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ORIGINAL ARTICLE

Discharge Plan for Mothers of Children Undergoing Congenital Heart Surgery

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Abstract

Background Congenital heart defect is the second cause of death in infancy and childhood and is the leading cause of childhood morbidity and mortality. Congenital heart surgery corrects a heart defect that a child is born with it.
Aim This study aimed at evaluating the effect of discharge plan for mothers and their children undergoing congenital heart surgery. setting: this study was conducted at the outpatient clinic of Cardio Vascular and Thoracic Academy Ain Shams University Hospitals. Sample: 70 mothers and their children undergoing congenital heart surgery were included in this study.
Tools of data collection two different tools were used. First tool: consists of interviewing questionnaire to asssociodemographicphic characteristics of mothers and their children, knowledge, reported practices of mothers for their children undergoing congenital heart surgery, Second tool: Assessment of child health status.
Results revealed that 81.4% of the studied mothers achieved poor knowledge scores in the pre-implementation phase, it improved to 92.9% of them achieved good in the post- implementation phase. Only 18.6% & 7.1% of them achieved average in both the pre- and post-implementation phase respectively and 91.4% of the study sample total mothers' practice was unsatisfactory in the pre-implementation phase, but 97.1% of them were satisfactory in the post-implementation phase.
Conclusion there was a strong statistically significant correlation between the mother's total knowledge and total reported practices score on the post-test (P<0.00**).
Recommendation Comprehensive, multidisciplinary discharge planning should design early and should include the mothers and children contain education regarding congenital heart surgery care.

Keywords: Discharge plan of mothers, Children with congenital heart surgery.

1 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 [1]. Congenital heart disease is defined as a gross structural abnormality of the heart or intra- thoracic great vessels that is actually or potentially of functional significance. Worldwide, CHD are the main heart diseases found in children and have been recognized as a major contributor to childhood morbidity and mortality, especially in developing countries [2]. Globally, the prevalence of CHD is eight cases per 1000 live births across the globe, representing 1.35 million newborns each year with CHD in which more than half of them need surgery during the first year of their lives. The disease differs from one country to another, in America 6.61 per thousand live births, in the UK, 3.17, in Finland 1.95, in Denmark 6.18, in Sweden 3.57, in Australia 4.31 and in Canada 12.5 per 1000 live birth. In Egypt the prevalence was 1.0 per1000 in Egyptian children [3]. Cardiovascular surgery witnessed enormous advances during the past century with good outcomes. Unfortunately, the majority of children with CHD in developing countries are deprived of necessary care hence leading to high morbidity and mortality. Early detection of CHD is necessary to improve the quality of life and to reduce morbidity and mortality of children [4]. For successful long- term outcomes after discharge, children with cardiac surgery need teaching program about care management concerning feeding regimens, medication administration, appropriate self-care activities, incision care, and infection prevention strategies and knowing when to seek medical attention. Previous studied showed that there was evidence that education of children and their families at discharge is essential and lead to better outcomes such as alleviate postoperative problems, reduce readmissions rate and improve quality of life. Despite best efforts at education, most children are at risk for poor outcomes due to improper management at home after discharge [5]. Subsequently, the researchers felt the necessity to conduct this study hoping that the results obtained can enable children to self-manage their care at home, improve their quality of life and thus reduce postoperative complications [6]. Postoperative discharge teaching and follow-up are the important services which can prevent unnecessary delays in discharge and assure the accessibility of adequate support afterward. The discharge period is a chance to have a positive effect on children's outcomes and ought to be a priority for the healthcare team. Children experiencing cardiac surgery need to make considerable modifications based on knowledge to adapt to the new life situation. Nurses are the key element to the success of the educational process and can be the essential practitioners who teach surgical children how to cope with their post-surgical care after discharge, guiding toward autonomous self-care as well as move toward accomplishing their goals and dreams for the future [7]. 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 [8].

2 Aim of the Study

This study aims to evaluate the effect of discharge plan for mothers and their children undergoing congenital heart surgery through;

1. Assessing mothers' knowledge regarding care for their children undergoing congenital heart surgery.
2. Assessing mother's reported practices regarding care for their children undergoing congenital heart surgery.
3. Designing and implementing discharge plan for mothers and their children undergoing congenital heart surgery.
4. Evaluating the effect of need assessment of the discharge plan for mothers and their children's outcomes post-surgery.

2.1 Research Hypothesis

1. Discharge plan will improve level of knowledge and reported practices of the mother regarding congenital heart surgery.
2. Discharge plan will help the mother to care for their children and improve the health status post congenital heart surgery.

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2.1.2 I-Technical design

The technical design used for the study discussed the following four categories, study design, setting of the study, subjects of the study and tools for data collection.

2.1.3 Study design

A quasi-experimental study was used to evaluate the effect of the discharge plan for mothers of children undergoing congenital heart surgery.

2.1.4 Setting

This study was conducted in outpatient clinics of Cardio Vascular and Thoracic surgery hospital at Ain Shams University Hospitals.

2.1.5 Sampling

Type Purposive samples of 70 of mothers and their children undergoing congenital heart surgery They are characterized by their children undergoing open heart surgery.
Aging from 2 years to 5year.

Size Sample size was calculated using [9] software with the following inputs:

- Type I error (α) =5% with confidence level 95%.
- Study power 90% (power of test) with type error II 10% (Beta).
- The significance level (α) at 0.05

Data from a previous study (Lind et al., 2014). The total sample size from mothers and their children undergoing congenital heart surgery were taken according to this Formula

$$n = \frac{N}{1 + N(e)^2}$$

Where 'n' is sample size.
'N' is number of year (Dec 2017 to Dec 2018) at cardio vascular and thoracic academy Ain Shams University Hospital=472. 'e' is coefficient factor=0.05
The minimal sample size was 70 mother and their children undergoing congenital heart surgery. It includes children undergoing heart surgery children aging from 2 years to 5 years.

2.2 Tools of data collection

The following different tools were used for data collection of study. It is developed by researchers after reviewing a related literature, expert's opinion and researchers experience to evaluate the effect of discharge plan program for mothers of children undergoing heart surgery.

2.2.1 Tools of data collection

Two tools will be used for data collection.
First tool: An interviewing questionnaire (Appendix I)
It was prepared and designed by the researcher based on the recent related literature review and experts' opinion. It included five parts:

Part (1) this part included

(a) Socio demographic characteristics of mothers. This part included 3close ended questions (Q1-Q3): such as (age of mothers, educational level, and occupation).

(b) Children demographic characteristics. This part included7 close ended question (Q4-Q10) such as: age, sex, Birth order, number of family member. . . etc).

(c) Questions for mothers to assess health status for their children undergoing congenital heart surgery this part included 5 closed ended question (Q11- Q15): such as onset of the disease, its way of detection, follow up and if other family member suffered from the disease.

Part (2) mother's knowledge (Q 16- 171) pre and post discharge plan regarding to congenital heart disease concept, danger signs associated with an open-heart surgery, daily activities, rest pattern, breathing exercise, nutrition, incision care, oral care, medication, warning signs, follow up $\cdots$ etc.

Scoring system of knowledge The score ranged from zero to one, the incorrect answers take =''(0)''grade & correct answers takes=''(1)''grade.
The whole knowledge questions regarding mothers discharge plan for their children scored 162 points, a total of 0- 50% (0-81) were considered poor knowledge and < 50%-75% (82-122) were considered average knowledge and <75%-100%(123-162) were considered good knowledge.

Part (3) regarding mothers' reported practices for their children undergoing congenital heart surgery, the rating scale according to items of each question, if mothers answered 60% or more from each questions items give score one, less than 60% give score zero

2.2.2 Second tool

Assessment of child health status Assessment of child health status through physical examination of child growth and development using Denver developmental screening test [10].

Administrative Design An official permission including the title and aim of the study were submitted from the dean of the faculty of nursing Ain Shams University and forwarded to the administrators of Cardio Vascular and Thoracic surgery hospital, to get an approval for data collection to conduct the study.

Operational Design The study to be completed passed through different phases included: preparatory phase, pilot study and field work phase

Preparatory phase A review of the recent, current, national and international related literature covering all aspects helpful in designing and processing data collection tools using available textbooks, journals, and articles and nursing magazines to get a clear picture of the research problem.

3 Pilot Study

It was conducted on 10 mothers and their children undergoing congenital heart surgery the aim of the pilot study was to evaluate visibility and test the applicability of the developed tool and the clarity of included question, as well as the time required to fulfill the developed tools and carried out to assure content validity of tool as well as estimated the average time needed to complete all questions. Some changes were done accordingly. Those who shared in the pilot study were excluded from the study sample.

3.1 Content validity

The tools were tested through five experts from community health nursing department, faculty of nursing. Ain shams university.

3.2 The reliability

It was done by Cronbach's Alpha coefficient test which revealed that the tools consisted of relatively homogenous items as indicated by the moderate to high reliability of each g tool. The questionnaire was tested to be reliable with Cronbach's Alpha coefficient test of for items showed tool proved to be strongly reliable.

4 Field work

After obtaining a permit the researcher meets the director of cardio vascular and thoracic surgery hospital and explain the aim and program content.After permission the researcher started with introducing herself to the selected mothers and their children and explain the aim of the study, assured that data collected will be confidential and will be used only to achieve the purpose of the study.

The researcher visits outpatient clinics of cardio vascular and thoracic surgery hospital two days or three day per week and take permission from mothers and their children for data collection and then take written consent from her to participate in the study and oral consent from the illiterate mothers, assured that the data collected will be confidential and will used only to achieve the purpose of the study and to fill questionnaire sheet.

The study work was carried out within duration of 10 months starting from beginning of June 2020 till the end of march 2021.

4.1 Ethical consideration

Approval was obtained from research committee of faculty of nursing, Ain Shams University. Issues of ethical consideration were discussed with the director of outpatient clinics and head nurses of outpatient clinics then mothers and their children including; privacy of information collected from them & freedom to withdraw from the study at any time. Then written approval obtained from literate mothers and oral approval from illiterate mothers to apply the study. Also head nurses attended some sessions that conducted in outpatient clinics and obtained a copy of the data collection tools and the program booklet.

4.2 Study limitation

After congenital heart surgery especially during the immediate post-surgery period, the mother got tired and fatigue and refused the interview because they are afraid on her child.

4.3 Statistical Design

Data were revised, coded, analyzed and tabulated using the number and percentage distribution and carried out at the computer, using appropriate statistical methods. The following statistical techniques were used:
Percentage, Mean value, Standard deviation, Chi-

square (X2), Correlation test (r) and Proportion probability (P-value).

4.4 Significance of results

- When P> 0.05 it is statistically insignificant difference.
- When P< 0.05 it is statistically significant difference.
- When P< 0.01or P< 0.001 it is high statistically significant difference.

5 Results

5.1 Socio- Demographic characteristics for mothers of children undergoing congenital heart surgery.

Table 1: Distribution of mothers of children undergoing heart surgery (n=70).

Items	NO	%
Age:		
• <20 y	2	2.9
• 20- <35y	40	57.1
• 40 +y	28	40.0
mean ± SD 31.34 ± 5.9		
Min= 18 years Max=38 years		
Birth order		
• Do not read or write	16	22.9
• Read and write	6	8.6
• Primary education	7	7.1
• Preparatory education	5	22.9
• Secondary education	18	25.7
• University education	18	25.7
Mother's job		
• A housewife	62	88.6
• An employee	8	11.4

Table 1 shows that 57.1% of mothers aged 20 years<35 year, followed by 40% who aged 40 y. The mean ± SD of their ages was 31.34 ± 5.9. Regarding their education, 25.7% of mothers continued their secondary education, 22.9% of them couldn't read or write. Also, 88.6% of their mothers were housewives.

5.2 Demographic characteristics for children undergoing congenital heart surgery.

Table 2: Distribution of study sample children undergoing congenital heart surgery (n=70).

Items	NO	%
Age:		
• 6 months-<2 years.	48	68.6
• 3-<4.	7	10.0
• 4 -5.	4	5.7
mean ± SD 1.56 ± 1.1		
Min= 6 months Max= 5 years		
Gander:		
• Male	20	28.6
• Female	50	71.4
Presence of sibling:		
	66	94.3
Birth order		
• First	10	14.3
• Second	8	11.4
• Third	28	40.0
• Fourth	20	28.6
• Others	4	5.7
Number of family members		
• from 3-4 member	22	31.4
• from 5-7 member	42	60.0
• from 7-9 member	6	8.6
Family Income		
• Not enough to family need	54	77.1
• Enough to family need	16	22.9
Number of rooms in the house		
• Two rooms	34	48.6
• Three rooms	32	45.7
• < Three rooms	4	5.7

Table (2) shows that 68.6% of children their aged between 6 months< 2 years old, 71.4% were females, 94.3% of those children had siblings. Also, 40% of them were the third birth order. 60% had 5 – 7 members in their families. The family income of 77.1% of them wasn't enough to their family needs. Additionally, the crowding index ranged from 1-4 with mean ± SD of 1.90 ± 0.98.

Table 3: Distribution of study sample children undergoing congenital heart surgery (n=70).

Total Mothers' Knowledge	Pre No= 70						Post No= 70						X^2	P Value
	Poor		Average		Good		Poor		Average		Good			
	NO	%	NO	%	NO	%	NO	%	NO	%	NO	%		
Total mothers knowledge about diseases and wounds of congenital heart defects	53	75.7	15	21.4	2	2.9	1	1.4	6	8.6	63	90.0	111.2	<0.00**
Total mothers knowledge about danger signs after congenital heart surgery	59	84.3	9	12.9	2	2.9	0	0.0	4	5.7	66	94.3	121.2	<0.00**
Total mother's knowledge about physical activity	56	80	8	11.4	6	8.6	2	2.9	4	5.7	64	91.4	101.2	<0.00**
Total mother's knowledge about breathing exercises	56	80.0	11	15.7	3	4.3	0	0.0	5	7.1	65	92.9	113.5	<0.00**
Total mother's knowledge about proper nutrition	48	68.6	10	14.3	12	17.1	2	2.9	3	4.3	65	92.9	126.2	<0.00**
Total mother's knowledge about care of the incision	55	78.6	10	14.3	5	7.1	0	0.0	4	5.7	66	94.3	116.4	<0.00**
Total mother's knowledge about oral and dental care	50	71.4	14	20.0	6	8.6	1	1.4	4	5.7	65	92.9	108.4	<0.00**
Total mother's knowledge about vaccination	55	78.6	10	14.3	5	7.1	3	4.3	0	0.0	66	94.3	105.7	<0.00**
Total mother's knowledge about medications	48	68.6	14	20.0	8	11.4	2	2.9	4	5.7	64	91.4	103.7	<0.00**
Total mother's knowledge about follow-up plan	54	77.1	12	17.1	4	5.7	2	2.9	2	2.9	64	91.4	99.19	<0.00**
Total mothers' Knowledge	57	81.4	13	18.6	0	0.0	0	0.0	5	7.1	65	92.9	59.23	<0.00**

(**) High Significant at P < 0.01

Table 3. illustrates that there are strong statistically significant differences between pre and post implementation phases of discharge plan regarding all items of the mother's total knowledge (P<0.000**).

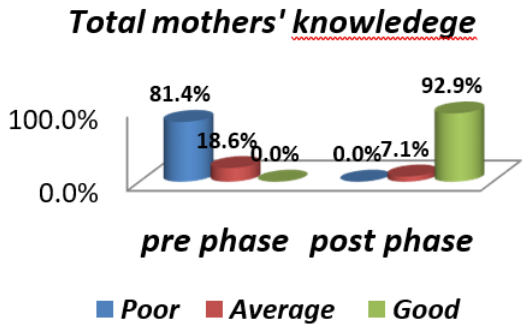

Figure 1: mothers' total knowledge during Pre and Post Implementation of discharge plan for children undergoing congenital heart surgery (n=70)

Figure (1) shows that 81.4% and more of the studied mothers achieved poor knowledge scores in the pre-implementation phase, but 92.9% of them achieved good in the post- implementation phase. Only 18.6% & 7.1% of them achieved average in both the pre- and post-implementation phase respectively.

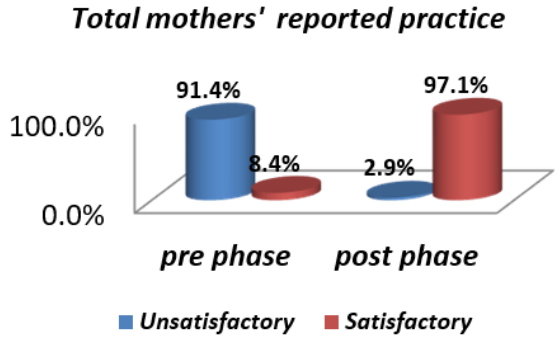

Figure 2: mothers' total reported practices during Pre and Post Implementation of discharge plan for children undergoing congenital heart surgery (n=70).

Table 4: Distribution of study sample children undergoing congenital heart surgery (n=70).

Total mothers' practice	Pre No= 70				Post No= 70				X^2	P Value
	Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory			
	NO	%	NO	%	NO	%	NO	%		
Total mother practices for breast feeding	60	85.7	10	14.3	3	4.3	67	95.7	73.76	<0.00**
Total mother practices for bottle feeding	61	87.1	9	12.9	2	2.9	68	97.1	84.38	<0.00**
Total mother practices for taking axillary temperature	63	90.0	7	10.0	1	1.4	69	98.6	110.6	<0.00**
Total mother practices for incision care	67	95.7	3	4.3	0	0.0	70	100.0	118.5	<0.00**
Total mother practice for oral care for child less than two year	63	90.0	7	10.0	3	4.3	67	95.7	103.2	<0.00**
Total mother practices for mouth care	57	81.4	13	18.6	0	0.0	70	100.0	96.14	<0.00**
Total mother practices	64	91.4	6	8.4	2	2.9	68	97.1	110.2	<0.00**

(**) Strong Significant at P < 0.01

Table 4. illustrates strong statistically significant differences between pre and post implementation phases of discharge plan regarding all items of the mother's practice (P<0.000**).

Table 5: Distribution of study sample children undergoing congenital heart surgery (n=70).

Total mothers' practice	Mothers' total knowledge						X^2	P Value
	Poor		Average		Good			
	NO	%	NO	%	NO	%		
Unsatisfactory practices	52	74.3	12	17.1	0	0.0	0.016	>0.05
Satisfactory practices	5	7.1	1	1.4	0	0.0		

Not significant at P >0.05

Table 6: Distribution of study sample children undergoing congenital heart surgery (n=70).

*Mothers' total Practices	Mothers' total knowledge						X^2	P Value
	Poor		Average		Good			
	NO	%	NO	%	NO	%		
Unsatisfactory practices	0	0.0	1	1.4	1	1.4	10.49	>0.001**
Satisfactory practices	0	0.0	2	2.9	66	94.3		

(**) Strong Significant at P < 0.01

Table 7: Distribution of study sample children undergoing congenital heart surgery (n=70).

Parameter	Total Knowledge Scores			
	Pre-test		Post-test	
	R	P–value	r	P–value
Total Practices Score	0.015	>0.05	0.387	<0.00**

(**) Strong Significant at P < 0.01

Table 5. shows that there is no a statistically significant relation between the mother's knowledge and practices during pre- discharge plan (P >0.05). 74.3% of those mothers with poor total knowledge scores had unsatisfactory levels of practice. Only 1.4% of those mothers with average total knowledge scores had satisfactory levels of practice.

Table 6. shows that there is a strong statistically significant relation between the mother's knowledge and practices during post-implementation of discharge plan (P<0.001**). 94.3% of those mothers with good total knowledge scores had satisfactory levels of practice. Only 1.4% of those mothers with both the good and the average total knowledge scores had unsatisfactory levels of practice.

Table 7. shows that there is a strong statistically significant correlation between the total knowledge and total practices score on the post-test (P<0.00**). Conversely, no statistically significant correlation was found between them on the pre-test (P>0.05).

6 Discussion

6.1 Socio demographic characteristics for mothers

The present study finding revealed that, more than half of mothers aged 20years<35 years and less than half of mothers aged 40 years, while majority of them were housewife. Regarding their education, more than one quarter of mothers continued their secondary education. Also,less than one quarter couldn't read and write. Regarding family residence, more than half of them living in rural area. As well as mother's job, more than three quarter of them were house wife. This finding was in congruent with [11] studied " the effect of pre- hospital discharge program on mother's knowledge and reported practices for children undergoing congenital heart surgery" in Benha Egypt whose found that less than one half of mothers above 30 years and their mean age were 30.80 ± 3.27 As regard mother's education less than half of them illiterate, while less than one fifth had the university. In relation to mothers' occupation, the majority of mothers were a housewife and half of them from the rural this could be attributed that interferes with an understanding of the steps recommended by the health professionals. Either in terms of health care procedures or the laws that guarantee their rights for their children.

This result was in accordance with, [11] who conducted their study in Benha Egypt who mentioned that the mean age of both study and control groups were 33.3±6.7 and 34.2±7.8years respectively. In relation to mother's' education, more than two fifth in both study and control groups respectively were illiterate. Additionally, three quarters of mothers in the study group were housewife compared to more than two thirds in the controls. This could be attributed that interferes with an understanding of the steps recommended by the health professionals. Either in terms of health care procedures or the laws that guarantee their rights for their children. These findings were in agreement with those of [12] studied "Effect of Educational Program on the Self- Efficacy and quality of life for mothers caring children with congenital heart disease, who reported that more than two thirds of mothers age between 26-35 years old. As regarding to education level of mothers, the result of the current study showed that more than one third of studied mother were in preparatory school.

6.2 Demographic characteristics for children undergoing congenital heart surgery

The current study result found that, less than two third of total sample of children having congenital heart surgery were female aged between 6 months-< 2 years old.as well as found that, the most of them had sibling. Regarding child birth order, less than half of them were third birth order. As well as found that more than half of them had 5-7 members in their families. Regarding the family income, more than two third of them were not enough to family needs (table1). This result was agreement with that of, [13] studied "Prevalence of Congenital Heart Diseases Among Primary School Children in the Niger Delta Region of Nigeria" who revealed that more than half of them were females. Also, these finding was incongruent with, [11] who conduct his study in

benha Egypt whose study entitled "The effect of pre-hospital discharge care program of mothers' knowledge and reported practice for children after congenital heart surgery" who revealed that more than half of children were male and presented at the age from 6 months to one year.as well as more than one third of the children in the study group as the second infant. Also found that more than half in the group had previous surgery. Also this result was in agreement with Sabaq & Abd El Sadak [14] studied" Effectiveness of Discharge Educational Program on Quality of Life and Post-Operative Complications for Children after Cardiac surgery" and mentioned that the mean age in both study and control groups were 6.9±1.8 and 6.37±0.51years respectively.

Regarding children's gender, showed that more than half of children in the study group was males compared to 65% of the controls. Regard the child birth order, more than half in both study and control groups respectively were second birth order and the majority of cases were enrolled at primary level of education. In my out of view this result related to congenital heart disease is acritical case which effect on general health status of children.

6.3 Mothers total knowledge pre and post implementation of discharge plan for children undergoing congenital heart surgery.

The study result showed that more than three quarter of the studied mothers achieved poor knowledge scores in the pre- implementation phase, but the majority of them achieved good in the post-implementation phase. Only less than one fifth and less than one tenth of them achieved average in both the pre- and post-implementation phase respectively. These findings in the same line with Sabaq & Abd El Sadak, [14], who mentioned that 75% and 85% of the studied mothers in both study and control groups have unsatisfactory level of knowledge pre-discharge program implementation with no significant differences. In contrast, post implementation of discharge program, there was a highly statistical significant difference between study and control groups regarding total level scores of mother's knowledge, where about slightly more than three quarters (77.5%) of them in the study group had satisfactory level of knowledge compared to 20% of the controls ($p<0.001$).

6.4 Mothers total reported practices pre and post implementation of discharge plan for children undergoing congenital heart surgery

The study result showed that the majority of the study sample total mothers' practice was unsatisfactory in the pre-implementation phase, but the most of them were satisfactory in the post-implementation phase. These findings were consistent with Mohammed, et al., (2020) who revealed that less than two thirds of the study sample had inadequate practice towards care for their children with congenital heart diseases. these findings were in accordance with El sobky & Amer, (2018) who reported that the care activity as medication, diet, activity, wound care, etc showed that mother's practice of these activities had a highly significant difference in all items of care after discharge training compared with before the discharge training, this result in the same line with March, (2017) So discharge planning is very effective parts in caring for children after surgery, also should be an important component in the discharge program to ideal outcomes and reduce readmission of children to the hospital with further problems. The investigator sees, this results due to the importance of discharge plan post congenital heart surgery which contain child's activity, wound care and dental care to prevent endocarditis. Also to maintain child's health and prevent any complications.

6.5 The relation between the mother's knowledge and practices during Pre discharge plan.

The relation between the mother's knowledge and practices during Pre discharge plan Table (5) shows a statistically significant relation between the mother's knowledge and practices during pre-discharge plan ($P > 0.05$) less than three quarter of those with poor total knowledge scores had unsatisfactory levels of practice. Only less than one tens of those with average total knowledge scores had satisfactory levels of practice.

These findings were similar with [15] who demonstrated that there was highly statistical significant relation between their total practice and their total knowledge regarding CHDs (p-value = 0.001*). This result was similar with that of [15] who denoted that there was highly statistical significant relation between their total practice and their total knowledge regarding CHDs. Concerning the care activity as medication, diet, activity, wound care, etc. and mother's practice of these activities was had a highly significant difference in all items of care after discharge training compared with before the discharge training.

6.6 The relation between the mother's knowledge and practices during Post Implementation of discharge plan

The relation between the mother's knowledge and practices during Post Implementation of discharge plan Table (6) shows a strong statistically significant relation between the mother's knowledge and practices during post-implementation of discharge plan (P<0.001**), and the majority of those with good total knowledge scores had satisfactory levels of practice. Only less than one tens of those with both the good and the average total knowledge scores had unsatisfactory levels of practice.

These results were in accordance with EL-Gendy et al., [16] Presented that there was highly statistically significant relation between total knowledge score about CHD and total reported practices pre, immediately post and after 3months implementation (r=0.201, p=0.05, r=0.417, this finding was uncoordinated with [17], who conducted study about 'Knowledge of mothers regarding home care of children undergone cardiac surgery with a view to develop an information booklet, and reported that, more than half of the mothers had moderately adequate knowledge; more than one third of mothers had inadequate knowledge about care of children undergoing congenital heart surgery. Same in line with Elshazali, et al., [18], who conducted study about 'Parent's knowledge about diagnosis and management of their children with congenital heart diseases in Khartoum, Sudan', and stated the knowledge of the parents of children with congenital heart disease regarding their children disease was good, simple measures like providing more information especially written information is beneficial. From the researcher's point of view that all studies that are based on guidance, application and follow-up especially for information and practices result in improvement the general status of the child, which is reflected overall.

This result supported by Abdel-Salam and Mahmoud, (12) who reported, more than half of studied sample were poor knowledge and reported practice respectively, and improved knowledge and reported practice score immediate post and after 3-month program.

6.7 Pearson Correlation between Total Knowledge Score and Total Practices Score on Pretest, Post Test

Pearson Correlation between Total Knowledge Score and Total Practices Score on Pretest, Post Test Table (7) shows a strong statistically significant correlation between the total knowledge and total practices score on the post-test (P<0.00**). Conversely, no statistically significant correlation was found between the them on the pre-test (P>0.05). Correlation between mother's total knowledge score about CHD and total reported practices pre, immediately post and after 3months implementation r p r p r p practices (0.201 0.05 0.417 0.001**0.400 0.001) respectively.

These findings were in accordance with ELsobky & Amer, [11] who reported that There was highly significant correlation between mothers' total knowledge and mothers total reported practices their age, and level of education, this result was agreed with.

The researcher's point of view suggests that, the mothers' needs to gain knowledge and practice regarding discharge care of their children after heart surgery. The educational session was effective in improving mothers' knowledge and reported practice. The session shows a significant effect increase of the mothers' level of knowledge which plays a significant role in the quality of care providing to children and effective outcomes. [19–22].

7 Conclusions

There was no a statistically significant relation between the mother's knowledge and practices during pre-discharge plan (P >0.05), 74.3% of those mothers with poor total knowledge scores had unsatisfactory levels of practice.

Only 1.4% of those mothers with average total knowledge scores had satisfactory levels of practice. There was a strong statistically significant relation between the mother's knowledge and practices during post-implementation of discharge plan (P<0.001**), 94.3% of those mothers with good total knowledge scores had satisfactory levels of practice. Only 1.4% of those mothers with both the good and the average total knowledge scores had unsatisfactory levels of practice. There was a strong statistically significant correlation between the total knowledge and total practices score on the post- test (P<0.00**). Conversely, no statistically significant correlation was found between them on the pre-test (P>0.05).

Recommendation

Based on the current study findings the following recommendations were proposed

- Comprehensive, multidisciplinary discharge olanning should deign early and should include the mothers and children contain education regarding congenital heart surgery care.
- Providing mothers with discharge care of their children after congenital heart surgery should

become a routine practice to congenital heart surgery department to enhance fast recovery and prevent complications.

- Discharge care plans to promote optimum development of the child and focus on normalization, the impact of the child's health status, and requirement of mothers according to educational needs.
- Further researches to examine the importance of discharge planning for congenital heart surgery for mothers and children.

Conflict of Interest: None

Ethical consideration: from ethical committee in the

Conflict of Interest: None

Ethical consideration: from ethical committee in the Department of Surgery, Medical University, Thailand.

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