CHAPTER 4

RESULTS AND DISCUSSION

The results of this descriptive, correlational study are presented in four sections. The first section demonstrates characteristics of the sample and their toddlers with CHD. The second section displays descriptions of the study variables. The third section presents the findings by research questions. The last section is the discussion of the study findings.

Characteristics of the Sample

Demographic Characteristics of the Sample

A total of 95 participants completed all study measures. A summary of the demographic characteristics and descriptive statistics of selected demographic variables are presented in Table 4-1. The clinical characteristics of toddlers with CHD under the participants' responsibility are also illustrated in Table 4-2.

Out of the 95 participants, the majority of them (96.84 %, n = 92) were participants from Maharaj Nakorn Chiang Mai Hospital, Chiang Mai and only few (3.16 %, n = 3) were participants from Buddhachinaraj Hospital, Phitsanulok. Characteristics of the samples from Phitsanulok were not different from those at Maharaj Nakorn Chiang Mai Hospital. The age range of participants was 18 to 45 years, with a mean age of 30.51 years. The sample was predominantly Buddhist (90.53 %, n = 86). Most of the participants were married and lived together with

their husbands (96.84 %, n = 92), and were non-government employees (38.95 %, n = 37). Regarding the educational background, the majority of participants (38.95 %, n = 37) achieved secondary school or diploma. The average family income of participants was 11,895.89 baht/month. More than half of them had an average family income less than an average monthly income in northern region of Thailand in 2007 (13,568 Baht/household/month). With regard to the characteristics of family, the majority of participants (56.84 %, n = 54) had extended family. In addition, more than half of them (51.58 %, n = 49) had only one child under their responsibility (includes CHD children) as shown in Table 4-1.

Table 4-1

Demographic characteristics of the sample (n = 95)

Demographic characteristics	Frequency	Percentage
Age (years)		
(Range = 18 - 45, $\bar{X}$ = 30.51, SD = 5.93)		
≤ 20	5	5.26
21 – 30	46	48.42
31 – 40	41	43.16
> 40	3	3.16
Religions		
Buddhism	86	90.53
Christianity	8	8.42
Islam	1	1.05
Occupation		
Government officer / State enterprises employee	8	8.42
Housewife	20	21.05
Farmer	14	14.74
Merchant	16	16.84
Non-government employee	37	38.95
Educational background		
Not attending school	2	2.11
Primary school	29	30.52
Secondary school / Diploma	37	38.95
Bachelor degree	27	28.42

Table 4-1

Demographic characteristics of the sample (continued)

Demographic characteristics	Frequency	Percentage
Marital status		
Married and live together with husband	92	96.84
Married but not live together with husband	1	1.05
Widowhood / Divorced / Separated	2	2.11
Family income (Baht/month)		
(Range = 3,000-35,000 , $\bar{X}$ = 11,895.89, SD = 8,043.66)		
≤ 5000	24	25.26
5,001 - 10,000	33	34.74
10,001 - 20,000	28	29.47
20,001 - 30,000	8	8.42
> 30,000	2	2.11
Family type		
Nuclear family	41	43.16
Extended family	54	56.84
Number of children (including toddler with CHD)		
1	49	51.58
2	42	44.21
3	3	3.16
4	1	1.05

Characteristics of the Toddlers with CHD

For characteristics of toddlers with CHD, approximately three-fourths of the toddlers with CHD in this study were diagnosed with VSD (71.58 %, n = 68), one-sixth with PDA (14.74 %, n = 14), and another one-sixth with ASD (13.68 %, n = 13). Approximately one-third of them (33.68 %, n = 32) were taking medication related to CHD. Regarding age at first diagnosis of CHD, approximately half of them (46.32 %, n = 44) were diagnosed within 6 months after the birth. During the past 3 months, more than half of the samples had respiratory tract infection (RI) at least 1 time (63.16 %, n = 60), only a few had cyanosis (2.10 %, n = 2), and none of them had edema. Approximately one-third of them needed admission to the hospital at least 1 time (30.53 %, n = 29). Descriptive information of the toddlers with CHD are summarized in Table 4-2.

Table 4-2

Characteristics of toddlers with CHD (n = 95)

Demographic characteristics	Frequency	Percentage
Diagnosis		
VSD	68	71.58
ASD	13	13.68
PDA	14	14.74
Medication related to CHD		
Yes	32	33.68
No	63	66.32
Sex		
Boy	45	47.37
Girl	50	52.63
Age at first diagnosis of CHD		
Antenatal	1	1.05
At birth	23	24.21
> 1 day - 6 months	44	46.32
> 6 months - 1 year	17	17.90
> 1 year	10	10.52
Number of respiratory tract infections during the past 3 months		
None	35	36.84
1	26	27.37
2	15	15.79
3	11	11.58
4	5	5.26
5	3	3.16

Table 4-2

Characteristics of toddlers with CHD (continued)

Demographic characteristics	Frequency	Percentage
Number of edema in the last 3 months		
None	95	100.00
Number of dyspnea in the last 3 months		
None	90	94.74
1	2	2.11
2	1	1.05
3	1	1.05
4	1	1.05
Number of cyanosis in the last 3 months		
None	93	97.90
1	1	1.05
2	1	1.05
Number of hospital admission in the last 3 months		
None	66	69.47
1	21	22.11
2	6	6.32
4	2	2.10

Descriptions of the Study Variables

Descriptive statistics of the study variables including parenting stress, perceived social support, perceived self-efficacy, CHD knowledge, and dependent care behaviors are displayed in Table 4-3. The distributions of the study variables are also presented in Table 4-4 and Table 4-5.

Table 4-3 revealed that the total scores of parenting stress ranged from 41 to 122, with the mean of 83.43 (SD = 17.59). This mean score fell below the 90th percentile (below a raw score of 90) or below the clinically significant levels of parenting stress. The scores of perceived social support ranged from 93-174 with a mean of 131.39 (SD = 16.04). Thus, it implied that mothers in this study perceived themselves as having high social support. The scores of perceived self-efficacy ranged from 104-188 with a mean of 151.12 (SD = 19.44). The results showed that the participants in this study had perceived self-efficacy at a high level. The scores of CHD knowledge ranged from 10-23 with a mean of 17.83 (SD = 2.68). The mean score implied that the participants had high knowledge of CHD. The scores of dependent care behaviors ranged from 2.09 - 2.97 with a mean of 2.54 (SD = 0.22). Higher scores of dependent care behaviors reflect better dependent care behaviors of the mothers for their toddlers with CHD.

Table 4-3

Descriptive statistics for parenting stress, perceived social support, perceived self-efficacy, CHD knowledge, and dependent care behaviors among mothers of toddlers with CHD (n = 95)

Variables	Possible Range	Actual Range	Mean	SD	Score Interpretation
Parenting stress	36-180	41-122	83.43	17.59	normal
Social support	25-175	93-174	131.39	16.04	high
Self-efficacy	38-190	104-188	151.12	19.44	high
Knowledge	0- 23	10 - 23	17.83	2.68	high
Care beh	0.00 - 3.00	2.09 - 2.97	2.54	0.22	high

Note: Social support = Perceived social support,
Self-efficacy = Perceived maternal self-efficacy, Knowledge = CHD knowledge
Care beh = Dependent care behaviors in mothers of children with CHD

With regard to the distributions of perceived social support, perceived self-efficacy, CHD knowledge, and dependent care behaviors scores shown in Table 4-4, most mothers had a high level of perceived social support (65.26 %, n = 62) and perceived self-efficacy (72.63 %, n = 69). Most participants also had CHD knowledge at a high level (80.00 %, n = 76). In addition, the majority of the subjects (82.11 %, n = 78) had high score of dependent care behaviors for toddlers with CHD, while approximately 18 percent of the subjects had dependent care behaviors score at a moderate level. Regarding the parenting stress, approximately one-third of mothers participating in this study (*n* = 34) described levels of total

parenting stress that were above the cutoff for clinical significance (≥ 90th percentile or above a raw score of 90).

Table 4-4

The descriptive value of perceived social support, perceived self-efficacy, CHD knowledge, and dependent care behaviors among mothers of toddlers with CHD (n=95)

Variables	Low	Moderate	High
	n (%)	n (%)	n (%)
Perceived social support	-	33 (34.74%)	62 (65.26 %)
Perceived self-efficacy	-	26 (27.37 %)	69 (72.63 %)
CHD knowledge	-	19 (20.00 %)	76 (80.00 %)
Dependent care behaviors	-	17 (17.89 %)	78 (82.11 %)

Table 4-5

The description value of parenting stress among mothers of toddlers with CHD (n = 95)

Parenting stress	Normal-Borderline	High	Clinically Sig.
	n (%)	n (%)	n (%)
Total score	51(53.68)	10 (10.53)	34 (35.79)

Note: 16 – 80 Percentile (raw score > 55 - 82) : Normal range
81 – 84 Percentile (raw score > 82 - 85) : Borderline
≥ 85 Percentile (raw score ≥ 86) : High range
≥ 90 Percentile (raw score ≥ 91) : Clinically significant parenting stress

Findings of Research Questions

The purpose of this study was, first, to describe the relationships between dependent care behaviors among mothers of toddlers with CHD and parenting stress, perceived social support, perceived self-efficacy, CHD knowledge, educational background, and the family income. The second goal of the study was to identify the ability of parenting stress, perceived social support, perceived self-efficacy, CHD knowledge, educational background, and family income in predicting dependent care behaviors among mothers of toddlers with CHD. The following section presented findings for each research question. The significant level was initially set at the alpha of .05.

Research question 1: What are the relationships between dependent care behaviors among mothers of toddlers with CHD and parenting stress, perceived social support, perceived self-efficacy, CHD knowledge, educational background, and family income?

Pearson's product moment correlation was used to determine the relationships between dependent care behaviors of mothers for toddlers with CHD and the study's variables. The magnitude of relationship was determined by the following criteria: $r < .30$ = small, $r = .31 - .50$ = moderate, $r > .50$ = high (Burns & Grove, 2001). As presented in Table 4-6, the results showed small to high significant relationships between dependent care behaviors of mothers for toddlers with CHD and some variables in this study.

There was a significantly highly positive relationship between dependent care behaviors of mothers for toddlers with CHD and perceived self-efficacy ($r = .66$,

p < .01). The results also revealed a moderately positive relationship between dependent care behaviors of mothers for toddlers with CHD and perceived social support (r = .33, p < .01) and a low negative relationship with parenting stress (r = -.21, p < .05).

Table 4-6

Correlation matrix of all study variables (n = 95)

Variables	Care beh	Parenting stress	Social support	Self-efficacy	Knowledge	Edu	Income
Care beh	1.00						
Parenting stress	-.21*	1.00					
Social support	.33**	-.33**	1.00				
Self-efficacy	.66**	-.40**	.44**	1.00			
Knowledge	.08	.16	.13	.21*	1.00		
Edu	.01	-.24**	.21*	.05	.07	1.00	
Income	.15	-.18*	.28**	.10	.33**	.55**	1.00

* p < .05, ** p< .01

Note: Care beh = dependent care behaviors in mothers of toddlers with CHD
Social support = Perceived social support
Self-efficacy = Perceived maternal self-efficacy, Knowledge = CHD knowledge,
Edu = Educational background, Income = Family income

Since the intercorrelations were found among the study's variables, therefore simultaneous regression was performed to examine the partial correlation

coefficient or the correlation of a study's variable and dependent care behaviors when the effects of other variables were controlled. As shown in Table 4-7, partial correlation coefficient between dependent care behaviors and perceived self-efficacy was at a highly significant positive relationship ($r = .62$, $p < .01$). Moreover, a low significant relationship was found between dependent care behaviors and family income ($r = .21$, $p < .05$).

In sum, when the effects of other study's variables were controlled, perceived self-efficacy and family income were correlated with dependent care behaviors of mothers for toddlers with CHD.

Table 4-7

Coefficient correlations of dependent care behaviors in mothers of children with CHD and all study variables (n = 95)

Variables	Partial correlation coefficient
Parenting stress	.14
Perceived social support	.05
Perceived self-efficacy	.62 **
Knowledge of CHD	-.18
Educational background	-.12
Family income	.21*

* $p < .05$, ** $p < .01$

Research question 2: To what extent do parenting stress, perceived social support, perceived self-efficacy, CHD knowledge, educational background, and family income explain variability of dependent care behaviors among mothers of toddlers with CHD?

The analysis procedure to answer this question was performed by using stepwise multiple regression. All study variables were included in the regression analysis. To determine how much each set of variables contribute to the variance explained in the maternal dependent care behaviors of toddlers with CHD score, the magnitude of R^2 change and its significance are focused. Multicollinearity of a set of variables included in the analysis was checked by examining the intercorrelation, as well as the tolerance values of each variable.

As seen in Table 4-8, the results showed that only perceived self-efficacy variable accounted for a significant proportion of the variance in the mothers' dependent care behaviors for toddlers with CHD measure (R^2 = .438, Adjusted R^2 = .432, F (1, 93) = 72.433, p < .01). On examination of the significance of β weight for all predicting variables in the model, the perceived self-efficacy was significant (β = .662, p < .01). Regression analysis did not identify any additional variables that significantly predicted the mothers' dependent care behaviors. Therefore, the sample multiple correlation coefficient was .662 and 43.80 percent of variance in the mothers' dependent care behaviors was accounted for by perceived self-efficacy.

In short, perceived self-efficacy was the only predictor accounting for 43.80 % of the variance in the mothers' dependent care behaviors for toddlers with CHD.

Table 4-8

Predicting factor of maternal dependent care behaviors (n= 95)

Variables	B	SE B	β	t value
Constant	1.407	.134		10.462**
Perceived self-efficacy	.008	.001	.662	8.511**

R^2= .438, Adjusted R^2= .432, F (1, 93) = 72.433

** p < .01

Discussion of the Findings

This cross sectional, correlational study was completed to answer the research question regarding the associations of parenting stress, perceived social support, perceived self-efficacy, CHD knowledge, educational background, and family income with dependent care behaviors of mothers who have toddlers with CHD. The study also identified the ability of those study variables in predicting dependent care behaviors among mothers of toddlers with CHD.

Research Question 1

For the first research question, the results revealed that perceived self-efficacy and family income were positively related to dependent care behaviors of mothers for toddlers with CHD when the effects of other study's variables were controlled. These findings provide further evidence that mother of toddlers with CHD who had

higher perceived self-efficacy and family income were more likely to provide better dependent care behaviors.

Perceived self-efficacy. A highly positive relationship was found between perceived self-efficacy and dependent care behaviors of mothers for toddlers with CHD ($r = .62$, $p < .01$). This finding contributes to the growing literature on the role of perceived self-efficacy in maternal childcare behaviors. Mothers of toddlers with CHD in the current study were found to have perceived self-efficacy at a high level ($\bar{x} = 151.12$, SD = 19.44). This result implied that the mothers who participated in this study had higher confidence in their parenting abilities.

A possible explanation for this finding may be related to the nature and health outcome of toddlers with CHD under the present sample's responsibility. Despite the children with specific disease such as CHD are vulnerable to adverse complications from the disease, however, these children could be able to have nearly a normal life. Taken into consideration that the majority of the toddlers with CHD whose mothers participated in the current study presented as asymptomatic or mild severity of hemodynamic disturbance. Approximately two-thirds of them (66.32 %, n = 63) were not taking medication related to CHD. During the past 3 months, only a few of the toddlers had cyanosis (2.10 %, n = 2), and none of them had edema. Thus, it is possible that providing care for these CHD children is not different from the normal child experience. According to Bandura (1997), an enactive performance attainment has proven to be a critical source of self-efficacy. By succeeding with smaller immediate tasks, individuals develop a sense of self-efficacy for more difficult tasks. As mothers continually and successfully engage in dependent care behaviors for their asymptomatic CHD child, self-efficacy naturally increases.

At the Pediatric Cardiology Clinic, Chiang Mai University Hospital, health education and pamphlets related to care of children with CHD are arranged for most of a newly child diagnosed with CHD. Moreover, health conditions and home care for these CHD children are regularly interviewed and adviced during the regular visits. Therefore, another reason may be health suggestion or verbal persuasion by encouragement, support, or reasurance from healthcare providers during the regular visits may have given the mothers of toddlers with CHD, a sense of control in their parenting role. Furthermore, follow up physical exams by pediatric cardiologist which indicate stable condition of the child may ensure that their care behaviors are in the appropriate way. Thus, the mothers of toddlers with CHD will develop a sense of self-efficacy and continually engage in dependent care behaviors for their asymptomatic CHD children.

Self-efficacy has been recognized as an important factor in childhealth care; particularly its relationship to maternal care behaviors has been examined extensively in previous studies. For example, higher perceived self-efficacy in mothers have been linked with providing healthy care behaviors for young children (Cluskey, 1999). Similarly, mothers with higher self-efficacy tended to provide better home environments for their children (Jackson & Scheines, 2005; Seo, 2003). Consistent with the findings of others who reported a positive association between self-efficacy and childcare behaviors, the current finding shows that the mothers with higher perceived self-efficacy tended to provide better dependent care behaviors for their toddlers with CHD. On the other hand, the mothers with better dependent care behaviors tended to have higher perceived self-efficacy.

The result from this sample also aligns itself quite well with previous research regarding self-efficacy that can be conceptualized as part of self-care agency in Orem's theory (Callaghan, 2005; Onchim, 2002; Tantiwaraskool, 2003; Varitsakul, 2001). Self-efficacy refers to the belief in one's ability to successfully perform a particular behavior (Bandura, 1977). Thus, this belief influences how people feel, think, motivate themselves and behave. According to Bandura (1977) beliefs of personal efficacy constitute the key factor of human agency, which he defines as acts done intentionally. Once the personal efficacy is formed, this belief will regulate aspirations, choice of behavioral courses, mobilization and maintenance of effort and affective reactions. For mothers of toddler with CHD, when one judges oneself to be highly efficacious at a given task of dependent care behaviors, one will exert great effort to meet the challenges necessary for performing a task successfully.

In keeping with Orem's theory (2001), self/dependent-care agency is the ability of individuals to engage in self/dependent-care behavior. Self/dependent-care agency consists of three types of capabilities: foundational capabilities and dispositions; power components enabling for self-care operations; and capabilities for self-care operations. One of the propositions in the theory of self-care is that engagement in self/dependent-care involves performance of operations to estimate or establish what can and should be done, to decide what will be done, and to produce care. The transitional capability of self/dependent-care is cognitive process such as thinking, judging and deciding about self/dependent-care situation before self/dependent-care action is performed (Orem, 2001). The transitional capability of self/dependent-care operations involve the judgment of one's ability for

self/dependent-care that is consistent with the conceptualization of self-efficacy. After gathering and analyzing data, individuals will judge and make decision about their capabilities to control or perform care action. For individuals who perceived that they have ability for self/dependent-care or self-efficacy, this situation will end with carrying out self/dependent-care action. Thus, it stands to reason that those mothers with higher perceived self-efficacy were found to provide better dependent care behaviors for their toddlers with CHD.

Family income. Regarding family income, the present study revealed that family income was significantly related with dependent care behaviors of mothers for toddlers with CHD ($r = .21$, $p < .05$). This finding was not surprising because previous study by Azumpinzub (1997) reported a significant positive relationship between family income and maternal caring behaviors for 3-6 years children with CHD ($r = 0.28$, $p < 0.01$). The result also supports previous work demonstrated that family income had effect on adequacy of well childcare (Ronsaville & Hakim, 2000), and the quality of childcare (Iram & Butt, 2004).

According to Orem (2000), resources availability and adequacy affect the means to meet self-care requisites and the associated care measures. Thus, one possible explanation for the existence of significant relation between family income and maternal dependent care behaviors may be that mothers with higher income, compared to those with limited income, find it less difficult to afford healthier food options, healthcare services, accommodation, as well as utilities for their child. To illustrate, the mothers with higher income are more able to afford high protein food, age appropriate toys or safety home's environments. Moreover, they may have

adequate time to play with their child. Furthermore, it is known that money is an important resource that can be used to gain access to information. Those who had a high family income would have more chances and better networks to access information from various resources.

Even though more than half of the participants in this study reported that they had an average family income less than the average monthly household income of northern Thai people, it is important to note that the poverty line in northern region of Thailand in 2007 is 1,326 baht/person/month (National Economics and Social Development Office, 2008). Poverty line is conceptualized as a minimum standard required by an individual to fulfill his or her basic food and non-food needs (National Statistical Office, 2009). Despite poverty line indicates a minimum standard required for an individual in the family and might make interpreting findings difficult, it is important to keep in mind that this amount of reported family income may not mean that they have poor resource or they may not be able to exploit economic resources for their child's care. Moreover, approximately one-fifth of mothers in the current study (21.05 %, n = 20) are housewives. The mothers who deferred employment to be housewife may be related to lost family income; however, they could remain at home and have time available to care for their children.

Some of the nonsignificant findings in this study were unexpected. In this sample, the results of investigation found no support for associations between maternal dependent care behaviors and parenting stress, social support, knowledge, and educational background. Notably, this study focused on relationships between

dependent care behaviors and the variables when effects of others on the associations were controlled.

Parenting stress. In relation to parenting stress, this variable is proposed in current study under the basic conditioning factors as health state of the mothers that might bring about effect on dependent care behaviors among mothers of toddlers with CHD. Parenting stress was not significantly associated with dependent care behaviors of mothers for toddlers with CHD ($r = .14$, $p > .05$). Thus, this result did not agree with the Orem's Self-Care Deficit Nursing Theory (2001). This finding is difficult to interprete since a wide body of literature demonstrating the deleterious effects of parenting stress on child rearing practices (Bonds et al., 2002; Fagan, Bernd, & Whiteman, 2007; LeCuyer-Maus, 2003; Pearl, 2004; Rodenberg et al., 2007; Rodgers, 1998; Streisand, Kazak, & Tercyak, 2003).

The different result may be due to the characteristics of the children sample. Most of the toddlers with CHD in this study did not have clinically significant cardiac conditions. Out of the 95 toddlers in current study, more than half of them (66.32 %, n = 63) needed only continuing follow-up care without any medication. Nearly all of them did not have signs and symptoms of dyspnea (94.74 %, n = 90) and all did not have signs of dyspnea. When the disease did not have extensive problems that could effect maternal functions, the mean score of parenting stress in this study ($\bar{x} = 83.43$, SD = 17.59) fell within the normal percentile range (below the 90th percentile or below a raw score of 90)

The majority of mothers (64.21 %, n = 61) scored in the non-clinical significance for parenting stress range, indicating that the majority of them are faring well in their childcare responsibility. Possibly the experiencing nonclinically

significant parenting stress level may account for the lack of relationship between parenting stress and dependent care behaviors. Moreover, given that most of the mothers in this study were married and lived together with husband, as well as, more than half of them lived with their grandparents or other relatives in the same house. Families are best perceived as providing social, emotional and material support (Ohaeri, 1998). Specifically, Thai families are close and several generations may live in the same household. The emotional support, information or concrete/material help from this group of people may facilitate coping abilities and also child care's activities. In this sample, the mothers had high perceived social support and it was negatively related to parenting stress ($r = -.33$, $p < .01$). Thus, an additional explanation might be, partly, a function of resources from family members that is available and helpful in their childcare. This seems to be in line with study of Rodenburg et al. (2007), who reported that resource (family cohesion) contributed to lower levels of parenting stress, which in turn, contributed to supportive parenting behaviors. Rodgers (1998) also found that perceived helpfulness of emotional and instrumental support buffered the relationship between parenting stress and parenting behaviors. Similarly, Coohey (2007) reported that the mothers who received less child care support from their partners and relatives provided inadequate supervision for their child. Thus, parenting stress in the present study may not have enough power to relate with dependent care behaviors of the mothers. However, such a hypothesis should be addressed explicitly in future research.

Perceived social support. The findings of present study showed that mothers of toddlers with CHD perceived themselves as having high social support

($\bar{x}$ = 131.39, SD = 16.04). It is interesting that this study failed to show significant relationship between perceived social support and dependent care behaviors of the mothers. The findings of high perceived social support in this sample differs from the prior study which reported that availability of social support was low among parents of children with CHD. Lawoko and Soares (2003) indicated that mothers of children with CHD had the lowest availability social support when compared with parents of children with other diseases and parents of healthy children. However, the Schedule for Social Interaction (Unden & Orth-Gomer, 1989), consisting of items involve social attachment in terms of availability of deep emotional relationships and social integration in terms of availability of peripheral social networks was used to assess social support. Thus, a possible explanation for the difference in levels of social support may be partly due to the conceptualization and measurement of social support. Nevertheless, this possible explanation should be revalidated by conducting comparative study, in particular a distinction between perceived social support and received social support. Also, the discrepancy of the findings may possibly be due to the characteristics of population. Theoretically, perceived social support can be viewed as cognitive component of social support. The essence of perceived social support is the belief that one is accepted and loved, and that support is available when needed. Again, the majority of mothers in this study was married and lived together with husband. Moreover, more than half of them lived in an extended family. Thus, family characteristics that represent more advantage to receive and have access to support from their family members may also increase the perception of social support availability.

Surprisingly, association was not found between perceived social support and dependent care behaviors of mothers for toddlers with CHD ($r = .05$, $p > .05$). This means that perceived social support was not related to their dependent care behaviors. This investigation was not congruent with the view that the availability and adequacy of resources can exert an influence on self-care or dependent care in Orem's theory (Orem, 2001). Also, the finding is somewhat inconsistent with other studies reporting a relationship between social support and self-care behaviors (Hai, 1997; Toljamo & Hentinen, 2001; Xiaolian et al., 2002). Moreover, this result is not consistent with the findings of positive significant correlation between perceived social support and maternal asthma management abilities (Santati, 2005), perceived social support and optimal parenting among mothers of first born fourth grade children (Bonds et al., 2002). This result might be due to the suggestion from previous study that the relationship between parenting support and maternal parenting was completely mediated by parenting stress (Bonds et al., 2002). This hypothesis is beyond the scope of this study, thus it should be confirmed in the future.

Knowledge of CHD. Overall, the current study showed that mothers of toddlers with CHD had high knowledge of CHD ($\bar{x} = 17.83$, SD = 2.68). However, their knowledge was not related to their dependent care behaviors. In existing literature; there are findings indicating that the knowledge of parents of children with CHD are limited and showed mixed results (Beeri et al., 2001; Cheuk et al., 2004; Nukulkij, 1993). In the current study, the analysis showed that mothers of toddlers with CHD in this sample had high levels of CHD knowledge. This result may be

partly due to continuing follow up care from physician that provides opportunities to get information from the health care providers or from parents of other children with CHD. However, future research may benefit from explore needs and sources of child's care information in this group of mothers. Moreover, since more than 70 % of the children in this study were diagnosed within 6 months after birth. It is possible that duration after diagnosis may help mothers adapt to the situation and have time to get information from various resources. Also, it may be worthwhile to examine this hypothesis.

Even though CHD knowledge among mothers of toddlers in this study was high, the findings that maternal knowledge was not associated with the dependent care behaviors was unexpected ($r = -.18$, $p > .05$). This finding did not agree with the Orem's Self-Care Deficit Nursing Theory (2001) which posites that self-care agency is the learned human capability that gives individuals the power to engage in the deliberate actions of self-care. If the individual does not possess the requisites of knowledge, skill and motivation, then that individual has a self-care deficit and is not able to be truly autonomous. The self-care agent or the provider of self-care needs to have knowledge of self-care requisites and means to meet them. CHD knowledge is, therefore, an important key in assisting mothers to understand all of their child's self-care requisites and meet some or all of them. The mothers must gain knowledge of elements specific to their child's situation, especially the situation that can precipitate an adverse complication of the disease and the activity that they can take to prevent or diminish such complications. However, in this sample, the association between maternal knowledge and dependent care behaviors was not found. This result is also inconsistent with research findings (Anh et al., 2007; Huang et al., 2005; Pacharuniti

et al., 2004) which showed that maternal knowledge was associated with high quality maternal care behaviors.

One possible explanation for this discrepancy might be due to the mothers receive the same amount of information about care for toddlers with CHD from healthcare providers or from pamphlets in the same institute. Again, the toddlers with CHD in this study did not have clinically significant cardiac conditions. Thus, it is possible that care for these CHD children was not complex and was not different from other children. Therefore, the different level of CHD knowledge did not result in different maternal dependent care behaviors. Another reason might be that although knowledge is a necessary component related to decision making about dependent care actions, by itself it may not be sufficient to result in the changes in dependent care behaviors. This finding might also suggest that health education, using the didactic-only approach, is not sufficient to promote dependent care behaviors of mothers for toddlers with CHD.

Educational background. Educational background is one factor under the socioeconomic conditions that can effect value and the means that person use to meet person's therapeutic self-care demand (Orem, 2001). The result of this research analysis showed that educational background was not significantly related to dependent care behaviors of mothers for toddlers with CHD ($r = -.12$, $p > .05$). This finding was unexpected because Asumpinzub (1997) reported a significant relationship between the education and maternal caring behaviors for children with CHD. In examining influence of the maternal and household characteristics on the provision of good childcare, Iram and Butt (2004) found that the level of mothers'

education positively associated with the provision of good childcare. Similarly, a study of LeCuyer-Maus (2003) also revealed a significant relationship between maternal years of education and maternal sensitivity-responsiveness among high risk mothers with young children. In this sample, there are many plausible reasons for the lack of relationship between the educational background and maternal dependent care behaviors.

The possible explanation for this finding may be due to health information was regularly provided for mothers of children with CHD. Moreover, care for the toddlers in this sample was not complex. Thus, mothers with high and low educational background can provide care in the same behaviors. Furthermore, most of the mothers in the current study achieved secondary school or diploma, worked as non-government employees, and had family income less than the average monthly household income of the northern Thai people (see Table 4-1). Thus, the issues of education and household income are often intertwined. Basically, higher education leads to increased potential for improved employment opportunity and economic status which enables a person to obtain resources to manage their life and their children. However, with respect to the responsibility to maternal role, years of education may not have effect on their care behaviors. Moreover, as most of the mothers regularly receive advice from health care providers, as well as the toddlers with CHD in this study did not have clinically significant cardiac condition, these may help mothers do the same thing in their child's care behaviors. Another explanation may be due to the inherent support from spouse and extended family that be able to share the role of dependent care agent. Based on the current and previous

studies it seems that there are many hypotheses that should be examined regarding influence of educational background on dependent care behaviors of the mothers.

Research Question 2

For the second research question, perceived self-efficacy statistically significantly predicted dependent care behaviors of mothers for toddlers with CHD ($\beta = .662$, $p < .01$). The result from regression analysis in the present study also showed that family income was not a significant predictor of the dependent care behaviors. Thus, from the present study, it appers that perceived self-efficacy was the only predictor accounting for 43.80 % of the variance in the mothers' dependent care behaviors for toddlers with CHD. This finding is somewhat consistent with the findings from the previous studies that showed perceived self-efficacy is predictive of maternal care behaviors such as providing an environment that enhances intellectual and emotional development (Jackson & Scheines, 2005), discipline style (Sanders & Woolley, 2005), and parental involvement and monitoring (Shumow & Lomax, 2002). The Orem's theory suggests that engagement in self/ dependent-care involves performance of operations to estimate what can and should be done, to decide what will be done, and to produce care. The mothers of toddlers with CHD who perceived that they have ability or self-efficacy for dependent-care will carry out dependent-care actions. More specifically, results of the current study provided strong support for perceived self-efficacy beliefs lead to a better dependent care behavior. In light of this evidence, the result of this study supports the emphasis of interventions aim to increase maternal self-efficacy. This study fiound that 43.80 % of the variance in mothers' dependent care behaviors for toddlers with CHD was

accounted for by perceived self-efficacy, this implies that there are other factors that are related to dependent care behaviors of mothers for toddlers with CHD which are not accounted for, by this variable.

Even though a statistically significant positive correlation was found between family income and dependent care behaviors in the current study, results from regression analyses did not show significant effect of family income in predicting dependent care behaviors of the mothers. According to the findings of the current study, there was a small magnitude of relationship at a marginal level of significance between family income and dependent care behaviors ($r = .21$, $p < .05$). When stepwise multiple regression was used to determine effective predictors, the variable with the greatest contribution is added first. Then, the next variables are selected for inclusion, based on their incremental contribution over the variable(s) already in the equation (Hair et al., 1998). Thus, from the present study, it is important to note that while perceived self-efficacy had the highest correlation coefficient with dependent care behaviors ($r = .62$, $p< .01$) and made the contribution for a variance in the dependent care behaviors ($\beta = .662$, $p < .01$), family income had a small magnitude of relationship with dependent care behaviors. Thus, what family income accounted for the variance in the dependent care behaviors was so small and unable to capture any significant effect.

In summary, this correlational study was conducted to examine the associations of parenting stress, perceived social support, perceived self-efficacy, CHD knowledge, educational background, and family income with dependent care behaviors of mothers who have toddlers with CHD. The study also identified the

ability of those study variables in predicting dependent care behaviors among mothers of toddlers with CHD. Data were collected from 95 mothers of toddlers with CHD who accompany their child to attend pediatric cardiology clinic at Maharaj Nakorn Chiang Mai Hospital, Chiang Mai and Buddhachinaraj Hospital, Phitsanulok. With guidance from the Self-Care Deficit Nursing Theory (Orem, 2001), the results revealed that there were positive relationships between dependent care behaviors of mothers for toddlers with CHD and perceived self-efficacy and family income when the effects of other variables were controlled. Importantly, perceived self-efficacy was the only predictor accounting for 43.80 % of the variance in the mothers' dependent care behaviors for toddlers with CHD. These findings partially supported the Orem's theory.