demographic variables only nurse's educational background has significant relationship with nursing care management. Nursing care management was good practiced among nurse's high degree certificated. Some studies in the US have shown similar findings. According to the US studies, high certificated nurses and more experience nurse in PICU have significantly enhanced the quality of nursing care, and decrease the complications, and mortality in significant rate [(7,4,6)]. Furthermore, Bachelor of Science in Nursing education and Critical Care Registered Nurse certification have significant impact on paediatric patient outcomes [5]. A study has demonstrated that experienced nurse have significantly practice the resuscitation and protect child life [6].

Conclusion and Recommendation

In this study, nursing intervention regarding prevent infections were practiced well and nutritional intake to promote children's growth and development in the average level, while the nursing intervention to reduce child's heart load was poorly practice. The most well done nursing intervention in this regarding were "measure intake and output" and "hand washing",This study found among sociodemographic variables, nurse's educational background was significantly associated with nursing care management. Nursing care management was good practiced among nurse's high degree certificated.

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Sulaimani college of medicine, Iraq and all experiments were carried out in accordance with approved guidelines.

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