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# Effectiveness of a Self-Management Program for Thais with Type 2 Diabetes\*

Pawana Keeratiyutawong, Somchit Hanucharurnkul, Gail D Eramo Melkus, Orasa Panpakdee Thavatchai Vorapongsathorn

Abstract: This randomized controlled trial (RCT) study aimed to test the effect of a selfmanagement program on diabetes knowledge, self-care activities, quality of life and glycosylated haemoglobin A1c (GHb) in persons with type 2 diabetes. Eighty-one subjects with type 2 diabetes at a community hospital in Thailand were randomly assigned to either the selfmanagement or the control group. Both groups received five videotapes, a set of written diabetes materials, and the usual diabetes education program. They also received follow-up phone calls at three and five months. Whereas, the self-management group attended five sessions which focused on improving cognitive processes and skills in diabetes care in addition. Several combined methods such as teaching, support, discussion, exercise assignments, and skill training were used in each session. Data were collected at pre-intervention, three, and six months after intervention program. The results indicated that the subjects in the self-management group had the mean scores of knowledge, self-care activities, and quality of life higher than the control group at three and six months. The mean GHb levels in the selfmanagement group were lower than in the control group at three and six months but the differences were not statistically significant. However, the GHb results showed clinical significance. The percentage GHb decrease and average GHb change in the self-management group were higher than in the control group. The study findings showed the effectiveness of this diabetes self-management program for improving both physiological and psychological outcomes. Therefore, implementing this program at community hospitals is recommended.

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Key Words: glycosylated HbA1c, quality of life, self-care activities, self-management, type 2 diabetes

#### Background

Diabetes mellitus is an important health problem in Thailand. The prevalence of diabetes in Thai adults was 4.8% previous diagnosed and 4.8% newly diagnosed. Furthermore, persons who had a high risk of diabetes as diagnosed by impaired fasting glucose (glucose level = 110 - 125 mg/dl) had high prevalence 5.4%.<sup>1</sup> The estimated number of Thai adults aged 35 years with diabetes was 2.4 million based on the year 2000 Thai population census. \*Dissertation, Doctor of Philosophy (Nursing), Mahidol University, Thailand **Pawana Keeratiyutawong**, RN., Ph.D. Candidate, Department of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand. **Somchit Hanucharurnkul**, RN., Ph.D., Professor,

Department of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand. Gail D' Eramo Melkus, EdD., C-ANP., Independent

Foundation Professor of Nursing, Yale School of Nursing, USA.

**Orasa Panpakdee**, RN., D.N.S., Associate Professor, Department of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Thailand.

Thavatchai Vorapongsathorn, Ph.D., Associate Professor, Faculty of Public Health, Mahidol University, Thailand.

#### Effectiveness of a Self-Management Program for Thais with Type 2 Diabetes

Unfortunately, a survey of the health status of Thai adults found that only 3% of patients could control their disease.<sup>2</sup> People with diabetes are at higher risk of microvascular and macrovascular complications. The major goals in taking care of patients with diabetes are to maintain blood glucose levels to near normal as possible, prevent acute and chronic complications, and optimize quality of life.

Diabetes education training has evolved from primarily didactic interventions focusing on the acquisition of knowledge and information both in the West and Thailand.<sup>3-7</sup> Consequently, diabetes education was shifted from didactic presentation to interventions involving patient empowerment, with participation and collaboration.8-11 The results of meta-analyses of diabetes educational program<sup>12-13</sup> indicated that diabetes self-management training for type 2 diabetes is effective in short term. In addition, collaborative diabetes education is more effective than didactic education. The studies suggest that a diabetes self-management program should be designed as practical and feasible in a variety of settings and behavior modification should be incorporated in the program. Recently, Siripitayakunkit, Hanucharurnkul, and Melkus<sup>14</sup> reviewed 63 studies of diabetes intervention in Thailand from 1977 to 2002. The results showed that diabetes intervention program focused on information cognitive training 23.8%, information and skill training 66.66%, and none of coping skill training including changing negative thinking or using relaxation techniques. Outcome measure was obtained in short time and quality of life was less attention in those study reviews.

Although the previous diabetes educational program claim to add skill training in the program, they usually spent time more on obtaining diabetes knowledge than on skills training. In addition, it was unclear about the dosage of intervention. No any study focused on cognitive skill involving problem solving ability, cognitive restructuring from negative thinking to positive thinking, and social skill training. Moreover, methodological weaknesses were found in single group designs, non-random assignments and short term evaluations.<sup>12-14</sup> To fill this gap of knowledge, the purpose of this study was to test the effect of a self-management program on diabetes knowledge, self-care activities, quality of life, and glycosylated haemoglobin A1c (GHb) level compared between the self-management group and the control group at 3 and 6 months.

#### Hypotheses

The following hypotheses were tested.

1. The subjects who are randomized to the self-management group have higher mean diabetes knowledge, self-care activities and quality of life, and lower mean GHb level than the subjects who are randomized to the control group.

2. There are significant differences in mean diabetes knowledge, self-care activities, quality of life and GHb level, across the three time periods in at least one pair.

3. There are significant differences in mean diabetes knowledge, self-care activities, quality of life and GHb level on interaction of group and time.

#### **Theoretical Framework**

The theoretical framework of this study is based on Orem's self-care theory<sup>15</sup> and cognitive behavioral therapy.

Self-care is a learning process where individuals initiate and deliberately perform activities for maintaining their life, health, and well-being.<sup>16</sup> There are two phases of action. Phase one includes estimative and transitional operations, this proceeds to reflective understanding and judgment about the situation. This phase plans for what will or will not be done and give a design for doing it. Phase two consists of production and evaluation. The plan from phase one transfers into action to achieve the goals and an evaluative process is done.<sup>16</sup> The patients who were diagnosed with diabetes had a health-deviation from a normal person, affected by

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pathology of the disease. The goals of diabetes care are aimed to keep blood glucose level at a normal or near normal level and preventing long-term diabetes complications. To achieve these goals a set of therapeutic self-care demands, which consist of diet, exercise, self-monitoring, foot care, and medication-taking must be met. Nurses implement diabetes self-management programs based on a supportive-educative nursing system to help patients in learning, managing their diabetes care tasks, and encouraging behavior change. Valid helping techniques in these situations include a combination of support, guidance, provision of a developmental environment, and teaching particular knowledge and skills.<sup>16</sup>

Cognitive behavioral therapy has the assumption that behavior and emotions are in constant interaction with the cognitive process. Ellis<sup>17</sup> stated that thinking, feeling and acting are in constant interaction. Irrational belief or negative thought about diabetes care lead to dysfunctional overt behaviors and emotional responses such as frustration, anger, or depression which can affect the quality of life of patients. Patients with diabetes require cognitive behavioral techniques to help them modifying their negative thinking about diabetes care in daily life and enhance rational thinking to maintain their care. The techniques of cognitive behavioral therapy comprise problem solving and social skills training.

The self-management program in this study consisted of two major parts: cognitive improvement and skill training. The nurse provided diabetes knowledge which was a necessary factor for patients to make an informed decision on action. Furthermore, the nurse trained diabetes patients to take action by skill training. The skills were based on cognitive behavioral techniques which help patients deal with a wide variety of problems in daily life regarding diabetes care. The other skills were practical skills to improve patients' abilities to transform knowledge into practice.

The goal of self-care is maintaining life, health, and well-being.<sup>16</sup> The program provided diabetes knowledge and cognitive and skills training for improving a patient's abilities to estimate the situations, make decisions, and take actions. Moreover, cognitive behavioral modification enhanced the skills needed to overcome obstacles related to diabetes self-care in daily life and reduce negative thinking leading to emotional distress caused by diabetes care. These skills help patients to sustain self-care behaviors in the long run. The diabetes self-management program in this study purposed to impact both the physical and psychological health of the patients. Therefore, diabetes knowledge, self-care activities, quality of life and GHb level, were the measured outcomes of this study.

#### Method

#### **Research Design**

Randomized controlled trial (RCT) design was conducted at a community hospital in the eastern part of Thailand. The treatment was a diabetes self-management program. Comparisons between the experimental and control groups were performed at 3 and 6 months.

#### Sample

The sample were recruited to the study using the following inclusion criteria: Having had diabetes for less than 10 years, having been treated only with oral medications, having had a fasting blood sugar level higher than 130 mg% at least 2 consecutive times before entering the program, being between 21 - 60 years of age, and being able to read Thai. The exclusion criteria were receiving insulin therapy or having had other serious illnesses or complications related to diabetes.

#### Instruments

There were two types of instrumentation. The Manual of Type 2 Diabetes Self-Management Program and instrument for data collection.

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The Manual of the type 2 Diabetes Self-Management Program. This instrument was used for guiding the intervention. It included the goals, materials, content, strategies, detailed guidelines for patient training, handouts, and exercise assignments. The manual was reviewed by three experts in diabetes mellitus for content validity.

#### Instruments for Data Collection

The Personal Information Sheet was used to obtain the demographic characteristic of the subjects.

The Diabetes Knowledge Scales is a cognitive measure of recognition and understanding about diabetes developed by Tantayotai.<sup>5</sup> Some items were revised in this study. There were five components with 35 items. Each item was assigned a score of one for a correct answer and zero for an incorrect answer. The total score was calculated by adding the scores for each of the 35 items. Higher scores indicated better diabetes knowledge. The original version, content validity was evaluated by one physician and three nurses. In this study, K-R 20 reliability were.82, .84, and .82 at baseline, 3, and 6 months, respectively.

The Summary of Diabetes Self-Care Activities Measure (SDSCA). The SDSCA measures self-care activities regarding diabetes care during the past seven days. It was developed by Toobert, Hampson, and Glasgow.<sup>18</sup> The SDSCA was translated into the Thai language and back-translated by a linguist expert. Diet component was revised for ease of understanding in the context of Thai culture. In addition, the component on blood sugar testing was modified to a self-monitoring component because this study did not deal with glucose monitoring at home. The last Thai version included five aspects of the diabetes regimen: diet, exercise, self-monitoring, foot care, and medication-taking. The questions asked the number of days to perform diabetes self-care activities during the previous seven days. Content validity was evaluated by three experts in diabetes. Scores were calculated by the total number of days in each item. A higher score indicated greater diabetes self-care activities. The SDSCA was tested for reliability with thirty Thai patients. The average inter-item correlation score within components was high .43. The two weeks test- retest reliability was .89.

The Diabetes Quality of Life Measure (DQOL). The scale covers a range of issues directly relevant to satisfaction with life and diabetes treatment, treatment impact and the impact of diabetes on social life. DQOL includes two components: treatment satisfaction and treatment impact. The scale is a 5-point Likert scale ranging from 1 (very dissatisfied or always affected) to 5 (very satisfied or no impact). The raw score is translated into a 100 point scale where zero represents the lowest possible quality of life. Total Cronbach's alpha coefficient in this study were .83 at baseline, .84 and .85 at 3, and 6 months post intervention program, respectively.

**Glycosylated Haemoglobin A1c (GHb)** GHb was used to access blood glucose level during the previous 6 to 8 weeks interval. GHb levels were assessed by technicians at laboratory where there was a quality control of the standardization of blood testing by an external quality control organization. The test had a specificity of GHb and had sensitivity 0.2 g/dl.

#### **Protection of Right of Human Subjects**

The study proposal was approved by the Human Subjects Committee, Mahidol University. The potential subjects who met the study criteria were informed of the purpose, procedure, benefits, and risks of the study. All extra costs that the subjects incurred in the study, such as extra blood examinations, transportation, and time lost from work were compensated.

#### **Training Researcher**

A researcher with experience of taking care of diabetes patients conducted the intervention. The researcher was attended a diabetes self-management programs as a visiting scholar at the Yale School of Nursing and had experienced in conducting participatory action research in promoting self-care for patients with type 2 diabetes. The research assistants were trained to collect the questionnaires and helped the researcher facilitate the self-management program.

#### **Pilot Study**

The pilot study on the self-management program was conducted in a community hospital which was not a setting of this study. The Manual of the type 2 Diabetes Self-Management Program was tested for clarity and comprehensibility in its instructions for the program. Also, the researcher and research assistant were trained to gain more experience relevant to the study.

#### **Data Collection**

#### **Random Assignment**

The subjects who met the study criteria were randomly assigned to either a self-management or a control group using a sealed envelope technique. Then, the subjects were given an appointment at the clinic to complete the questionnaires and have a blood examination.

#### Procedure in the Intervention Group

After data collection was done at baseline, the subjects were assigned to four smaller groups of nine to thirteen patients. The program included 5 sessions: (1) a pathology of diabetes mellitus, cognitive restructuring and goal setting skills; (2) dietary control and communication skills; (3) diabetes medication, and problem solving skills; (4) foot care and self-monitoring; and (5) exercise. Session 1 was held on Saturday and Sunday from 9.00 to 11.00 a.m. in a private room in the hospital.

Sessions 2 to 5 were conducted in the following week, two hours per session. A set of written diabetes material was distributed to the subjects, and five videotapes about diabetes self-care developed by Hanucharurnkul et al.19 were in corporated into the study. In summary, five hours were allocated for cognitive improvement and five hours for skill training. A follow-up by telephone call was held at the third and the fifth month. The telephone call consisted of a discussion about the subject's diabetes self-management and the problems of self-management practices. The researcher provided support and reinforcement to the participants to maintain their self-management. Appointments were made with the subjects to complete the data again at 3 and 6 months.

### Procedures in the Control Group

The subjects in the control group received a set of written diabetes materials on the date of data collection at baseline. On the day of the physician's visit, the subjects attended diabetes education at a diabetes clinic between 9 and 10 a.m. and watched five videotapes about diabetes care (one or two videotapes per visit), conducted by the diabetes health care team of the hospital. Contact was kept with the control group by telephone calls at three points (1, 3 and 5 months) to remind them of dates of appointments and to report the laboratory results. The subjects completed data again at 3 and 6 months.

#### **Results**

One hundred and twelve subjects were approached to participate in the study, and 90 subjects agreed to join the study. There was no significant difference in demographic data between those who agreed to participate and those who refused. Of the subjects 90, 45 were in the self-management group and 45 were in the control group. Nine subjects (10%) dropped from the study. The reasons for withdrawal were not to do with dissatisfaction with the program.

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Finally, there were 81 subjects, 40 in the selfmanagement group and 41 in the control group. Significant differences were not found on demographic data and all dependent variables between the subjects who maintained participation and subjects who withdrew from the study. This means that the subjects who withdrew from the study did not have significant characteristics that would effect the dependent variables.

Of the 81 subjects, approximately 74% of them were female. The major religion reported was Buddhism. The subjects, age ranged from 27-60 years. Most of the subjects graduated from primary school. Fifty three percents of the subjects had an income less than 5000 bahts per month and most of the subjects paid for medical expenses by Universal Health Care Coverage Scheme.

All variables met every assumption underlying the statistical testing.

The mean score of knowledge (25.19), DSCA (97.53), and DQOL (75.27) in the self-management group were significantly higher than the control group (knowledge = 22.16, DSCA = 91.63, and DQOL = 70.28, out of a total score of 35, 133, 100 respectively). There were significant differences in these three variables mean scores in at least one pair of the three time points. Pairwise comparisons showed significant difference between baseline and 3 months (p < .05), and baseline and 6 months (p<.05). There were no significant difference in these three variable's mean score between 3 and 6 months. Interaction effect between group and time on knowledge, DSCA, and DQOL had significant difference (p < .01) (see **Table 1**). Independent t test of all three variables showed significant difference between the self-management and control groups at 3 and 6 months (see Figure 1).

The mean score of knowledge in the self-management group increased to 26.78 (SD = 4.31) from baseline and increased slightly at 6 months out of a total score of 35. The mean scores of DSCA and DQOL increased dramatically at 3 months and decreased slightly at 6 months (see Figure 1).

Regarding GHb levels, the self-management group lowered their GHb levels overall. In the first 3 months, the self-management group showed a good change in GHb, unfortunately this was short lived and an increase occurred between 3 and 6 months. The control group had a consistent increase over the 6 months.

Table 1 Repeated Measures ANOVA of Dependent Variables

Variable	Self-manag	ement group	C	Control group			roup	Group x Time	Time	
	Baseline	×3 mo	6 mo	Baseline	3 mo	6 mo	F	F	F	
	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD				
Knowledg	e $21.5 \pm 5.3$	$26.8 \pm 4.3$	$27.3 \pm 3.9$	$21.10 \pm 6.0$	$22.7 \pm 5.5$	$22.7 \pm 6.0$	8.27 **	45.6 ***	14.01 ***	
DSCA	88.3 ±19.1	102.7 ± 16.1	101.6 ± 6.3	88.60 ± 16.5	90.1 ±13.5	93.0 ±13.6	4.16*	18.56 ***	9.83 ***	
DQOL	$71.3 \pm 10.5$	$78.5 \pm 8.5$	76.1 ± 7.9	69.8 ± 9.4	69.8 ±10.2	71.2 ± 9.0	7.79 **	9.54 ***	7.99 ***	
Diet	30.7 ± 6.6	$33.5 \pm 7.0$	$32.5 \pm 6.9$	$30.2 \pm 7.6$	$31.2 \pm 5.8$	$31.5 \pm 5.6$	0.88 *	4.58	0.674	
Exercise	$7.1 \pm 4.2$	8.7 ± 4.1	$8.4 \pm 4.0$	6.9 ± 4.1	6.1 ± 3.3	$6.2 \pm 3.7$	5.22 *	.77 **	4.95	
GHb	$8.93 \pm 2.4$	8.2 ± 1.6	8.6 ± 1.6	$7.89 \pm 1.8$	8.1 ± 1.7	$8.3 \pm 1.6$	0.097	.39	0.362	
	DSCA = Diabete DQOL = Diabete	s self-care activ s quality of life	ities	* p < ** p <	.05 .01					

GHb = Glcosylated hemoglobin A1c

## \*\*\* p < .001

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Figure 1 Comparison of the Mean Knowledge, DSCA, DQOL, and GHb Levels over Time

Repeated measures ANCOVA were used to analyze GHb variable because significant difference was found in mean GHb levels between the selfmanagement and control group at baseline. After GHb levels at baseline were controlled, the mean GHb levels in the self-management group were lower than the control group at 3 and 6 months but they were not significantly different (See **Table 1**). Also, significant difference was not found between the self-management and control groups at 3 and 6 months. In addition, interaction effect between group and time were not found to have significant difference (p > .05) (see **Table 1**). However, the number of subjects who had good changes of GHb level was higher in the self-management group than in the control group at 3 and 6 months. GHb level change showed that 55% and 42.4% of the self-management group decreased GHb levels after 3 and 6 months respectively, and higher than a percentage of change in the control group at both times. In contrast, the number of subjects in the control group who had increased GHb level higher than in the selfmanagement group. The average change in GHb level in the self-management group were 0.71 (SD = 2.28) at 3 months and 0.37 (SD = 2.17) at 6 months. These were higher than in the control group where the

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average changes were -0.19 (SD = 1.72) at 3 months and -0.40 (SD = 2.12) at 6 months (see Table 2).

DSCA components (diet, exercise, and selfmonitoring) were calculated. The mean diet score of the self-management group (M = 32.19) had no significant difference with the control group (M = 31.03), as well as an interaction effect between group and time. Overall, the diet mean score for the self-management group was higher than of the control group. The self-management group had significantly higher exercise (M = 8.08) and self-monitoring mean scores (M = 14.85) than of the control group (exercise M = 6.41, self-monitoring M = 11.47). Interaction effect between group and time were found to be significant on these two variables.

Table 2	The	Changes	in	GHb	between	Baseline	and	at	3	and	6	Months
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GHb Level (%)		Self-manageme	ent Group	(n = 40)		Control Group (n = 41)				
	Ba	seline & 3 m	Base	line & 6 m	Bas	Baseline & 3 m		seline& 6 m		
	n	%	n	%	n	%	n	%		
Decrease in GHb										
> 0-1	9	22.5	8	20.0	9	21.95	6	14.63		
1.1-2	6	15.0	3	7.5	4	9.76	4	9.76		
> 2	7	17.5	6	15.0	5	12.20	4	9.76		
Total	22	55.0	17	42.4	18	43.90	14	34.15		
Mean	2.04	(SD = 2.13)	2.1	(SD = 2.16)	1.32	(SD = 1.1)	1.85	(SD = 1.47)		
Max change	8		7.6		3.4		5			
Increase in GHb										
> 0-1	8	20.0	15	37.5	9	21.95	8	19.51		
1.1-2	4	10.0	5	12.5	5	12.20	11	26.83		
> 2	2	5.0	2	5.0	7	17.07	7	17.07		
Total	14	35.0	22	55.0	21	51.22	26	63.41		
Mean	1.18	(SD = 1.11)	0.95	(SD = 0.96)	1.51	(SD = 0.99)	1.62	(SD = 1.31)		
Max change	4.1		3.8		3.6		5.8			
No Change in GHb	4	10	1	2.5	2	4.88	1	2.44		
Total Mean GHb	0.71	(SD = 2.28)	0.37	(SD = 2.17)	0.19	(SD = 1.72)	-0.40	(SD = 2.12)		
Change (N = 81)										

Both the self-management and control groups had high scores of foot care at baseline 27.20 (SD = 9.85)/29.05 (SD = 7.92) out of a total score of 35, respectively. The same pattern occurred in medication-taking variable. At baseline, the mean medication-taking scores were high 12.45 (SD = 3.01)in the self-management group and 12.00 (SD = 2.84)in the control group, out of a total score 14. After completing the program at 6 months, 17.5% of the subjects in the self-management group decreased medication intake while the control group decreased by 7.3%. Forty percent of subjects in the self-management group increased medication and nearly 49% of them increased medication in the control group.

#### Discussion

The self-management program was effective in improving mean score of diabetes knowledge, DSCA, DQOL. For GHb level, even though there was not statistical significance between the selfmanagement and the control group at 3 and 6 months, but clinical significance was observed. The average GHb decrease in this study (0.71 at 3 months and 0.37 at 6 months) was higher than that in the

meta-analysis study of Norris et al.<sup>20</sup> in which selfmanagement education decreased GHb byapproximately 0.26 at 1 to 3 months and by 0.26 at more than 4 months of follow-up. Similar to Norris et al.'s study a meta-analysis by Ellis et al.<sup>21</sup> showed that GHb change in the intervention group was .294, .486. and .328 at 3, 6, and 13 months. GHb change in the present study was lower than in the comparable study of Pibernik-Okanovic et al.<sup>22</sup> (average GHb change = 0.60) and the study of Snoek et al.<sup>23</sup> (average GHb change = 0.8) at 6 months compared with baseline. Evidence from the United Kingdom Prospective Diabetes Study shows that each 1% reduction in GHb in patients with type 2 diabetes mellitus was associated with reductions in diabetes complications such as myocardial infarction, microvascular complications, and deaths.<sup>24</sup>

The self-management program in this study was designed to improve cognitive process and skill abilities. All five sessions helped the subjects gain more understanding about diabetes mellitus and diabetes care and the subjects learnt to practice self-management both cognitive and practical skills in class. Cognitive skills were problem solving and cognitive restructuring skills practiced to think positively about diabetes care and manage any problem systematically. In addition, communication skills provide techniques to deny negative behaviors and to speak positively. Furthermore, practical skills such as foot care and exercise were practiced in class. The self-management program was based on a supportive-educative nursing system comprised of teaching, support, guidance, and providing a suitable environment. In addition, providing telephone calls was beneficial for helping the subjects cope with diabetes and for encouraging internal motivation to take care of themselves. Holistic care for patients with diabetes was an important concern. This self-management program illustrates that the program improved not only physiological well being but also psychological well being. Although mean GHb levels in the self-management group did not differ significantly compared with the control group, the average GHb change had a clinical significance that was a meaningfully in the clinical practices. Maintaining diabetes self-care for longer periods of time is a challenging issue for nurse practitioners. Intensive strategies for preventing self-management relapse should be explored further.

At 6 months, the mean DSCA and DQOL decreased while GHb increased slightly compared with 3 months. This might be explained by the fact that when the subjects had other problems in their life such as health problems, economic problems or family problems, these factors may have influenced their life satisfaction. Consequently, the motivation to maintain diabetes self-management may be affected. After self-care activities declined, this may have affected GHb levels. Further more, maintaining diabetes self-care is a problem for patients with diabetes, because it is related to life style change. Moreover, both internal and external factors such as family problems, social or work problems, health status, and personal habits, influence patients' selfcare.8 Therefore, the DSCA and DQOL decreased at 6 months. Keeratiyutawong et al.25 explored selfcare experiences of Thai patients with type 2 diabetes who were not successfully controlling their blood glucose levels and reported that when these patients believed their blood glucose level was"in control"; they did not follow strictly their self-care regimens. In addition, there are several factors related to blood glucose levels such as the progression of disease in each individual, change in life patterns, interference from other illnesses, and energy expenditure change. The subjects must cope with new situations which they became involved in and balance their self-management with these new situations. These processes require time for management until the subjects can regain control of the situation.8

Other possible reason for the decline of

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outcome score after 3 months is that the strategies to encourage self-motivation of the subjects to maintain their self-care were not intensive enough. The self-management program only gave telephone calls to the subjects at 3 and 5 months. Although the subjects could call the researcher whenever they had any problems to discuss, some subjects may not have called even when they did have problems. Thus, perhaps the researcher received self-management problems from the subjects too late to help patients solve their problems before the date of data collection. This may be why outcome measured at 6 months was not as good as that at 3 months.

The subjects in the self-management and control group received high scores of foot care and medication-taking component at baseline. This created a ceiling effect; there was little room on the scale for improvement. Therefore, sensitivity to score change on these two components were low. Diabetes self-care is a complex task which requires a cognitive process to evaluate the situation and make decisions before performing actions. Measuring self-care activities should not only be concerned with the quantity of action but also on the quality of self-management and the meaning of these actions. The foot and medication-taking components measured only superficial self-care that concerned the quantity rather than the quality of care. The subjects may over-estimate the quality of the foot care compliance and their medication compliance. These issues should be further examined and more accurate instrument developed. In addition, the mean foot care scores were high at baseline for both groups because patients with diabetes often fear of foot amputation, they were aware of caring for their feet and preventing foot injuries.<sup>25</sup> Moreover, foot care is not a difficult skill to learn; therefore, the subjects perceived that they could take care of their feet well.

The subjects in the self-management group showed a positive response to the diabetes selfmanagement program. In general, the subjects were enthusiastic about joining the program. Most of them had participated in the program regularly and punctually. The participants suggested that diabetes self-management program like this should be held for other patients at the diabetes clinic of the hospital. After the program finished, the participants wanted to continue meeting together to share their experiences about diabetes care and encourage each other to maintain their diabetes selfmanagement. These responses illustrate that all the participants were satisfied with the diabetes selfmanagement program. The program enhanced a process of learning for diabetes self-management and increased their ability to take care of themselves. Moreover, the program provided an environment for sharing knowledge of self-management experiences and group cohesion was established.

#### **Implications for Nursing Practice**

The diabetes self-management program should be run as part of diabetes educational services. Diabetes education in a community hospital is normally run in the morning on the day of the physician's visit. This kind of service may not be effective because the environment is not conducive for learning. It can be noisy, crowded, and interrupted. Diabetes education services may provide services on the day when the physician is not present. Currently some hospitals have nurses responsible for diabetes education but some do not. This needs to be rectified; all hospitals should have a nurse responsible for diabetes education and they should be trained in diabetes self-management program. Curriculum of diabetes self-management should be developed for training advanced nurse practitioners.

#### **Implications for National Health Policy**

1. The Universal Health Care Coverage Scheme should cover activities which promote self-management of persons such as patients with diabetes and other chronic diseases. Furthermore, participation in diabetes self-management program should be recommended for all type 2 diabetes patients under the Universal Health Care Coverage Scheme.

2. The ability of nurses to conduct the diabetes self-management program or program for other chronic diseases should be strengthened.

3. Diabetes care networks among provincial hospitals, community hospitals, and health centers of each region should be set up for sharing of resources.

4. Materials which promote diabetes selfmanagement should be provided and distributed widely.

#### **Recommendations for Future Research**

1. Self-management programs of other chronic illnesses should be developed and tested the effectiveness.

2. The factors which cause self-management relapse should be explored. Furthermore, strategies to prevent relapse or to maintain diabetes self-management should be studied.

3. Other methods for evaluating self-care activities should be examined beside self-report questionnaires.

4. There is little evidence of support for Thai patients with psychological problems stemming from diabetes such as anxiety, depression, or negative attitude about diabetes. Thus, these issues should be further explored.

5. Research about how to implement the diabetes self-management program in community hospitals throughout the entire health care system should be undertaken.

6. At present, there are various models of diabetes educational programs being conducted in outpatient clinics around the country. The strategies, health care systems, advantage and disadvantage and effectiveness of these models should be explored.

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#### References

- Aekplakorn W, Stolk RP, Neal B, Suriyawongpaisal P, Chongsuvivatwong V, Cheepudomwit S, et al. The prevalence and management of diabetes in Thai adults. Diabetes Care.2003; 26(10): 2758-2763.
- Chuprapawan J. (2000). Health status of the Thai population 2000. Nontaburi: Health Systems Research Institute, 2000.
- Bloomgarden ZT, Karmally W, Metzger MJ, Brothers M, Nechemias C, Bookman J, et al. Randomized controlled trial of diabetic patient education: Improve knowledge without improved metabolic status. Diabetes Care. 1987; 10(3):263- 272.
- Raz I, Soskolne V, Stein P. Influence of small-group education sessions on glucose homeostasis in NIDDM. Diabetes Care. 1988; 11(1): 67-76.
- Tantayotai V. A follow up study of knowedge and state of disease control after receiving planned instruction and continued nursing helps in self-care in uncontrolled diabetic adult patients. Unpublished master's thesis, Mahidol University: Bangkok, Thailand, 1982.
- Siritharungsri B. The application of Orem's self-care model in diabetes patients. Unpublished master's thesis, Mahidol University: Bangkok, Thailand, 1983.
- Poomidandin S. The effectiveness of systematic instruction of self care to diabetic patients of Kamalasai Hospital, Kalasin Province. Unpublished master's thesis, Mahidol University: Bangkok, Thailand, 1991.
- Keeratiyutawong P. Self-care promotion program for diabetes at a level of provincial hospital. Unpublished master's thesis, Mahidol University: Bangkok, Thailand, 1994.
- Phonploy W.Self care promtion for blood sugar controlling of non-insulin dependent diabetes mellitus. Unpublished master's thesis, Prince of SongklaUniversity: Songkla, Thailand, 1996.
- Tantayotai V. Development of self-care agency model in insulin dependent diabetic patients. Unpublished doctoral dissertation, Mahidol University: Bangkok, Thailand, 1997.

#### Effectiveness of a Self-Management Program for Thais with Type 2 Diabetes

- 11. Keeratiyutawong P, Hanucharurnkul S, Boonchauy W, Phumleng B, Muangkae W. Effectiveness of a supportiveeducative program on diabetic control, perceived self-care efficacy, and body mass index in persons with type 2 diabetes mellitus. **Thai Journal of Nursing Research.** 2005; 9(1): 1-12.
- Padgett D, Mumford E, HynesM, Carter R.Meta-analysis of the effects of educational and psychosocial interventions on management of diabetes mellitus. Journal of Clinical Epidemiology.1988; 41(10): 1007-1030.
- Norris SL, Lau J, Smith SJ, Schmid CH, Engelgau MM. Self-management education for adults with type 2 diabetes: A meta-analysis of the effect on glycemic control. Diabetes Care. 2002; 25(7): 1159-1171.
- Siripitayakunkit A, Hanucharurnkul S, Melkus GD.Diabetes education intervention in Thailand: An integrative review. Thai Journal of Nursing Research. 2005; 9(1): 13-27.
- Orem DE. Nursing concepts of practice. 5<sup>th</sup> ed. St. Louis: Mosby Year Book, 1995.
- 16. Orem DE,Taylor SG, Renpenning KM. Nursing concepts of practice. 6<sup>th</sup> ed. St. Louis: Mosby Year Book, 2001.
- 17. Ellis A. The history of cognition in psychotherapy.In Freeman A, Simon KM, Bentler LE, Arkowitz H. Eds. Comprehensive handbook of cognitive therapy. New York: Plenum Press, 1989.
- Toobert DJ, Hampson SE, Glasgow RE. The summary of diabetes self-care activities measure. Diabetes Care. 2000; 23(7): 943-949.

- Hanucharurnkul et al. A set of written diabetes material. Bangkok: Judthong, 2004.
- 20. Norris SL, Lau J, Smith SJ, Schmid CH, Engelgau MM. Self-management education for adults with type 2 diabetes: A meta-analysis of the effecton glycemic control. Diabetes Care. 2002; 25(7): 1159-1171.
- Ellis SE, Seroff T, Dittus RS, Brown A, Pichert JW, Elasy TA. Diabetes patient education: A meta-analysis and metaregression. Patient Education and Counseling. 2003; 52: 97-105.
- 22. Pibernik-Okanovic M, Prasek M, Poljicanin-Filipovic T, Pavlic-Renar I, Metelko Z. Effect of an empowermentbased psychosocial intervention on quality of life and metabolic control in type 2 diabetic patients. Patient Education and Counseling. 2004; 52: 193-199.
- 23. Snoek FJ, Van Der Ven NCW, Lubach CHC, Chatrou M, Adér HJ, Heine RJ, et al. Effects of cognitive behavioral group training (CBGT) in adult patients with poorly controlled insulin-dependent (type 1) diabetes: A pilot study. Patient Education and Counseling. 2001; 45: 143-148.
- 24. Stratton IM, Adler AI, Neil HAW., Matthews DR, Manley SE, Cull CA, et al. (2000). Association of glycaemia with macrovascular and microvascular complications of Type 2 diabetes (UKPDS 35) : Prospective observational study. BMJ. 2000; 321: 405-412.
- 25. Keeratiyutawong P, Thampanichawat W, Melkus GD, Khuwatsamrit K, Youngpradith A. Self-care experiences of Thai patients with type 2 diabetes. Thai Journal of Nursing Research. 2003; 7(4): 254 - 265.

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## โปรแกรมการจัดการดูแลตนเองสำหรับผู้เป็นเบาหวานชนิดที่ 2\*

ภาวนา กีรติยุตวงศ์, สมจิต หนุเจริญกุล, Gail D' Eramo Melkus, อรสา พันธ์ภักดี, ธวัชชัย วรพงศธร

**บทคัดย่อ** : การศึกษานี้มีวัตถุประสงค์เพื่อศึกษาประสิทธิภาพของโปรแกรมการจัดการดูแลตนเองในผู้เป็น เบาหวานชนิดที่ 2 ต่อระดับความรู้ กิจกรรมการดูแลตนเอง คุณภาพชีวิต และค่าน้ำตาลสะสม กลุ่มตัวอย่าง เป็นผู้เป็นเบาหวานชนิดที่ 2 จำนวน 81 ราย จากโรงพยาบาลชุมชนแห่งหนึ่งในประเทศไทย ถูกสุ่มเข้ากลุ่ม การจัดการดูแลตนเองสำหรับผู้เป็นเบาหวาน หรือกลุ่มควบคุม ทั้งสองกลุ่มได้ดูวีดิทัศน์ 5 เรื่อง ได้รับชุด ความรู้เพื่อการดูแลตนเองสำหรับผู้เป็นเบาหวาน และได้ความรู้เรื่องโรคเบาหวานจากเจ้าหน้าที่สุขภาพ รวม ทั้งได้รับการดิดตามทางโทรศัพท์ในเดือนที่ 3 และ 5 ผู้เป็นเบาหวานกลุ่มการจัดการดูแลตนเองฯ ได้เข้าร่วม กลุ่มเรียนรู้เรื่องการจัดการดูแลตนเอง จำนวน 5 เรื่อง เนื้อหาเน้นการเพิ่มสมรรถนะของผู้เป็นเบาหวานด้าน กระบวนการคิดและการฝึกทักษะในการจัดการดูแลตนเอง โดยใช้วิธีการที่หลากหลาย เช่น สอน สนับสนุน อภิปราย ทำกิจกรรม และการฝึกทักษะในการจัดการดูแลตนเอง โดยใช้วิธีการที่หลากหลาย เช่น สอน สนับสนุน อภิปราย ทำกิจกรรม และการฝึกทักษะ การเก็บรวบรวมข้อมูลจะเก็บก่อนเริ่มโปรแกรม และเมื่อครบ 3 เดือน และ 6 เดือน ผลการศึกษาพบว่า กลุ่มการจัดการดูแลตนเองฯ มีระดับความรู้ กิจกรรมการดูแลตนเอง และ คุณภาพชีวิต ดีกว่ากลุ่มควบคุมทั้ง 3 เดือน และ 6 เดือน ค่าน้ำตาลสะสมในกลุ่มการจัดการดูแลตนเองฯ ด้ำ กว่ากลุ่มควบคุมอย่างไม่มีนัยสำคัญทางสถิติ แต่กลุ่มการจัดการดูแลตนเองฯมีจำนวนผู้เป็นเบาหวานที่มี ค่าน้ำตาลสะสมลดลง และมีค่าเฉลี่ยการเปลี่ยนแปลงของระดับน้ำตาลสะสมสูงกว่ากลุ่มควบคุม ผลการศึกษา นี้แสดงถึงประลิทธภาพของโปรแกรมการจัดการดูแลตนเองสำหรับผู้เป็นเบาหวาน จึงควรนำโปรแกรมนี้ลงสู่ การปฏิบัติแก่ผู้เป็นเบาหวานในระดับโรงพยาบาลชุมชนต่อไป

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คำสำคัญ: ค่าน้ำตาลสะสม คุณภาพชีวิต กิจกรรมการดูแลตนเอง การจัดการดูแลตนเอง เบาหวาน ชนิดที่ 2

\* ดุษฎีนิพนธ์ หลักสูตรปรัชญาดุษฎีบัณฑิต (พยาบาล) มหาวิทยาลัยมหิดล ภาวนา กีรติยุตวงส์ RN., Ph.D. Candidate ภาควิชาพยาบาล ศาสตร์ คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล ประเทศไทย สมจิต หนุเจริญกุล RN., Ph.D. ศาสตราจารย์ ภาควิชาพยาบาล ศาสตร์ คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล ประเทศไทย Gail D' Eramo Melkus, EdD, C-ANP., ศาสตราจารย์, Yale School of Nursing,ประเทศสหรัฐอเมริกา อรลา พันธ์ภักดี, R.N., D.N.S., รองศาสตราจารย์, ภาควิชา พยาบาลศาสตร์ คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล ประเทศไทย ธวัชชัย วรพงศธร Ph.D. รองศาสตราจารย์ คณะสาธารณสุขศาสตร์ มหาวิทยาลัยมหิดล ประเทศไทย

## Asthma Management Abilities Causal Model: An Empirical Test among Parent Caregivers of the Pre–School Asthmatic Children\*

Sermsri Santati, Jariya Wittaya-sooporn, Somchit Hanucharurnkul, Mukda Vangveeravong Sirichai Kanjanawasee

**Abstract:** In asthma care for infants and young children, the increase of parent caregivers' abilities to manage asthma care has been documented as the major goal for successful asthma management. By using Orem's theory of dependent-care as the conceptual framework, the purposes of this study were to examine the causal relationship among perceived social support, family hardiness, quality of professional care, and caregiver burden as they related to asthma management abilities of parent caregivers of the pre-school asthmatic children.

A sample of 253 parent caregivers of pre-school asthmatic children who came to visit Chest and Allergy Clinics at three hospitals within the Bangkok metropolitan area were recruited. By using the LISREL 8.52 program, the results revealed that the final model was proved to have a good fit with the data ( $\chi^2 = 29.02$ , df = 43, p-value = 0.9491, GFI = 0.98, AGFI = 0.96, and RMSEA = 0.000) and could explain 55% of the variance in asthma management abilities of parent caregivers. As expected by the model, there was a significant medium negative direct effect of caregiver burden on asthma management abilities ( $\gamma = -0.39$ , p < .001). Quality of professional care and family hardiness were found to have medium direct significant positive effects ( $\gamma = 0.36$ , p < .001;  $\gamma = 0.37$ , p < .001) on asthma management abilities. Perceived social support had a small but significant direct negative effect ( $\gamma = -0.16$ , p < .05) on caregiver burden as well as an indirect influence on asthma management abilities through caregiver burden ( $\gamma = 0.06$ , p < .05).

Results indicated that even though the factor of burden still had some influence on management abilities of parent caregivers, the quality of professional care as well as family hardiness were two other good predictors and worked directly to influence asthma management abilities in this study. These findings support the role of health care professionals and hardiness among family members in increasing the dependent-care agency of parent caregivers to take good care of pre-school asthmatic children.

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Key words: asthma management abilities, caregiver burden, family hardiness, perceived social support, quality of professional care

#### **Background of the Study**

Asthma is a chronic disease of the airways that is usually reversible and life threatening. Inappropriate treatment and care may cause some serious problems as well as complications such as pneumonia, respiratory failure or even death especially in infants and young children, whose airways and lung functions are not fully developed.<sup>1</sup> Prevention and proper management are the most important goals for asthma management in order to

*Dissertation, Doctor of Philosophy (Nursing), Mahidol
University, Thailand
Sermsri Santati, R.N., Ph.D. Candidate, Department of
Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol
University, Thailand.
Jariya Wittaya-sooporn, R.N., D.N.S., Assistant
Professor, Department of Nursing, Faculty of Medicine
Ramathibodi Hospital, Mahidol University, Thailand.
Somchit Hanucharurnkul, R.N., Ph.D., Professor,
Department of Nursing, Faculty of Medicine Ramathibodi
Hospital, Mahidol University, Thailand.
Mukda Vangveeravong, MD., Division of Allergy and
Immunology, Queen Sirikit Institute of Child Health,
Thailand.
Sirichai Kanjanawasee, Ph.D., Education Testing Center,
Faculty of Education, Chulalongkorn University, Thailand.

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maintain control of symptoms, prevent exacerbation, attain normal lung function, maintain normal level of ability to exercise and handle daily activities as well as prevent further complications to the respiratory system.<sup>1</sup>

Because the center of asthma management is at home, responsibility for asthma management and administering the treatment regimens for infants and young children fall only on parent caregivers in the family. All managements and cares challenge parent caregivers and require them to make permanent sacrifices because of the increased care demands and restrictions imposed by the illness.<sup>2</sup> The severity of asthma symptoms when exacerbate, unpredicted attack, lack of knowledge about the disease and care as well as the physical and financial responsibilities involved in caregiving, all affect parent caregivers' abilities to care for their children.<sup>3</sup>

Managing children's illness as well as maintaining their normal growth and development and household tasks overwhelm parent caregivers. Psychological, social, physical, and economic burden may occur as caregivers juggle multiple roles and commitments.<sup>4</sup> The worsening of an existing child's illnesses and development of new other problems may occur,<sup>5</sup> particularly for parent caregivers who are overwhelmed and have minimal resources.<sup>6</sup>

Even though the factors of burdensome were correlated with management abilities of parent caregivers but a number of studies reported that social support,<sup>7-9</sup> family hardiness,<sup>10</sup> and quality of educative and supportive care from health care providers also helped reducing this burdensome and on the other hand enhancing parent caregivers' abilities in taking care of their children.<sup>11,12</sup> However, the studies on how social support, family hardiness, and quality of professional care work to reduce burdensome and increase caregiver management abilities are limited.

In this study, researcher is interesting in using Orem's theory of dependent-care<sup>13</sup> as a theoretical framework to explain why parent caregivers of pre-school asthmatic children could maintain their management abilities inspite of burdensome and what factors will help them enhancing these abilities.

#### **Theoretical Framework and Related Literature**

The theoretical model of asthma management abilities in this study was synthesized and deductively derived from Orem's theory of dependent-care<sup>13</sup> and related literatures. In the construct model of asthma management abilities of parent caregivers, two major constructs based on dependent-care theory were selected: basic conditioning factors and dependent-care agency.

Basic conditioning factors referred to perceived social support, family hardiness, and quality of professional care. Two variables were selected and conceptualized as dependent-care agency: caregiver burden was conceptualized as foundational capabilities and dispositions which concerning about caregiver's health and abilities to manage his/her own care that might affect his/her abilities to engage in dependent-care; and asthma management abilities was conceptualized as capabilities for dependent-care operation which focused on parent caregivers who performed asthma management actions to meet self-care requisites of their asthmatic children. Synthesis of related literatures to construct the hypothesized model is presented subsequently.

To achieve successful asthma managements for infants and young children, parent caregivers have to learn and practice preventive skills (avoiding asthma triggers and controlling the environment), treatment skills (assessing and monitoring asthmatic symptoms, taking asthmatic medications correctly, evaluating treatment outcome),<sup>14</sup> promoting normal growth and development as well as seeking information about asthma.<sup>8,9,15-17</sup> A number of studies revealed that three different factors that would

help gaining parent caregivers' abilities in their studies were: 1) quality of care; 2) family hardiness; and 3) social supports.<sup>8,10,17-22</sup> However, some factors such as caregiver burden may decrease asthma management abilities of parent caregivers.

In caregiving activities, the perception of burden associated with that care can be expected to have an effect on caregiver. A review of the related literature shows that burden is a negative consequence or a stress to family of which patient is a member.<sup>23-29</sup> Like other parents of children with chronic illnesses, parent caregivers of the asthmatic children have been found to experience both extra demands on their time and energy to provide asthma care for their children.30 Besides burden with routine asthma and developmental care, parent caregivers also experience burden with their own work responsibilities, household tasks as well as a financial burden.<sup>12, 17</sup> The perception of burden associates with all these cares will affect their health and abilities to manage their own selves, which in turn may affect their operability to manage asthma care for their children, especially the one who has minimal resources. 4, 31-33

Influence of social support on burden and management abilities are widely recognized in both empirical and clinical literature. In doing asthma management, decrease in management abilities to control environment, avoid asthma triggers, and manage treatment regimens might be related to lack of social support, which lead to physiological and financial burden.<sup>34-41</sup> Social support from family members, friends, co-workers, and teachers at schools has been mentioned most and brings a great help. Social support from health care professionals and networks can also increase knowledge, strengthen parent caregivers' confidences to engage in their health practices<sup>42</sup> as well as controlling over environment, all of which contribute to increase management abilities and in reverse reduces burden.43-47

In caregiving phenomena, even though few studies about hardiness did focus on family but a number of researches revealed that caregivers with high level of family hardiness were most likely to handle stressful situation, higher in overall transformational coping 48-50 and higher in ability to manage and solve problems within family.48,51,52 The results indicated that caregivers with high family hardiness possibly received more assistance to deal with stress or burdensome in caregiving,<sup>53</sup> effective using of coping skills,<sup>54-56</sup> which would strengthen family relationships and family functioning. Internal strength and durability within the family would help caregiver in setting up his/her own effective system for care or in this study ability to manage asthma care for the asthmatic children. Thus, a negative influence of family hardiness on caregiver burden and positive effect on asthma management abilities of parent caregiver can be expected.

Because most general health care practices for children is family driven and family centered so parent caregiver perception of quality of care is an important outcome measure to the evaluation of professional care.<sup>67-60</sup> Patients with high satisfaction with care are more likely to comply with medical regimens;<sup>61</sup> participate in their treatment,<sup>62</sup> and return and continue to use the medical services.<sup>63</sup> Quality of care from nurses as well as friends and family are among the strongest potential resources people have in managing with the disease. A number of studies found that caregivers viewed the excellence care from nurse and other health care providers as family resources that had a positive affect on caregivers' abilities.<sup>17, 64-69</sup>

In summary, the hypothesized model depicted the interrelationship among perceived social support, family hardiness, quality of professional care, caregiver burden, and asthma management abilities is shown in **Figure 1**.

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Figure 1 A hypothesized model associated with asthma management abilities in parent caregivers of the asthmatic children.

#### Purpose of the study

The purpose of this study was to determine the causal relationships among variables of basic conditioning factors (perceived social support, family hardiness, and quality of professional care) and agencies of parent caregivers (caregiver burden) as they related to asthma management abilities to take care of the pre-school asthmatic children. The following hypotheses were tested:

#### Hypotheses

1. Perceived social support has a direct negative effect on caregiver burden, direct positive effect on asthma management abilities, as well as indirect influences on asthma management abilities through caregiver burden.

2. Family hardiness has a direct negative effect on caregiver burden, direct positive effect on asthma management abilities as well as indirect influences on asthma management abilities through caregiver burden. 3. Quality of professional care has a direct negative effect on caregiver burden, direct positive effect on asthma management abilities, as well as indirect influences on asthma management abilities through caregiver burden.

4. Caregiver burden has a direct negative effect on asthma management abilities.

5. Perceived social support and family hardiness, family hardiness and quality of professional care are positive correlated with each other.

#### Methods

#### **Population and Sampling**

The target populations in this study were parent caregivers of the pre-school asthmatic children. The samples were both mothers and fathers who were primary caregivers of the asthmatic children aged less than 6 years who came to visit the Chest and Allergy clinic at three hospitals within Bangkok metropolitan area and had experiences in asthma management at least 3 months.

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The asthmatic child under caregiver responsibility might have neither any other chronic illnesses nor mental disabilities than asthma.

#### Instrumentations

The instruments used in this study consisted of: **The Social Support Questionnaire (SSQ)** e 7-item scale with a five-points Likert-type

The 7-item scale with a five-points Likert-type response format, was developed by Pipatananond<sup>70</sup> to measure provision of supports: information, emotion, and tangible support that caregivers got from: 1) family members; 2) siblings and relatives; 3) friends, co-workers, and neighbors; and 4) other providers in the community. The total scores ranged from 0-112. Higher SSQ scores reflected higher levels of perceived social support. Cronbach's alpha coefficient of the total SSQ in Pipatananond's study was 0.96. In this study, reliability coefficient of SSQ was tested with 253 parent caregivers of the asthmatic children. The result revealed that a reliability coefficient of the whole SSO was 0.90, which was high and acceptable for internal consistency.

Family Hardiness Index (FHI) The 20-item scale with a four-point Likert-type response format, was developed by McCubbin, McCubbin, & Thompson<sup>71</sup> to measure the characteristics of hardiness: Commitment, challenge, and control as a stress resistance and adaptation resources within family. The total scores of FHI ranged from 0-60. Higher FHI scores reflected higher levels of family hardiness. In the original work of McCubbin et al., the overall reliability coefficient for FHI was 0.82 and for each of the subscales, the reliability coefficient was 0.81, 0.80, and 0.65, respectively. In this study, reliability coefficient of FHI was 0.80, which was acceptable even though the control subscale had a rather low reliability (0.59) but reliability coefficients for the other 2 subscales: Commitment (0.72) and challenge (0.70) were acceptable.

The Care of My Child with Asthma Scale. A 24-item scale with a five-point Likert-type response format, was developed by McCubbin & Svavarsdottir72 to measure the extent of time and amount of effort or difficulty associated with the care of a child with asthma. A burden score (time x difficulty) for each item was obtained by multiplying the extent of time by the amount of difficulty scores and then calculated the square root of the product to return the score to the original metric, which ranged from 24-120. Higher scores reflected higher levels of caregiving burden of parent caregiver. Reliability coefficients were reported to 0.92 for the mother and 0.89 for the fathers in Svavarsdottir, McCubbin and Kane's research of well-being of parents of young children in asthma. In this study, the result revealed that reliability coefficient of the whole instrument was 0.93, which was high and acceptable for internal consistency.

The Caregivers' Perceptions of the Quality of Professional Care Scale (CPQPCS). The 18item scale with six-point Likert-type response format, was modified from the Oncology Patients' Perceptions of the Quality of Nursing Care Scale (OPPONCS) by Radwin et al.,<sup>73</sup> to measure the parent caregiver's subjective perception about the characteristic of care that they have got from health care providers in four components:1) responsiveness, 2) individualization, 3) coordination, and 4) proficiency. Since CPQPCS was the modification of OPPQNCS by Radwin et al., the content validity of the new instrument was reassessed by the panel of six experts. Content Validity Index of the CPQPCS was 0.94 (17/18), which was high and acceptable. Reliability coefficients of the total 18-item was 0.90, 0.83 for responsiveness, 0.85 for individualization, 0.65 for coordination, and 0.81 for proficiency subscale. Even though, reliability coefficient of coordination subscale was rather low but it should be noted that this instrument was a newly modified version from OPPQNCS by Radwin et al. This instrument needs reassess and further

develops to fit with caregivers' perceptions about quality of professional care in the future.

**The Asthma Management Abilities Scale.** The 54-item scale with four-point Likert-type response format, was modified from the Mother's Behavior in Taking Care of Asthma Child Scale of Rattanawarn<sup>16</sup> in order to measure parent caregivers' abilities in 4 categories: 1) prevention of asthma attack, 2) treatment and care when an attack occurs, 3) promote normal growth and development of the asthmatic child, and 4) seeking information and accepting asthma. In Rattanawan's study, reliability coefficient of the whole instrument was 0.92 so as in this study, reliability coefficients of the whole instrument was 0.83.

#### **Data Collection**

Protection of Human Rights was conducted following the Helzinki's Declaration in 3 major aspects to protect the human subjects. The research proposal was approved from the Committee on Human nights of the three studied sites.

#### Results

Two hundred and fifty three parent caregivers of the pre-school asthmatic children from three hospitals within Bangkok Metropolitan area participated in this study during March to June, 2005. Most parent caregivers (84.6%) were mothers with ages ranged from 23 to 57 years (mean = 35.41 years). Half of them (50.2%) completed certificate and degree level (more than 15 years study periods). More than one-third of the parent caregivers (42.3%) had moderate family incomes (10,000 to 25,000 bahts/month). The numbers of children under their responsibility (include asthmatic children) ranged from 1 to 6 persons (mean = 1.71, mode = 1). The mean experience of parent caregivers in taking care of the asthmatic child was equal to 3.4 years. Almost all advice about asthma care was received from physicians (84.6%).

Regarding to characteristic of the asthmatic children, nearly two-thirds of the children were male (62.5%, n = 158) with ages ranged from 9 months to 7.5 years (mean = 4.82). The mean age at first diagnosed as asthma was 1.73 (mode = 1) and the mean average of asthma triggers was equal to 3.11 (mode = 2). The mean numbers of asthma attack and admission during the past 3 months were equal to 1.28 and 0.63, respectively and the mean number of asthma drug used among these children was 1.68 (mode = 1).

#### **Descriptive Statistics of Major Variables**

Major variables in this study included family hardiness, quality of professional care, perceived social support, caregiver burden, and asthma management abilities. Mean, standard deviation, range, skewness, and kurtosis were shown in **Table** 1 to describe the distribution of the study variables.

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Variables	Possible Range	Actual Range	Mean	SD	Skewness	Kurto sis	Meaning (Based on mean & skewness)
Social Support Information / Emotion / Tangible	0-112	6-108	53.66	16.99	0.10	0.05	Moderate perceived social support
Family Hardiness	0-60	25-58	45.85	6.75	-0.66	0.42	High family
Control	0-18	1-8	12.44	3.09	-0.74	0.50	hardiness
Commitment	0-24	8-24	20.43	2.89	-0.95	1.00	
Challenge	0-18	4-18	12.99	2.73	028	0.16	
Quality of							
Professional Care	18-108	40-108	81.98	15.14	-0.45	0.30	High quality
Responsiveness	5-30	8-30	22.36	4.08	-0.45	-0.52	of
Individual	5-30	7-30	23.20	5.17	-0.75	-0.03	professional
Coordinator	3-18	3-18	11.12	4.17	-0.13	-0.89	care
Proficiency	5-30	9-30	25.30	4.35	-0.99	0.52	
Caregiver Burden	24-120	28.56-96	63.65	12.43	-0.18	0.11	Moderate
Demand	24-120	32-115	77.47	14.79	-0.08	0.20	burden
Difficulty	24-120	25-106	60.13	16.52	-0.03	-0.42	
Asthma							
Management							
Ability	0-162	63-150	109.5	19.03	-0.19	-0.41	High asthma
Prevention	0-54	14-51	32.61	7.34	-0.22	-0.27	management
Treatment	0-36	5-36	24.62	6.79	-0.46	-0.30	abilities
Promotion	0-45	15 - 45	32.76	6.69	-0.37	-0.52	
Seeking	0-27	8-27	19.57	3.90	-0.06	-0.45	

Table 1 Mean, standard deviation, ranges, skewness, and kurtosis of major variables (n=253)

By using Pearson's correlation coefficient, the relationships between selected basic conditioning factors, caregiver burden and asthma management abilities were shown in **Table 2**.

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Variable	PSS	FH	QPC	СВ	AMA
PSS		1.00			
FH	0.23 **	1.00			
QPC	0.41 **		0.20 **	1.00	
CB	-0.15 *	-0.12	-0.08	1.00	
AMA	0.32 **	0.38 **	0.38 **	-0.36 **	1.00

**Table 2** Correlation matrix of study variables (n = 253)

**Note:** PSS=Perceived Social Support, FH=Family Hardiness, QPC=Quality of Professional Care, CB=Caregiver Burden, AMA=the Asthma Management Ability.

\* p<.05 (2-tailed),\*\*p<.01 (2-tailed)

Three measurement models of three major variables: Family hardiness, quality of professional care, and asthma management abilities were evaluated. The results indicated the acceptable level for all measurement models fitted indexes for the family hardiness, quality of professional care, and asthma management abilities scale (see **Table 3**).

Table 3 The measurement model	goodness of fit index (1	n =253)
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Variables	Chi-square (df)	P-value	GFI	AGFI	RMSEA
Family Hardiness	0.31	0.5801	1.00	1.00	0.000
Quality of Professional Care	1.80 (2)	0.4072	1.00	0.98	0.000
Asthma Managemer Abilities	nt 4.79 (2)	0.9108	0.99	0.95	0.074

**Note:** GFI=Goodness of Fit Index, AGFI=Adjusted Goodness of Fit Index. RMSEA=Root Mean Square Error of Approximation

#### The Theoretical Model Assessment

In the final modified model of asthma management abilities, the results showed that most path coefficients of free parameters were significant at the statistic level of .05 and had the right direction according to the theory accept path coefficients of perceived social support to asthma management abilities, family hardiness to caregiver burden, and quality of professional care to caregiver burden. One parameter, which was the parameter from family hardiness to caregiver burden. The final modified model was proved to have a good fit with the data ( $\chi^2 = 29.02$ , df = 43, p-value = 0.9491, GFI

= 0.98, AGFI = 0.96, and RMSEA = 0.000) and explained 2% of variance in caregiver burden and 55% in asthma management abilities (see **Figure 2**).

By analyzing the influence effects (direct, indirect, and total effect) of all variables in the hypothesized model, the research questions were answered (**Table 4**). As results, family hardiness and quality of professional care had significantly moderate direct positive effect on asthma management abilities while caregiver burden had a moderate direct negative effect on asthma management abilities.

Affected Variables	(	Caregiver Bu	rden	Asthma	Asthma Management A		
Causal Variables	TE IE DE			TE	IE	DE	
Modified Model: Chi-Square ( RMSEA = 0.	$(\chi^2) = 29.0$	2, df = 43, p	= 0.95, GFI = 0	0.98, AGFI =	0.96,		
Perceived Social Support	-0.16*	-	- 0.16 *	0.10	0.06 *	0.04	
Family Hardiness	-	-	- 0.37 ***		-0.37 ***		
Quality of Professional Care	0.01	-	0.01	0.36 ***	-0.01	0.37 ***	
Caregiver Burden	-	-	-	-0.39 ***	-	-0.39 ***	
Structural Equation Fit	]	$R_2 = 0.02$		R	2 = 0.55		

 Table 4 Direct, indirect, and total effects of influenced variables on affected variables in the asthma management abilities causal model

**Note:** TE = Total Effect, IE=Indirect Effect, DE=Direct Effect, \* p<.05, \*\*\* p<.001 γ-value represents effect between exdogenous to endogenous variable

 $\beta$ -value represents effect between endogenous variable to endogenous variables



Figure 2 A modified model of asthma management abilities of parent caregivers

### Discussion

In taking care of children with chronic illness like asthma, burdens associates with care still have some influences on parent caregivers. Since, asthma is the life threatening disease, parent caregivers have to spend most of their time and energy on doing asthma managements and keep vigilant watch over their children due to unpredictability of the disease and its complications.<sup>8,12,17,74</sup> Moreover, some parent caregivers also experience financial burden, especially in low income family. Actually, cost has prevented them from being able to purchase medications and changing their home environment, thus preventing them from being competent managers of their children's disease. 4,28,31-33 Consistency with Orem's theory of dependent-care, managing all universal, developmental, and health deviation dependent-care demands for asthmatic children will overwhelm parent caregivers and create a great number of physical, psychological, and financial burdens, which will lead to affect their health, well-being and especially also affect their management abilities. Even though, there are few researches report the negative influence of caregiver burden on management abilities but this influence still exists in the reviewed literatures. As a result, significant medium negative direct effect of caregiver burden on management abilities was found in this study.

Although the factor of burden was found to have moderate influences on management abilities but parent caregivers in this study still reported high abilities in asthma management. One possible explanation for this reason was parent caregivers in this study had some other essential factors that helped them overcame this burden. Beside from some personal factors (socio-economic status, education level, and experience in providing care) that parent caregivers had at moderate level; the affection, obligation, and linkage between parent caregivers and children motivated parent caregivers to take good care of their children.<sup>75</sup>

Moreover, the results indicated that quality of professional care as well as family hardiness was two other factors, which worked directly to support management abilities of parent caregivers in this study. It is no doubt that the relationship between quality of professional care and management abilities of caregivers has been found in most of the literature.<sup>10-12,34,38,41,68</sup> The same finding was revealed in this study. Since, most of the asthma cares are technical-dependent so educative and supportive care from health care providers is perceived as the most important support that parent caregivers need in this situation.<sup>76</sup> Gibson<sup>74</sup> and Wittaya-sooporn<sup>64</sup> magnified that quality of professional care was an important factor that had an effect on the development of their power capabilities to effectively manage good care for their children. The more quality of care parent caregivers receives, the more abilities they could perform. Together with their strong family hardiness, parent caregivers in this study could manage their care by developing their own strategies that help them increase their abilities to take good care of their children by seeking help from resourceful persons.<sup>56</sup> All of these lent support to the finding that quality of professional care and family hardiness had a direct medium positive effect on asthma management abilities.

In reverse, quality of professional care and family hardiness did not find to have any influences on caregiver burden in this study. It may be because information and advices from health care providers are more technical in nature and from limit of time in each visit so they are not holistic enough to decrease burdens from giving care, which are known as time consuming and difficult to manage. Contrasted to the finding in Wittaya-sooporn's study,<sup>64</sup> quality of educative and supportive care from nurse could predict 28% in coping with caregiving in parent caregivers and coping of parent caregivers was significantly reduced the burdensome from caregiving care in this study. It should be noted that educative and supportive cares form nurse in

Wittaya-sooporn's study were focused not only on technical management but also on emotional management for children, parent caregivers, and other members in the family as well as attitude and relationship within family, which were more covered the needs of parent caregivers. All of which might help enhance coping abilities of parent caregivers and in turn helped reducing the burden from giving care. For family hardiness, one best explanation for not detecting the effect of family hardiness on caregiver burden is parent caregivers appraise that burdens in taking care of their asthmatic children are rather complicated to cope and manage. The best way they could do when time passes is turn to handle and take control over all of the care tasks and seek supports from various sources to help them managing care for their children.

#### Conclusion

Even though the factors of the burden still had some influences on management abilities of parent caregivers, the quality of professional care as well as family hardiness were two other good predictors and worked directly to influence asthma management abilities in this study. These findings support the role of health care professional and hardiness among family members in increasing dependent-care agency of parent caregivers to take good care of the preschool asthmatic children.

#### **Implications and Recommendations**

#### **Implication to Nursing Practice**

Results from this study indicated that in taking care of chronically ill children with special needs such as asthmatic children, burden from giving care still had some influences on management abilities of parent caregivers. The results also indicated that quality of care provided by health care professional and hardiness within family were two other important factors that could directly affect parent caregivers' management abilities. According to this reason, there is a need for nurse, as one in health care profession, to cooperate with physician in giving educative and supportive program that extend well beyond medical care to the realm of behavior, the strength in each family, and the way of their living. Moreover, to lessen burden from giving care, a nurse has to encourage father or other family members to take turn and share responsibility as a primary caregiver as well as help managing other house works than leave all responsibilities only to mother. Increase quality of professional care, hardiness within family, and abilities to manage asthma care can yield not only healthier children but hope to reduce care burden of parent caregivers, improve family functioning, workplace productivity, and overall family well-being.

#### Implication for Methodological and Future Research

Since this study was deductive derived from Orem's theory of dependent care, which was a grand theory and this study was a cross-sectional design so it might not good enough to capture the evolving of independent variables that could influence dependent variables as reflected in this study that the whole model could explain only 2% in caregiver burden. This finding should bring some presumption into consideration that whether caregiver burden or management abilities should be the outcome variable in this study. Thus, longitudinal study and model comparison whether caregiver burden or management ability is an outcome variable needed to conduct to further explain a more in-depth understanding. In addition, some instruments are first used in this study so further testing of each instrument to ensure their reliability across groups is needed to be confirmed in the future research.

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#### References

- Loughlin GM, Eigen H. Respiratory Disease in Children Diagnosis and Management. Baltimore: William & Wilkens, 1994.
- Griffin J. Physical illness in the family. In Miller JR, Janosik E, Eds. Family-focused care. New York: McGraw-Hill, 1980: 245-268.
- Cosper, MR, Ericson MT. The psychological, social and medical needs of low socioeconomic children. Journal of Asthma. 1985; 2(3): 145-158.
- Ory MG, Hoffman RR, Yee JL, Tennstedt S, Schulz R. Prevalence and impact of caregiving : A detailed comparison between dementia and non-dementia caregivers. The Gerontologist. 1999; 39: 177-185.
- Dewis M, Niskala H. Nurturing a valuable resource: Family caregivers in multiple sclerosis. Axon. 1992; 13: 87-91.
- Cain CJ, Wicks MN. Caregiver Attributes as Correlates of Burden in Family Caregivers Coping with Chronic Obstructive Pulmonary Disease. Journal of Family Nursing. 2000; 6(1), 46-68.
- Srangnok S. Factors influencing maternal behaviors in caring for pre-school asthmatic children. Master of Nursing Science thesis in maternal and child nursing. Faculty of Graduate studies, Mahidol University, 2000.
- Palmer AE. Family Caregiver Experience with Asthma in School-Age Children. Pediatric Nursing. 2001; 27(1): 75-81.
- Horner SD, Surratt D, Smith SB. The impact of asthma risk factors on home management of childhood asthma. Journal of Pediatric Nursing. 2002; 17(3): 211-21.
- Mansour ME, Lanphear BP, DeWitt TG. Barriers to Asthma Care in Urban Children: Parent Perspectives. Pediatrics. 2000; 106 (3): 512-519.
- Partridge MR, Hill SR. Enhancing care for people with asthma: the role of communication, education, training and self-management. European Respiratory Journal. 2000; 16(2): 334-361.
- Svavarsdottir EK, McCubbin MA, Kane JH. Well-Being of Parents of Young Children with Asthma. Research in Nursing & Health. 2000; 23: 346-358.
- Orem DE. Nursing: Concepts of practice. 6<sup>th</sup> ed. St. Louis: Mosby Year Book, 2001.
- 14. Vichayanon P, Boonyaleepa C, Yeungsrikul A, Deerochanavong J, Lerdrudeporn P. The Guidelines for Diagnosis and Management of Childhood Asthma in Thailand. Thai Journal of Pediatrics. 2000; 39(2): 171-197.

- Samranchaiyadham K. Maternal perceived self-efficacy, maternal caring behavior and health outcomes of 1-5 year old asthmatic children. Master of Nursing Science thesis in pediatric nursing. Faculty of graduate Studies, Mahidol University, 1998.
- 16. Rattanawan W. The influence of maternal caregiving behaviors and basic conditioning factors on severity of asthma in children aged 1-5 years. Master of Nursing Science thesis in pediatric nursing. Faculty of graduate Studies, Mahidol University, 2001.
- Santati S, Ratinthorn A, Christian B, Parent's Experiences in Asthma Attack Prevention: Struggling to Take Control. Thai Journal of Nursing Research. 2003; 7(3): 186-198.
- Jerrette MD, Costello EA. Gaining Control: Parents' Experiences of Accommodating Children's Asthma. Clinical Nursing Research. 1996; 5(3): 294-308.
- Patterson JM, Garwick AW, Bennett FC, Blum RW. Social Support in Families of Children with Chronic Conditions: Supportive and Non-supportive Behaviors. Developmental and Behavioral Pediatrics. 1997; 18(6): 383-391.
- Clark NM, Partridge MR. Strengthening Asthma Education to Disease Control. Chest. 2002; 121(5): 1661-1669.
- Dean A, Lin N. The stress-buffering role of social support: Problems and prospects for systemic investigation. Journal of Nervous and Mental Disease. 1977; 165: 403-417.
- 22. Haby MM, Powell CV, Oberklaid F, Waters EB, Robertson CF. Asthma in children: gaps between current management and best practice. Journal of Pediatric and Child Health. 2002; 38(3): 284-9.
- Oberst MT, Hughes SH, Chang AS, McCubbin MA. Self-care Burden, Stress Appraisal, and Mood among Persons Receiving Radiotherapy. Cancer Nursing. 1991; 14(2): 71-78.
- Carey PJ, Obrest MT, McCubbin MA, Hughes S. Appraisal and caregiving burden in family members caring for patients receiving chemotherapy. **Oncology** nursing forum. 1991; 18(8): 1341-1348.
- Scott-Baer D. Dependent care, caregiver burden and self-care agency of caregivers. Cancer Nursing. 1993; 16(3): 230-236.
- Biegel DE, Milligan SE, Patnum PL, Song LU. Predictors of burden among lower socioeconomic status caregivers of persons with chronic mental illness. Community Mental Health Journal. 1994; 30(5): 473-494.
- Jones EG, Kay M. Instrumentation in cross-cultural research. Nursing Research. 1992; 41(3): 186-188.
- Cain CJ, Wicks MN. Caregiver Attributes as Correlates of Burden in Family Caregivers Coping with Chronic Obstructive Pulmonary Disease. Journal of Family Nursing. 2000; 6(1): 46-68.

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- Lawton MP, Kleban MH, Moss M, Rovine M, Glicksman A. Measuring Caregiver Appraisal. Journal of Gerontology: Psychological Sciences. 1989; 44 (3): 61-71.
- Tavormina JB, Boll TJ, Dunn NJ, Luscomb RL, Taylor JR. Psychosocial effects on parents of raising a physically handicapped child. Journal of Abnormal Child Psychology. 1981; 9 (1): 121-31.
- Teague BR, Fleming JW, Castle A, Kiernan BS, Lobo ML, Riggs S, et al. "High-tech" home cares for children with chronic health conditions: a pilot study. Journal of Pediatric Nursing. 1993; 8(4): 226-232.
- Jones SL. The association Between Objective and Subjective Caregiver Burden. Archives of Psychiatric Nursing. 1996; 10(2): 77-84.
- 33. Lara M, Rosenbaum S, Rachelefsky G, Nicholas W, et al. Improving Childhood Asthma Outcomes in the United States: A blueprint for Policy Action. Pediatrics. 2002; 109(5): 919-930.
- Halfon N, Newacheck PW. Childhood asthma and poverty: differential impacts and utilization of health services. Pediatrics. 1993; 91: 56-61.
- Aday LA, Lee ES, Spears B, Chung CW, Youssef A, Bloom B. Health insurance and utilization of medical care for children with special health care needs. Medical Care. 1993; 1013-1026.
- Cornellius LJ. Barriers to medical care for white, black, and Hispanic-American children. Journal of National Medical Association. 1993; 85: 281-288.
- 37. Crain EF, Kercsmar C, Weiss KB, Mitchell H, Lynn H. Reported difficulty in access to quality care for children with asthma in inner city. Archives of Pediatrics and Adolescence Medicine. 1998; 152: 333-339.
- Finkelstein JA, Brown RW, Schneider LC, et al. Quality of care for preschool children with asthma: the role of social factors and practice setting. **Pediatrics.** 1995; 95: 389-394.
- Halfon N. Perspectives from pediatrics. Asthma in the US, understanding the effectiveness of health care delivery and barriers to good clinical outcomes. Medical Care. 1993; 31: 31-32.
- 40. Mak H, Johnston P, Abbey H, Talamo RC. Prevalence of asthma and health service utilization of asthmatic children in an inner city. Journal of Allergy and Clinical Immunology. 1982; 70: 367-372.
- Newacheck PW, Hughes DC, Stoddard JJ. Children's access to primary care: differences by race, income, and insurance status. **Pediatrics.** 1996; 97: 26-32.
- 42. Cobb S. Social support as a moderator of life stress. **Psychosomatic Medicine.** 1976; 38(5): 300-314.

- Dean A, Lin N. The stress-buffering role of social support: Problems and prospects for systemic investigation. Journal of Nervous and Mental Disease. 1977; 165: 403-417.
- Turner RJ. Social support as a contingency in psychological well-being. Journal of Health and Social Behavior. 1981; 22(4): 357-367.
- Cohen S, Wills TA. Stress, social support, and the buffering hypothesis. Psychological Bulletin. 1985; 98: 310-357.
- House JS, Kahn RJ. Measure and concept of social support. In Cohen SC, Syme SL, eds. Social support and Health. Orlando: Academic Press, 1985.
- Baldwin MW. Relational schemas and the processing in social information. Psychological Bulletin. 1992; 112: 461-484.
- 48. Huang CF. Families of children with developmental disabilities: the test of a structural model of family hardiness, social support, stress, coping, and family functioning. Doctoral dissertation. Saint Louis University, 1996.
- McCubbin HI, Thomson AJ, McCubbin MA. Family assessment: Resiliency, coping and adaptation-inventories for research and practice. Madison: University of Wisconsin, 1996.
- Kobasa S. Stressful life events, personality, and health: An inquiry into hardiness. Journal of Personality and Social Psychology. 1979; 37: 1-11.
- McCubbin HI, Thompson AJ, Pirner P. Family traditional scale. In McCubbin HI, Thompson AJ, eds. Family assessment for research and practice. Madison: University of Wisconsin, 1986.
- Failla S, Jones LC. Families of children with developmental disabilities: An examination of family hardiness. Research in Nursing and Health. 1991; 14: 41-50.
- Clark PC. Effects of Individual and Family Hardiness on Caregiver Depression and Fatigue. Research in Nursing & Health. 2002; 25: 37-48.
- 54. Orr E, Westman M. Does Hardiness moderate stress? A review. In Rosenbaum M, ed. Learned resourcefulness: On coping skills, self-control, and adaptive behavior. New York: Springer, 1990.
- 55. DiBartolo MC, Soeken KL. Appraisal, Coping, Hardiness, and Self-Perceived Health in Community-Dwelling Spouse Caregivers of Persons with Dementia. Research in Nursing & Health. 2003; 26: 445-448.
- Clark PC, King KB. Comparison of family caregivers: Stroke survivors VS. Persons with Alzheimer's disease. Journal of Gerontological Nursing, 2003; February: 45-53.

#### Sermsri Santati et al.

- McDaniel C, Nash JG. Compendium of instruments measuring patient satisfaction with nursing care. QRB: Quality Research Bulletin. 1990; 22: 182-188.
- Lin CC. Patients' satisfaction with nursing care as an outcome variable: Dilemmas for nursing evaluation researchers. Journal of Professional Nursing. 1996; 12: 207-216.
- Mitchell PH, Heinrich J, Moritz P, Hinshaw AS. Measurement into practice: Summary and recommendations. Medical Care. 1997; 35 (11 suppl.): NS124-NS127.
- 60. Committee on Quality of Health Care in America, Institute of Medicine. Crossing the quality chasm: A new health system for the 21<sup>st</sup> century. Washington, DC: National Academies Press, 2001.
- Wartman SA. Patient understanding and satisfaction as predictors of compliance. Medical Care. 1983; 21: 886-891.
- 62. Bartlett EE, Grayson R, Barker DM, Levine A. The effects of physician communication skills on patient satisfaction, recall and adherence. Journal of Chronic Disease. 1984; 37: 755-764.
- Ware JE, Wright WR, Snyder MK. Consumer perception of health care services: Implications for academic medicine. Journal of Medical Education. 1975; 9 (suppl. 10): 839-848.
- 64. Wittaya-sooporn J. A Causal Model of Dependent Caregiving Burden in Parents of Chronically III Children. Doctoral Dissertation. Faculty of Graduate studies, Mahidol University, 1996.
- 65. Garwick AW, Patterson JM, Bennett FG, Blum RW. Parents' Perceptions of Helpful vs. Unhelpful Types of Support in Managing the Care of Pre-adolescents with Chronic Conditions. Archives of Pediatric and Adolescent Medicine. 1998; 152: 665-671.
- Radwin L, Alster K. Outcomes of perceived quality nursing care reported by oncology patients. Scholarly Inquiry for Nursing Practice. 1999; 13: 327-343.

- Lynn-McHale DJ, Deatrick JA. Trust between Family and Health Care Provider. Journal of Family Nursing. 2000, 6(3), 210-230.
- Christakis DA, Wright JA, Zimmerman FJ, Bassett AL, Connell FA. Continuity of care is associated with high-quality care by parental report. Pediatrics. 2002; 109(4): e54.
- 69. Krishnasamy M. Social support and the patient with cancer: A consideration of the literature. Journal of Advanced Nursing. 1996; 23: 757-762.
- 70. Pipatananond P. Caregiver burden predictive model: An empirical test among caregivers for the Schizophrenic. Doctoral Dissertation. Faculty of Graduate studies, Mahidol University, 2001.
- McCubbin HI, McCubbin MA, Thomson AI. Family hardiness index. In McCubbin HI, Thompson AJ, eds. Family assessment for research and practice. Madison: University of Wisconsin, 1987.
- McCubbin MA, Svavarsdottir EK. The care of my child with asthma. Madison: University of Wisconsin Press, 1996.
- Radwin L, Alster K, Rubin KM. Development and Testing of the Oncology Patients' Perceptions of the Quality of Nursing Care Scale. Oncology Nursing Forum. 2003; 30(2): 283-290.
- 74. Gipson CH. The process of empowerment in mothers of chronically ill children. Journal of Advanced Nursing. 1995; 21: 1201-1210.
- Bandura A. Self-efficacy: The exercise of control. New York: W.H. Freeman and Company, 1997.
- Townsend M, Feeny DH, Guyatt GH, Furlong WJ, Seip AE, Dolovich J. Evaluation of the burden of illness for pediatric asthmatic patients and their parents. Annals of Allergy. 1991; 67(4): 403-408.

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## รูปแบบจำลองการวิเคราะห์เชิงสาเหตุของความสามารถในการดูแล โรคหืด: การทดสอบเชิงประจักษ์ในผู้ปกครองผู้ดูแลเด็กก่อนวัย เรียนโรคหืด\*

เสริมศรี สันตติ, จริยา วิทยะศุกร, สมจิต หนุเจริญกุล, มุกดา หวังวีรวงศ์, ศิริขัย กาญจนวาสี

**บทคัดย่อ:** ในการดูแลเด็กโรคหืด การเพิ่มความสามารถของผู้ปกครองนับเป็นจุดมุ่งหมายหลักที่จะทำให้การ ดูแลเด็กโรคหืดประสบผลสำเร็จ ทฤษฎีการพยาบาลของโอเร็มได้นำมาใช้เป็นกรอบแนวคิดในการศึกษา โดยมี จุดมุ่งหมายเพื่อวิเคราะห์ความสัมพันธ์เชิงเหตุผลระหว่างตัวแปร การรับรู้แรงสนับสนุนทางสังคม ความเข้มแข็ง ของครอบครัว คุณภาพการดูแลของบุคลากรทางด้านสุขภาพ ภาระในการดูแล ที่มีผลต่อความสามารถ ในการ ดูแลเด็กโรคหืด

กลุ่มตัวอย่างเป็นผู้ปกครองของเด็กก่อนวัยเรียนโรคหืดจำนวน 253 คน ที่พาเด็กมารับการตรวจรักษา ที่คลินิกโรคระบบหายใจและภูมิแพ้ในโรงพยาบาลของรัฐ 3 แห่งในเขตกรุงเทพมหานคร รูปแบบจำลองเชิงเหตุผล ที่สร้างขึ้นได้รับการทดสอบโดยใช้โปรแกรมลีสเรล 8.52 ผลการศึกษาพบว่า รูปแบบสุดท้ายที่ได้รับการปรับแก้ มีความสอดคล้องกับข้อมูลเชิงประจักษ์ ( $\chi^2$  = 29.02, df = 43, p-value = 0.9491, GFI = 0.98, AGFI = 0.96, RMSEA = 0.000) สามารถทำนายความแปรปรวนในตัวแปรความสามารถของผู้ดูแลได้ร้อยละ 55 ภาระในการ ดูแลมีอิทธิโดยตรงขนาดปานกลางในทางลบต่อความสามารถของผู้ดูแลอย่างมีนัยสำคัญทางสถิติ ( $\gamma$  = -0.39, p < .001) คุณภาพการดูแลของบุคลากรทางการแพทย์และความเข้มแข็งของครอบครัว มีอิทธิพลโดยตรงขนาด ปานกลางในทางบวกต่อความสามารถของผู้ดูแลอย่างมีนัยสำคัญทางสถิติ ( $\gamma$  = 0.36, p < .001,  $\gamma$  = 0.37, p < .001 ตามลำดับ) การรับรู้แรงสนับสนุนทางสังคม มีอิทธิโดยตรงในทางลบต่อภาระในการดูแล ( $\gamma$  = -0.16, p < .05) และอิทธิทางอ้อมต่อความสามารถของผู้ดูแลผ่านภาระในการดูแล ( $\gamma$  = 0.06, p < .05)

ผลการศึกษาชี้ให้เห็นว่า ถึงแม้ว่าภาระในการดูแลยังคงมีอิทธิพลต่อความสามารถของผู้ดูแล แต่ คุณภาพการดูแลของบุคลากรทางด้านสุขภาพ ตลอดจนความเข้มแข็งของครอบครัว ก็เป็นตัวบ่งชี้ที่ดีและมี อิทธิพลโดยตรงต่อความสามารถของผู้ดูแลในการดูแลเต็กโรคหืดผลการศึกษาครั้งนี้สนับสนุนบทบาทของบุคลากร ทางด้านสุขภาพและความเข้มแข็งของครอบครัวในการเพิ่มความสามารถของผู้ดูแลในการที่จะดูแลเด็กก่อนวัยเรียน โรคหืดให้มีประสิทธิภาพมากที่สุด

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คำสำคัญ: ความสามารถในการดูแลเด็กโรคหืด การรับรู้แรงสนับสนุนทางสังคม ความเข้มแข็งของครอบครัว คุณภาพการดูแลของบุคลากรทางด้านสุขภาพ ภาระในการดูแล

* ดุษฎีนิพนธ์ ปรัชญาดุษฎีบัณฑิตทางการพยาบาล บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล
เสริมศรี สันตติ R.N., Ph.D. Candidate ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์
โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล ประเทศไทย
จริยา วิทยะศุภร R.N., Ph.D., ผู้ช่วยศาสตราจารย์ ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์
โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล ประเทศไทย
สมจิต หนุเจริญกุล R.N., Ph.D., ศาสตราจารย์ ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์
โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล ประเทศไทย
มุกดา หวังวีรวงศ์ M.D., แพทย์ประจำหน่วยโรคภูมิแพ้และภูมิคุ้มกัน สถาบันสุขภาพเด็ก
แห่งชาติมหาราชินี ประเทศไทย
สริชัย กาญจนวาสี Ph.D., ศูนย์ทดสอบทางการศึกษา คณะครุศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
ประเทศไทย

#### Pornnapa Homsin et al.

# The Development of the Smoking Attitude Scale for Thai Adolescents\*

Pornnapa Homsin, Wichit Srisuphun, Joanne Pohl, Sujitra Tiansawad

**Abstract:** The purpose of this study was to develop a scale measuring smoking attitudes. Male students (n= 289) who were studying in Mathayom (M.) 1 to Mathayom (M.) 3 in three public schools were included in the study. Twenty items were selected for inclusion in the scale. An internal consistency reliability coefficient of the overall scale was 0.91. A confirmatory factor analysis was used to test the internal structure of the items. The results of the study support a three-component model of attitudes: cognitive, affective, and behavioral dimensions.

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Keywords: scale development, attitude toward smoking, adolescent

#### Introduction

Smoking remains a major public health problem in the Thai society, especially among adolescents. Smoking has several negative effects on adolescent smokers.<sup>1</sup> It is also powerfully addictive.<sup>2</sup> Adolescents who try smoking by smoking only one or two cigarettes are twice as likely to become adult smokers as adolescents who do not engage in such experimentation.<sup>3</sup> Moreover, these adolescents have a more difficult time quitting if they have begun smoking earlier.<sup>4</sup> Therefore, preventing adolescents from smoking initiation as early as possible is needed. Theoretical evidence suggests that an attitude can be an important factor influencing smoking.<sup>5</sup> The theories of reasoned action<sup>6</sup> and planned behavior<sup>7</sup> propose that behavior is a function of a person's intention, which, in turn, is determined by personal attitudes and social norms. An understanding of the underlying attitudes toward smoking is then necessary. Knowledge of attitudes provides the reasons why adolescents start smoking or continue smoking.

An attitude toward a behavior is the "degree to which a person has favorable or unfavorable evaluation or appraisal of the behavior in question."<sup>7</sup> Weber<sup>8</sup> defined an attitude as "an evaluative reaction-a judgment regarding one's liking or disliking-of a person, event, or other aspect of the environment." Unfortunately, no smoking attitude scale was well developed in Thailand. As opposed to few existing ones in other countries, DeVries, Backbier, Kok, and Dijkstra<sup>9</sup> measured smoking

Sujitra Tiansawad RN., D.S.N., Assistant Professor, Faculty of Nursing, Chiang Mai University, Thailand.

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<sup>\*</sup> Doctoral Dissertation, Faculty of Nursing, Chiang Mai University, Thailand.

**Pornnapa Homsin** RN., M.A. Ph.D. Candidate at Faculty of Nursing, Chiang Mai University, Thailand. Assistant Professor, Faculty of Nursing, Burapha University, Thailand.

Wichit Srisuphun RN., Dr.P.H. Professor (emeritus), Faculty of Nursing, Chiang Mai University, Thailand. Joanne Pohl RN., Ph.D., FAAN., Associate Professor, School of nursing, University of Michigan, U.S.A.

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attitudes among secondary school students in the Netherlands. The questionnaire measuring smoking attitudes included 28-Likert-type items. However, they did not present clearly how the attitude measurement was developed and also the psychometric properties (reliability and validity) were not reported.

Shore, Tashchian, and Adams<sup>10</sup> developed a Scale Measuring Attitudes towards Smoking (SAS) based on literature review in the areas of applied social psychology and public policy to identify topical areas dealing with smoking attitudes among undergraduate and graduate students in the U.S. The final SAS consisted of 17 items with a Likert-type format. The construct validity was analyzed by the confirmatory and exploratory factor analyses, while the reliability was tested by the internal consistency. The results revealed that the SAS consisted of four factors reflecting relationships with smokers: Views toward smoking restrictions and laws, concerns about secondhand smoke, attitudes concerning the sale and marketing of cigarettes. Etter, Humair, Bergman, and Perneger<sup>11</sup> also developed the Attitudes toward Smoking Scale (ATS-18), based on literature about attitudes toward cigarette smoking and the outcomes from qualitative data. The participants were people aged between 18 and 70 years old. The measurement included 18 items with Likert scale format. The factor analysis confirmed the validity of a three-factor structure: Adverse effects of smoking, psychoactive benefits, and pleasure of smoking. Even though these researchers reported that their instruments have Adequate internal consistency, there were some limitations. Regarding the questionnaire for people with a wide age range, some questions might not be appropriated for the young Thai people. They are for example, "I would not date a person who smokes." "I would marry a person who smokes." Likewise, adolescents and adults may have different views on some smoking issues.

Additionally, using the scales developed from other people might not be applicable in the Thais who are of different culture. This study, then aims to develop an appropriate questionnaire measuring attitudes toward smoking for Thai adolescents.

#### Methods

#### **Participants**

The sample consisted of 289 male adolescents aged 12-16 years old (M = 13.50, SD = 0.68). They were studying in Mathayom (M.)1-Mathayom (M.)3 in three public schools located in the eastern part of Thailand.

#### **Scale Development**

The following steps were taken to develop a scale measuring attitudes toward smoking for Thai adolescents.

First, the instrument measuring attitudes toward smoking was developed by the researcher in accordance with a three-component model of Weber.8 This model defined an attitude as an evaluative reaction of a person, event, or other aspect of the environment. The attitude is a nonneutral judgment. It might be either positive or negative, but never neutral. A single attitude involves three dimensions: Cognitive (like beliefs), affective (emotions), and behavioral (choices and actions). The cognitive dimension is an idea or belief and the affective dimension is an emotion or feeling you have about something, meanwhile the behavioral dimension is an behavioral intention or the consequence of an attitude towards something. Based on the model, an initial pool of 24 items was, then generated: 8 items for each dimension. Responses were scaled on a 5-point Likert scale ranging from 1 = absolutely disagree to 5 = absolutely agree.

Second, the content of the measurement was validated by the panel of experts. A panel of at least three experts is recommended.<sup>12</sup> The panel for this

study included five experts: One nurse instructor of psychiatric nursing, one instructor of health education and behavioral sciences, one psychiatrist, and two experts on adolescence. There was no any item that eliminated or adjusted by the experts. To ascertain a content validity, interrater agreement (IR) and content validity index (CVI) were then calculated. The average scores of IR and CVI were 0.94, and 0.93 respectively.

Third, the construct validity was also tested. The sample size (n = 289) was large enough for a factor analysis, as Tinsley and Tinsley<sup>13</sup> recommended 5 to 10 subjects per item. However, before factor analysis was performed, an item analysis was calculated to evaluate the quality of the items. In general, it is probably recommended to examine the corrected item-scale correlation which correlates the item being evaluated with all the items, except itself.<sup>14</sup> The desired correlation for inclusion criteria should be 0.20 or greater. Therefore, four items that did not meet the criterion were excluded from the scale, as three items ("Some kinds of cigarettes are not dangerous to one's health," "Cigarette filter can prevent harm to one's health," "I do not want people to dislike me because I smoke") had low corrected item-scale correlations. Another item, "All students should take part in smoking campaign held in schools," had a negative correlation. Finally, the remaining 20 items were selected for inclusion in the questionnaire.

Fourth, the scale was pretested among three focus groups of students attending M1, M2, and M3 respectively. Each group consisted of 8-10 participants. The purpose of the pretest was to obtain respondents' feedback on the acceptability of the items, the clarity of item wording, and the clarity of direction.<sup>15</sup> The problematic items were then revised.

Last, the draft questionnaire was pilot tested to establish the reliability with a small sample of adolescents (n = 55) who were representatives of the sample.

#### **Data Collection**

Data were collected with the self-administered questionnaire, the smoking attitude scale for Thai adolescents, developed by the researcher. The purpose of the study and the confidentiality of the collected data were mentioned. The questionnaire was filled out in the classroom. The participants took approximately 10 minutes to complete the questionnaire. To ensure confidentiality, the participants were assigned code numbers rather than names. The teachers were not in the classrooms during the assessment. In addition, the participants were instructed to seal their completed questionnaires in the envelopes to maintain confidentiality.

#### Main Analysis

A confirmatory factor analysis with maximum likelihood estimation was conducted using LISREL-8.5 to evaluate the construct validity of the questionnaire. The assessment of model fit was based on multiple criteria including<sup>16</sup> (1) the Chi-square statistic, (2) the  $\chi^2$ / df ratio, (3) goodness of fit index (GFI), (4) adjusted goodness of fit index (AGFI), (5) standardized root mean square residual (Standardized RMR), (6) the root mean square error of approximation (RMSEA), and (7) the comparative fit index (CFI). A non-significant Chi-square and the  $\chi^2$  / df ratio with value lower than 0.3 indicate a good model fit. The desired values for the GFI and AGFI are greater than 0.90. Suggested values for the standardized RMR and RMSEA are lower than 0.08 and 0.06 respectively. Value of 0.95 or higher for CFI is indicative of a well-fitting model.

The consistency of the questionnaire was analyzed using Cronbach's alpha coefficient. A reliability of 0.70 or better is considered acceptable.<sup>17</sup>

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#### Results

Prior to the factor analysis, twenty items with appropriate item-total correlations were included in a confirmatory factor analysis. The analysis revealed 3 factors, cognitive, affective, and behavioral dimensions. The resulting three-factor model with these items was found to have the best fit:  $\chi^2 =$  94.03, df = 130, p = 0.99;  $\chi^2/$  df = 1.48; GFI = 0.97; AGFI = 0.95; standardized RMR = 0.04; RMSEA = 0.00; CFI = 1.00. All test items were found to have statistically significant factor loading at p < 0.05.

Factor loadings on the items measuring the cognitive component (6 items) ranged from 0.28 to 0.48, on the items of affective component (7 items) ranged from 0.34 to 0.70, and on the items measuring the behavioral component (7 items) ranged from 0.33 to 0.51. A graphic representation of the model is presented in **Figure 1**.

Following the factor analysis, the internal consistency of the scale was tested. Cronbach's alpha by subscale was 0.81, 0.83, and 0.78 respectively. The overall Cronbach's alpha was 0.91.



Figure 1 A Confirmatory Factor Analysis on The Three-factor Model of Attitudes Toward Smoking.

### Discussion

This study reported the development and validation of a smoking attitude scale in adolescents. The developed scale contained 20 items that measured three dimensions of attitudes: cognitive, affective, and behavioral according to the three-component model of Weber.<sup>8</sup> The three-factor model was tested by confirmatory factor analysis and it fit the data well. The Cronbach's value also indicated high internal consistency of the measurement.

Theoretically, an attitude is an important factor influencing smoking behavior,<sup>6, 7</sup> a number of studies<sup>18, 19, 20</sup> revealed that people with more positive attitudes toward smoking tended to experience smoking. Nevertheless, some studies21, 22 examined attitudes with smoking behaviors and reported non-significant results. Dolcini and Adler<sup>23</sup> suggested that the inconclusive results might reflect that there have been measurement problem in the studies. Generalized attitudes with strict definitions in terms of liking and disliking might not be good predictors of behavior.<sup>5</sup> An attitude toward smoking can be a complex concept regarding cognitive, affective, and behavioral dimensions. The development of this valid scale will benefit researchers and practitioners in understanding how the attitudes and the smoking are related. Hence, adolescents who are at-risk for starting smoking can be screened and more effective prevention programs can be developed. One significant limitation of the present study is that the instrument was developed with early and middle male adolescents who were studying in public schools. Future research is needed to determine whether this scale will be appropriate to be used among other groups of adolescents such as female adolescents, late adolescents, or adolescents who are outside the schools.

### References

- WHO. Guidelines for Controlling and Monitoring the Tobacco Epidemic. Geneva:WHO, 1998.
- US Department of Health and Human Services. The Health Benefits of Smoking Cessation: A Report of the Surgeon General. (Publication No. S/N 017-001-00491). Washington, DC: U. S. Government Printing Office, 1990.
- Chassin L, Presson CC, Sherman SJ, Edwards DA. The national history of cigarette smoking: Predicting young-adult smoking outcomes from adolescent smoking patterns. Health Psychology. 1990; 9: 701-716.
- Ellickson PL, McGuigan KA, Klein DJ. Predictors of late-onset smoking and cessation over 10 years. Journal of Adolescent Health. 2001; 29: 101-108.
- Piko B. Smoking in adolescence: Do attitudes matter? Addictive Behaviors. 2001; 26: 201-217.
- Ajzen I, Fishbein M. Understanding Attitudes and Predicting Social Behavior. Englewood-Cliffs, NJ: Prentice-Hall, 1980.
- Ajzen I. The theory of planed behavior. Organizational Behavior and Human Decision Process. 1991; 50: 179-211.
- Weber AL. Social Psychology. New York: HarperPerennial, 1992.
- De Vries H, Backbier E. Kok GJ, Dijkstra M. The impact of social influences in the context of attitude, selfefficacy, intention, and previous behavior as predictors of smoking onset. Journal of Applied Social Psychology. 1995; 25: 237-257.
- Shore TH., Tashchian A, Adams JS. Development and validation of a scale measuring attitudes toward smoking. The Journal of Social Psychology. 2000; 140: 615-623.
- Etter J, Humair J, Bergman MM, Perneger T. Development and validation of the Attitudes Towards Smoking Scale (ATS-18). Addiction. 2000; 95: 613-625.
- Lynn MR. Determination and quantification of content validity. Nursing Research. 1986; 35: 382-385.
- Tinsley H, EA, Tinsley DJ. Uses of factor analysis in counseling psychology research. Journal of Counseling Psychology. 1987; 34: 414-424.
- DeVellis RF. Scale Development: Theory and Application (2<sup>nd</sup> ed., Vol. 26. Applied social research methods series). London: Sage, 2003.
- Kristjansson EA, Desrochers A, Zumbo B. Translating and adapting measurement instruments for cross-linguistic and cross-cultural research: A guide for practitioners. Canadian Journal of Nursing Research. 2003; 35: 127-142.

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- Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling. 1999; 6: 1-55.
- Burns N, Grove SK. The Practice of Nursing Research (3<sup>rd</sup>). Philadelphia: W. B. Saunders, 1997.
- Wang M, Fitzhugh EC, Eddy JM, Fu Q, Turner L. Social influences on adolescents' smoking progress: A longitudinal analysis. American Journal of Health Behavior. 1997; 21: 111-117.
- Zhang L, Wang W, Zhao Q, Vartiainen E. Psychosocial predictors of smoking among secondary school students in Henan, China. Health Education Research. 2000; 15: 415-422.
- Zhu B, Liu M, Shelton D, Liu S, Giovino GA. Cigarette smoking and its risk factors among elementary school students in Beijing. American Journal of Public Health. 1996; 86: 368-375.
- Botvin GJ, Epstein JA, Schinke SP, Diaz T. Predictors of cigarette smoking among inner-city minority youth. Journal of Developmental & Behavioral Pediatrics. 1994; 15: 67-73.
- 22. White HR, Pandina RJ, Chen P. Developmental trajectories of cigarette use from early adolescence into young adulthood. **Drug and Alcohol Dependence.** 2002; 65: 167-178.
- Dolcini MM, Adler NE. Perceived competencies, peer group affiliation, and risk behavior among early adolescents. Health Psychology. 1994; 13: 496-506.

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# การพัฒนาแบบวัดทัศนคติต่อการสูบบุหรี่ในวัยรุ่นไทย\*

พรนภา หอมสินส์, วิจิตร ศรีสุพรรณ, โจแอนด์ โพลล์, สุจิตรา เทียนสวัสดิ์

**บทคัดย่อ:** การศึกษานี้มีวัตถุประสงค์เพื่อพัฒนาแบบวัดทัศนคติที่มีต่อการสูบบุหรี่ โดยทำการศึกษาในเด็ก วัยรุ่นชายไทยที่กำลังศึกษาในชั้นมัธยมศึกษาปีที่ 1 ถึงปีที่ 3 จำนวน 289 คน แบบวัดประกอบด้วย ข้อ คำถามซึ่งมีค่าความเชื่อมั่นโดยรวม 0.91 ส่วนความตรงตามโครงสร้างได้ทำการทดสอบโดยการวิเคราะห์ องค์ประกอบเชิงยืนยัน ผลการศึกษาพบว่า แบบวัดทัศนคติที่มีต่อการสูบบุหรี่มีความตรงตามโครงสร้างเป็น ไปตามทฤษฎีสามองค์ประกอบซึ่งประกอบด้วยองค์ประกอบด้านความรู้ความเข้าใจ ด้านความรู้สึก และ ด้านการปฏิบัติ

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\*ดุษฎีนิพนธ์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ ประเทศไทย

พรนภา หอมสินธุ์ RN., M.A. นักศึกษาปริญญาเอก คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ ประเทศไทย, ผู้ช่วยศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา ประเทศไทย

วิจิตร ศรีสุพรรณ RN., Dr.P.H. ศาสตราจารย์เกียรติคุณ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ ประเทศไทย โจแอนด์ โพลล์ RN., Ph.D., FAAN., รองศาสตราจารย์

โรงเรียนพยาบาล มหาวิทยาลัยมิชิแกน เมืองแอนอาเบอร์ ประเทศ สหรัฐอเมริกา

สุจิตรา เทียนสวัสดิ์ RN., D.S.N. ผู้ช่วยศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยเชียงใหม่ ประเทศไทย

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# Development of Nursing Case Management Model for Patients with Myocardial Infarction\*

Rasee Leenakul, Tassana Boontong, Kobkul Phancharoenworakul, Wanpen Pichitpornchai

**Abstract:** This research aimed to develop a nursing case management model in patients with myocardial infarction, using a nurse case manager as a key person to manage care for patients more effectively. Participatory action research was conducted with nine participants in the process of model development. Data collection strategies included interviews, observations, document examination, as well as records of outcomes of the model.

The findings revealed that the model of nursing case management comprised three important parties including; a nurse case manager, health care providers, and payers. These parties interacted with one another while a patient was the center of service delivery. In this process, the nurse case manager was a person who acted as a primary nurse responsible for providing direct care and collaborating with other health care providers, using a clinical pathway as a tool to assess, plan, implement, and evaluate patient's outcomes. These outcomes included satisfaction of patients and staffs, as well as a reduction in length of stay and readmission rate of patients.

From the findings, it is clear that nurses are in a pivotal role to collaborate in care planning with other multidisciplinary team. The researcher suggests that in this model a nurse case manager should have knowledge pertinent to the case type and effective communication skills so as to facilitate effective care management. It is envisaged that the process of model development in this study could be used as a guide to develop other similar models for other case types so as to enhance both quality of care and cost containment.

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*Key words:* case manager, myocardial infarction, nursing case management, participatory action research

#### **Background and Rationales**

In recent years, forms of care delivery systems have continuously been evolving internationally in order to produce care that is of high quality, suitable and relevant to socio-economic changes in each country.<sup>1,2</sup> In Thailand, the previous Asian economic crisis in 1997 has inevitably affected Thailand's budget management on health care expenditures.<sup>3</sup>

\*Dissertation, Doctor of Nursing Science, Faculty of Graduate Studies, Mahidol University, Thailand. **Rasee Leenakul**, RN., DNS. Candidate, Faculty of Nursing, Mahidol University, Thailand. **Tassana Boontong**, RN., Ed.D. Associate Professor, Thailand Nursing Council, Ministry of Public Health, Nontaburi Province, Thailand. **Kobkul Phancharoenworakul**, RN., Ph.D. Associate Professor, Faculty of Nursing, Mahidol University, Thailand. **Wanpen Pichitpornchai**, RN., Ph.D., Lecturer, Faculty of Nursing, Mahidol University, Thailand.

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The rise in health care expenditures has necessitated the need for health care reforms in Thailand. These reforms focus on improving care delivery systems and practices that are accountable for national health policies that mandate quality of services and cost effectiveness. It is envisaged that the reforms would best benefit every party, including health care consumers, providers, and payers/budget providers.<sup>4</sup>

With regard to a quality issue, the Thai government realized that there had still been a gap in quality of health care services despite an effort of both health administrators and providers to maintain standards of care for patients. As a consequence, the Ministry of Public Health (MOPH) has established a hospital accreditation system (HA) in 1997 to evaluate the standards and quality of the hospital services. HA system is based on the concept of patient-centeredness and outcome measurement. In addition, HA also promotes multidisciplinary practices. Attention has been given to patients with complex health problems along with the development of standards of care delivery and continuity of care for each group of patients.

For quality of services and cost effectiveness, hospitals are therefore in need of new care delivery strategies that will serve both purposes, Case management is considered as one of the strategies appropriate for use in the service delivery reforms in many western countries,<sup>5,6</sup> and now is expanded to Asian counterparts including Thailand.

In Thailand, cardiovascular diseases especially myocardial infarction (MI), have become the current major health problems among Thai people. More recently in the northern Thai region, health statistics indicated that the mortality rates of patients with cardiovascular diseases, especially those with MI were presented at the top list. Specifically at a tertiary care hospital, one of the largest hospital in the central north of Thailand, MI is on the rise among out-patient and in-patient visits during the year 2000-2002. Evidently, MI has now become the major cause of deaths among medical patients, whereas lengths of hospital stay among this group of patients have also been increasing. Although readmission rates were not increased, the incidences were still considered high especially in comparison to other groups of patients. These incidences also affected the cost of care as MI patients often required high technology of care and thus consumed a great health care expenditure.

In addition, there had been problems with fragmentation of care due to ineffective collaboration at each point of health services including emergency department, intensive care unit, ward, and community services outside the hospital. From these problems, it was therefore very timely for the researcher and health care professionals at the mentioned hospital to address this problem and develop a service delivery model to improve quality of care and manage cost of care simultaneously. Thus, the purpose of this study aimed to develop a nursing case management model in patients with myocardial infarction (MI) at a tertiary care hospital, one of the largest hospital in the central north of Thailand. It also aimed to examine the process of the model development, factors affecting the development and utilization of the model, as well as the outcomes of this model. The research questions were as follows;

1. What was a possible model of nursing case management for patients with myocardial infarction?

2. What were the outcomes of nursing case management for patients with myocardial infarction?

3. What were strategies used in the process of nursing case management development for patients with myocardial infarction?

4. What were barriers occurring during the process of nursing case management development for patients with myocardial infarction?

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#### **Conceptual Framework**

Nursing is a discipline consisting of four pervasive concepts; person, environment, health and nursing. The practice of nursing is a dynamic and interpersonal process that is used to provide holistic care towards patients. Historically, nursing practice or care delivery has involved critical thinking within a deliberative decision-making framework. Nursing case management is one of the care delivery models designed to effectively manage care for specific groups of patients by utilizing effective communication and existing resources as a means to achieving desired outcomes in terms of quality services and cost effectiveness.<sup>7, 8</sup>

Nursing case management framework encompasses the following functions for nurses to manage: assessment, planning, linking, monitoring and review.<sup>9</sup> Within this framework, the nurse is prepared to perform functions in diverse settings and is responsive to the changing health care needs of society. The fundamental focus of case management is to integrate, coordinate, and advocate for individuals, families, and groups requiring extensive services, ensuring that patients receive appropriate, individualized and costeffective care within a system of services.<sup>10</sup> The emphasis of care changes from a task orientation to the outcomes of medical and nursing interventions throughout an episode of illness and/or treatment.

Specifically, nursing case management focuses on a multidisciplinary clinical system that uses registered nurse as a case manager to coordinate care for select patients across the continuum of a health care episode.<sup>11</sup> These registered nurses are nurses who have had expertise and experiences in dealing with specific case type as designated by either the high risk, high cost, or high volume cases. Case type means the aggregation of similar patients for the purpose of monitoring, managing and/or reimbursing. Diagnosis-related group (DRG) is one method of case type classification. Case type may be identified through reviewing distribution of cases by length of stay, readmission rate, and cost of health care services.

In nursing case management, there are there important components attached to service delivery system in response to the determination of health and cost outcomes of patient care. These components include a nurse case manager, collaborative practice, and a clinical pathway, all of which are used to achieve best health care outcomes. **Figure 1** displayed the conceptual framework of nursing case management which is central to this research study.





Figure 1 Conceptual framework of nursing case management

#### Methodology

#### **Research Design**

This study used a method of participatory action research (PAR) in order to develop a nursing case management model. Participatory action research process consists of the set up of research concern or problem, preliminary investigation, planning action, implementing action, data collection and analysis, revised plan, reflection and dissemination.<sup>12</sup> **Figure 2** provides details of each step of the research process.





Figure 2 Participatory action research process (modified from Street, 1995)

#### **Participants**

This PAR study consisted of nine key participants or the PAR team, including a medical staff who is an expert in cardiovascular diseases, a head nurse, a clinical nurse instructor, a registered nurse with specialization in cardiovascular diseases, one general registered nurse, a technical nurse, a home health care nurse, a pharmacist, a dietitian and 15 patients with myocardial infarction participating in the study. The sample selection was based on a mixed group of multidisciplinary team who have been working in the designated unit and had experiences in caring or treating patients with myocardial infarction for more than five years.

#### **Research setting**

The study was conducted at a male medical unit of a tertiary care hospital, one of the largest hospital in the central north of Thailand, where many MI patients had been residing while previous incidences in this hospital revealed that most of the

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patients with MI were male. This unit consisted of 42 patients being admitted for medical treatment. In general, these patients received hospital care from medical and nursing staff in the unit according to their health problems and needs. Other health care professionals might be consulted to assist the patients in this unit on additional health problems or issues. On the whole, registered nurses were the persons taking the role of care providers and educators for patients in the unit.

#### Protection of human subjects

The research proposal was approved by Mahidol University and the Hospital Ethics Committee on Human Rights related to Research. The potential key participants in the designated unit were contacted to ask for voluntary participation in this research study. Informed consents were received from the participants who had agreed to participate in this study. The research purposes and processes were explained to the participants, whereas confidentiality of the data were maintained.

#### **Data collection**

The data collection strategies used in this study included participant observations, interviews, and collection of other records and documents that were pertinent to the study. Data were collected from July 2003 to September 2004 in a designated medical unit for three phases: Preparation, plan and implementation, and evaluation by using a PAR cycle. During the data collection process, there were ten meetings conducted to have all key participants attended and discussed together. In each meeting, focus group interviews were conducted to gain information about the development of the nursing case management model, along with strategies and barriers to this development. Participant observations were also conducted throughout these three phases to obtain detailed information of care delivery and nursing practice related to patients with MI. A tape recorder was used to gather the data during the interviews in this study. Data collected were transcribed and analyzed simultaneously with the data analysis process. In addition, field notes and diary were recorded during each phase of data collection to describe the process of nursing case management model development and to reflect on issues surrounding the process of this development.

#### Data analysis

The data were analyzed both in quantitative and qualitative ways. This included the descriptive analysis by using frequency and percentage in the quantitative data. In the qualitative data, coding of the data while grouping similar codes into categories were performed, and then categories were compared and clustered till cultural concepts or themes emerged.

#### Results

The results of this study were presented in four parts: The first part described the demographic data of key participants. The second was the development of a nursing case management model by using participatory action research. The third one revealed issues surrounding the development of this model including barriers and strategies for further application of the model. The last one reported the outcomes of the use of this nursing case management model.

#### Demographic data of key participants

The key participants consisted of a medical staff, a head nurse, a clinical nurse instructor, a registered nurse with specialization in cardiovascular diseases, one general registered nurse, a technical nurse, a home health care nurse, a pharmacist, and a dietitian. Most of the participants were female, except for the doctor, aged 36-40 years old on average. On average, the participants had held bachelor degree in their own disciplines, while two registered nurses had had a master degree and the technical nurse held a diploma in nursing. The

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duration of work experiences of these participants ranged from 10-27 years. All nurses, except the head nurses and clinical instructors, were required to work on a roster basis. Other disciplines work during day time most, although the doctor could be consulted after office hours depending on the job allocation within the medical department.

The demographic data of patients were male, aged 50-60 years old on average. Their incomes were mostly less than 15,000 bahts per month, and almost all of them were on a 30-baht scheme for health care reimbursement.

## The development of a nursing case management model

The nursing case management model emerged from the development in this study was characterized by a patient-centered approach, governed by several stakeholders including a nurse case manager, other health care providers, and payers. Multidisciplinary care plan or the so-called 'clinical pathway' was seen as a tool for effective communication and collaboration, while the nurse case manager was the person acting as a coordinator of care management with all stakeholders, including health care professionals, patients and families (see **Figure 3**).



Figure 3 A Model of Nursing Case Management for Patients with MI

Overall, the model in this study was similar to the characteristics of primary nurse case management in the western context, where a nurse case manager worked as a primary nurse for patients with MI.<sup>1</sup> In addition to provide some direct care for these patients, the nurse case manager had to manage care of this specific group of patients from admission till discharge to ensure that the patients received good quality of services and also effective discharge planning was provided. This model thus put a great emphasis on continuity of care and also collaboration among multidisciplinary team.

However, there were some differences of this model in that of the western one. These included the policy and also job position of a nurse case manager in the organization structure, which was not officially established in the research setting. It was therefore challenging for nursing staff in this setting to start develop a job description for nursing position in a care managerial way. Generally, in Thailand, nurses are classified according to a hospital hierarchical structure where a head nurse is usually a person managing collaborative care for patients in his or her unit. This new model thus put forward the position of registered nurses at a practice level to advance their roles and responsibilities to improve outcomes of care for their patients.

## Process of the nursing case management model development

There were three phases in the process of nursing case management development. These were: preparation phase, action phase, and evaluation phase. In each phase, the researcher used PAR processes including assessing, planning,<sup>1</sup> implementing, reflecting, and re-planning continually on its spiral characteristics until the model was developed, implemented, and evaluated.

#### **Preparation Phase**

In the preparation phase, the key participants joined together as a patient care team (PCT) to examine existing problems in the previous service delivery for patients with MI. Such problems included fragmentation of care between health care providers, a lack of patient-centered approach especially their involvement in the care plan development, a limitation of appropriate health care resources to provide effective transitional care for MI patients such as intensive care or home care services. There were also discrepancies in staff's knowledge and understanding about best practice in managing care for patients with MI, especially among paramedical team. As a result, the participants agreed to work together to create changes in the service delivery for this group of patients. The initial work also included a set up of the patient care team or in this study the 'PAR team' for MI patients, a provision of staff's knowledge and understanding of MI patients, and finally a provision of knowledge of the concepts of PAR and nursing case management.

During this preparation phase, the researcher interacted in the PAR process as a catalyst of the patient care team by reflecting important questions and issues surrounding the development of nursing case management that fitted well with the structure and problems being identified at this hospital. The team was unsure of how to start with it initially, however with a group process and action learning strategies they all agreed to begin this process by setting up the objectives and action plan for this model development.

#### **Planning and Implementation Phase**

During the planning and implementation phase, the researcher began to interact further with the PAR team by facilitating on setting up a case management plan, and on implementing the tentative case management model. This phase consisted of 5 steps as follows:

1. Creating a Collaborative Care Plan The collaborative care plan called clinical pathway was created, shaped, and re-shaped by the PAR team until it was satisfied with the team. This was the first initiative for the multidisciplinary team in this hospital to find a strategy to overcome the fragmentation of care among different disciplines together.

In creating the clinical pathway, all the team were responsible in finding best practice from literature in their own disciplines with regard to caring for patients with MI, and brought it together to discuss and revise this pathway.

2. Creating a Job Allocation While the previous job allocation focused largely on doctor's assessment and investigation, this new allocation posed roles and responsibilities for all health care team involved in assessing and communicating what they had assessed and planned for patients to one another.

3. Creating a Guideline Along with the new job allocation, the key participants started to develop a patient guideline and manual for use specifically for patients with MI. This guideline and manual was reviewed for best practice regularly so as to update the standard of care for MI patients.

4. Creating Roles of Nurse Case Manager While developing the guideline and tools for use in patients with MI, the key participants also discussed about the roles of nurse case manager for this case type. This was important for the health care team as many staffs, both nurses and allied health providers, were unsure of the position of a nurse case manager. From this concern, the key participants reflected on the need for an establishment of a clear role of a nurse case manager. It was obvious that a nurse case manager in this study needed to provide both direct care and manager's role in the ward setting.

5. Developing a tentative care delivery model The PAR team developed a tentative model of nursing case management, and piloted it for use

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with five MI patients. Following this, there were changes in some aspects of the clinical pathway and the strategies to increase continuity of care for patients.

After all changes and modification were completed, the model was used with fifteen patients with MI, and all outcomes were recorded and monitored. While the clinical pathways was used by PCT, the nurse case manager followed the ongoing activities of care and interacted closely between the patients and the health care team. This phase was conducted continually, with an attempt of the PAR team to extend their model to connect with other units in the hospital, such as the emergency room.

Although, this extension was beyond the scope of this research study, it reflected the ongoing progress of the study and the commitment of the team to run this model to the best capacity. The researcher kept notes during this process in the diary so as to collect detailed information about these changes during this research process.

#### **Evaluation Phase**

In the evaluation, the researcher interacted with the PAR team as a viewer to see what had come out of this model development as well as the model. The PAR team collected all the variances and issues surrounding this collaborative practice in order to evaluate the outcomes of this change. In this process, the team used a peer review technique by having other health care members in addition to the PAR team to reflect on the outcome identified and sought suggestions and comments. There were positive outcomes emerging as evidence revealed both with the reduced readmission rate and length of stay for patients. Cost of care was also contained in comparison between actual fees and the DRG reimbursement.

In this final phase there were a number of changes occurring in the research setting, especially in relation to how health care disciplines worked together during and after the development of the model. For instance, each health care discipline happened to work more in a horizontal line of communication through a mediator or coordinator, that was a nurse case manager, and thus created more effective communication and cooperation. Other changes included the work pattern which happened more in a bottom-up management, along with a support of top-down management. This made staff more satisfied with their work, and hence enhance their performance and decision making processes.

Another important change was an increase in patient satisfaction for the care received as they got involved more and could be better informed of their care plan and discharge dates. In terms of payers, either patients themselves or the government in many cases, the outcomes in this study revealed that health care expenditures that were used in this group of patients with MI under the study were under the cost weighed by the DRG system. In this situation, the patients themselves could pay on average of the cost of care for MI patients, and at a small scale the hospital could gain a benefit of cost saving in these patients.

At a larger scale, the Thai government could also gain the benefit of effective cost management of health care budget, which was congruent with the current health care management and cost containment strategy in the country.

#### Factors affecting the model development

In this study, there were both positive and negative factors affecting the development of the NCM model. Positive factors included a supporting policy of the government towards improvement of quality of health care delivery services. For instance, there was a foundation of hospital accreditation system, support of the hospital management team for changes towards quality and cost issues, and most importantly, the commitment of the health care members to create changes for better services for patients.

Nevertheless, there were some negative factors that affected the development of this model especially during the first phase of this study. These included resistance of some staff for changes, the workload and turnover rate of staff in hospitals, and also an issue of some problems from external environment, such as an epidemic of Norwegian scabies, that had affected the progress of this development as the health care team had to delay the process of developing the model and paid more attention to intervening with this epidemic. These negative factors or issues were finally overcomed by good communication and management of all stakeholders, especially by strengthening the philosophy of the hospital to provide a good service for patients.

### The outcomes of implementing nursing case management model

The outcomes of implementing the nursing care management model included the patient, staff, and organization outcomes. These outcomes put an impact on both quality and cost issues related to caring for patients in this group.

#### **Patient Outcomes**

Patient outcomes in this study were measured through both patient satisfaction and their attitudes towards caring practices of the health care team within this new model of case management. On the whole, all patients participating in this research study were satisfied with the provision of care through nursing case management model. They provided some evidence of their satisfaction as follows.

Satisfaction from getting good attention and closer to staff

Satisfaction from receiving relevant and useful information

Feeling good with care given by health care providers and hospital

#### Staff outcomes

At a management level, the administrative staff were satisfied with an improvement of care delivery in the hospital. At an operational level, nursing and allied health staff were satisfied with this care delivery model. The following demonstrated how staff felt for this model development.

I think this model has helped the care team to have guidelines for patient care. Nurses also could have their performance improved with specific are for the specific group of patients. This can help improve quality of care for MI patients.

We now are happy with our work. We think this model makes us work more closely with patients and the health care team. We are happy because the patients are happy.

#### **Organizational outcomes**

Organizational outcomes were measured through the data related to readmission rate, length of stay, and cost of care. The results showed that a use of nursing case management model could decrease the length of stay (6.17 days in 2002 to 5.13 days in 2005), and the readmission rate from MI within 28 days post discharge during the research process was none (0%), while previously in 2002 the readmission rate was 27.6 percent. In relation to cost of care, the results revealed that the average health care expenditures of patients with MI in this hospital were within the relative weight of the DRG classification in 2005, whereas in 2004 and the years before the hospital lost the balance of payment for a group of MI patients. This showed that the hospital was able to contain cost of care for MI within the DRG scheme far better than a few years ago as a result of improvement in effective resource utilization among the participants.

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#### Discussion

The characteristics of a possible model of nursing case management in patients with MI. As described earlier, the NCM model being developed in this study was similar to the Primary Nurse Case Management Model (PNCMM) in the United States which focuses on achievement of clinical and financial outcomes within the designated interval, such as length of stay as designated by the DRG system, while nurses function in two major roles: care provision and management. Other models used in the US acute care settings, such as the leveled practice model, primary case management model, and integrated case management model, nurses do not focus on providing direct care to patients.<sup>1</sup> The Primary Nurse Case Management Model seems suitable for the current Thai hospital context, where Thai nurses who work at a practice level are mostly required to provide direct care for patients.

The process of the model development. The process of the development of a nursing case management model in patients with myocardial infarction comprised three stages: preparation, planning and implementation, and evaluation phase. The cyclical process of the PAR progressively helped the participants and PCT to move along with the continuous quality improvement (CQI) concepts, which was augmented in the health care practices in this setting.<sup>13</sup> This process was in congruence with that of Cohen and Cesta (2001), who put the emphasis on the development of case management steps by steps, using team building while integrating the PCT care plan, implementation, and evaluation.

The outcomes of the model. The findings demonstrated that both patients and health care providers were satisfied with the use of nursing case management model in this group of patients. These findings were similar to those of many authors who had developed case management models in their settings in overseas and Thailand.<sup>14-16</sup> After the use of this model, lengths of stay (LOS) and

readmission rates of MI patients were gradually reduced. The cost of care for these patients was also decreased due to the use of less bed days and unnecessary re-hospitalization. In addition, when compared the actual cost of care with that of the DRG payment, evidence showed that on average the money was spent on these MI patients less than the budget that the hospital had received from the government for monetary management with MI patients. The results in this present study were similar to the outcomes demonstrated in other settings where nursing case management has contributed to the cost reduction and effective bed management.<sup>17,18</sup>

The issues related to strategies and barriers that affected the research process. In this research study, there had been a few strategies for the accomplishment of the model development, including the support at a policy level and any a gap analysis of care delivery that demonstrated the need for change in the organization. These strategies were noted in other previous studies which had emphasized the significance of administrative support and quality improvement in health care services.<sup>19</sup>

However, there were also some barriers toward the accomplishment of this model development. A lack of knowledge and understanding of the changing model of practice for MI patients and resistance from some health care personnel were seen as most influential to the cooperation of participants in the research process. After the participants were informed and educated about the case management concepts and models, they were better open to the change and got more involved. This example of staff resistance during the model development was similar to the findings of many previous studies<sup>20</sup> which reflected that successful collaborative work of patient care team would also depend on how a nurse case manager could gain consensus from various disciplines on the expected plan of care.

#### **Implications and recommendations**

The research findings suggest directions for applications in hospital settings, development of nurses' roles, continuous quality improvement and further research. For application in hospital settings, there were some critical strategies being used in this study that might be beneficial for the development of nursing case management in other settings such as strengthening of multidisciplinary teamwork, by means of a policy support or a top-down decision and cooperation, would be useful for a starting point in any other settings to gain collaborative practice and cooperation from them.

In nursing in particular, nurses had important roles in providing quality of care for patients from past to present. However, to provide best care it is not only nurses, but also requires other health care member's contribution. As a result, the role of a nurse case manager in coordinating care for patients would assist in enhancing good services through best practice and effective teamwork among the health care team. This was well in support of a requirement of advance nursing practice's roles of nurses in the present Thai health care system that requires efficient and advanced care management for patients. This efficiency and advancement reflected a need for both clinical nurses' competencies in caring for specific groups of patients as well as management competencies to make nurses become an effective change agent in health care services. The spiral processes of this research method contributed largely to the continuous quality improvement in nursing practice.

Finally further research studies could be extended to other groups of patients, such as diabetes mellitus or those that require effective care management. They may also include other research methods, such as a quasi-experimental study to compare the effectiveness of the nursing case management model and other care delivery models in patients with myocardial infarction.

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#### References

- 1. Merrill J. Defining case management. Business and Health.1985; 3(4): 5-9.
- Tahan HA. Clarifying case management: what is in a babel? Nursing Case Management. 1999; 4(6): 268-78.
- Sirinakorn R, Thana P. Case Management. Bangkok: J.S., 1999.
- Boontong,T. Hanuchavurnkul S. Sindhu S. et al. Nursing reform in accordance with health care reform for the future Bangkok: Siriyod Co, 1999.
- Zander K. Nursing care management in the 21<sup>st</sup> century: intervening where margin meets mission. Nursing Administration Quarterly. 2002; 26(5): 58-67.
- Lamb GS. Case management. Annual Review of Nursing Research. 1995; 13: 117-136.
- Smith JE. Case management: a literature review. CJONA. 1998; May-June: 93-109.
- Newell M. Using nursing case management to improve health outcomes. Maryland: Aspen publication; 1996.
- 9. Powell, SK, Ignatavicius, D. Core curriculerm for case management. Philadelphia: Lippincott, 2001.
- Rossi, P. Case management in healthcare: A practical guide. Philadelphia: W.B. Saunders, 1999.
- Frink BB, Strassner L. Handbook of nursing case management. California: Mosby-year book, 1996.
- Street A. Nursing replay: Researching nursing culture together. Melbourne: Churchill Livingstone, 1995.
- Morton-Cooper A. Action research in health care. London: Blackwell Science, 2000.
- Acuna J. Case management: it's a team effort: when creating a collaborative relationship, physician buy-in is essential. Care Management. 2002; 8(5):36-9.
- 15. Khupimy S. Effects of case management in mechanically-ventilated patients on mechanicallyventilated days, cost, complications, and staff satisfaction. Bangkok: Chulalongkorn Univ, 2003.
- Sornchai J. Effects of case management on teamwork of health team, health care cost and length of stay. Bangkok: Chulalongkorn Univ, 2000.
- 17. Powell SK. Advanced case management outcomes and beyond. Philadelphia: Lippincott, 2000.
- Wanda AL. Nurse case managers in rural hospitals. JONA. 1999; 29(2): 42-9.
- Smith AP. Leadership roundtable case management: key to access, quality, and financial success. Nursing Economics. 2003, 21(5): 237-40.
- Attharos T. Development of a family centered care model the children with a pediatric cancer unit. Bangkok: Mahidol University, 2003.

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### การพัฒนารูปแบบการจัดการรายกรณีทางการพยาบาลในผู้ป่วย กล้ามเนื้อหัวใจตาย\*

ราศรี ลีนะกุล, ทัศนา บุญทอง, กอบกุล พันธ์เจริญวรกุล, วันเพ็ญ พิชิตพรชัย

**บทคัดย่อ:** ระบบบริการสุขภาพในปัจจุบัน มุ่งเน้นการพัฒนาคุณภาพบริการที่ดี และการควบคุมค่าใช้จ่าย ที่มีประสิทธิภาพ การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อพัฒนารูปแบบการจัดการรายกรณีทางการพยาบาล สำหรับผู้ป่วยกล้ามเนื้อหัวใจตาย โดยมีพยาบาลเป็นผู้จัดการการดูแล ทำหน้าที่ประสานงานกับสหสาขา วิชาชีพในการวางแผน การดูแลผู้ป่วย และการบริหารจัดการค่าใช้จ่ายบริการสุขภาพอย่างเหมาะสม ระเบียบ วิธีวิจัยที่ใช้ คือ การวิจัยเชิงปฏิบัติการแบบมีส่วนร่วม ข้อมูลหลักได้จากการสัมภาษณ์ สังเกต และการ ศึกษาเอกสารที่เกี่ยวข้องในการพัฒนารูปแบบ รวมทั้งแบบบันทึกข้อมูลผลลัพธ์ที่เกิดขึ้น

ผลการศึกษา พบว่า รูปแบบการจัดการรายกรณีในผู้ป่วยกล้ามเนื้อหัวใจตาย เป็นรูปแบบที่ อาศัยความร่วมมือระหว่างผู้เกี่ยวข้อง 3 ฝ่าย คือ พยาบาลผู้จัดการการดูแล ทีมผู้ให้บริการ และผู้จ่ายเงิน ในระบบบริการสุขภาพ โดยมีผู้ป่วยเป็นศูนย์กลาง และใช้แบบแผนการดูแลที่สร้างร่วมกันระหว่างสหสาขา วิชาชีพเป็นเครื่องมือในการวางแผน ปฏิบัติ และประเมินผลการดูแล กระบวนการในการพัฒนารูปแบบดัง กล่าวประกอบด้วยการศึกษาปัญหาสถานการณ์ร่วมกับการวางแผนแก้ไขปัญหา โดยมีคณะกรรมการรับผิด ชอบ ลงมือปฏิบัติ พร้อมกับสะท้อนคิดปัญหาและแนวทางแก้ไขอย่างเป็นระบบต่อเนื่อง ในรูปแบบดังกล่าว พยาบาลผู้จัดการมีความสำคัญ ในการช่วยให้ การประสานงานการดูแลเกิดขึ้นอย่างเป็นรูปธรรมและมี ประสิทธิภาพ ก่อให้เกิดความพึงพอใจทั้งผู้ป่วยและทีมผู้ให้บริการ รวมทั้งผลลัพธ์ที่ดีของการบริการ ได้แก่ การลดจำนวนวันนอนในโรงพยาบาล อัตราการกลับมารักษาซ้ำ และค่าใช้จ่ายในโรงพยาบาล

จากผลการวิจัย ผู้วิจัยเสนอแนะว่า พยาบาลมีบทบาทสำคัญในการเป็นผู้ประสานงานหลักเพื่อ การวางแผน การดูแลผู้ป่วยร่วมกับสหสาขาวิชาชีพ โดยอาศัยความรู้เชิงประจักษ์ที่เกี่ยวข้องกับการดูแล ผู้ป่วยเฉพาะทาง และทักษะการสื่อสารที่มีประสิทธิภาพระหว่างทีมผู้ให้บริการและผู้ป่วย กระบวนการใน การพัฒนารูปแบบการจัดการรายกรณีครั้งนี้ สามารถใช้เป็นแนวทางในการพัฒนาคุณภาพการดูแลผู้ป่วย กลุ่มอื่นๆ เพื่อให้เกิดคุณภาพการดูแลที่ดี และการควบคุมค่าใช้จ่ายบริการที่เหมาะสมต่อไป

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> \*ดุษฎีนิพนธ์ หลักสูตรพยาบาลศาสตร์ดุษฎีบัณฑิต บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล ประเทศไทย ราศรี ลีนะกุล, R.N. DNS. Candidate คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล ประเทศไทย ทัศนา บุญทอง R.N., Ed.D. รองศาสตราจารย์ สภาการพยาบาล กระทรวงสาธารณสุข นนทบุรี ประเทศไทย กอบกุล พันธ์เจริญวรกุล R.N., Ph.D. รองศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล ประเทศไทย วันเพ็ญ พิชิตพรชัย R.N., Ph.D. อาจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล ประเทศไทย

#### Suksiri Prasomsuk et al.

### Problem of Caring for Thalassemic Children in Thailand: A Study of mother's experiences in Udornthani Province

Suksiri Prasomsuk, Arunee Jetsrisuparp, Jonathan Silcox

**Abstract:** Thalassemic patients must be given continuous treatment and be taken care of by their mothers throughout their lives. As a result, this disorder has continuous physical and psychological effects on both Thalassemic children and their mothers. Very limited research has been done so far regarding the mother's experiences of caring for their thalassemic children. This qualitative study was to explore 15 mothers' experiences by semi-structured interviews and the data was analyzed by utilizing content analysis. Six categories of mothers' experiences were included in the study: The mothers' lack of knowledge about thalassemia, psychosocial problems, concerns for the future, social support systems, financial difficulties, and the effectiveness of health care services. These findings presented the mothers experience with thalassemic children, and suggested that a holistic nursing care approach should be considered when caring for thalassemic children.

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Key words: Thalassemia, mothers, experience

#### Introduction

Thalassemia, a genetic disease, is a major health problem in Southeast Asia, especially Northeast Thailand. Approximately 1% of the Thai population have thalassemia. Thailand has 600,000 cases of thalassemia and about 40% of the population are carriers. These people have the potential for transmitting thalassemia.<sup>1,2</sup>

Thalassemic patients must be cared for continuously throughout their lives. In addition, they also need help from their mothers. The clinical manifestations of the condition depend on its severity, the patients usually present aneamia, fatigue, weakness, exhaustion, and cannot do physically demanding tasks. There are indication of abnormality in the face and nose, an enlarged liver and spleen, abdominal dropsy, disstep heart beat or heart failure, infections, and a short life span in sufferers.<sup>3,4,5</sup> Moreover, the disease affects patients and mothers psychologically, for instance, a feeling of unacceptance, loss, grief and brame.<sup>6,7,8,9</sup> Furthermore, the impact of the sickness results in changes in the childrens' appearances. Children will be stunted and pale and will have thalassemic facies. For the parents, the Thalassemic characteristic shown in their children is a constant reminder of their failure to give birth to a normal child. Due to

Suksiri Prasomsuk MSc., RN., Ph.D. Candidate, Faculty of Public Health, Khon Kaen University, Thailand, Lecturer, Faculty of Nursing, Siam University, Bangkok, Thailand

Arunee Jetsrisuparp M.D., Associate Professor, Department of Pediatric,Faculty of Medicine,Khon Kaen University,Thailand

Jonathan Silcox Dip TEFL, BSc., International Department, Siam University, Bangkok, Thailand

these factors, many parents are stressful because of their child's sickness. Literature reviews and empirical findings in western countries indicate that the thalassemia major candition as a chronic illness brings negative impacts on the quality of life of the mother with thalassemic child.<sup>3,10,11</sup> Additionally, many empirical findings have shown that Thai mothers sometimes may be overprotective, overindulgent or overconcerned in regard to their children. This results in a stunted process of self-development in the thalassemic child. The emotional strain on Thai mothers is even greater when they lack knowledge about the disease and support from their society.<sup>12,13</sup> This paper shows the results of studies about the experiences and problems of mothers in caring for their children with a chronic illness in the community.

#### Purpose of the study

The purpose of this study was to explore mothers' experiences in caring for thalassemic children in order to; (a) understand and represent the mothers' beliefs and attitudes about their child's illness, (b) explore mothers'feelings and problems about the day-to-day care of the child, (c) make recommendations for in-service education of nurses and mothers about the condition.

#### Design

A qualitative exploratory design was used in this study to understand more about the experiences of these mothers in caring for thalassemic children, how they think and feel about their lives, how they perceive thalassemia major and its impact on caring for their children. This study adopted qualitative method because "qualitative research is especially useful where little known about the area of study and the particular problem, setting or situation, because the research can reveal processes that go beyond surface appearances."<sup>14,15</sup>

#### **Participants**

The study participants consisted of fifteen mothers with children who had hemoglobin(Hb) Eβ-thalasemia major. All of the mothers were married. Their ages were from 24 to 47 years old, with a mean age of 35 years old. The participants included 12 housewives and 3 full-time employees. The age of their children when diagnosed ranged from 2-10 years. The inclusion criteria included a mother whose age ranged from 25-50 years and had taken care of their child with Hb E\beta-thalassemia major for at least one year. An in-depth interview was employed to collect data. Before the interview, all mothers signed a consent form. All mothers were the primary caregivers of the children. They also had experiences in thalassemia management for more than 1 year. Their educational ranged from elementary level to secondary school level (14 elementary, 1 secondary). The ages of their children when diagnosed ranged from 2 to 10 years. The children who were diagnosed by Hb typing as having Hb Eβthalassemia major condition had received blood transfusion therapy at the study site.

#### Setting

In-depth interviews took place in a comfortable setting chosen by the participants. All participants preferred to come for the interviews in the pediatric ward at the Udornthani Center hospital, in northeastern Thailand.

#### **Data Collection**

#### **Data Collection Tools**

The researcher was the research instrument of data collection and conducted the in-depth interviews. The tools used for data collection in this study included a cassette recorder and a set of interview guidelines. The interview guidelines comprised of a number of open-ended questions and they were developed based on a literature review and critical review of the condition conducted prior to the study.

#### **Data Collection Procedures**

Ethical approval of this study was obtained from the ethics committee of the Faculty of Medicine, Khon Kaen University. Data collection was guided by the processes specific to the qualitative method.<sup>16</sup> An interview guide was developed. After the pilot interviews, questions were revised. The areas covered in the interview guide included: a) questions about the or mothers' experiences first experience in taking care of the child who had been diagnosed with HbE Beta-thalassemia major, b) the mother's feeling regarding caring for the thalassemic child, c) information relevant to the disease the mothers received, d) how helpful this informations was, e) children caring's experience since the child's diagnosis and f) problems in caring for thalassemic children. A phenomenological approach using semi-structured conversational interviews was used with the aim of enabling participants to voice out their own experiences.<sup>17</sup> In each interview, permission was given to record, transcribe and translate. A code was given to preserve the anonymity of the participants. Every transcript was read line by line and summarized by the researcher in order to obtain a complete view of the interview and identify the topics discussed. Methodological rigor was ensured by double checking by the researcher, independent text coding and triangulation of the data analysis.<sup>18</sup>

#### Data analysis

A process of interpretative phenomenological analysis refined the raw data (completing data collection, tape recording, field note taking, recording of all evidence of feelings, emotions and facial expressions). The data processing methods were used interview transcription, data grouping, key words linkage and identification, and summary.<sup>18</sup> The significant statements that were relevant to the mothers' experiences were extracted from each individual transcrip. These themes served as a basis for defining categories.

#### Findings

The results of the analysis were identified as six core themes encountered by mothers with their children. All participants agreed that Hb E $\beta$ -thalassemia major affected their lives significantly. The six themes identified were a lack of knowledge about thalassemia, psychosocial problems that the mothers experiences, financial difficulties faced by the mothers, concerns for the future, social support systems and the effectiveness of health care services.

#### Theme I: Lack of knowledge about thalassemia

Although most participants reported that they had been given information about thalassemia by the nurses, it seemed that they still had insufficient knowledge about the occurrence of thalassemia, its genetic component and the intricacies of care for a child with thalassemia. Most mothers had no idea what thalassemia was. They revealed a lack of knowledge about thalassemia and its complications. After the mothers were examined and were diagnosed as thalassemic carriers, the mothers were referred to genetic counseling at the clinic. However, the appointments were usually made nearly a month after the child's birth. One mother expressed that:

I needed to know why thalassemia was not the same for every child, there were several kinds. I did not really understand.

Another mother said that she knew nothing about how thalassemia occurred. She expressed that:

Sometimes I thought about the cause of this disease. When my child was practicing crawling, he fell from a high place. His eyes swelled. So we took him to the doctor and he gave us some medicine. After the swelling got better, his body was still so yellow that people started to ask if I put curcuma on his body.

Another mother also showed her uncertainty about causes of the disease and said:

He wasn't like this [thalassemic symptoms] when he was first born. He was a healthy child. But he fell from a high place. Now he's like this. People asked me why he's like this. Some asked if it was genetic and I said yes.

Some mothers expressed confusion on their understanding of genetic knowledge of thalassemia. Most had an inadequate understanding about the genetic component. One mother said:

I didn't even understand it at that time. I went to check my blood rate with some friends and I got a twelve. The doctor said it's all right. But others weren't like this. They got 11,10, or 9. So I thought if my husband doesn't have it, the child won't get it either. Is there a way to cure it, Doctor?

At another interview she expressed her thought again:

This shouldn't have happened to my son. I never thought it would. It is because we didn't know that it's genetic. I knew my nephew has it but never imagined that my son would get it too.

#### Theme II: Psychosocial problems

As the caregivers to children with thalassemia, the mothers were asked to describe the feelings they experienced specific to their role. Worries of various kinds of permeated the interviews. There is evidence that the high clinical burden associated with regular treatment for a chronic disease is associated with a high psychosocial burden for the patients and the families.<sup>3,9,19</sup> The worries described by the mothers in the study portrayed people engulfed by the problems associated with chronically ill children. The mothers'problems included: the child's appearance, education and difficulties the need for extended treatment including splenectomy and repeated blood transfusions. Many of these feelings were also evident throughout the interview process as the mothers shared their experiences. The following extracts are from the interview, they elucidate how mothers felt about their children's illness.

His bad health is torturing him. He's in pain. He gets tired very easily, not like other normal children. But sometimes he wants to go to play like other children. Sometimes I let him go to play and then he gets a fever.

I'm afraid he'll faint while playing. But it's never actually happened. He tends to turn pale though. He gets very tired.

The mothers also identified the effect of the illness on their children's school attendance. Their statements related to the learning problems of their children.

He's usually like this. He has a fever for 2-3 days. If it stops for a couple of days, I will let him go to school.But when the fever stops, he gets a cold. At the end, he can't go to school. The teacher said if this continues, he won't be able to take exams with his friends. My son wants to sit for the exams but he cannot because he's not in good health.

It's not good that he has this disease. He's not good in school. He can't read so well. He's slowly developing. I don't know how much he can learn in school. He cannot eat much. I'm afraid there will be some side effects. I feel so sorry for him. He can't concentrate in school. He goes to school only 2-3 days a week. This is why he's leading a difficult life.

The majority of mothers also worried about the possibility that their children may need a splenectomy in the future. They wanted to know

whether their children would be healthy and they would grow as tall as the other children after the operation. One mother expressed her feeling about these issues.

I feel very bad about all this. I wonder why he's getting his blood tested more often now. Last month I asked the doctor whether they will give him surgery or not. He said now it's not the time to do it. He asked if I would be able to accept the fact that surgery will not make things any better. Besides, surgery is painful. My nephew who lives near here had surgery before and after that he got sick very easily. Two or three months ago he couldn't even walk, even though he had had surgery already. The doctor said that he already told the mother that surgery might not help. So I thought about whether I should let them operate on my child. My husband said we shouldn't. So, Doctor, surgery won't help at all right? If he doesn't get surgery, the doctor advises that he shouldn't work so hard. And that he will get more blood transfusions.

I heard that if they cut his spleen, his health woud not be in good condition but If his stomach swelled he would feel uncomfortable and not be able to eat much. I think it'd be better if they took it out.

Some of the mothers expressed their worries about their children's monthly blood transfusions. One mother said:

This is what I'm worried about. At first, he'd get a blood transfusion every 3-4 months. Then he got one every other month. But now, he has to get one every month. This is the second year that he has had to get a blood transfusion every month.

Why does he have to get a blood transfusion every month? Before, a person with the blood examination result of 21-22 must get a transfusion. But now, even a result of 27, still needs a blood transfusion.

The mother worried about their children's frequent blood transfusions and behavioral changes. One mother said:

From my experience, whenever he gets a blood transfusion, his behavior changes. He becomes aggressive. This depends on whose blood he got. I feel so sorry for my son.

#### Theme III: Concerns for the future

This refers to the mothers' concerns about their children's present status and their future. The major concern was the need of their children to be strong and healthy. The treatment of thalassemia is very strenuous and it causes suffering for both parents and children throughout the child's life. They also talked about their hopes for new treatments and the possibility of having healthy children in the future: My hope is for him to heal and grow up to be strong and healthy. I want him to receive higher education so he can help himself in the future.

I know it cannot be cured but I do want him to get better. I want him to receive higher education so he can have a physically unstrenuous job. You cannot work in a physically strenous job with this disease.

They were concerned about the uncertainty of the future for their children. A mother of a 10-yearold boy stated :

The doctor advised us not to have any more children. I know of a couple who lives nearby that has 5 children, but only one of them has thalassemia. This is a big risk since it cannot be cured. That's what the doctor told us. He also said the people with this disease cannot live a long life. I discussed this with my husband and decided to take the risk. We have a daughter. After that we heard there was a pregnancy test you can check while you are pregnant. But at that time I didn't get mine checked.

When asked about their future plans, all participants felt strongly the need for prevention of this disease. They were hopeless for their healthy children in the future. They did not want other families to face thalassemic problem like they had:

I do not want other people to have this disease. I want to stop it here. Everyone loves their children. Nobody wants their child to have Thalassemia. I want the doctor to explain to people how to prevent it.

I feel tired and my heart feels tired too. I know my child has to live with it. But it's alright. I just don't want it to occur to other people. I want to stop it here. Now we are keeping an eye on our daughter.

I want his health to be better. I want him to be with us for as long as he can. I want him to marry and be optimistic.

#### Theme IV: Social support systems

Social support is also an important component, especially psychosocial support. Respect for the individual and kind words are the basis for this support. It is important to feel this kind of support in the community. As one mother said:

I want him to have the confidence to fight it. I don't know what to say to him. I do not want him to be like this. The hardest part is that whenever there are activities in class, he cannot participate with his friends. He's not strong enough for sports. He can't play games that require too much strength. I want him to participate but he can not. This makes me unhappy.

Neighbors and friends, are an intregral part of the social support system in the community. They play an important role in sharing information and experiences about care and home remedies, and also as a layman referral system. Information about alternative therapeutic options is passed on through them. Hence, community members act as a major source of folk remedies.

His teachers do not forbid him playing with his friends. I told him he could play. He likes football. He's happy just to give drinking water to his friends. Now I tell him not to play. He should work instead. I tell him to fix my motorcycle. I take him for special classes at the Vocational College. He goes there every weekend. I let him use his sports time for working instead. This way he won't use so much energy. I think he's happier now that he gets to help fix the motorcycle. He won't have time to think much about his condition when he is busy.

#### Theme V: Financial difficulties

Financial difficulties, due to loss of income and increased expenses related to treatment costs and transportation and living costs during their children's admission to the hospital were the main cause of financial burden for these mothers. Mother strain was the most important cause of emotional burdens. The burden became greater when the children became sick. One mother expressed:

Since I was the main income-earner of the family, when my child gets sick, I can't work, so there is no regular income for my family whereas there are regular expenses for private treatment fees and for our daughter's studies. My present aim is to find beneficial treatment and for my child to be treated as fast as possible in order for me to go back to work.

He has to go to the doctor's every month. Sometimes we do not have money. If we cannot borrow money, we cannot go to the hospital. If we do not go, he'll get a fever. It's not good for him. We cannot find money to take him to the doctor. We do not earn any salary. It's hard to get money from working on rice fields or by selling oxen.

Another mother expressed her feeling about transportation:

We worry about the money that we need to take him for treatment. Even though treatments are free of charge, we still have to pay for transportation. We don't have money to go to the hospital. I don't want people asking our relatives about his conditions. Sometimes I'm afraid that they will give him injections. This is hard for the child.

Another mother also spoke about the cost of transportation:

The hardest part is the cost of transportation in getting here. And also, I have to miss work.

One mother mentioned the impact of care of her child during chelating agent therapy which takes place in the hospital:

One time, he had to get chemical therapy. We were at the hospital for many days. I had to stop work. It's hard to come once a month.

The other mother spoke of the emotional strain which affected her capacity to do daily work.

I cannot work as much now. My income is low. That's why it's harder for us that he's like this. I don't have a job. And my son has this disease. I have to bring him for blood transfusion quite often. And I have to leave work in order to take our child to the hospital.

Problems with finances are supported by the research institute in developing countries. Such an impact of financial problems is quite different in Thailand. A study conducted by Louthrenoo, and others revealed that, in Thailand, the parents of children with Thalassemia are mostly from lower socioeconomic backgrounds. In acknowledgement of this fact, the government of Thailand offers assistance in the form of the 30 baht health card scheme.<sup>5</sup>

## Theme VI: The effectiveness of health care services

Most participants use two types of government health service institutions: the provincial hospital and the community hospital. The respondents in this study expressed their feelings about health care services at the community hospital level, particularly in regards to blood transfusion therapy. They reported that coming to the provincial hospital took time and was tiresome. They talked about the lack of quality of service. Some expressed feelings about the inappropriateness of health care services.

I have to meet the doctor at the provincial hospital every month, the doctor at the community hospital could not give my child blood transfusion. And also we can only use the golden health card for blood transfusions.

One mother in particular, complained about the services at the provincial hospital level. She spoke about the health services as follows:

They say now we have the thirty baht health card that you could use in the hospital to get yourself treated. If you have this card, you do not have to pay for treatment. Sometimes I bring him here to the clinic first. If we go to the hospital, it's a waste of time. It takes time for the doctors and nurses to prepare medicine for everyone at the hospital. Doctors know that this is Thalassemia but all they do is give us medicines and blood tests. There are too many procedures here at the hospital. After surgery, they give us medicine and blood tests. We think it is better to go to the local clinic than to the big hospital. It is a waste of time to go there.

It seemed that child care by health personal was inadequate at the provincial hospital level.

#### Discussion

Thalassemia is a chronic illness causing serious symptoms in children and a burden to mothers with the potential to impact profoundly on their quality of life. The present exploratory study focused on 15 mothers of children with thalassemia in northeastern Thailand. The main aim of the study was to elicit a series of individual accounts regarding the impact of thalassemia on their lives and to determine what common issues lay between these mothers and their life experiences they reported as affected. In this study, most of the mothers of the thalassemic children in Northeastern Thailand were of a low to middle socio-economic status with an elementary school education level. Thalassemia was a burden to the child and mother regarding his/her quality of life resulting in frequent absences from school, discomfort while receiving blood transfusions, physical limitations, and other complications resulting from the illness itself. The mothers also felt impacts on their economic status, occupation, time for parenting, and general functioning of the mother. The need for psychosocial support for these mothers is imperative and it is necessary to provide a more comprehensive management of the child with thalassemia that includes psychosocial support and economic support from self - help groups in their community.

One of the most important aspects of thalassemia with regards to the mother is a lack of knowledge about the condition, including understanding splenectomies, the occurrence of Thalassemia, genetic issues, and child rearing issues. Although they visit the doctor for blood transfusion therapy nearly every month, it seemed that the amount of information received from health personnel was inadequate and unclear to them in its applicability to real life situations. Therefore, the

mothers need to have a better understanding of thalassemia; its treatments and preventive strategies in order to become successful home caregivers. If these needs are not met, it causes a great deal of stress to most mothers. So most mothers had to develop their own strategies to fit in with their life style until they find other means of coping. These findings can help all health care providers better understand the process of how they should conduct thalassemic management from their own perspectives and to understand the other reasons that should guide its management. Whereas the method of providing the mothers with information about thalassemia should be adjusted relevant to the social context in each region, especially educational programs and decision making for their child's educational program. It may directly enhance a mothers sense of mastery and control over the condition through empowering these mothers.

On the other hand, this study also reveals that thalassemia causes psychosocial problems such as worry about body image, the illness itself and its treatment especially through splenectomy, blood transfusions, and also a concern for the future of their child's lives as a whole. These problems create an impact on their whole life experience. In striving for quality of life, these mothers took care of their child and themselves in the context of their culture and according to their values and beliefs. In addition, the influence of Thai culture especially Buddism which shows respect and concern for others was shown in the mother with thalassemic children. They wish other mothers will not face with the thalassemic problem that they faced. These findings are consistent with those of Tedsiri (1994). Therefore, a "family-based" approach should be considered in caring for these mothers because such as an approach values holistic health, well-being, and self-help groups. "Family-based" approaches recommended in the literature for chronic illness is a prefered method for helping mothers cope with the problem of taking care of thalassemic children. This involves meeting with both parents, following

up after diagnosis with all relevant family members and caregivers identified by the family, enquiring about their day-to-day management and emotional aspects, giving full medical information as required, and supplement it with written material for review.<sup>20</sup>

Some mothers reported their needs to get treatments and blood transfusions from private clinics, and this reflected their financial constraint in money and time. These kinds of experiences revealed that the health care system in Thailand did not provide the same standard of care to people in rural areas. Community hospitals did not have certain drugs and blood transfusions equipment for the thalassemic children. The mothers wasted time and money for transportation to the provincial hospitals. Therefore, mothers of children with thalassemia in rural areas experienced difficulty in accessing quality health services.

#### **Implications for professional practice**

The first issue is generated from this study for professional practice is education. An accurate understanding of the experiences of each individual would help health professionals to think about teaching strategies and the nature of health education among the public

A second issue is psychosocial care. Effective psychosocial care requires recognition that each mother needs help to prevent or reduce psychosocial complications. In order to achieve this, health professionals should educate and inform the mothers clearly about thalassemia.

The third issue is to enhance mother support services by establishing community support by organizing for housewife groups with thalassemic children. Sharing of information and brain storming activities during group meetings that often occurs in support groups, may also lead to a greater sense of empowerment for mothers.<sup>21</sup> This will have the potential to enhance the use of cognitive coping strategies, to the extent that they may reduce stress enough to allow mothers to engage in calm reflection of their immidiate needs. The fourth issue is the recommendation for a Thai national thalassemic policy plan. This policy plan should be provided to health personel involved in thalassemia services in rural hospitals. Genetic counselors should be trained by qualified personnel and standard guidelines should be established for the whole country.<sup>22</sup> Thalassemia support groups should be officially established in regional hospitals and also in rural hospitals for the psychological support and emotional support for thalassemic children and their mothers, other than the basic knowledge on Thalassemia.

#### Limitations

This study utilized a purposeful sample of fifteen mothers with thalassemic children. All 15 participants have children who received blood transfusion therapy at the study site. The risk of bias is minimal in that the phenomena investigated were fairly homogeneous.<sup>23</sup> Three mothers with thalassemic children were receiving concurrent chelation therapy for high ferritin concentrations at the time of this study. Chelation therapy is long-term treatment, and compliance is challenging.

Generalizability to the overall population of mother of thalassemic children undergoing blood transfusion therapy in Thailand is limited by the participants' demographics and the study setting. Additionally, the interviews for this study were conducted during the time their children were receiving blood transfusions, and all mothers received compensation in the form of a gift certifigate for study participation.

#### **Future Directions**

The mother's point of view regarding her experience has not been previously explored in the thalassemic populations. The issue to address is a suggestion for further research. Other researchers should continue to define the social concepts in real life situations from different social contexts in each region in Thailand.

#### Problem of Caring for Thalassemic Children in Thailand

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#### References

- Fucharoen S, Winichagoon P, Thong V, Siriboon W, Siritanarakul N, Kanokpongsaki S. Prenatal diagnosis of thalassemia and hemoglobinopathies in Thailand: experimence from 100 pregnancies. Southeast Asian J Trop Med Public Health. 1991; 22(1):16-29.
- Panich V, Pornpatkul M, Sriroongrueng W. The problem of thalassemia in Thailand. Southeast Asian J Trop Med Public Health. 1992; 23:(Suppl 1),1-6.
- Goldbeck L, Baving A, Kohne E. Psychosocial aspects of beta-thalassemia: distress, coping and adherence. Klin Padiatr. 2000; 212(5): 254-259.
- Anie KA, Massaglia P. 2001. Psychological therapies for thalassaemia. Cochrane Database Syst Rev. 2001; 3: CD002890.
- Louthrenoo O, Sittipreechacharn S, Thanarattanakorn P, Sanguansermsri T. 2000. Psychosocial problems in children with thalassemia and their siblings. J Med Assoc Thai. 2000;85(8): 881-885.
- Tsiantis J, Xypolita-Tsantili D, Papadakou-Lagoyianni S. Family reactions and their management in a parents group with beta-thalassaemia. Arch Dis Child. 1982; 57(11): 860-863.
- Nash KB. A psychosocial perspective: Growing up with thalassemia, a chronic disorder. Ann N Y Acad Sci. 1990;612: 442-450.
- Aydin B, Yaprak I, Akarsu D, Okten N, Ulgen M. Psychosocial aspects and psychiatric disorders in children with thalassemia major. Acta Paediatr Jpn. 1997;39(3): 354-357.
- Politis C. The psychosocial impact of chronic illness. Ann N Y Acad Sci. 1998; 850: 349-354.
- Caro JJ, Ward A, Green TC, Huybrechts K, Arana A, Wait S, Eleftheriou A. Impact of Thalassemia major on Patients and Their Families. Acta Haemato. 2002; 107:150-157.

- Zahed L, Mourad FH, Alameddine R, Aoun S, Koussa S, Taher A. Effect of oral iron chelation therapy with deferiprone (L1) on the psycho-social status of thalassaemia patients. Haematologia (Budap). 2002;31(4):333-339.
- 12. Tedsiri C. Buddist and Psychological characteristics of parents as related to child care illness in Thalassemic children. Master of Science Thesis in Behavioral Science.Bangkok: Institute of Behavioral science Research, Srinakarin Taravirot University, 1994.
- Suwanpatikorn K. Family health promoting behavior scale: Development and Psychometric Analysis. Doctor of Public Health Thesis. Bangkok: Faculty of Graduate Studies, Mahidol University, 2001.
- Munhall P. Nursing research: A qualitative perspective (Publication 19, 2535, 2<sup>nd</sup> ed.). National League for Nursing Press, 1993.
- Holloway I, Wheeler S. Qualitative research for nueses. Oxford, UK: Blackwell Science,1996.
- Denzin NK, Lincoln Y, editors. Handbook of Qualitative Research. London:Sage,1994.
- Smith JA, Jarman M, Osborn M. Doing interpretive phenomenological analysis. In M, Murray, K, Chamberlain, Eds, pp. Qualitative Health Psychology: Theories and Methods London:Sage,1999.
- Strauss A, Corbin J. Basic of qualitative research: Techniques and procedures for developing grounded theory, 2<sup>nd</sup> ed., (pp.130).: Thousand Oaks, 1998.
- Ratip S, Modell B. Psychological and sociological aspects of thalassaemia. Seminars in Haematology. 1996; 33:53-65.
- Knafl K, Dietrick J. Conceptualizing family response to a child's chronic illness or disability. Family Relations. 1987; 36:300-304.
- Oster A. Keynote address, In national center for Clinical Infant Programs (Ed). Equals in this partnership: Parents disabled and at-risk infants and toddlers speak to Professionals (pp. 26-32). Washington, DC:National Center for Clinical Infant Programs, 1984.
- Dhamcharee V, Romynan O, Ninlagarn T. Genetic counseling for thalassemia in Thailand: Problems and solutions. Southeast Asian J Trop Med Public Health. 2001; 32(2): 413-418.
- 23. Polit D, Hungler B. Nursing research: Principles and methods. Philadelphia: Linnincott, 1995.

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### ปัญหาการดูแลเด็กป่วยโรคธาลัสซีเมียในประเทศไทย : กรณีศึกษา ประสบการณ์ของมารดาจังหวัดอุดรธานี

สุขศิริ ประสมสุข, อรุณี เจตศรีสุภาพ, โจนาธาน เซลค็อก

**บทคัดย่อ:** ผู้ป่วยที่เป็นโรคธาลัสซีเมียต้องได้รับการรักษาอย่างต่อเนื่องและได้รับการดูแลจากครอบครัว ตลอดชีวิตโรคธาลัสซีเมียทำให้เกิดปัญหาทางร่างกายแก่ผู้ป่วยทำให้เกิดปัญหาทางจิตใจ ปัญหาทางเศรษฐกิจ ทั้งแก่ผู้ป่วยและครอบครัว การวิจัยครั้งนี้เป็นการวิจัยเชิงคุณภาพมีวัตถุประสงค์เพื่อศึกษาปัญหาการดูแล เด็กป่วยด้วยโรคธาลัสซีเมียตามประสบการณ์ของมารดาที่มีบุตรเป็นโรคธาลัสซีเมียตามประสบการณ์จริง กลุ่มตัวอย่างประกอบด้วยมารดาที่มีบุตรเป็นโรคธาลัสซีเมียและพาบุตรมารับเลือดที่แผนกกุมารเวชกรรม จำนวน 15 คน เก็บรวบรวมข้อมูลโดยการสัมภาษณ์เชิงลึกและทำการวิเคราะห์ข้อมูลแบบวิเคราะห์เนื้อหา ผล การศึกษาพบว่าประเด็นหลักที่สะท้อนถึงปัญหาตามประสบการณ์ของมารดาประกอบด้วย 6 ประเด็นดังนี้ การขาดความรู้เรื่องโรคธาลัสซีเมีย ปัญหาด้านจิตใจและสังคม ปัญหาความลำบากด้านเศรษฐกิจ ความคาด หวังอนาคตของบุตร การสนับสนุนด้านสังคมและระบบการบริการสุขภาพผลจากการค้นพบครั้งนี้ได้ให้ ข้อมูลที่เป็นประโยชน์สำหรับบุคลากรด้านสุขภาพสามารถที่จะนำข้อความรู้ดังกล่าวไปวางแผนและให้ การดูแลแบบองค์รวมที่ตอบสนองตรงตามความต้องการของมารดาเหล่านี้ได้อย่างเหมาะสมต่อไป

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คำสำคัญ: ประสบการณ์ มารดา โรคธาลัสซีเมีย

สุขทิริ ประสมสุข MSc., RN., Ph.D. Candidate คณะสาธารณสุขศาสตร์ มหาวิทยาลัยขอนแก่น ประเทศไทย อรูณี เจตศรีสุภาพ MD. รองศาสตราจารย์ ภาควิชากุมารเวช ศาสตร์ คณะแพทยศาสตร์ มหาวิทยาลัยขอนแก่น ประเทศไทย โจนาธาน เซลล็อก Dip TEFL, BSc. อาจารย์ โครงการนานาชาติ มหาวิทยาลัยสยาม ประเทศไทย

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### The Development of An AIDS Education Training Program for Community Leaders

Jeranoun Thassri, Serm Thassri, Supattra Wijitsopha, Supanee Suwan

**Abstract:** The purpose of this study was to develop an AIDS education training program for community leaders that would help to reduce the incidence of HIV/AIDS among housewives and their children. This study used the participatory action research approach and was conducted between January and June **1999** in Songkhla province, where the incidence of HIV/AIDS is high. Four researchers, six health care providers, and **23** community health leaders took part in the program design. As a result, a new AIDS education training program was carried out by **23** community health leaders. The program had the following three major objectives: (**1**) to increase housewives knowledge regarding relevant HIV/AIDS issues; (**2**) to develop a positive attitude amongst housewives relating to AIDS patients and family, and (**3**) to improve knowledge and change attitudes regarding HIV/AIDS issues related to AIDS patients and their families.

The AIDS education training program for community leaders consisted of individual AIDS education for housewives. The program was presented to **65** housewives. There was a statistically significant difference between the AIDS related knowledge score before and after the program implementation (t = 2.45, p < .05). There was, however, no statistically significant difference in the attitude score before and after program implementation. The program provided 'real life' advice for housewives currently taking care of family members with HIV/AIDS.

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*Key Words:* AIDS education training program, housewives, community health leaders, participatory action research

#### Introduction

AIDS is one of the most important health issues on both a national and global level. Worldwide, AIDS related deaths have had far reaching effects and are increasing rapidly, especially in poor societies in both developed and developing countries.<sup>1</sup> According to the UNAIDS Organization global AIDS epidemic summary of 2004, the number of people living with HIV in 2004 Jeranoun Thassri, RN., Ph.D., Associate Professor, Faculty of Nursing, Prince of Songkla University, Hatyai, Songkla, Thailand.

Serm Thassri, M.Ed, Assistant Professor, Faculty of Education, Thaksin University, Hatyai, Songkla, Thailand. Supattra Wijitsopha, M.Ed, Head of Student Services and Welfare Office, Student Affairs Division, Prince of Songkla University, Hatyai, Songkla, Thailand. Supanee Suwan, RN., Ranode Hospital, Ranode

District, Songkla, Thailand.

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had reached 39.4 million. Furthermore, they reported that the AIDS epidemic was affecting reproductive women and girls in increasing numbers, particularly in Asia.<sup>2</sup> The major modes of transmission remain sexual (Rushing, Watts, & Rushing, 2005; Tepichin, 2000), parenteral, and perinatal, especially mother to child transmission,<sup>3,4,5</sup> although the proportions of cases within each risk behavior category differ among geographic regions.<sup>6</sup> In Thailand, during the first five years (1984-1988), there were few reported cases of AIDS. In 1988, large increases in AIDS cases were reported and between 1994-1998 more than 100,000 AIDS cases were reported.7 Moreover, the increasing infection rates among pregnant women will result in an increasing number of HIV-infected infants in the future. In 1997 Koetsawang and Auamkul suggested the problems that these women and their infants will experience should become clearer in the coming years.<sup>8</sup> In 2005 the aforementioned report predicted these problems would be in the form of physical, psychological, spiritual, social, and economic problems, and would include orphaned children, poverty, people being shunned by society, and unemployment. Moreover, a report carried out in four provinces in Thailand between 2001-2004 showed that from a total of 1,343 infants born to infected mothers, 101 (7.5%) were born infected with HIV.<sup>9</sup> Without proper AIDS/HIV education, these problems will intensify.

In Songkhla, a province of southern Thailand, the increase in AIDS figures has been at the same rate as the national and international level. The number of reported AIDS cases by the Thai Ministry of Public Health (2005), from 1984-1998 in the south of Thailand was 20.3 percent (2,163 cases) of all reported cases in Thailand. The corresponding figures for reported cases from 1999 to 2004 were 19.6% (523 cases), 17.9 (539), 9.0 (286), 9.9 (281), 8.6 (270), and 7.7 (187) respectively. Therefore, HIV/AIDS is a critical issue for families, communities, and all organizations all of whom need to participate in prevention programs to promote changes in behavior of people in high risk groups.

Knowledge regarding HIV/AIDS is essential for all, especially women at risk of HIV/AIDS. The results of a study of 13,293 public school students in the central Mexican state of Morelos, showed that young women with high levels of knowledge were more likely to have only one lifetime sexual partner.<sup>10</sup> London and Robles (2000) stated HIV/ AIDS education and prevention programs must seek to directly undermine inaccurate beliefs about HIV transmission as part of their efforts to promote behavior changes.<sup>11</sup> For some countries, such as Iran, discussions of sexuality remain a key constraint.<sup>12</sup> In brief, preventing HIV/AIDS has proved extremely difficult, and as there are no preventive resources at the present time, AIDS education is the best means of protection.

In Thailand, several studies found that key people in society such as community leaders have had a major role in education; they have played a particularly important role in distributing information at a community level.13,14 This study aims to provide training to community leaders such as community health leaders, relating to knowledge, attitude, and practice relevant to AIDS prevention. It is anticipated that trained leaders will distribute gained knowledge to the community, especially housewives within the community. Finally, HIV/ AIDS related problems, especially relating to housewives and their infants, in rural communities of southern Thailand will be reduced and the prevalence of HIV/AIDS in Songkhla may be halted with community participation in this AIDS education training program.

#### **Conceptual Framework**

In Thailand, community leaders have played major roles in health education in the past.<sup>14</sup> The conceptual framework of this study was based on

#### The development of an AIDS education training program for community leaders

this history and incorporated cooperation between health care providers, community leaders, and people in the community (**Figure 1**). It had the following three stages: planning, implementation, and evaluation. The resulting process was one whereby community groups assumed responsibility and developed the capacity to contribute to their community's development. Rifkin (1990) stated that community participation is concerned not with advanced medical technology but rather with applying tried and tested health care procedures.<sup>15</sup> These procedures must then be applied to the health problems of the poor and underprivileged living in rural areas of developing countries. It is believed that only if those who most need health care participate in its delivery will there be any impact on the diseases afflicting them. Moreover only community involvement can ensure that culturally acceptable care is available to those who are at present underserved.



Figure 1 Community leaders participation in the AIDS education training program

#### **Study Methods**

This Participatory Action Research (PAR) was conducted between January and June 1999 in one rural community district in Songkhla province, southern Thailand where the incidence of HIV/AIDS is high. It followed a mutual collaborative approach among 4 researchers, 6 health care providers, and 23 community leaders. As a result of the PAR, a new AIDS education training program for housewives was designed, implemented, and evaluated. In this PAR, the researchers were concerned with how people in their communities actually felt, how they approached problems, and the need to solve their own problems. To enable people to learn these skills, participation is necessary at every step, from identifying problems to solving them.

The steps in this study were divided into three stages: planning, implementing, and evaluating. The details of each step are as follows:

Step one involved a meeting between the researchers and health care providers to confer over the HIV/AIDS situation in the chosen community and discuss who should be involved in the AIDS education training program. From this meeting the working party identified community health leaders

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who would be a key to the successful implementation of the program. Another meeting was held with seventy five community health leaders to discuss who should participate in the program. At the end of the AIDS education program, there were 23 community health leaders interested in the health education program. The inclusion criteria for the community leaders included ability to read and write, membership in the community where the project was conducted, willingness to participate in the project, and ability to educate others in their communities. During step one, community health leaders analyzed AIDS problems in their community and determined strategies to solve these problems. Also, techniques such as lectures, group discussions, demonstrations, role play, games, videos and reading assignments were utilized to increase both the knowledge and attitude of community health leaders toward AIDS. Moreover, community health leaders underwent training to increase their self-confidence to be better able to advise community members. After this, community health leaders were ready to begin step two.

During step two, the 23-community health leaders designed the AIDS education training program. They subsequently conducted AIDS education by making 65 home visits to housewives' homes and advising them regarding AIDS education and convincing them to accept HIV/AIDS patients and family in their community.

For step three, the outcomes of the AIDS education training program were evaluated. Questionnaires were used to collect information regarding three distinct areas. The first part collected participants' demographic characteristics such as age, marital status, educational level, and occupation. The second part assessed housewives AIDS related knowledge. It consisted of 30 items and had a dichotomous scale of yes and no. Total scores ranged from 0 to 30. The last part was used to assess the attitude of housewives relating to AIDS. It consisted of 20 items; each item was worded as a statement, which had to be rated according to agreement or disagreement on a four-point Likert scale format. Each item was summed for a total score ranging from 20 and 80. Five experts reviewed the questionnaire for content validity. Then, it was tested for reliability. The results showed the alpha coefficient of the knowledge and attitude components of the questionnaires were 0.76, and 0.72 respectively.

During the evaluation phase of the project, all participants, including researchers, health care providers, and community health leaders had group discussions and personal interviews to discuss problems. One of the community health leaders withdrew from the project. Another leader was willing to take part and therefore joined the program. In total, the researchers, health care personnels, and community health leaders had four meetings to discuss problems, share their experiences, and solve any problems during the AIDS education program for housewives.

Upon approval and permission from the director of the hospital where the project was conducted, health care providers and community leaders were contacted. Protection of participants' rights was ensured by full oral explanation of the following: (1) the title of the study, (2) the purpose of the study, (3) assurance of the participants' anonymity, (4) voluntary participation in and withdrawal from the study at any time, (5) the usefulness of the results of the study to prevent AIDS in the community, and (6) the names and addresses of the researchers. Community leaders also gave the protection of human rights to the housewives taking part in the study.

#### **Results of the Study**

Prior to the study, there was no AIDS education training program for housewives in the district chosen for the study. Between 1988-2005,

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housewives were one group that had a high incidence rate of HIV/AIDS reported cases. Moreover, the major modes of transmission of HIV/AIDS cases in this community were sexual or mother to child transmission.<sup>16</sup> After finishing the study, 23 community health leaders were working as volunteers for the AIDS's prevention program for housewives (**Figure 2**). In this program, there were three main objectives relating to AIDS's issues that

community leaders had responsibility to address. The first objective was to help the housewives in their communities to understand and gain more knowledge of AIDS. The second objective was to share positive values with the housewives and to help them to accept HIV/AIDS patients and their families. The last objective was to provide AIDS education to HIV/AIDS patients and their families.



Figure 2 An AIDS education training program for housewives

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For the first and second objectives, the community leaders gave health education relating to AIDS understanding and attitude to 65 housewives individually (**Table 1**). Of the 65 housewives, more than 50% were 21-40 years old and married. The majority had an educational level of less than 12 years (92.3 %). Most reported their monthly family income to be less than US \$.150 (78.4%). More than 90 % had less than 6 family members. All housewives were Buddhist.

Sociodemographic characteristics	n	Percent
Age (years)		
<21	2	3.1
21-40	37	56.9
41-60	23	35.4
>60	3	4.6
Marital Status		
Single	8	12.3
Married	49	75.4
Separated	2	3.1
Widowed	6	9.2
Number of years of school		
<6	22	33.8
6-12	38	58.5
>12	5	7.7
Occupation		
Housewife	6	9.2
Farming or truit growing	15	23.1
Other ampleument	17	26.2
Covernment	21	32.2
Stadaut	4	0.2
Student	2	3.1
Religion		
Buddhism	65	100.0
Monthly family income (\$US)		
<100	40	61.5
100-150	11	16.9
>150	9	13.8
Incomplete	5	7.7
Family members		
<4	23	35.4
4-6	36	55.4
>6	6	9.2

Table 1 Number and percentage of the characteristics of housewives (n = 65)

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#### The development of an AIDS education training program for community leaders

The content of the training program provided for housewives included, (1) What is AIDS?, (2) How is AIDS transmitted?, (3) How can AIDS be prevented?, (4) What happens in the body when someone has AIDS?, and (5) How can HIV/AIDS patients be helped? To evaluate the outcomes of the AIDS education training program for housewives, knowledge and attitudes regarding AIDS before and after the program were assessed. The results showed significant improvement in knowledge regarding AIDS after the program implementation (t = 2.45, p < .05). In comparison there was no significant improvement in attitude after the program implementation (t = 1.74, p = .09).

Table 2 Comparison of knowledge and attitude of housewives regarding AIDS before and after the intervention (n = 65)

Knowledge & attitude	Mean	SD	t	р
Knowledge				
Before intervention	23.3538	4.0905	2.452	.017
After intervention	24.8615	3.9995		
Attitude				
Before intervention	63.4462	12.0520	1.735	.087
After intervention	67.3692	13.0559		

The last objective involved home visits to HIV/ AIDS patients and families. The content for HIV/ AIDS patients and families were similar to housewives. However, in this part, the community leaders added various aspects such as the importance of: (1) not rejecting HIV/AIDS patients and families, (2) providing emotional support for HIV/ AIDS patients and families to actively take part in the community, (3) exploring ways to take care of HIV/AIDS patients, for instance: exercise and improved diet, and (4) encouraging visits to the HIV/ AIDS clinic. One community leader reported the following experience regarding a home visit to a HIV/ AIDS patient and family:

After training from the program, one day I walked up to a house to sell some clothes. In the house lived a mother and her AIDS infected son, I did not know beforehand that a HIV/AIDS patient was living in the house. I asked to enter, but a voice shouted from the house "no…no." I replied that "I have walked for a long time and I'm thirsty. Would you mind giving me some water?" Suddenly, I heard a voice say to his mother… "give her

a cup of water and then tell her to leave, and take the dog to encourage her to go." During this time, I introduced myself and talked about my responsibility to the community particularly living together in community with compassion and sympathy and without rejection. After 5 days, the mother's patient visited my house. She said that her son would like to see me. Then, 2 or 3 days later, I went to his house and then again 2-3 times. Finally, I knew he had the courage to allow his relatives to visit him and socialize with his neighbors. This is one example of the positive impact the program had on AIDS suffers lives.

#### Discussion

Mother-to-child transmission of HIV is an issue of great importance to all women around the world. The increasing HIV infection among pregnant women will of course result in a rise in the number of HIV-infected infants.<sup>8</sup> As shown in previous studies by Mandelbrot et al. (1996) and

Koetsawang and Auamkul (1997), sexually transmitted diseases were only one factor associated with increased transmission of HIV.<sup>5,8</sup> To address the AIDS problem for women and children, an AIDS education training program for housewives was developed.

This study was conducted in a community of southern Thailand where there is a high incidence rate of HIV/AIDS. Community leaders who were interested in being participants in this study developed the objectives and activities in the AIDS education training program. The discussions in this study followed the results of three objectives: (1) to help the housewives in their communities to understand and gain more knowledge of AIDS, (2) to share positive values with the housewives in their communities and to help them to accept HIV/AIDS patients and their families and (3) to provide AIDS education to the HIV/AIDS patients and the families.

First, the success of the AIDS education training program was shown in the results of the 65 housewives who participated in the study. The findings of this study regarding the effectiveness of the AIDS education training program are similar to the results of the HIV/AIDS education program for Mexican students that focused on conveying knowledge on HIV prevention.<sup>10</sup> Moreover, community leaders developed the AIDS education program for the communities where they lived. Community leaders in the project played an important role in participation, planning, implementing and evaluating the AIDS education program, as was the case for another program on HIV/AIDS in South Africa where community mobilization was the key to a successful model.<sup>17</sup>

Second, there was no significant improvement in attitude after the program implementation. This may be because measuring attitudes is harder than measuring knowledge, due to the fact that how people feel about something is difficult to establish in black and white.<sup>18</sup> Another reason could be the short time period of the AIDS education training program and the methods used in the study. Cases of discrimination of persons with HIV/AIDS in the community are still quite high.<sup>13</sup> Therefore, similar programs in the future would benefit from using qualitative methods, and having a longer time period and having more focus on attitude changing strategies. Suggestions regarding HIV/AIDS prevention campaigns by London and Robles state (2000: 1277), "In order to increase the odds that people will be able to assimilate and use information about modes of HIV transmission to accurately assess their risk and change their behavior, direct efforts must be made to undermine inaccurate beliefs about transmission."<sup>11</sup>

One possible explanation of no significant improvement in attitude after the program implementation is that people hold misguided beliefs about HIV transmission even though they have a good knowledge of HIV transmission. This is similar to the scenario of nursing students and their attitudes and beliefs toward HIV/AIDS that have not changed over the past decade.<sup>19</sup> In the past, many different media reported HIV/AIDS issues to the public in a negative way, which has adversely affected peoples perception in Thailand especially the south. Improving the attitude of society towards people with HIV/AIDS in their community is a great challenge and one that must be addressed in the future.

Third, one community leader had a home visit to a HIV/AIDS patient and family. As a result of the visit, a HIV/AIDS patient and his family were able to once again socialize with their relatives and neighbors. It may be explained in part because of the perception of the people towards this family they had been outcast from their own community. After they met and talked to the community leader, they changed their perception and behavior. The people of the community are now more compassionate and sympathetic and less intolerant toward HIV/AIDS patients and family compared to the past.<sup>20</sup>

#### The development of an AIDS education training program for community leaders

To sum up, focusing on knowledge and attitude regarding HIV/AIDS are essential aspects of any education program for HIV prevention.<sup>14</sup> In particular, involvement of key persons in the community such as community health leaders to disseminate knowledge regarding the main concerns regarding HIV/AIDS in their community is essential to the success of the program.

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#### References

- Parker R. The global HIV/AIDS pandemics, structural inequalities, and the politics of international health. American Journal of Public Health. 2002; 92: 343-46.
- UNAIDS. AIDS epidemic update: December 2004. (online) Available at: <u>http://www.unaids.org</u>. Accessed October 25, 2005.
- Rushing R, Watts C, Rushing S. Living the reality of forced sex work: Perspectives from young migrant women sex workers in northern Vietnam. Journal of Midwifery and Women's Health. 2005; 50: 41-4.
- Tepichin GH. Awareness campaigns: experience in Mexico. Vaccine. 2000;18: 90-2.
- Mandelbrot L, Mayaux MJ, Bongain A, et al. Obstetric factors and mother-to-child transmission of human immunodeficiency virus type 1: The French perinatal cohorts. American Journal Obstetric Gynecological. 1996; 175: 661-7.
- Quinn TC. Global epidemioliy of HIV infections. In Sande MA, Volberding PA, eds. The medical management of AIDS. Philadelphia: W.B. Saunders. 1990: 3-22.

- Ministry of Public Health. Report of AIDS epidemic in Thailand 2004. Nontaburi: Ministry of Public Health, 2005.
- Koetsawang S, Auamkul N. HIV and women in Thailand: severity and services. International Journal of Gynecology and Obstetrics. 1997; 58: 121-7.
- Niramon R, Thanarug P, Orapun S, Sethaporn T. A report of HIV infected infants from HIV infected mothers in four provinces, 2004. Report of AIDS epidemic in Thailand 2004. Nontaburi: Ministry of Public Health. 2005: 61-72.
- Tapia-Aguirre V, Arillo-Santillan E, Allen B, Angeles-Llerenas A, Cruz-Valdez A, Lazcano-Ponce E. Associations among condom use, sexual behavior, and knowledge about HIV/AIDS: a study of 13,293 public school students. Archives of Medical Research. 2004; 35: 334-43.
- London AS, Robles A. The co-occurrence of correct and incorrect HIV transmission knowledge and perceived risk for HIV among women of childbearing age in El Salvador. Social Science and Medicine. 2000; 51: 1267-78.
- DeJong J, Jawad R, Mortagy I, Shepard B. The sexual and reproductive health of young people in the Arab countries and Iran. **Reproductive Health Matters.** 2005; 13: 49-59.
- Sakondhavat C, Sittirai W, Soontharapa S, Aryuvatna D, Koochaisit C. AIDS prevention strategies for rural families in the northeast of Thailand. Journal of AIDS. 1996; 8: 19-25.
- Soralum R, Pinprateep P, Nopkesorn T. Model development on social empowerment for HIV prevention in Phitsanulok province, 1988-1996. Journal of Health Science. 1997; 6: 1-10.
- Rifkin SB. Community participation in maternal and child health/family planning programmes: an analysis based on case study materials. Geneva: World Health Organization, 1990.
- Songkhla Public Health Officer. AIDS situation in Songkhla province: September 2005. Songkhla: Songkhla Public Health Officer, 2005.
- Simon-Meyer J, Odallo D. Greater involvement of people living with HIV/AIDS in South Africa. Evaluation and Program Planning. 2002; 25: 471-9.
- Hawe P, Degeling D, Hall J. Evaluating health promotion. Sydney: MacLennan and Petty, 1991.
- Earl CE, Penney PJ. Rural nursing student's knowledge, attitude, and beliefs about HIV/AIDS: a research brief. Journal of the Association of Nurses in AIDS Care. 2003; 14: 70-3.
- Plynoy N, Plynoy S, Ounob P, Yuttanon V, Punchapong C. A study of the responses and coping with AIDS of the community in the high-infected areas. Journal of Demography. 1998; 14: 57-67.

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# การพัฒนาโปรแกรมให้สุขศึกษาเรื่องโรคเอดส์แก่ผู้นำชุมชน

จีรเนาว์ ทัศศรี, เสริม ทัศศรี, สุพัตรา วิจิตรโสภา, สุภาณี สุวรรณ

**บทคัดย่อ:** การวิจัยแบบมีส่วนร่วมครั้งนี้มีวัตถุประสงค์เพื่อพัฒนาโปรแกรมการให้สุขศึกษาเรื่องโรคเอดส์ แก่ผู้นำชุมชน ซึ่งผลการศึกษาครั้งนี้อาจช่วยลดการแพร่เชื้อเอชไอวีในกลุ่มแม่บ้านและทารกที่จะคลอดออก มา โดยดำเนินการระหว่างเดือนมกราคม ถึง มิถุนายน 2542 ในเขตอำเภอหนึ่งของจังหวัดสงขลาที่มีอุบัติ การณ์การติดเชื้อเอชไอวีสูง มีผู้ร่วมศึกษาประกอบด้วยนักวิจัย 4 คน เจ้าหน้าที่สาธารณสุข 6 คน และอาสา สมัครสาธารณสุขในชุมชน 23 คน ทั้งนี้มีวัตถุประสงค์ของโปรแกรมการให้สุขศึกษาเรื่องโรคเอดส์ที่มีอาสา สมัครสาธารณสุขในชุมชน 13 คน ทั้งนี้มีวัตถุประสงค์ของโปรแกรมการให้สุขศึกษาเรื่องโรคเอดส์ที่มีอาสา สมัครสาธารณสุขในชุมชนเป็นแกนนำคือ (1) ให้ความรู้เรื่องโรคเอดส์แก่กลุ่มแม่บ้าน (2) สร้างเจตคติที่ดีแก่ กลุ่มแม่บ้านต่อผู้ติดเชื้อเอชไอวีและครอบครัวที่มีในชุมชน และ (3) ให้ความรู้เรื่องโรคเอดส์แก่ผู้ติดเชื้อ เอชไอวีและครอบครัวที่มีในชุมชน

ผลจากการศึกษาทำให้ได้รูปแบบการให้สุขศึกษาเรื่องโรคเอดส์แก่กลุ่มแม่บ้านโดยมีอาสาสมัคร สาธารณสุขในชุมชนเป็นแกนนำและรับผิดชอบ มีวิธีให้ความรู้และสร้างเจตคติที่ดีแก่กลุ่มแม่บ้านจากการ เยี่ยมบ้านเป็นรายบุคคลจำนวน 65 คน และแม่บ้านมีการนำความรู้ที่ได้รับไปใช้เมื่อบุคคลในครอบครัวเป็น ผู้ติดเชื้อเอชไอวี เมื่อทดสอบทางสถิติก่อนและหลังให้สุขศึกษาแก่กลุ่มแม่บ้าน ปรากฏว่า มีความแตกต่าง อย่างมีนัยสำคัญทางสถิติในเรื่องความรู้เรื่องโรคเอดส์ที่ระดับ .05 (t = 2.45) ส่วนเจตคติไม่มีความแตกต่าง อย่างมีนัยสำคัญทางสถิติในเรื่องความรู้เรื่องโรคเอดส์ที่ระดับ .05 (t = 2.45) ส่วนเจตคติไม่มีความแตกต่าง อย่างมีนัยสำคัญทางสถิติก่อนและหลังให้สุขศึกษา สำหรับประเด็นการให้ความรู้เรื่องโรคเอดส์แก่ผู้ติดเชื้อ เอชไอวีและครอบครัวที่มีในชุมชน ปรากฏว่า มีอาสาสมัครสาธารณสุขได้ให้ความรู้แก่แม่บ้านที่เป็นมารดา ของผู้ติดเชื้อเอชไอวีในการดูแลบุตรของตัวเองให้อยู่ร่วมกับคนในชุมชน 1 ราย

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้ คำสำคัญ: โปรแกรมการให้สุขศึกษาเรื่องโรคเอดส์ แม่บ้าน อาสาสมัครสาธารณสุข การวิจัยแบบมีส่วนร่วม

จีรเนาว์ ทัสสรี RN., Ph.D., รองศาสตราจารย์ คณะพยาบาล ศาสตร์ มหาวิทยาลัยสงขลานครินทร์ จังหวัดสงขลา ประเทศไทย เสริม ทัสศรี M.Ed, ผู้ช่วยศาสตราจารย์ คณะศึกษาศาสตร์ มหาวิทยาลัยทักษิณ จังหวัดสงขลา ประเทศไทย สูพัตรา วิจิตรโสภา M.Ed, หัวหน้างานบริการและสวัสดิการ นักศึกษา กองกิจการนักศึกษา มหาวิทยาลัยสงขลานครินทร์ จังหวัดสงขลา ประเทศไทย สุภาณี สุวรรณ RN., โรงพยาบาลระโนด อำเภอระโนด จังหวัดสงขลา ประเทศไทย