HEALTH EDUCATIONAL PROGRAM FOR CAREGIVERS OF CHILDREN WITH CONGENITAL HEART DISEASE: EVIDENCE-BASED NURSING

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ABSTRACT

Care behavior may be related to the self efficacy of caregivers of children with congenital heart disease (CHD). The purpose of this study was to summarize nursing strategies or interventions in order to improve self-efficacy and care behavior of caregivers of children with CHD from research evidences. Data sources were reviewed from the related evidences available at Mahidol University electronic databases from 2011 to 2014. Searching of evidence based practices used the PICO framework, which was relevant to educational programs/nursing interventions for caregivers of children with CHD. The author obtained 3 research articles after searching different databases. Due to very few evidences, it was not possible to conclude which programs/interventions/strategies could increase self-efficacy and care behavior of caregivers of children with CHD.

However, according to 3 articles, some important issues were identified. The programs/interventions/strategies were implemented by professional nurses or healthcare providers. These programs can be implemented before and after cardiac operations on children with CHD. Most of the methods used were lectures, discussions and demonstrations. The media used were booklets, PowerPoint slides, handbook, video and manual. Outcomes were measured by questionnaires and interviews. Core contents included meaning, causes, signs and symptoms, diagnostic tests, treatments, nutrition, infection prevention, vaccination, medication and care for CHD children at home.

Therefore, several studies should be further conducted in order to examine which programs/interventions/strategies can improve self-efficacy and the care behavior of caregivers of children with CHD.

KEY WORDS: CONGENITAL HEART DISEASE / EDUCATIONAL PROGRAM /CAREGIVERS / CHILDREN / SELF- EFFICACY/CARE BEHAVIOR

47 pages

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CHAPTER I
INTRODUCTION

1.1 Background and significance of the problem:

Congenital heart disease (CHD) is defined as a structural malformation of one or more heart chambers and deformities of the major intra-thoracic blood vessels that occur during development. It is the most common type of heart disease in children and the second leading cause of death in infancy and childhood (Nousi & Christou, 2010). Each year, 7.9 million children (6% of total births worldwide) are born with severe congenital heart disease due to genetic or ecological sources (WHO, 2009). Approximately 9 million children with CHD die each year. And approximately 37% of these deaths happen within the first 28 days of life. According to World Health Organization statistics from 2008, 260,000 neonatal deaths were caused by CHD worldwide (WHO, 2008). The United States reports the incidence of congenital heart defects from 0.47% to 1.17% of live births. However, 0.6% to 8% of live births are considered typical. Every year in the United States, the outcome of birth with CHD amounts to 25,000 to 35,000 infants (Rao, 2012). The prevalence of CHD in children includes 620,000 children with VSD, 235,000 children with ASD, 173,000 children with PDA, and 185,000 children with vulvular pulmonary stenosis. In Thailand, one study reported the incidence of CHD at eight per 1,000 live births (Sayasathid, Tantiwongkosri, Somboonna, 2009). Each year, approximately 7,000 of 900,000 infants are born with CHD. And, the prevalence of CHD is escalating in Thailand (Sayasathid, Tantiwongkosri, Somboonna, 2009). Half of the infants with CHD are symptomatic and require both medical and surgical treatments. Approximately 5% of these children die while awaiting surgery (Srichantaranit et al., 2010).

The prevalence of CHD is also high in Bangladesh (Hussain, Tahura, Bagum & Razzaque, 2011). The children with CHD in Bangladesh can be categorized into acyanotic heart disease (76%), and the cyanotic heart diseases (24%) (Kabir et al., 2012). CHD is one of the most common congenital problems accounting for nearly

25% of every congenital malformation. According to the statistics, this disease is a serious problem nationwide**.**

Bangladesh is a densely populated country with a land area of 1,439,936.61 square kilometers and a total population of 149,772,364 (Population and Housing Census, 2012). The population of Bangladesh is composed of middle and lower socioeconomic classes. For the population in the lower income class, health care facilities are not well-developed. Monthly incomes are approximately 11,480 TK, or 6000 baht per month (Ministry of Health and Family Welfare, 2013). Illiteracy is a huge problem in Bangladesh. Most of the population in Bangladesh cannot read and cannot write. Forty percent of Bangladeshi citizens cannot read or are unable to understand prescriptions with a literacy rate of 51.8 percent (Population and Housing Census, 2011). In rural areas, most of the people have inadequate educations that place an extra burden on the government in providing care for children with CHD who require long-term hospitalization. Therefore, children with CHD do not receive proper care in a situation that is very harmful for families.

The complications of CHD children are congestive heart failure, pneumonia, frequent respiratory tract infections, hypoxic spells, infective endocardities, pulmonary hypertension and stenosis, failure to thrive, exercise disability and nutrition deficiency (Datta, 2009).

The risk factors for children with CHD are maternal rubella infection, maternal upper respiratory tract infections, cytomegalovirus, maternal type I diabetes, and influenza, febrile illnesses and phenylketonuria (PKU). Maternal drugs posing CHD risks for the fetus are lithium, thalidomide, insulin, antihypertensive, anti-convulsants and alcohol consumption (Tandon, Sengupta, Shukla & Danda, 2010).

In general, care behavior is directly related to self-efficacy. Self-efficacy is defined as the confidence by which an individual effectively carries out exacting behavior and expects to obtain results (Edraki, Kamali, Beheshtipour, Amoozgar, Zare & Montaseri, 20013). Caregivers have low self-efficacy. They are unable to provide proper care for their children. These children may have complications such as pneumonia and heart failure. The negative impact on these children is readmission to hospital.

While children are suffering with CHD, caregivers also suffer from stress and anxiety. As a result, caregivers were worried and face difficulty in performing certain activities, particularly in caring for their children. Caregivers lose self-efficacy in tasks such as holding, diapering and feeding (Panturut, 2011).

When children have severe illnesses, caregivers suffer from certain problems. If children are diagnosed with CHD a great deal of disappointment and anxiety is created for caregivers. Caregivers of children with CHD suffer multiple impacts as follows:

Physical impact: Caregivers do not receive sufficient support and feel very weak while their children suffer with CHD. Caregivers also suffer from other health conditions such as hypertension, diabetes mellitus, and cardiac problems.

Psychological impact: After diagnosis of CHD, caregivers suffer from psychological distress. Children with CHD can have repeated heart attacks, chest infections and hospital readmissions. Hence, caregivers suffer from anxiety, depression and despair as well as psychological and mental health problems (Edraki, Kamali, Beheshtipour, Amoozgar, Zare & Montaseri). Caregivers also share different feelings about different experiences such as disbelief, fear and blame (Amakali & Small, 2014).

Emotional impact: Caregivers loose quality of life, including disease-related and social stresses associated with chronic illness (Goldbeck & Melches, 2006). The coexistence of related disease and psychosocial stresses may exceed the self-efficacy and care behavior ability of families in coping. Caregivers may engage a fundamental focus appraisal, blaming themselves for their child's condition (Griffin, 2002).

Social impact: Caregivers have more marital difficulties and mostly have negative attitudes toward spouses. Therefore, caregivers have significant restrictions in any kind of social or financial tasks. In general, caregivers can engage in other social roles with restricted opportunities for recreation and socialization and changes in family life. In this regard, primary caregivers experience a vicious circle of psychological preoccupation with the thoughts of their sick children with less meaningful fulfillment in other social roles (Amakali & Small, 2014).

Family impact: Caregivers experience inadequate supports from family and society. Caregivers cannot participate in normal family activities. This dearth of support from families and societal organizations seems to amplify the experience of poor coping among caregivers. As a result, caregivers feel betrayed by families, friends and society when expectations of support are thwarted (Amakali & Small, 2014). Families who have chronically ill children experience excessive stress (Tak & McCubbin, 2002).

Economic impact: A heavy financial burden arises during the treatment of children with CHD. It is an unexpected financial burden including loss of income. Families suffer from many financial burdens because most caregivers do not work and spend more time taking care of these children with leads to loss of more money in lifelong treatment purposes. Hence, the demands for care impose an economic burden on the families (Amakali & Small, 2014).

Spiritual impact: Additionally, as the existing literature suggests, caregivers also use their respective religious beliefs to explain why their children have acquired heart disease, even though they blame themselves for not doing what they should have done for their children (Amakali & Small, 2013).

The caregivers of children with CHD are important for management of their children. Supportive care is needed to reduce emotional stress for caregivers of children with CHD. Caregivers have to give these children adequate diets and routine care for weight gain, normal growth and development. For management of hypoxic spells, caregivers should know how to place the children in a knee-chest position and provide oxygen therapy. Caregivers need to recognize the hypoxic spells and immediate management at home in order to bring their children to hospital for medical management. CHD children also require long-term follow-up treatment (Datta, 2009).

In Bangladesh, some families live in rural areas, and encounter difficulties in providing care for their children with CHD at home. Moreover, caregivers of children with CHD also require secure sources of income for their living. Hence, the caregivers are unable to provide effective care at home. According to their low level of education, preventing complications of children with CHD is very difficult, especially among caregivers with low levels of education. Hence, there is need for a proactive

caring approach in clinical settings in order to enable quality care for these children at home and in hospital.

Children with CHD suffer from many health problems such as pneumonia, congestive heart failure, heart rhythm problems, slow growth and development**.** Half of these children require medications and cardiac surgeries (Smith, 2001). Due to few cardiovascular surgeons in hospitals, most children have to wait at least one year for surgeries. While waiting for cardiac surgeries, the children frequently develop complications such as pneumonia and heart failure. Most of the children with CHD are asymptomatic at birth. However, some cases may develop symptoms at birth. Major signs of serious CHD are central cyanosis, tachycardia, hepatomegaly, respiratory distress, a gallop rhythm, lethargy and lack of spontaneous movement, decreased or unequal arterial pulses. The sign manifestations are repeated chest infection, fatigue, paleness, shortness of breath, difficulty breathing, cyanosis, poor appetite or difficulty feeding, weight loss and sweating, especially during feedings (Datta, 2009, Smith, 2001). Therefore, CHD children require special care from caregivers.

Children with CHD require similar care as other children received (Wright & Rocchini, 2002). The care of these children includes nutrition, growth, development, immunizations, physical activity, dental care, feeding concerns, medications and follow-up care, etc.

The multiple roles of caregivers of children with CHD can be described as follows**:**

Nutritional support: Nutritional support is important for children with CHD. Every caregiver should breastfeed their infants. Breast milk is low in sodium and antibodies, which helps reduce infection. Sufficient nutritional support is required for infant growth and development (Ball & Bindler, 2003). Malnutrition is the major cause of increased morbidity and mortality in children with CHD. Nutrition deficiencies alter respiratory muscle function, immune responses and inhibit healing. Caregivers have no caring behavior or balance among the total energy expenditures (Hagau & Culcitchi, 2010).

Growth and development: Children with CHD experience delayed growth and development (Li & Wang 2003). Generally, infants with CHD have normal birth weight, but less development and growth and failure to thrive. For growth

and development, nutritional support is important for energy requirements with avoidance of fluid overload (Hagau & Culcitchi 2010). Close observation is essential for children with CHD (Smith, 2001). Children with CHD experience delayed growth because of probable genetic influences, tissue hypoxia, reduced cardiac output, pulmonary hypertension, repeated respiratory tract infections and malnutrition (Chen, Yi Li, & Wang, 2003).

Immunizations: Children with CHD require supplementary immunizations such as influenza and pneumococcal vaccines (Smith, 2001). However, some caregivers do not accept the immunizations whereas all caregivers should maintain immunization schedules as published by the American Academy of Pediatrics (Wright & Rocchini, 2002). Caregivers sometimes do not bring their children to receive vaccinations following the schedules as they think their children are suffering from heart disease. Hence, they worry that their children will have fevers leading to more suffering if they are vaccinated (Kamm, 2006).

Physical activity: Physical activity is important for building self-confidence and self-esteem while improving psychological well-being and developing children's quality of life. Mothers believe that sick children have no need to perform exercise. Therefore, these children cannot participate in any sports or play activities for recreation such as swimming, bicycling or running in order to minimize risks. Singing, talking and playing music make easy cognitive and language skills. Caregivers cannot mix their children with other children due to frequent infections and exercise intolerance (Smith, 2001).

Dental care: Caregivers sometimes do not understand the importance of general care for their children; they do not take the children to see the dentist to check their teeth. Generally, CHD children are found to have poor dental health status. When children are eating and chewing, they do not brush their teeth which are a major risk for dental care. In addition, caregivers have no knowledge about antibiotic prophylaxis requiring strict compliance. High-quality dental hygiene may also prevent future dental problems possibly requiring anesthesia (Kamm, 2006). Dental care from 2 to 3 years of age and every 6 to 12 months is important. Children who bottle feed very early life frequently suffer front decay due to sugar mixed liquid milk and juice. It becomes aggression the teeth (Smith 2001). Children with CHD require long term

treatment, from months to years. CHD children need special care due to control symptoms and prevent complications. Caregivers of children with CHD require training and knowledge in taking care of children with self-efficacy. The caregivers who have high self-efficacy can then provide more effective and appropriate care for their children.

1.2 Clinical problem of the study

Caregivers play important roles in the care of children with CHD. However, these caregivers cannot identify the real problems of children. That is why sick children do not receive proper follow-up and care from caregivers. Due to author's work experience as a nurse in a pediatric ward, the author found that these caregivers had many problems related to inadequate self-efficacy and care behavior for children with CHD. Caregivers do not provide proper care for children over a long period of time at home. They did not understand when their children require a call to the doctor or a referral to a hospital. When their children are suffering with dyspnea, they do not put their children into an upright position. Caregivers do not recognize the warning signs and symptoms such as breathlessness, restlessness, repeated coughing or inability to eat. They may not know what to do if a dose is missed or irregular and when medications should be discontinued. Some caregivers forget to give digoxin and lasix tablets. Caregivers are confused about the action of medications and possible side effects. When the physicians ask caregivers why they did not give the medication, the caregivers say things like, "I forgot to give the medication because I was busy. Anyway, my son is not suffering." In addition, many caregivers experience huge problems about food. When their children have difficulty eating, they do not realize the relationship between feeding problems and heart conditions. Some caregivers comment, "The baby will eat when he/she is hungry." Caregivers prepare food for children that is salty and spicy, because most of the caregivers had low self-efficacy and inappropriate care behavior in the care of children. There is a dearth of knowledge about caring behavior and ignorance of the fact that salty food is harmful for children with CHD. Moreover, caregivers do not understand about fluid intake for children. When the children do not take food, their caregivers offer juice or other liquid diets.

Under these circumstances, the children's lungs are overloaded with fluid and develop symptoms of breathlessness, fatigue and failure to take food. Caregivers are not aware about the worsening conditions of their children. Consequently, children are repeatedly admitted to hospital with recurrent infections. Unfortunately, some children die before surgery. For these reasons, most caregivers need to increase self-efficacy and care behavior about heart disease, giving medication and caring for children with CHD. In addition, the most important problem is caregivers' low self-efficacy and care behavior leading to their tendencies toward negative parenting styles and less utilization of treatment programs and services for their children. Most Bangladeshi caregivers have low educational levels and cannot read or understand prescriptions written in English. In some situations, caregivers do not comply the treatment or medications because they do not understand about their children's health conditions and have inadequate concern with low health literacy. The aforementioned issues lead to more suffering for the children with the disease. Hence, half of the affected children with CHD do not reach and celebrate their first birthdays due to deficient proper management (Islam et al., 2013). In order to improve self-efficacy of the caregivers, need confidence about the effective ways of taking care of their children.

In Bangladesh, routine nursing care is provided in outpatient units and wards in pediatric units at hospitals. General cares are such as taking body weight and checking vital signs in order to minimize the chances for infection. Pediatricians generally explain about the diagnosis, prescriptions and advice to caregivers. Next, nurses advise caregivers about medications, future investigations and follow-up appointments. Nurses in pediatric units provide general care for caregivers with CHD children. When the children are admitted to hospital, nurses usually teach caregivers about administration of medications and signs of deteriorating conditions. In the pediatric ward, one nurse takes care of 15-20 pediatric patients on each shift. Nurses are very busy with many nursing tasks, including special care, and routine care such as bathing, taking vital signs, teaching to the caregivers, oral care, etc. Nurses do not have sufficient time to provide health education. Generally, nurses give some suggestions only at discharge, and do not use any teaching media in the ward. Therefore, caregivers may not understand these suggestions. According to the literature review and existing information from other countries, caregivers reported

that nurses play minor roles in offering suggestions to caregivers about child care. When these children are admitted to hospital, caregivers do not receive sufficient information. All nurses are very busy due to an overload of patients and works (Srichantaranit et al., 2010). Education is a necessary tool for all caregivers as a means of changing and increasing self-efficacy and care behavior of caregivers of children with CHD. Caregivers and their family members are important in providing care for children with CHD.

Therefore, this study was aimed to find appropriate nursing strategies/interventions to improve self-efficacy and care behavior of caregivers of children with CHD.

1.3 Purpose of the study

To summarize nursing strategies/nursing interventions in order to improve self-efficacy and care behavior of caregivers of children with CHD based on research evidences.

1.4 Expected benefits of the study

The strategies/interventions synthesized from research evidence will be applied in caregivers of children with CHD in order to improve caregivers' self-efficacy and care behavior.

CHAPTER II
METHODOLOGY

This study aimed to review evidence-based practice related to “education programs to increase this self-efficacy and care behavior of caregivers of children with CHD”. The review was based on the related evidence available at the Mahidol University electronic databases system. The methods of searching for the best available evidence were employed as the strategy in searching and selecting the evidence. Each of the related samples of evidence-based practice was apprised for quality and feasibility by considering the setting and circumstances, health care resources, preferences and values of caregivers. Next, the author extracted the data from the evidence and the evidence-based interventions were summarized. In this chapter, the author describes the searching strategy, appraisal methods and level of evidence as follows:

2.1 Search Strategy

The author searched the evidence-based practice to improve the self-efficacy and care behavior of caregivers of children with CHD.

2.1.1 Search framework: The author searched and selected evidence for educational interventions capable of increasing the self-efficacy and care behavior of caregivers of with CHD by using the PICO Framework (Melnyk & Fineout-Overholt, 2005) with the following details:

P (Population) = Caregivers/Parents/mothers of children with congenital heart disease.

I (Intervention) = Education program.

C (Comparison) = Usual Activities

O (Outcome) = Self-efficacy and care behavior.

2.1.2 Scope of the search: Educational interventions for caregivers can increase the self-efficacy and care behavior of the caregivers caring for their children in hospital and at home. The implementations were based on validated evidence-based practice yielded by the following scope for the search:

1). Keywords used in the search according to the PICO framework.

P (Population) = Caregivers/mothers/parents of children with congenital heart disease.

I (Intervention) = Education program, training program, teaching program, intervention, strategy.

C (Comparison) = Usual Activities.

O (Outcome) = Self-efficacy and care behavior.

The search used a Boolean operator. For each PICO element, the author collected any synonyms by linking terms with “OR”, then located citations that are relevant to all the PICO elements by linking with “AND”.

2) The databases/sources used for the search: The author used electronic databases/sources of the Mahidol University Library system. The author searched for systematic reviews from the Cochrane Database of Systematic Reviews and Joanna Briggs Institute Systematic Reviews Database. The Cumulative Index to Nursing and Allied Health (CINAHL), Ovid Full Text, ProQuest Nursing, PubMed, Science Direct, Clinical Key and Springer Link and manual searches were also used to search for single research studies. Next, the author continued searching for libraries and electronic databases. For guidelines, the author searched from the National Institute for Health, Clearing House Guideline and Care Excellence websites.

3). Type of evidence: The author searched for guidelines, systematic reviews, quasi experimental studies and high quality single randomized controlled trials acquired from full-text studies published in English from 2004 to 2014.

2.2 Appraisal methods and levels of evidence:

After searching for evidence related to health education programs for caregivers of children with CHD to be used as evidence for evidence-based practice, the author assessed the different types of evidence and guidelines for excellence and

strength of the evidence as categorized by criteria. The author then confirmed the validity of the data with her advisory professors.

2.2.1 Evidence appraisal methods: The author searched for articles by considering the PICO format and following the guidelines of Melnyk and Fineout-Overholt (2011) to ensure the validity, reliability and applicability of the research articles capable of the providing empirical data related to the purpose of the current study. All experimental research was read, analyzed and synthesized for content–objectives, research methodology, strength of evidence, research setting, sample group, instrumentation for evaluating intervention outcomes, research findings and analysis of evidence-based practice by analyzing utilization criteria such as the following:

1) Validity: Validity is the degree to which a test measures what it claims to measure. It is vital for a test to be valid in order for the results to be accurately applied and interpreted. The research process was assessed based on the research design with the analysis and summary of the findings in order to assess the validity of the research. All of the evidence was obtained through sound scientific method and the objectives were clearly stated. The systematic and comprehensive searches were conducted in line with the objectives by suitable methodology. The selection criteria for the participants in the experimental and comparison groups were explained. The researchers took steps toward randomly assigning the process in order to ensure that confounding variables that would easily compromise the findings with bias were removed. Randomization is significant to experimental studies as randomized controlled trials because different outcomes are expected from the two intervention and comparison groups. The value of the judgment of the selected evidence was appropriately stated and the data from the evidence were effectively presented. Moreover the evidence proffered for this study had quality support. The population of the studies was caregivers of children with CHD. Providing education programs for caregivers of children with CHD is essential to providing quality care (Melnyk and Fineout- Overholt, 2011).

2) Reliability: Reliability is the degree of consistency demonstrated by the instruments or procedures. All of the research articles and evidence-based practice

were studied, analyzed and evaluated for importance according to processes with satisfactory quality implementation of the research findings. In other words, potential assessment was performed to obtain the same results under the same conditions in frequency testing. The study findings clearly revealed the samples to have been selected from the experimental and the control groups. Therefore, the test provided data on the number of experimental groups of participants and outcomes of the interventions. The results are credible when the findings have been tested by trials and conformed to statistically significant differences between the intervention and comparison groups. The author measured the attrition rate of participants during the follow-up. The studies were reliable, logically implemented on cognitive bases with experimental interpretation, while including significant literature review findings and evidence-based applications. The studies were assessed for suitability and reliability with research designs throughout the studies in the area of the subject matter, variables, research hypotheses, objectives, data collection, data analysis, sample groups and instrument reliability. Hence, the researcher observed the effect size of the outcomes in terms of the differences between the interventions and comparison groups. The researcher observed the actual clinical situation or problems requiring solutions and allowed nurses to put the data into practice (Melnyk and Fineout-Overholt, 2011).

3) Applicability or Transferability of the Findings: The aforementioned indicates that the implementation of an intervention is useful in the author's own local clinical setting. All evidences were evaluated by the author's feasibility of implementation in the clinical setting, namely, concern about whether or not. The author kept in mind the fact that the service recipients of the caregivers of children with CHD would benefit from the program.

Feasibility of implementation: The feasibility of implementing this type of experimentation will be supported by the authority of the organization. The programs were measured by the support received from the authority of the organizations in terms of equipment, tools and instruments, difficult methods, and the abilities of nurses to apply the programs in their routine work without increasing workloads. Eventually, the programs can be included in accessible nursing

practice, which means no harm can affect patients in the application of the intervention.

Cost/benefit ratio: By applying this evidence, more effective benefits can be gained than ordinary practice and the risks to patients can be reduced. There is no need for additional expenses. The equipment used is simple and available in the unit. As a result, the length of hospital stay is reduced with lower medical expenses, increasing client satisfaction and decreasing family burdens (Melnyk and Fineout- Overholt, 2011).

2.2.2 Strength of evidence: The studies were assessed for their level of evidence in terms of practicality in the author's clinical setting. The researcher searched and selected empirical evidence by applying the principles of Melnyk and Fineout- Overholt (2011). The criteria are described in the following table:

Table 2.1 - Level of evidences

Levels\ of evidence	Source of empirical evidence
Level I	Evidence from a systematic review or meta-analysis of all relevant randomized control trials (RCT's).
Level II	Evidence obtained from well-designed randomized control trials (RCTs).
Level III	Evidence obtained from well-designed controlled trials without randomization.
Level IV	Evidence from well-designed case-control and cohort studies.
Level V	Evidence from systematic reviews of descriptive and qualitative studies.
Level VI	Evidence from a single descriptive or qualitative study.
Level VII	Evidence from the consensus of authorities and/or reports of expert committees.

Search strategies are essential in directing to suitable evidence from different websites and electronic databases. In order to fulfill the objectives of the study, the PICO format was necessary in identifying the evidence related to the target populations for selected interventions and outcomes. The author's search processes were applied with synonyms in order to find evidence from the electronic database of Mahidol University in line with the research objectives. Next, the author appraised the quality of the articles in terms of validity, reliability and applicability on the strength of the evidence in meeting the inclusion and exclusion criteria.

Reason of searching strategy: The author searched 23 articles from different databases the related to the PICO framework. The author again read these articles and selected. After analyzing all of the articles, the author found that not all of the articles were related to the author's study population, intervention and outcomes. The author tried several times to find intervention studies on caregivers of children with CHD. Regardless, the author did not find any relevant articles since caregivers of children with CHD are scarce in Bangladesh and Thailand.

Therefore, fewer research articles (3) were found. According to the clinical question, the author included these three articles due to strong validity, reliability and applicability. The selection criteria were as follows:

1) Evidence selected was published only in English.

2) The duration of the articles was set for within 10 years with studies acquired from full text studies published in English from 2004 to 2014.

3) Research articles, systematic reviews, quasi experimental studies and clinical practice guidelines.

4) The outcomes of the research articles were increased self-efficacy and care behavior of caregivers of children with CHD.

5) The preferred educational programs were undertaken only in hospital-based settings.

On the other hand, the articles did not clearly focus on outcome, intervention, population, or design. Those kinds of articles were not included in this study. Some articles did not explain about education programs and article contents of the programs. As a result, the author did not select these articles. Therefore, the author

selected only three articles focusing on the outcomes of self-efficacy and care behavior of these caregivers.

CHAPTER III
FINDINGS

The search results and summary of the evidence selected were illustrated in order to specify intervention studies concerning health education programs as well as the contents of teaching for caregivers of children with congenital heart disease. The evidence was relevant to the present study and the PICO format. The explanation of the evidence included the level of strength as stated by Melnyk and Fineout-Overholt (2011). The details were as follows:

3.1 Search results

Different types of evidence were obtained, then the author selected three samples of evidence-based practice on integrated education programs for caregivers of children with CHD, and outcomes were self-efficacy and care behavior.

Table 3.1 - Level and type of sample of evidence-based practice

No.	Authors/Year and Title	Type of evidence-based practice	Level of evidence-based practice
1	**Author**: Edraki, M., Kamali, M., Beheshtipour, N., Amoozgar, M., Zare, N., & Montaseri, S. (2013). **Title:** The effects of an educational program on the quality of life and self-efficacy of the mothers of infants with congenital heart disease: a randomized controlled trial.	Quasi experimental study.	III

Table 3.1 - Level and type of evidence-based practice (cont.)

No.	Authors/Year and Title	Type of evidence-based practice	Level of evidence-based practice
2	**Author:** Panturut, P., Sanasuttipun, W. & Prasopkittikun, T (2011). **Title:** Effect of knowledge and self efficacy enhancement program on self-efficacy of caregivers of children with acyanotic congenital heart disease.	Quasi experimental study.	III
3	**Author:** Payomhom, C (2011). **Title:** The effects of an educational program on maternal care of children with congenital heart disease post open-heart surgery.	Quasi experimental study.	III

The relevance of the contents and appraisal results for each sample of evidence-based practice: The author selected the three samples of evidence-based practice and briefly summarized all of the samples of evidence-based practice as follows:

Evidence 1

1.1 Title: The effects of an educational program on the quality of life and self-efficacy of the mothers of infants with congenital heart disease: a randomized controlled trial.

1.2 Author: Edraki, Kamali, Beheshtipour, Amoozgar, Zare & Montaseri, 2014.

1.3 Publication source and year: International Journal of Community-Based Nursing and Midwifery, *2*(1):51-59. (2013).

1.4 Objective of the study: To determine the effects of educational programs on the quality of life and self efficacy of the mothers of the infants with congenital heart disease.

1.5 Methodology of the study:

Design and Setting: The quasi experimental study was conducted in Imam Reza Clinic, Shiraz, Iran, in 2012.

Participants: A total of 56 mothers who had children with CHD; 28 were assigned to the control and intervention group each.

In the study children were younger than 12 months of age. The evidence was collected before surgery.

Type of Program: Education program.

Program performer: Education program was performed by nurses.

Program: Four 90-minute sessions over a period of four weeks.

Inclusion criteria: Mothers of the children who were suffering from arterial septal defect, ventricular septal defect and patent ductus arteriosus. Children were aged less than 12 months old, and had no other chronic diseases. Mothers were able to read and write.

Exclusion criteria: Refusal to participate in the study, infant death, mothers who did not cooperate, and infants who were hospitalized were excluded from the study as well as children who received surgery.

Age: Children under 12 months.

Sampling: Convenience sampling was done for the initial selection. Next, the subjects were randomly divided into the intervention and the control group through the block randomization procedure.

Method: Lecture method.

Media: Power Point presentation and booklets.

Measurement: Outcomes of self-efficacy was measured by a 23-item questionnaire. Quality of life was examined by a 36-item SF-36 questionnaire.

Level of study: Level III.

1.6 Contents:

1) Meaning of CHD

2) Types

3) Etiology

4) Signs and symptoms

5) Diagnostics testing

6) Treatment

7) Effects of CHD on infants and families.

8) Methods for coping with the disease.

9) Care of CHD infants at home.

10) Nutritional status.

11) Preventing infection.

12) Vaccination and medication.

1.7 Results: Self-efficacy and quality of life were assessed in three periods of time**.** The mean of the self–efficacy in the intervention group was significantly higher than that of the control group. The results showed that self efficacy was better than before ($p < 0.0001$). The mean score of quality of life in the experimental group was significantly higher than that of the control group ($p < 0.0001$).

Evidence appraisals:

1.8 Are the results valid? (Validity): The study is valid because the objective of the study was clearly identified. The sample size was appropriate for the study. The design of the study was quasi experimental, but the article provided the information as a randomized controlled trial. Convenient sampling was done. The variables were appropriate with the study level of confidence. The data were collected using three questionnaires. The outcomes were measured by questionnaires. The outcomes were clearly identified. The education was given only to the experimental group. The control group received only routine follow-up care with booklets.

Therefore, education programs can increase self-efficacy and quality of life for mothers of children with CHD.

1.9 What are the results? (Reliability): This study was approved by the Ethics Committee of Shiraz University of Medical Sciences. The (Cronbach's α) coefficient reliability for the total score of GSE was 0.76. The self-efficacy had reliability. The results were reported related to the objective of the study. All contents in the education program as stated in the research benefited of CHD caregivers' and improved quality of life through increasing self-efficacy. The outcomes of self-efficacy at two months after the intervention were higher.

1.10 Will the results help in treating patients? (Applicability): The education program was provided to the mothers when their children were admitted to

the hospital in the cardiology unit. The program included lecture and discussion methods. The media used were PowerPoint and booklets. The duration of the intervention was 90-minute sessions over a period of four weeks. The author will apply the whole program to her clinical setting. The booklets are easy for mothers to read in hospital and at home. The mothers will be able to understand the booklets easily.

Evidence 2

2.1 Title: Effects of a knowledge and self-efficacy enhancement program on self-efficacy of caregivers of children with acyanotic congenital heart disease.

2.2 Author: Panturut, P., Sanasuttipun, W., & Prasopkittikun, T (2011).

2.3 Publication source: Journal of Nursing Science. 29(4):46-53.

2.4 Objective of the study: To examine the effects of knowledge and self–efficacy enhancement programs for caregivers of children with acyanotic congenital heart disease.

2.5 Methodology of the study:

Design of the study: The design of the study was quasi experimental.

Setting of the study: The study was conducted at the Queen Sirikit National Institute of Child Health.

Participants: The participants in the study included 15 caregivers in the control group and 15 caregivers in the experimental group. The children were treated at the Queen Sirikit National Institute of Child Health and had been diagnosed with acyanotic congenital heart disease. All of the caregivers were females.

Age of children: 3 months to 1 year, without undergoing cardiac surgery.

Age of the caregivers: 18 years or older.

Sampling system: Convenient sampling.

Inclusion criteria: The inclusion criterion for the study covered all pediatric patients aged 3 months to 1 year and diagnosed with acyanotic congenital heart disease. All of the children were admitted and received treatment from the Queen Sirikit National Institute of Child Health. These patients had not yet undergone cardiac surgery. They had no other deformities such as cerebral palsy or colostomy. All of the

caregivers were females aged 18 years or older. All of the caregivers were able to read and write in Thai.

Program: Knowledge and self-efficacy enhancement. The program included the following:

-Training plan-PowerPoint presentation

-Handbooks

- Video media on care with confidence makes my little heart healthy.

Theory used: Bandura's Self Efficacy theory.

Instruments: The self efficacy was assessed by using a 26-item questionnaire.

Duration: The duration of the sessions was from 1 hour and 15 minutes to 2 hours daily for a total of 5 days.

Method: Teaching, practice**,** discussion and demonstration methods were used in the study.

Media: PowerPoint, handbooks and video.

Trainer: Researcher (Nurse).

Level of evidence: Level III

2.6 Program of the study:

1st day - The caregivers were taught about relaxation techniques through breathing techniques. The training session covered knowledge about self-efficacy in providing care for children with acyanotic congenital heart disease. The researcher taught the caregivers by using PowerPoint presentations and handbooks with the same topics as distributed to the caregivers to review their knowledge.

2nd day – The caregivers learned and practiced relaxation techniques through breathing techniques. Next, video media was played on "Care with confidence makes my little heart healthy". After watching video mother discussed on their maternal experiences in caring for children with acyanotic congenital heart disease. The researcher appreciated the mothers in positive way.

3rd -5th days – The caregivers were taught about the same techniques and encourage to applying their knowledge and skills, gained from the program. The caregivers then practiced what they had learned in their daily care-giving activities. The researcher encouraged caregivers to believe in their ability. On the 5th day, the

researcher asked the caregivers to answer the 26 questions about self-efficacy (post-test).

2.7 Results of the study: The results showed that the experimental group had earned significantly higher scores than the control group ($t = - 6.705$, $p < .001$).

Evidence appraisals:

2.8 Are the results valid? (Validity): The study was valid because **t**he objective of the study is related to the problems. The study was quasi experimental research. For the participants of the study, 15 caregivers were assigned to the control and experimental group each. The sample size was small. The participants were selected for the study by convenient sampling. The study results may not, however, be representative of caregivers of children with CHD in the hospital setting. Data were collected by questionnaires with pre-test and post-test findings. All contents and instruments were reviewed and validated by three experts. The Cronbach's Alpha Coefficient reliability was 0.73. The experimental group received knowledge and self-efficacy enhancement programs and the control group received routine care only. The outcomes of the study were measured with questionnaires. The outcome was identified clearly.

2.9 What are the results (Reliability): The study was reliable because the study was assessed for suitability of design for aspects such as topic, variables, objective, and sample group. And population was similar to clinical problem, data collection procedures were well-defined and statistical data analysis was performed. The outcomes were knowledge and self-efficacy. The improvement in self-efficacy was clearly identified. Cronbach's Alpha Coefficient reliability was 0.73.

2.10 Will the results help me in caring for my patients? (Applicability): The study was developed as a hospital-based educational program for caregivers of children with CHD. The author would like to implement the program in her own setting with videos and booklets. This type of program is easy to apply in the author's clinical setting because the program implementation is simple and cost effective.

According to the above findings, the author agrees to apply some part of this program through handbooks and videos.

For limitations, the subjects were not randomized. The subjects in each group were small, with only 15 participants in each group. Sampling techniques were uncontrollable factors in the research methodology. The study did not randomize subjects from a population. This study cannot be applied in other settings. Some children have complications, which may affect the results of the study, namely, knowledge and self-efficacy.

Evidence 3

3.1 Title: Effects of an educational program on maternal care of children with congenital heart disease post open-heart surgery.

3.2 Author: Payomhom, C (2011).

3.3 Objective of the study: To assess the effects of an education program for maternal care for children with congenital heart disease post open-heart surgery.

3.4 Methodology of the study:

Design of the study: The design of the study was quasi experimental.

Setting of the study: The study was conducted at King Chulalongkorn Memorial Hospital, Thai Red Cross.

Participants in the study: The subjects comprised 12 mothers in the control group and 13 mothers in the experimental group. The children had received cardiac surgeries.

Inclusion criteria: The inclusion criterion for the study included mothers of children diagnosed with cyanotic and acyanotic congenital heart disease and undergoing open heart surgery. The patients were admitted in the Pediatric Cardiology Unit at Queen Sirikit Bldg. on the 6^{th} and 18^{th} floors. After discharge, the next appointment for check-up was at out-patient department in King Bhumipol Bldg. 9^{th} floor, King Chulalongkorn Memorial Hospital, Thai Red Cross.

Method: Group lecture, individual tutoring and demonstration.

Media: VCD and manuals.

Duration: 45 minute**s.**

Theory: Orem's Theory.

Instruments: Maternal care of children with CHD was assessed by a 22-item questionnaire. Care behavior for children with CHD post open heart surgery was assessed by a 27-item questionnaire for evaluating maternal behavior.

Trainer: Researcher (Nurse)

Level of evidence - Level III.

3.5 Content of the study: 1st day transfer patients after recovering in the pediatric cardiology unit. The researcher introduced the study to the mothers and asked them to complete questionnaires for pre-test knowledge management of maternal care for children with CHD. Education was given by VCD for individual teaching. On the third day, post-test questionnaires were completed by a mothers the in the ward. The researcher distributed the manuals to the mothers. The contents of the manual were similar to the computerized media on the following topics:

-General care

-Development stages

-Changing health conditions.

Before discharge, the researcher met with the mothers and discussed problems associated with maternal care behavior. Post-tests were completed by the mothers of children with CHD post heart surgery. Researcher informed the mothers if they had any doubts, they could call the researcher. Two weeks after discharge, the patients returned for check-ups. The researcher asked the mothers to discuss a care behavior.

3.6 Results of the study: The mean score on care behavior in the experimental group was significantly higher than that of the control group ($F=6.698$, $p < .001$).

Evidence appraisals:

3.7 Are the results valid? (Validity): The research findings were valid because the study was approved by the Ethical and Human Research Committee of Chulalongkorn University and Chulalongkorn Hospital. The objective of the study was identified clearly and related to the background and problem of the study. The study design was quasi-experimental. There were 12 mothers in the control group and 13 mothers in the experimental group. The subjects were mothers of children with CHD

who agreed and were able to participate in the research throughout the course of the study when they went back home. Data were collected by arranging pre-test and post-test evaluations. The study was verified with experts including a physician, nurse and nursing instructor. The experimental group received the educational program, and the control group received routine nursing care only. The care behavior in the experimental group was significantly higher than that of the control group.

3.8 What are the results (Reliability): The study was reliable because it compared the care behavior between the two study groups. The outcomes were different between the intervention and control groups. The variables, objectives and; data collection procedures were appropriate.

3.9 Will the results help in caring for patients? (Applicability): The study was conducted in a hospital setting. The children received open heart surgery. The teaching media was VCD. The duration was about 45 minutes. This program was organized in the ward. The author would like use the program in her own clinical setting with videos, because there is no need to provide extra time and manpower. The educational program for mothers of children with CHD is easy to apply in the author's clinical setting with videos, because there is no need to provide extra time and manpower. The educational program for mothers of children with CHD is easy to apply in the author's clinical setting.

For limitations of the study, the sample size was small. The contents of the study were not clearly explained.

3.2 Conclusion

3.2.1 Summary of the samples of evidence-based practice appraisal: According to the evidence-based practice, 23 articles were collected about similar issues involving education programs for caregivers of children with CHD. After appraising the samples of evidence-based practice, the author selected three quasi experimental studies published in English from 2011 to 2013. It cannot be concluded, which education programs were effective programs for caregivers of children with CHD.

The author obtained three research articles after searching different databases. Due to the small number of samples of evidence-based practice, it was not possible to conclude which programs/interventions/strategies could increase self-efficacy and care behavior among caregivers of children with CHD.

However, according to three articles, some important issues were identified. The programs/interventions/strategies were implemented by professional nurses or healthcare providers. These programs can be implemented before and after cardiac operations of children with CHD. Most of the methods used were lectures, discussions and demonstrations. The media used were booklets, PowerPoint slides, handbooks, videos and manuals. The outcomes were measured by questionnaires and interviews. The core contents included meaning, etiology, signs and symptoms, diagnostic tests, treatments, nutrition, infection prevention, vaccination, medication and care for CHD children at home.

Therefore, several studies should be further conducted in order to examine which programs/interventions/strategies can improve self-efficacy and the care behavior of caregivers of children with CHD.

Table 3.3 Integrate table for three articles

Component	Article -1	Article-2	Article-3
Author & Year	Edraki et al, 2013	Panturut et al, 2011.	Payomhom, C, 2011
Objective	To determine the effects of educational programs on the quality of life and self efficacy of the mother of the infants with CHD.	To examine the effects of knowledge and self –efficacy enhancement programs for caregivers of children with acyanotic congenital heart disease.	To assess the effects of an education program for maternal care for children with congenital heart disease post open-heart surgery.
Population	A total 64 mothers were registered with 28 each in the control and intervention groups	The study subjects comprised 15 caregivers each in the control and experimental groups.	12 mothers were in the control group and 13 mothers were in the experimental group.
Setting	The study was conducted in the Imam Reza Clinic, Shiraj, Iran.	The study was conducted at the Queen Sirikit National Institute of Child Health.	The Study was conducted in King Chulalongkorn Memorial Hospital, Thai Red Cross.

Table 3.3 Integrate table for three articles (cont.)

Component	Article -1	Article-2	Article-3
Author & Year	Edraki et al, 2013	Panturut et al, 2011.	Payomhom, C, 2011
Intervention/ program	Educational program on the quality of life and self-efficacy of the mothers of the infants suffering from CHD. Programs**:** Disease, types of the disease, etiology, symptoms, diagnostic tests, treatment, effects on infants and families, coping methods, taking care of such infants at home, nutrition, preventing infection, vaccination and medication.	1st day- Teach the caregivers relaxation techniques through breathing techniques. The training session was on knowledge about providing care for children with acyanotic congenital heart disease. The training for the caregivers was carried out by using PowerPoint presentations and handbooks on the same topics distributed to the caregivers for review of their knowledge. 2nd day – Caregivers learned and practiced relaxation techniques through breathing techniques then played video media on "Care with confidence makes my little heart	1st day - Transfer patient after recovery period in the pediatric cardiology unit. The researcher was introduced to the mothers and asked them to answer some questions for pre-test knowledge management on maternal care for children with CHD. Education was given by VCD for individual teaching. On the 3rd day, post-tests were taken after returning to the in-patient ward where the researcher distributed the manual for the mothers to read with the same content in computerized media such as- -General care, -Development stages

Table 3.3 Integrate table for three articles (cont.)

Component	Article -1	Article-2	Article-3
Author & Year	Edraki et al, 2013	Panturut et al, 2011.	Payomhom, C, 2011
		healthy". This session was a discussion about the video content on the mothers' experiences in the care of children with acyanotic congenital heart disease. The researcher showed her appreciation to the mothers in a positive way. 3rd -5th days –Teaching of the same technique and encouragement for the caregivers to apply their knowledge and skills gained from the program with practice in their daily care-giving activities. The researcher encouraged the caregivers to believe in their ability. On the 5th day, the researcher asked the caregivers to answer the 26 question about self-efficacy (post-test).	-Changing health. Conditions. Before discharge, the researcher met with the mothers and discussed problems encountered in maternal care. Post-tests were given to the mothers to prevent in CHD post heart surgery and inform the mothers to contact the researcher by phone if they had any questions or doubts. At two weeks after discharge, the patients returned for check-ups. The researcher asked the mothers to discuss behavior and questions about maternal care at home.

Table 3.3 Integrate table for three articles (cont.)

Component	Article -1	Article-2	Article-3
Author & Year	Edraki et al, 2013	Panturut et al, 2011.	Payomhom, C, 2011
		discussion about the video content of mothers experience to care of to a child with acyanotic congenital heart disease. The researcher appreciated mothers in positive way. 3rd -5th days –Teaches same technique and encourage the caregivers to apply their knowledge, skills which gained from the program and practice it in their daily care giving activities. The researcher encouraged the caregivers to believe in their ability. On the 5 day researcher asked the caregivers to answer the 26 question about self efficacy (post-test).	Conditions. Before discharge, the researcher had met with mother and discussion about problems from maternal care. Post-test was given to the mothers to prevent maternal in CHD post heart surgery and inform mothers if any doubt contact the researcher through phone. After two weeks discharge, the patients returned for check-up. The researcher asked mother to discussion behavior question on maternal care at home.

Table 3.3 Integrate table for three articles (cont.)

Component	Article -1	Article-2	Article-3
Author & Year	Edraki et al, 2013	Panturut et al, 2011.	Payomhom, C, 2011
Health care provider	Nurse.	Researcher.	Researcher.
Methods	Lecture method.	Discussion and demonstration methods were used in the study.	Lecture method in groups with demonstration and individual tutoring
Media	The program was presented through PowerPoint and booklet.	The media used in the study were PowerPoint, handbook and Video.	VCD and manuals.
Duration	Education sessions were conducted over a 4 week periods with 90 minute sessions.	1 hour and 15 minutes to 2 hours every day.	45 minutes.
Measurements	General self-efficacy was assessed by a 23 item questionnaire. Quality of life	The self-efficacy enhancement program was assessed by questionnaires.	Knowledge measurement of maternal care of children with CHD was assessed by

Table 3.3 Integrate table for three articles (cont.)

Component	Article -1	Article-2	Article-3
Author & Year	Edraki et al, 2013	Panturut et al, 2011.	Payomhom, C, 2011
	Was assessed by a SF-36-items questionnaire for evaluation.		a 22-item questionnaire and a 27-item questionnaire for measuring maternal behavior.
Outcomes	The self-efficacy and quality of life were assessed three different times**.** The mean of self–efficacy of the intervention group was better than and significantly higher than the control group. The result shows that self efficacy was better than before $p<0.0001$. The mean score for quality of life was significantly higher in the experimental group than the control group $p<0.0001$.	The knowledge and self efficacy enhancement program found that the experimental group gained higher self-efficacy than the control group ($t=-6.705$, $P<.001$).	The mean scores on the maternal care behavior of experimental group were significantly higher than those of control group $F=6.698$, $p<.001$.

Table 3.4 Collective table of education program for caregivers

Components	Article 1	Article 2	Article 3
Author & Year	Edraki et al, 2013	Panturut et al, 2011.	Payomhom, C, 2011
Type of education program	Education program	Knowledge and self-efficacy enhancement program	Education program for maternal care
Intervention	✓	✓	✓
Meaning of disease	✓		
Types of disease	✓		
Causes	✓		
Symptoms	✓		
Effect on the infant of the family	✓		
Taking care of infant at home	✓		
Nutrition	✓		
Prevention of infection	✓		
Vaccination	✓		
Medication	✓		
Relaxation technique		✓	

Table 3.4 Collective table of education program for caregivers (Cont.)

Components	Article 1	Article 2	Article 3
General care	✓	✓	✓
Developmental stage			✓
Changing health condition			✓
Setting	Hospital	Hospital	Hospital
Length of session	90 minutes	1hour-15 minute to 2 hours	45 minute
Duration	4 weeks	5 day	3 days
Type of intervention	Group with 56mothers	Group within 30 caregivers	25 mothers in group
Trainer	Nurse	Researcher	Researcher
Methods of activities	Lecture	Teaching, practice, discussion and demonstration	Lecture, individual tutoring and demonstration
Media of group activities	PowerPoint and booklet.	PowerPoint, handbook and video.	VCD and manual

3.2.2 Recommendation from the above three samples which selected by the author and explained as follows:

1) The health education program was effective for mothers of children with CHD (Edraki et al., 2013: Level III; Payomhom, C., 2011: Level III; Panturut et al., 2011: Level III).

2) The education program was performed by the nurses (Edraki et al., 2013: Level III; Payomhom, C., 2011: Level III; Panturut et al., 2011: Level III).

3) Most of the program took place in hospital based setting (Edraki et al., 2013: Level III; Payomhom, C., 2011: Level III; Panturut et al., 2011: Level III).

4) Lecture was used in the program (Edraki et al., 2013: Level III; Payomhom, C., 2011: Level III; Panturut et al., 2011: Level III).

5) The duration of the program ranged from 45 minute to 2 hours sessions (Edraki et al., 2013: Level III; Panturut et al., 2011: Level III; Payomhom, C., 2011: Level III).

6) The media used in the program PowerPoint (Edraki et al., 2013: Level III; Payomhom, C., 2011: Level III).

7) Booklet, video, VCD and handbooks were used (Payomhom, C., 2011: Level III; Panturut et al., 2011: Level III).

8) The study explained about CHD (Edraki et al., 2013: Level III).

9) The study explained about the type of disease (Edraki et al., 2013: Level III).

10) The etiology of the diseases was described (Edraki et al., 2013: Level III).

11) Symptoms of CHD (Edraki et al., 2013: Level III).

12) Diagnostics testing was explained (Edraki et al., 2013: Level III).

13) Medications were described (Edraki et al., 2013: Level III).

14) Nutrition was emphasized (Edraki et al., 2013: Level III).

15) The care of the infants was explained (Edraki et al., 2013: Level III; Payomhom, C., 2011).

CHAPTER IV
CONCLUSION AND SUGGESTIONS

4.1 Conclusion

Congenital heart disease (CHD) is the major health problem all over the world. Caregivers are the persons who are primarily involved in helping CHD survivors. Most caregivers suffer from many physical, psychological, emotional, social, economic and spiritual aspects. For these reasons, caregivers suffer from anxiety, depression, stress, disbelief, blame and fear. CHD is a chronic disease requiring long-term care and specialized care for the children. Most caregivers are not able to understand signs and symptoms of the disease in their children due to the low self-efficacy and care behavior of the caregivers. There is little evidence-based practice for caregivers of children with CHD. Evidence-based practice is important because it incorporates scientific documents, updates information, adds to clinical experience and improves patient values. Hence, evidence-based practiced is useful for caregivers of children with CHD. Based on this problem, the author was interested in summarizing education programs from evidence-based practice to increase the self-efficacy and care behavior of caregivers. Therefore, the objectives of this study were to summarize nursing strategies/nursing interventions in order to improve self-efficacy and care behavior of caregivers of children with CHD from evidence-based practice from research and to draw conclusions and recommendations from the evidence obtained.

The author searched for currently available evidence-based reports by using the Mahidol University Library electronic database systems and other websites to search for related evidence-based practice. The Cumulative Index to Nursing and Allied Health (CINAHL), Ovid Full Text, Pro-Quest Nursing and Allied Health Source, PubMed and Science Direct were used to search for single research studies. The author also conducted a manual search for research studies. The PICO framework was used to guide the keywords for the search. The keywords used were

P = “caregivers” or “parents” or “mothers”, I = “education program” or “teaching program” or “training program”, intervention O = “self-efficacy” or “care behavior”. The author used a Boolean operator for searching. For each PICO element, the author collected any synonyms by connecting terms with “OR”, then located citations relevant to all of the PICO elements by linking with “AND”.

According to the objectives of the study, the author searched the electronic database of Mahidol University to collect samples of evidence-based practice. The author found relevant articles with the PICO framework. The PICO format was used to detect appropriate populations of the evidence-based practice. The author planned to develop programs/interventions/strategies capable of increasing self-efficacy and care behavior of caregivers of children with CHD. The author selected research articles based on inclusion and exclusion criteria, language, publication year and setting of the intervention. The selected articles and strength of the articles of evidence-based practice were considered based on strong validity, reliability and applicability. After searching, the author found 23 relevant samples of evidence-based practice and read the full text versions of the evidence collected, eventually selecting three articles relevant to the objectives of the study. The other 20 articles were excluded because the outcomes were not related to the objectives of the study. The selected three articles used quasi experimental study designs. The evidence was selected by inclusion and exclusion criteria including publication year, language and selected setting of the intervention. According to the literature review, the author found that the researchers used multiple strategies in the education programs. The teaching methods used were lecture, discussion, and demonstration. The teaching media used were booklets, videos and PowerPoint slides. Using teaching media helped caregivers learn and understanding more. The contents were about the meaning of disease, etiology, types of the disease, signs and symptoms, diagnostic tests and treatment, infant care, feeding, monitoring the development of infants, and immunization, etc. After the teaching sessions, the caregivers had gained an understanding about the contents. The outcomes were measured by questionnaires and interviews. The caregivers encountered difficulties in some activities related to the disease, such as abnormal signs and care for their sick children at home. After the teaching sessions, these contents increased self-efficacy and care behavior of caregivers of children with CHD

who were able to provide general care to their children without any difficulties. The caregivers understood what kinds of signs and symptoms required taking children to the hospital. As a result, the education programs could be more effective at increasing caregivers' self efficacy and care behavior for their children with CHD by summarizing the evidence-based practice. Due to the dearth of available evidences, it was not possible to conclude which programs/interventions/strategies could increase the self-efficacy and care behavior of caregivers of children with CHD.

However, according to these articles, some important issues were identified. The programs/interventions/strategies were implemented by professional nurses or healthcare providers. These programs can be implemented before and after cardiac operations on children with CHD. Most of the methods used were lectures, discussions and demonstrations. The media used were booklets, PowerPoint slides, handbooks, videos and manuals. The outcomes were measured by questionnaires and interviews. The core contents included meaning, causes, signs and symptoms, diagnostic tests, treatments, nutrition, infection prevention, vaccination, medication and care for CHD children at home.

Therefore, several studies should be further conducted in order to examine which programs/interventions/strategies are capable of improving self-efficacy and care behavior of caregivers of children with CHD.

Based on the findings, the author tried to draw conclusions from all three studies. The design of the study was quasi experimental. The participants in the studies were mothers of children with CHD. The ages of the caregivers ranged from 18 years to 28 years old. The children's ages were from under 12 months to 5 years old. The core contents of the three studies were meaning of disease, etiology, types of the disease, signs and symptoms, diagnostic tests and treatment, infant care, feeding, monitoring development of infants and immunization, general care, developmental stages, and changing health conditions. The methods used in all of the studies were lectures, group lectures, discussions, practice, individual tutoring and demonstrations. The media used were PowerPoint slides, videos, booklets, VCDs and manuals. The lengths of the teaching sessions were from 45 minutes to 2 hours. The duration of the programs ranged from 5 days to 4 weeks. Outcomes were measured by questionnaires.

Similarity of self-efficacy two samples of evidence-based practice were the focus of the strategy: Children with CHD require special care before receiving surgery. Teaching methods: Lectures, Teaching, practice, discussions and demonstrations. Media: PowerPoint, booklets, handbooks and videos. Content: Disease, type, etiology, signs and symptoms, diagnosis test, treatment, effects on infants and families, methods for coping with the disease, care of infants at home, nutritional status, infection , prevention vaccination and medication, relaxation techniques, handbooks for review of knowledge and video media on “Care with confidence makes my little heart healthy”.

Articles on care behavior focused on strategy: In this study, caregivers provided care for CHD children post surgeries. The contents of the program covered general care, developmental stages and changing health conditions presented by group lectures, individual tutoring and demonstrations. Medias included VCDs and manuals. Contents: Education program was given by VCD for individual teaching. Manuals with the same topic were presented with computerized media such as general care, developmental stages and changing health conditions.

In conclusion, videos and booklets are appropriate for use in the clinical setting as suggested by all of the evidence. Videos can stimulate the mothers in gaining self-efficacy and increasing care behavior of caregivers. Booklets can recall caregivers’ memories when caregiver read about the information at home.

4.2 Suggestions

According to the studies of all the evidence-based practice, education programs are effective means of improving self-efficacy and care behavior of caregivers of children with CHD. Furthermore, the provision of programs/interventions/strategies should be further conducted to increase self-efficacy and care behavior. The implications in nursing practice and research are as follows:

4.2.1 Implications for practice: Based on these suggestions from all of the findings, self-efficacy and care behavior of caregivers of children with CHD were improved. The program should be implemented by professional nurses and health care

providers. The program will be conducted before and after open heart surgery. The methods will be lectures, discussions, demonstrations, and return demonstrations. Videos and booklets should be used for better understanding. Caregivers who receive educational program have improved self-efficacy and care behavior with children with CHD. For these reasons, caregivers of children with CHD need to participate in health education programs. The implication of education programs should be applied as follows:

1) In Bangladesh, there are no educational programs about self-efficacy and care behavior. Therefore, the author found evidence for nursing strategies or interventions. This program will be developed in a hospital setting for outpatients and inpatients. The program should be developed in groups and within short period of time because caregivers will not accept long programs and have other jobs requiring their attention instead.

2) The program will be arranged from the perspective of the Bangladeshi culture. Caregivers must be able read and write in the Bangla language, especially in local settings.

3) The education program will be implemented for children from 12 months to 5 years old. Different age groups and caregivers require different education programs.

4) The contents of the program should be based on the followings: disease, type, etiology, symptoms, nutrition, immunization and prevention of infection, dental care, medication, diagnostic testing and care behavior. Two of the studies were before surgery. In the author's opinion, these programs are appropriate for caregivers of children with CHD.

5) The duration of the teaching program will be 45 minutes.

6) The methods will be used in the program such as lectures, discussions, demonstrations, and return demonstrations.

7) The media will be videos and booklets.

8) Teaching sessions may be arranged within two days before discharge.

9) 30-minute morning sessions can be arranged.

4.2.2 Implication for Research:

1) Several additional studies should be conducted in order to examine which programs/interventions/strategies can best improve self-efficacy and care behavior of caregivers of children with CHD.

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