The Effects of Program Enhancing Skills in Caring for Schizophrenic Patients on Caregivers' Stress and Perceived Burden

นิพนธ์ต้นฉบับ

Original Article

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บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาผลของโปรแกรมการพัฒนาทักษะในการดูแลผู้ป่วยจิตเภทต่อความเครียดและการรับรู้ภาระในผู้ดูแลผู้ป่วยจิตเภท วิธีการศึกษา: การวิจัยกึ่งทดลองมีกลุ่มตัวอย่างเป็นผู้ดูแลผู้ป่วยจิตเภทรับบริการที่แผนกผู้ป่วยนอกโรงพยาบาลปากพลี จังหวัดนครนายก จำนวน 24 คน สุ่มเข้ากลุ่มทดลองและกลุ่มควบคุมกลุ่มละ 12 คน กลุ่มทดลองได้รับโปรแกรมการพัฒนาทักษะในการดูแลผู้ป่วยจิตเภท จำนวน 8 ครั้ง เป็นเวลา 4 สัปดาห์ ๆ ละ 2 ครั้ง ส่วนกลุ่มควบคุมได้รับการดูแลตามปกติ เก็บข้อมูลในระยะก่อนการทดลอง หลังการทดลอง และติดตามผล 2 สัปดาห์ เครื่องมือที่ใช้ประกอบด้วย แบบประเมินความเครียดสวนปรุง และแบบวัดการรับรู้ภาระในการดูแลของผู้ดูแลผู้ป่วยจิตเภท ได้ค่าความเที่ยงของเครื่องมือเท่ากับ 0.82 และ 0.80 ตามลำดับ วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา สถิติที สถิติวิเคราะห์ความแปรปรวนสองทางแบบวัดซ้ำ และเปรียบเทียบซ้ำเป็นรายคู่ด้วยวิธีนิวแมน-คูลส์ ผลการศึกษา: พบว่าคะแนนเฉลี่ยความเครียดและการรับรู้ภาระของผู้ดูแลผู้ป่วยจิตเภท ในระยะหลังการทดลองเสร็จสิ้น และระยะติดตามผลของกลุ่มทดลองน้อยกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ ($\mathbf{P} < 0.05$) โดยกลุ่มทดลองมีคะแนนเฉลี่ยความเครียดและการรับรู้ภาระการดูแลหลังการทดลองเสร็จสิ้นทันที และระยะติดตามผล ต่ำกว่าก่อนการทดลองอย่างมีนัยสำคัญทางสถิติ ($\mathbf{P} < 0.05$) สรุป: โปรแกรมการพัฒนาทักษะในการดูแลผู้ป่วยจิตเภทช่วยลดความเครียดและการรับรู้ภาระการดูแลผู้ป่วยจิตเภทของผู้ดูแลได้ พยาบาลและบุคลากรที่เกี่ยวข้องสามารถเรียนรู้และประยุกต์ใช้โปรแกรมนี้ในการพัฒนาทักษะการดูแลผู้ป่วยให้กับผู้ดูแลผู้ป่วยจิตเภทซึ่งจะช่วยในพัฒนาคุณภาพชีวิตทั้งของผู้ดูแลและผู้ป่วยโรคจิตเภท

คำสำคัญ: โปรแกรม, ความเครียด, การรับรู้ภาระ, ผู้ดูแล, ผู้ป่วยจิตเภท

Abstract

Objective: To determine the effects of a program enhancing skills in caring for schizophrenic patients on caregivers' stress and perceived burden. Method: This quasi-experimental study had a sample of 24 caregivers schizophrenia patients receiving service at the Outpatient Department of Pakplee Hospital, Nakhonnayok province. They were randomly assigned into either the experimental or control groups (n = 12 each). The program aimed at enhancing skills in caring for schizophrenic patients was provided for the experimental group in a total of 8 sessions, 2 sessions per week. The sample in the control group received only routine care service. Data were collected from both groups at before and after the experiment, and at 2-week follow-up using Suanprung Stress Test-20 and a perceived burden questionnaire. These two scales yielded Cronbach's alpha coefficients of 0.82 and 0.80. Descriptive statistics, independent t-test, two-way repeated measure ANOVA, and Newman-Keuls method for multiple comparisons were employed to analyze the data. Results: Mean scores of stress and perceived burden at post-test and 2-week follow-up in the experimental group were significantly lower than those in the control group ($\mathbf{P} < 0.05$). In the experimental group, the stress and perceived burden mean scores at post-test and 2-week follow-up were significantly lower than that at pre-test ($\mathbf{P} < 0.05$). Conclusion: The program could reduce stress and burden as perceived by the caregivers of patients with schizophrenia. Nurses and relevant health personnel could learn and apply this program to enhance caregivers' caring skills for schizophrenic patients. This would help enhance quality of life of both the patients and caregivers.

Keywords: schizophrenic patients, stress, perceived burden, caregivers, program

Introduction

Schizophrenia is a major public health problem worldwide. The statistics showed that the prevalence of Schizophrenia was 0.2 per 1,000 population[1], and its lifetime prevalence was 0.30 to 0.66[2]. It is usually found in people aged between 15 - 34 years and found in males more than females.[3,4] It has been estimated 24 million people have been diagnosed with schizophrenia worldwide. In Thailand, a number of patients with schizophrenia accounts for 23.34% of all psychiatric patients. Based on Nakhonnayok hospital, a public, provincial hospital, a number of patients with schizophrenia had increased from 152 in 2010, to 170 and 191 in 2011 and 2012 respectively.[5] It also has been expected that a number of schizophrenic patients nation-wide have been increasing and becoming one of the major health problems in Thailand.

Patients with schizophrenia are those who have disorders in their thoughts, emotions, and behaviors as a result of the imbalance of neurotransmitters in the brain. The symptoms that are prominently expressed are driven mainly by the patient's distorted perception of reality.[7] The patients usually express inappropriately with the situation, and also lack of initiative and creative thinking.[6,7] They have a change of behaviors such as isolating themselves, talking less, having poor hygiene and having impairment of their activities of daily living.[3] Previous research found that more than 50% of those with schizophrenia showed fluctuated symptoms, and 25% of them do not respond well to medical treatment.[8] Given these situations, the caregivers of these patients would play an important role in providing care for them. Thus, these particular caregivers should have better knowledge, understanding, and skills towards caring for the patients with schizophrenia in order to prevent exacerbation and relapse among these patients. These caregivers have to be involved in various activities of care including providing care for activities for daily living, administering medications, observing signs and symptoms which might indicate relapse, and dealing with patients' aggressive behaviors, etc. The care for patients with schizophrenia requires constant attention over a long period of time, with no known ending. This responsibility might cause a high stress or prolong an existing stress among these caregivers. If the caregivers do not or are not capable of coping properly with stress, this might cause them physical problems such as migraines, high blood pressure, peptic ulcers, and mental health problems.[9] With all mentioned thus far, providing care for schizophrenic patients could pose significant impacts on the caregivers both physically and psychologically. This circumstance was also consistent with the study by Ferriter and Huband[10] where they interviewed parents, as the caregivers of schizophrenic patients, and found that the caregivers reported feelings of stress, loss, and guilt towards their frustrated reaction to the inappropriate behaviors of the patients. It has been known that programs to help caregivers were needed. The study by Puanjit[11] found that the caregivers who participated in the program in caring for schizophrenia patients had less stress after completing the program. The study of Khampaunsai[12] tested the program aiming at enhancing abilities of family members to the care for patients with schizophrenia. These caregivers had less stress after the program completion as well as at the follow-up. According to literature reviews, caregivers who had opportunities to enhance knowledge and skills would have less psychological distress, stress in particular.

Apart from stress which is usually found among the caregivers of schizophrenia patients, burden is also another psychological distress that the caregivers have. Burden is defined as the caregivers' feelings towards expressions of their concern and difficulties in relation to taking responsibility of providing care for the patients.[13] Burden can be divided into 2 dimensions including subjective and objective burden. Subjective burden encompasses feelings, attitudes, or emotional reactions of the caregivers which is a result of their experiences in providing care such as shame, anger, anxiety, and feeling trapped. Objective burden is characterized by the difficulties related to caregivers' responsibilities in providing care for the patients such as the reduction of their personal and free times. The caregivers' lives were altered. It was found that the caregivers' knowledge had an influence on their perceived burden. Caregivers with less knowledge and skill towards provision of care for the patients showed negative coping with stress.[14] This is consistent with the study by Thubtim and Uthis[15] which indicated that perceived burden among the caregivers after receiving the psycho-education program was significantly lower. The study of Phungkatesoonthorn and Lueboontawatchai[16] also found that burden among the caregivers of patients with schizophrenia was significantly reduced after receiving family therapeutic program.

According to the reviews of related studies, it showed that caregivers for schizophrenia patients posed negative impacts on the major caregivers. Taking care of schizophrenia patients brought them more stress and perceived burden. If prolonged and unresolved, stress and perceived burden would result in poorer physical and mental health status in the caregivers. These also affected the quality of care for the patients and also quality of life of both the patients and the caregivers themselves. Based on all negative impacts, it is essential to promote caregivers' knowledge and skills towards providing care for patients with schizophrenia. These would help prevent and reduce their stress and perceived burden. This present study was conducted with the caregivers who took care of the patients receiving services at the outpatient department of Pakplee Hospital, Nakhonnayok province. Stress and perceived burden were measured at before and after the program, and at a 2-week follow-up.

Materials and Methods

Methods

This study was a quasi-experimental research with a 2-group comparison to test the effectiveness of the program aiming at enhancing skills in caring for schizophrenic patients on stress and perceived burden among the caregivers of patients with schizophrenia. Stress and perceived burden were measured at pre-test, post-test, and 2-week follow-up.

Population and sample

The population in this study was caregivers of patients with schizophrenia residing in Pakplee sub-district, Nakhonnayok province. They were the major care providers of patients with schizophrenia who received medical care at Pakplee Hospital, Nakhonnayok province. Caregivers of schizophrenia patients referred to people who stay in the same household with the patients. This caregiver could be related to the patient in various ways, such as a spouse, parent, sibling, or child. The person may also be a significant person in the lives of the schizophrenia patients. The sample consisted of 24 caregivers of schizophrenia patients who met the following inclusion criteria. The participants had to be at least 20 years old, have served as the primary caregivers of the schizophrenia patients for at least six months with no compensation for the care that they provided. They were able to read and write in Thai. Schizophrenic patients referred to those diagnosed with schizophrenia for at least six months.

The sample size of this study was based on Polit and Hungler [17] and Yalom [18]. According to Polit and Hungler [17] in the experimental research, the sample should have 20 - 30 participants. With a comparison between the groups, there should be at least 10 participants in each group. This number of sample size was in line with the concept of conducting group therapy postulated by Yalom[18] who stated that the number of members in each group should be about 8 - 12 members. If the number of members in the group is much smaller, it creates tension among the members; if too many, it may affect the group process, such as having less chance for each individual to share or speak in the group and possibly creating subgroups. Thus, 24 caregivers were recruited. These 24 caregivers were randomly assigned into either experimental or control groups equally, with 12 caregivers in each group.

Data Collection

Data collection was conducted by the researcher and the research assistant who is a registered nurse that has experience in providing care for mental illness patients. The researcher trained the research assistant in data collection procedure and how to administer the questionnaires.

Human Rights Protection

This study was approved by the Institutional Review Board for Graduates Studies (Approval no. 07-04-2558), Faculty of Nursing, Burapha University. Permission for data collection was granted from the director of Pakplee hospital and the informed consent was obtained by the participating caregivers. The researcher explained the study purposes, informed them about the process of participation, clarified the rights of the participants regarding voluntary participation with no restrictions to the participants. The participants could withdraw from the program at any time. Data obtained from this study would be presented for academic purposes in overall group data not specific to each participant. Participants were to remain anonymous.

Instruments

Instruments used in this research were divided into 2 parts. Part I contained instruments for data collection. Part II was instruments for the experiment regarding the program used for training the caregivers.

Part I: Instruments for data collection

Instruments used for data collection included a questionnaire developed by the researcher to gather data regarding caregivers' demographic data, the Suanprung Stress scale, and the Perceived Burden scale. Demographic data included caregivers' gender, age, educational background, occupation, marital status, income sufficiency, duration of providing care for schizophrenia patients and their relationships with the patients. For Suanprung Stress test, this scale was developed by Mahutnirankul and colleagues.[19] It was used to measure subjective stress as perceived by the caregivers. This test covered the questions regarding stress through the expression of behaviors, mood, perception and physical reaction. This scale contained 20 items with a 5-point Likert-type scale ranging from feeling 1-no stress, 2-mild stress, 3-moderate stress, 4-high stress, and 5-extreme stress. Any item with no answer would get a score of 0. The possible total score range was from 0 to 100. Higher score indicates higher stress. Based on the total stress scores, stress can be divided into 4 levels including mild (0 – 24), moderate (25 – 42), high (43 – 62), and extreme (63 - 100) stress.

In this study, perceived burden was measured using the burden scale developed by Chaichumni (2001)[20] which was based on the concept of burden postulated by Montgomery and colleagues (1985).[13] Objective burden among caregivers was related to the change in daily life due to providing care for their patients. These included the reduction of their own free time and independence which further caused trouble to their work and health decline. Subjective burden was related to the recognition of the change in caregivers' emotional response, feelings and attitudes or emotional reactions of the caregivers, such as feelings of distress and strain, and having a sense of being neglected and bored. The perceived burden scale contained 24 items with a 5-point Likert-type scale ranging from 5-the most burden to 1-the least burden. The higher mean scores indicated the more burden perceived by the caregivers.

In terms of quality of the instruments, the stress scale and the perceived burden scale were tested for their reliabilities with 30 other caregivers of schizophrenia patients. The two scales yielded a high internal consistency reliability with Cronbach's alpha coefficients of 0.82 and 0.80 for the stress and the perceived burden scales, respectively.

Part II: Instruments for the experiment

The instrument used for the experimental group was the program for enhancing caregivers' skills in caring for patients with schizophrenia. The program integrated nursing activities and group processes. There were 8 sessions where 2 sessions were conducted for each week. It took about 60 - 90 minutes to complete activities in each session. The effectiveness of the program regarding their stress and perceived burden were measured at pre- and post-tests, and at a 2-week follow-up. The activities in these programs consisted of activities aiming at 1) building relationships and sharing experiences among the caregiver of schizophrenic patients, 2) providing psycho-education for the caregivers about the schizophrenia disease and effective care for the patients, 3) enhancing caregivers' skills to promote patients' self-care in daily life, and 4) enhancing caregivers' skills in proper management for patients' aggressive and isolated behaviors, 5) enhancing caregivers' skills in management of patients' medication usage and 6) providing ways to apply what they had been trained in the program in their real lives and evaluating the overall training they had received. This program was validated by five experts to determine the appropriateness towards its content, procedures, and relevance with the target sample. This program was later pilot-tested with 5 caregivers of schizophrenia patients prior to the experiment.

Routine care referred to the activities that the health care teams provide for the caregivers of schizophrenia patients receiving care at Pakplee Hospital, Nakhonnayok province. These activities included counseling, answering any questions or concerns, and providing general instruction.

Data Analyses

Demographic data of the caregiver participants were presented by descriptive statistics including mean with standard deviation and frequency with percentage. Scores or stress and perceived burden of the participants were presented as mean and standard deviation. Mean differences between the two groups at each time point were tested using independent t-test or Mann-Withney U test as appropriate. For differences of categorical variables, chi-square test, or Fisher's exact test, was used as appropriate to compare between the two groups. The changes in mean differences between the two groups at the three time points were tested by the two-way repeated measure ANOVA, with Newman-Keuls method for the multiple pairwise comparisons. Statistical significance for all testes was set at a type I error of 5%, or $P < 0.05$.

Results

Of the 24 caregivers, 12 in each group, all of them were female. For the 12 caregivers in the study group, they had an average age of 46.17 years. Half of them were married (50.00%). The majority finished a primary education (58.34 %), were employed (66.66%), had a monthly income insufficient to cover expenses (41.67 %), and had their mother, younger sister or brother as the schizophrenic patient (25.00 %). The average duration of caring for schizophrenia patients was 6.42 years. For those 12 caregivers in the control group, the majority were female (75.00%), married (83.34%), employed (41.67%), finished a primary education (58.34%), and had monthly income insufficient to cover expenses

(66.67%). Most of the patients (41.66%) were their mother. With an average age of 47.83 years, their average duration in caring for the patients was 4.58 years. All of these characteristics between the two groups were not different.

Table 1 Caregivers'characteristics (N = 24).

Characteristics	Experiment (n = 12)		Control (n = 12)		χ^2	**P**-value
	n	%	n	%		
Gender						0.10*
Males	-	-	3	25.00		
Females	12	100.00	9	75.00		
Age (Years)						
20 - 29	1	8.33	-	-		
30 - 39	1	8.33	2	16.66		
40 - 49	5	41.67	5	41.67		
50 - 59	5	41.67	5	41.67		
	($\bar{X}$ = 46.17; SD = 11.80)		($\bar{X}$ = 47.83; SD = 8.43)		t = .33, df = 22, **P** = 0.70	
Marital Status					3.33	0.34
Single	3	25.00	1	8.33		
Married	6	50.00	10	83.34		
Widow	2	16.67	1	8.33		
Separate	1	8.33	-	-		
Education					2.00	0.74
Did not study	1	8.33	-	-		
Primary	7	58.34	7	58.34		
Secondary	3	25.00	3	25.00		
Diploma	-	-	1	8.33		
Bachelor's	1	8.33	1	8.33		
Occupation					4.40	0.50
Unemployed	2	16.67	3	25.00		
Government officer	-	-	1	8.33		
Farmer	-	-	2	16.67		
Business employee	8	66.66	5	41.67		
Small business owner	2	16.67	1	8.33		
Income sufficiency					3.03	0.60
Insufficient for expense	5	41.67	8	66.67		
No income	1	8.33	-	-		
Sufficient	3	25.00	3			
In debt	2	16.67	1	8.33		
No income and in debt	1	8.33	-	-		
Relationships with patients					2.40	0.80
Mother	3	25.00	5	41.66		
Older brother/sister	2	16.67	2	16.67		
Younger brother/sister	3	25.00	2	16.67		
Husband	1	8.33	2	16.67		
Wife	2	16.67	1	8.33		
Daughter	1	8.33	-	-		
Duration of providing care (Years)						
1 – 5	6	50.00	7	58.34		
6 - 10	4	33.33	4	33.33		
11 - 15	2	16.67	1	8.33		
	($\bar{X}$ = 6.42; SD = 3.75)		($\bar{X}$ = 4.58; SD = 3.34)		t = 1.26, df = 22, **P** = 0.22	

*** Fisher's exact test.**

At baseline, mean stress score in the experimental group was 69.08 ± 12.27 which was significantly lower than that in control group (71.75 ± 15.52) with no statistical significance (**P** = 0.645). In terms of perceived burden, mean score in the experimental group (3.18 ± 0.53) was almost identical to that in the control group (3.19 ± 0.45) with no statistical significance (P = 0.945) (Table 2).

In terms of change over time, stress scores in the experimental group decreased from 69.08 ± 12.27, to 40.33 ± 9.97 and 35.00 ± 9.23), at post-intervention and 2-week follow-up respectively (Table 2). Stress scores in the control group also decreased from 71.75 ± 15.52 to 55.00 ± 13.88 and 47.08 ± 11.24, at post-intervention and 2-week follow-up respectively. For perceived burden, the average score in the experimental group decreased from 3.18 ± 0.53) to 2.63 ± 0.33) and 2.26 ± 0.36); while those in the control group did not change, from 3.19 ± 0.45 to 3.22 ± 0.46 and 3.12 ± 0.49, at post-intervention and 2-week follow-up, respectively (Table 2).

Table 2 Means and standard deviation of stress and perceived burden in caring for Schizophrenic patients in the experimental group and the control group at pre-test, post-tests and 2-week follow-up.

Group	Time point	Stress		Perceived Burden	
		M	SD	M	SD
Experiment	Pre-test	69.08	12.27	3.18	0.53
	Post-test	40.33	9.97	2.63	0.33
	2 week follow-up	35.00	9.23	2.26	0.36
Control	Pre-test	71.75*	15.52	3.19#	0.45
	Post-test	55.00	13.88	3.22	0.46
	2 week follow-up	47.08	11.24	3.12	0.49

* t_{22} = -0.47, p = 0.645, comparing mean stress scores at baseline between the two groups.

\# t_{22} = -0.07, p = 0.945, comparing mean perceived burden scores at baseline between the two groups.

Once tested for trend, the difference of the two interventions resulted in statistically significant stress scores ($F_{1,22}$= 31.94, **P** < 0.001). In each group, the change over time was statistically significant ($F_{2,44}$= 28.96, **P** < 0.001). However, as the interaction term between interventions and time points was not statistically significant ($F_{2,44}$ = 1.22, **P** = 0.31), indicating that the direction of the changes of stress scores over time between the two groups did not differ (Table 3).

Once the experimental group was tested for difference of mean stress scores between time points, the test was statistically significant ($F_{2,22}$ = 26.45, **P** < 0.001). This indicated that at least one pair of time points with different mean stress scores. Based on the further pairwise comparison using Newman-Keuls method, the average stress scores at three time points were significantly different to each other (**P** < 0.05 each), of which the mean score at a later time point was lower than the previous one (Table 4). The decreasing trend of the stress scores was evident.

Table 3 Two-way repeated measure analysis of variance of average stress scores of the caregivers of schizophrenic patients at pre-test, post-test, and 2-week follow-up.

Source of Variation	df	SS	MS	F	**P**-value
Between Group					
Method	1	1,730.68	1,730.68	31.94	< 0.001
Errors	22	1,192.19	54.19		
Within Group					
Interval	2	11,394.75	5,697.38	28.96	< 0.001
Interval x Method	2	478.69	239.35	1.22	0.31
Errors	44	8,656.56	196.74		

Table 4 Pairwise comparisons for stress scores in the experimental group using Newman-Keuls method.

Time point	$\bar{X}$	Pre-test	Post-test	2-week follow-up
Pre-test	69.08	-	28.75*	34.08*
Post-test	40.33	-	-	5.33*
2-week follow-up	35.00	-	-	-

* **P** < 0.05

The difference of the two interventions was associated with a statistical significance in perceived burden scores ($F_{1,22}$= 9.39, **P** = 0.01). In each group, the change over time was statistically significant ($F_{2,44}$= 21.48, **P** < 0.001). The interaction term between interventions and time points was also statistically significant ($F_{2,44}$ = 16.54, **P** < 0.001), indicating that the direction of the changes of stress scores over time between the two groups was different (Table 5). This significant interaction was also depicted in Figure 1.

Table 5 Two-way repeated measure analysis of variance of the perceived burden scores of the caregivers of patients with schizophrenia at pre-test, post-test and 2-week follow-up.

Source of Variance	Df	SS	MS	F	P-value
Between Group					
Method	1	4.27	4.27	9.39	0.01
Errors	22	10.02	0.46		
Within Group					
Interval	2	2.89	1.45	21.48	< 0.001
Method*Interval	2	2.23	1.12	16.54	< 0.001
Errors	44	2.97	0.07		

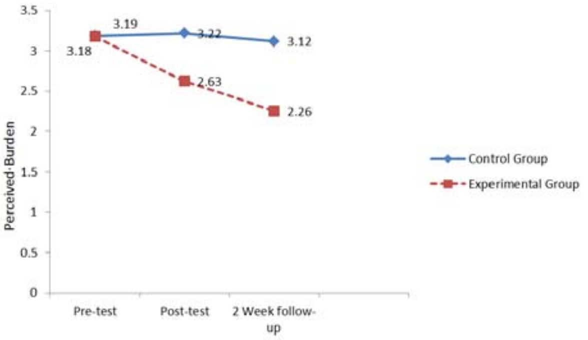

Figure 1 Interaction effect between methods and times on perceived burden with a statistical significance (F2,44= 21.48, **P** < 0.001) by two-way repeated measure ANOVA.

Once the experimental group was tested for difference of mean perceived burden scores between time points, the test was statistically significant ($F_{2,22}$, = 38.10 **P** < 0.001). This indicated that at least one pair of time points with different mean perceived burden scores. Based on the further pairwise comparison using Newman-Keuls method, the average stress scores at three time points were significantly different to each other (**P** < 0.05 each), of which the mean score at a later time point was lower than the previous one (Table 6). The decreasing trend of the perceived burden scores was evident.

Table 6 Pairwise comparisons for perceived burden scores in the experimental group using Newman-Keuls method.

Time point	$\bar{X}$	Pre-test	Post-test	2-week follow-up
Pre-test	3.18	-	0.55*	0.91*
Post-test	2.63	-	-	0.37*
2-week follow-up	2.26	-	-	-

* **P** < 0.05

Discussions and Conclusion

The purpose of this program was to develop caregivers' skills in reducing stress and perceived burden in taking care of schizophrenia patients. The results can be discussed as follows.

First, with the skill enhancement program, the caregivers in the experimental group had average stress scores at post-test and 2-week follow-up significantly lower than those in the control group (**P** < 0.01). In the experimental group, average scores of stress after completing the program and at 2-week follow-up were significantly lower than that at pre-test (**P** < 0.01). Given these results, it could be explained that this program not only helped enhance caregivers' knowledge but also the caregivers' skills. This is in accordance with the

Dreyfus's model of skill acquisition developed by Dreyfus and Dreyfus [21] who mentioned that the skills will be improved over time along with the increase of individual knowledge and experience. Therefore, educating the caregivers of schizophrenia patients together with providing them with proper experiences and later on applying what they had learned from participating in the program helped enhance their capacities in providing more effective care for their patients. Based on what they had learned, the caregivers who participated in the program mentioned that participating in such activities helped enhance their knowledge and have a better idea in providing more proper care for their patients. In addition, activities conducted in this program were in a form of group. This provided opportunities for the caregivers to have a chance in sharing their experiences in providing care for schizophrenia patients. They also had opportunities to learn from each other regarding problems or obstacles they encountered in taking their roles as caregivers. In addition, they could mutually help find solutions. For the session of enhancing skills of caregivers in promoting patients to do daily living activities on their own, the caregivers provided feedback that they gained more knowledge and clues in doing so. They had gained more knowledge and skills towards effective management for inappropriate behaviors of the patients, isolated and aggressive behaviors in particular, as well as the sessions that emphasized caregivers' medication management.

The caregivers had opportunities to discuss and exchange their knowledge and experience, and a chance to participate in role play which linked to their real life situation. In participating group activities, they had opportunities to share information, and to learn and support each other. The study by Puangjitr (2010)[10] examined the effectiveness of the program to reduce stress among the caregivers of schizophrenia patients at the Narnoi hospital, Nan province. It was found that after participating in the program, the caregivers had lower stress (**P** < 0.001). The results from our study are also consistent with the study by Khampuansai (2010)[12] which affirmed the effectiveness of the psycho-education program in reducing stress among the family caregivers of patients with schizophrenia who received services at Tung Saliang hospital, Sukhothai province. In that study, caregivers in the experimental group had lower stress than those caregivers in the control group. Within the experimental group, the stress among the caregivers at post-test and 1-month follow-up were also significantly lower than at pre-test (**P** < 0.001).

In addition, the findings from our present study showed that there was no significant interaction between methods and times. At pre-test, stress scores among the caregivers in the experimental group and control groups were somewhat identical. However, after completing the program and at 2-week follow-up, these stress scores were lower than that at pre-test. The stress among the caregivers in the experimental group was reduced both at post-test and 2-week follow-up. In the control group, on the other hand, the stress was reduced only at the 2-week follow-up. At post-test and 2-week follow-up, the stress scores in the experimental group were significantly lower compared with that at pre-test. On the other hand, stress among the caregivers in the control group, even though, declined at the 2-week follow-up, but increased at post-test in comparison with that at pre-test. Thus, the pattern of decline in the control group was not as steady as the one in the experimental group.

In addition, the stress scores in the control group at pre- and post-tests were not significantly different, the ones between pre-test and 2 week follow-up were. Given the results, it can be seen that the stress among the caregivers in both groups were reduced at 2-week follow-up even though those in the control group did not receive the training. It could be explained that stress is a subjective perception and it would be changed easily based on the situations or times. As time went by, caregivers could have been able to cope and adjust better with their life situations. This would have helped reduce their stress even though they had not participated in the training program. Furthermore, there are several factors which contribute to an individual's stress. In general, when the particular person is confronted with stress, they would try to adjust or cope with such stress. In addition, having experience in dealing with stress over time, this would help them better adjust their lives and also reduce their stress.

Second, caregivers in the experimental group had perceived burden scores at post-test and 2-week follow-up lower than those in the control group. For the experimental group, the perceived burden scores at post-test and 2-week follow-up was also significantly lower than that at pre-test. These were in accordance with study research hypotheses. The possible explanation is that the program applied in this study was systemically developed and based on the caregivers' needs. The program aimed at building relationships and sharing experiences among the caregivers. The program used activities for educating caregivers about schizophrenia disease and care for these patients with Schizophrenia, developing caregivers' skills to promote patients' self-care proficiency in their daily life, enhancing caregivers' skill in management of patients' aggressive and isolated behaviors, and enhancing skills for management of patients' medication usage. These activities helped reduce the perception of burden among the caregivers of schizophrenia patients.

In addition, the major sources of burden in these caregivers were related to the lack of knowledge and skills in caring for patients with schizophrenia who were more difficult to take care of in comparison with other patients. Given the negative consequence happening to the caregivers, the program was developed and delivered to the caregivers by targeting the enhancement of knowledge and skills. Participants in the experimental group had opportunities to obtain more information, express their feelings and concerns, and support each other. One caregiver mentioned that before participating in the program, she rarely asked her son to do anything on his own; but after the program, she tried to encourage him to do so as much as possible. These included making the bed, cleaning dishes, etc. As she reported, what was learned was very useful for her in dealing with her son and made her feel less overwhelmed. This was consistent with the study by Lim and Ahn[14] which showed that caregivers who had less knowledge or inappropriate coping strategies in dealing with stress reported more burden of care. The results from our study were also in accordance with the one by Thumthim and Uthis (2010) [15] who tested the effectiveness of family psycho-education program on burden among caregivers of schizophrenia patients. The study results indicated that the burden of caregivers both at post-test and follow-up were significantly lower than that at baseline. This was also consistent with the study by Phungkatesoonthorn and Lueboontawatchai (2011)[16] which tested the effectiveness of family therapy program on burden of the caregivers of community-dwelling schizophrenia patients. The results showed that burden, as perceived by the caregivers who participated in the family therapy program was lowered after the program and lower than that in the control group.

In our study, caregivers of schizophrenic patients in the experimental group cooperated well with the program's activities. The participants took responsibilities in doing work or homework assigned, and regularly reviewed what they had learned in each session. They paid attention and engaged in all activities and tried to apply what they had learned to their own patients. This resulted in lower stress and perceived burden for them. The caregivers' stress and burden were reduced over time as measured at post-test and follow-up phases. By obtaining the training, this would help these caregivers gain more confidence, knowledge, and skills in caring for the patients with schizophrenia. In terms of implication, health related professionals should learn about and apply this program with other caregivers of patients with schizophrenia or other chronic illnesses. It is also recommended that studies with longer study period should be done.

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Editorial note

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