Predicting Factors of Dependent Care Behaviors among Mothers of Toddlers with Congenital Heart Disease

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ABSTRACT

The alteration of the hemodynamic pattern caused by congenital heart disease (CHD) can make the affected children be at risk of morbidity and mortality. Care of mothers is particularly important for toddlers with un-repaired CHD, as the toddlers rely on their mothers for taking medication, feeding and monitoring of complications. With guidance from the Self-Care Deficit Nursing Theory, this study aimed 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 family income. Also, the abilities of those study variables in predicting dependent care behaviors of the mothers were identified. A total of 95 participants were enrolled into the study. When the effects of other variables were controlled, the results showed that perceived self-efficacy and family income were positively correlated with maternal dependent care behaviors ($r = .62$, $p < .01$; $r = .21$, $p < .05$, respectively). Importantly, perceived self-efficacy was the only predictor accounting for 43.80 % of the variance in the mothers' dependent care behaviors. Thus, building self-efficacy is likely to be a reasonable starting point for interventions aiming to enhance dependent care behaviors in mothers of toddlers with CHD.

Key words: Dependent care behaviors, Congenital heart disease, Toddler, Predicting factors

INTRODUCTION

The CHD with increased pulmonary blood flow, for example, ventricular septal defect (VSD), atrial septal defect (ASD) or patent ductus arteriosus (PDA), permits blood to pass between the systemic and pulmonary circulation through an abnormal opening. This condition might result in symptoms of congestive heart failure (Wong et al., 2001), respiratory tract infection (Bhatt et al., 2004) and

growth failure (Chen et al., 2004) that are associated with increased morbidity and mortality. Generally, surgical intervention is the treatment of choice for most CHD, but in Thailand, waiting time for cardiac surgery among CHD children has been reported to be as long as approximately six months (Khongphatthanayothin et al., 2005). The emergence of a group of unrepaired CHD has heightened the need of attention, especially to the children who are waiting for surgical intervention.

As surgical treatment for Thai CHD children is usually performed in preschoolers (Khongphatthanayothin et al., 2005), the nature of disease and developmental stages have placed mothers of the toddlers in a crucial position to keep the child's health as normal as possible before surgery. However, one study has shown that care behaviors of mothers for toddlers with CHD were at moderate level (Chatrum, 2003). Studies concentrating on oral health care for CHD children also indicated that care of parents failed below the recommended activities for the child's care needs (Saunders and Roberts, 1997; Kongsrichareon et al., 2002; Silva et al., 2002). Since there is only a few literature focusing on care behaviors of mothers of toddlers with CHD, knowledge in this area still remains to be fulfilled.

Based on the Self-Care Deficit Nursing Theory (Orem, 2001), mothers function as dependent care agents who perform self-care on behalf of their children in maintaining life and health. Individuals who engage in dependent care are assumed to have abilities (dependent care agency) to meet requirements of the dependents. Dependent care behavior is affected by dependent care agency and the basic conditioning factors. Hence, the Orem's theory might be useful to explain care behaviors and associated factors among mothers of toddlers with CHD.

In CHD literature, relationships were found between care behaviors of the mothers and maternal age, education, family income, accurate perception of disease (Azumpinzub, 1997) and perception of health of children with CHD (Chotibang et al., 2001). Findings from clinical trials also demonstrated influence of self-efficacy (Chottivitayatarakorn, 2000), social support (Dulyakasem, 1993) and perception of CHD and social support (Kamproh, 2001) on care behaviors of the mothers. Nevertheless, little is known about the most important factors and ability of them in explaining variation of the mothers' care behaviors. In addition, previous studies have reported the stressful impact of being parents of children with CHD (Pelchat et al., 1999; Uzark and Jones, 2003; McGrath and Kolwaite, 2006). Parents with higher education were more likely to have greater knowledge related to CHD (Beeri et al., 2001; Cheuk et al., 2004). Based on the existing evidence, research is needed to explore in greater depth regarding care behaviors of the mothers, in particular for toddlers with ventricular septal defect (VSD), atrial septal defect (ASD) or patent ductus arteriosus (PDA) who have not had surgery. Also, the potential predictor of care behaviors among mothers of toddlers with CHD is crucial to be defined because it would be useful to guide appropriately interventions to enhance the mothers' care quality.

With the guiding of Orem's theory (2001), some variables were selected to examine for their influences and ability in prediction of dependent care be-

haviors among mothers of toddlers with CHD. The variables including parenting stress, perceived social support, educational background and family income were considered as basic conditioning factors that would affect maternal dependent care behaviors in Orem's perspective. Knowledge of CHD is inherent in dependent care agency that will aid mothers to understand, judge and make decision about dependent care actions. In addition, perceived self-efficacy is linked to the transitional capability of dependent care operations in dependent care agency because this variable plays an important part in judgment of the mothers about their capacity to perform dependent care behaviors in order to produce desired outcomes.

Objectives of the Study

This study aimed to examine the relationships between dependent care behaviors among mothers of toddlers with CHD and parenting stress, perceived social support, educational background, family income, CHD knowledge and perceived self-efficacy. Also, the abilities of those study variables in predicting dependent care behaviors of the mothers were identified.

MATERIALS AND METHODS

This study was a correlational design. A sample was selected using purposive sampling method. The sample consisted of 95 mothers of children aged 1- 3 years diagnosed with VSD or ASD or PDA who accompanied their children to attend pediatric cardiology clinic at two public tertiary hospitals in Chiang Mai and Phitsanulok. The participants were structurally interviewed using the Demographic Data Form, the Thai version of the Parenting Stress Index-Short Form (PSI-SF), the Personal Resource Questionnaire (PRQ-85- Part II), the CHD Knowledge Scale, the Dependent Care Behaviors in Mothers of Toddlers with CHD Scale and the Maternal Perceived Self-efficacy Scale. Descriptive statistics were used to describe samples with respect to individual information. Stepwise multiple regression analysis was run to examine multiple correlations.

RESULTS

Demographic characteristics of the 95 participants revealed that the age range of participants was 18 to 45 years, with a mean age of 30.51 years. The majority of them (38.95%) achieved secondary school certificates or diploma. The average family income was 11,895.89 Baht/month. With regard to the characteristic of family, the majority of participants (56.84 %, n = 54) had extended family. 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 medications related to CHD. 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).

Table 1. 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 children with CHD; Social support = Perceived social

Support; Self-efficacy = Perceived maternal self-efficacy; Knowledge = CHD knowledge;

Edu. = Educational background; Income = Family income

Significant bivariate correlations were found between dependent care behaviors of the mothers and perceived self-efficacy (r = .66, p< .01), perceived social support (r = .33, p< .01), and parenting stress (r = -.21, p< .05) (Table 1). Since the intercorrelations were found among the study variables, therefore, simultaneous regression was performed to examine the partial correlation coefficient or the correlation of a study variable and dependent care behaviors when the effects of other variables were controlled. As shown in Table 2, partial correlation coefficient between dependent care behaviors and perceived self-efficacy was 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). Importantly, perceived self-efficacy was the only predictor accounting for 43.80 % of the variance in the mothers' dependent care behaviors (Table 3).

Table 2. 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

Table 3. 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

Through the interpretation of the partial correlation that was found in this sample, perceived self-efficacy and family income indicated influences on the dependent care behaviors of mothers of toddlers with CHD. The mothers who had high perceived self-efficacy and high family income also had better maternal dependent care behaviors. This finding is significant since the perceived self-efficacy which was conceptualized as a transitional capability of dependent care operations in dependent care agency had a high relationship with maternal dependent care behaviors. In keeping with Orem's theory (2001), 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. 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. This finding is consistent with other studies reporting a relationship between self-efficacy and maternal care behaviors (Cluskey, 1999; Seo, 2003; Jackson and Scheines, 2005).

According to Orem (2000), resources availability and adequacy affect the means to meet self-care requisites and the associated care measures. In the present study, family income was significantly related with dependent care behaviors of mothers for toddlers with CHD. Thus, one possible explanation for the existence of significant relationship 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. Especially, previous research also supported the relationship between family income and maternal childcare behaviors (Azumpinzub, 1997; Ronsaville and Hakim, 2000; Iram and Butt, 2004).

In the present study, 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 and Scheines, 2005), discipline style (Sanders and Woolley, 2005) and parental involvement and monitoring (Shumow and Lomax, 2002). More specifically, results of the current study provided strong support that perceived self-efficacy leads to a better dependent care behavior. In light of this evidence, the result of this study supports the emphasis of interventions aimed to

increase the maternal self-efficacy.

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. This result may be partly due to a small magnitude of relationship at a marginal level of significance between family income and dependent care behaviors. 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, what family income accounted for the variance in the dependent care behaviors was so small and unable to capture any significant effect.

In conclusion, care for children with CHD is demanding and there is now sufficient evidence that perceived self-efficacy predicts much variance in dependent care behaviors in mothers of toddlers with CHD. Intervention programs that focus on strengthening maternal perceived self-efficacy can be recommended as a method to promote the mothers' care behaviors. More research is needed to test the mediator and moderator effects of the study variables. In addition, future investigations with a sample of children with similar CHD severity would also allow for more refined designs.

ACKNOWLEDGEMENTS

The authors would like to express gratitude to Thailand Nursing Council for providing partial financial support for this study. Special thanks for collaboration go to Maharaj Nakorn Chiang Mai Hospital, Chiang Mai, Buddhachinaraj Hospital, Phitsanulok and all participants in this study.

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