CHAPTER 4

RESULTS AND DISCUSSION

The main purpose of this study was to develop the Thai Expressed Emotion Scale (TEES) for use with Thai family caregivers of people with schizophrenia and to determine its psychometric properties. This chapter consists of the results of the study followed by the processes of tool development, which were (1) determining the components of the Thai expressed emotion scale (TEES) for family caregivers of schizophrenic patients, (2) achieving content validity, (3) Factor analysis and determining the characteristics of the samples, and (4) describing the reliability and validity of the TEES for family caregivers of schizophrenic patients.

Components of the Thai Expressed Emotion Scale

According to the first research question "what are appropriate components for a Thai Expressed Emotion Scale for family caregivers of schizophrenic patients." There were three steps to explore component of EE in Thai culture, literature review for developed interview guideline and in-depth interview, expert approval and factor analysis. These three steps are described as follow.

Literature Review

The first step, literature review for developed interview guideline and in-depth interview. The outcomes of qualitative data analysis were seven themes of EE in Thai context. From the first phase, EE revealed seven themes, five themes involved previously identified components of EE, including critical comments, hostility,

positive remarks, emotional over-involvement, and warmth in the interactions of Thai family caregivers. However, two additional themes were also identified which suggested Thai culture-specific EE, namely emotional under-involvement and emotional regulation. Following are some examples of the five original EE areas, plus the two new ones identified in the Thai context:

Theme 1: Critical Comments

Critical comments were the most frequent type of EE found during the interviews. Some critical comments reflected the caregiver's unfavorable attitudes toward the ill relative's behavior, personality or characteristics, often suggesting a perceived burden in caring for the relative. The following transcript sections exemplify these comments:

"I ask for a little help from you, but you never help me, even though I give you food every day." (Int 04; brother, lines 90-91).

"I would bring a meal to her and, after she finished, she did not wash the dishes. Also, she does not bathe or take care of her hygiene."(Int 01; brother, lines 255-258).

"I think the cause of my parents being short-lived was because they felt distressed about my sister. When I take care of my sister, I always am distressed." (Int 01; brother, lines 235- 237).

Other critical comments indicated resentment, dislike, or annoyance by the caregiver, typically because the relative's behavior elicited hurt, shame, anger, disappointment or disapproval.

"I feel disappointed because I hoped she would gain knowledge and receive a certificate as a Thai massage therapist, and then she could find a job. She didn't follow through on her courses before, so I don't want her to take anymore classes because I think she won't finish the program." (Int 05; mother, lines 170- 173).

"He was quite selfish and cheated when he played with his friends." (Int 02; father, lines 21-22).
A third type of critical comment was associated with patient threats or abusiveness that created fear in the caregiver.

"I must follow her orders, otherwise she would swear at me. She was stubborn and used bad language with me. If she wanted to go somewhere, she would ask me for some money. If I didn't give it to her, she would say, "I will hit you." I couldn't stop her from going anywhere; otherwise she would fight with me or hurt me. After she went to the hospital, she seemed better, and she threatened me and told me not to tell the nurse that she hit me. Once, she locked me in the room. I didn't know if she was stable, so I had to call someone to help me get out." (Int 06; mother, lines 77- 87).

"She swears at me when she has severe symptoms. Once, she also pushed me, I did not respond to her (when she pushed me) because I cannot fight with her. If I fight with her, I would be dead." (Int 05; mother, lines 233- 237).

"Once, she was so sick that she wanted to stab me with a knife, but I took her to the hospital. I cannot speak with her rudely because it would cause big problems. I cannot do anything, only cry and cry. No one can help me except myself." (Int 05; mother, lines 238- 242)."

Theme 2: Warmth

The second most frequent type of EE was warmth. Even though the family member created burdens for the caregiver in daily life, the caregiver still recognized the relative's humanity and belonging within the family. Warmth in Thai caregivers suggested both affection and empathy expressed toward the ill relative, including concern

about the person's health and future, as well as interest in their lives and well-being.

"We do not really ever harm her, because she is our sister and we do love her. Even though she is not normal, I love my sister." (Int 01; brother, lines 53- 55).

"I didn't get angry at her. I'm her mother. If I want to hit her, I can do it anytime. But, I don't. I love her and pity her." (Int 06; mother, lines 89- 91).

A number of caregivers showed warmth in their concerns about who would take care of their patient when they (as the major caregiver) became older or passed away.

"I worry about her future. I am alive now and I can work, but when I get older, I won't be able to do anything. How will my child survive? Who will take care of her? I always think about this, but I don't know what to do." (Int 05; mother, lines 28- 31)

" I pity him. I am hurt because my son is different from others, and worry in the future who will take care him. I think this is because his siblings never pay attention to him." (Int 07; mother, lines 254-255).

Theme 3: Emotional Over-involvement

Emotional over-involvement was the next most common type of EE statement in the interviews. Comments indicated excessive anxiety about the relative, perceived responsibility for the relative's illness, over-concern, or over-protectiveness toward the relative in an attempt to control things in the relative's life. The following example shows the intensity of one caregiver's approach to achieving a desired goal:

"I forced him to apply himself to his education. I did this with all my children. I beat all my children and they are now a success because of that stick." (Int 02; father, lines 147- 149).

Our data highlighted the incidence of somatic over-involvement by caregivers, noted by trouble sleeping, gastrointestinal problems and other physical symptoms indicating bodily stress responses.

"I was very stressed and suffered from insomnia. I was stressed and sometimes thought about my parents and that they had passed away and were happy because they did not have any headaches because of my sister. My responsibilities are to me and to my brother." *(Int 01; brother, lines 174-179).*

"I always feel distressed and I need to see the doctor. The doctor prescribed me a medicine to reduce my distress." (Int 05; mother, lines 67-69)

Theme 4: Positive Remarks

Most caregivers made some positive comments about their ill family member. Positive remarks were often about the patient's behavior or personality before symptom manifestation or about times when their patients were less symptomatic.

"When he goes out, he is a gregarious person and can make good relationships with others. He sometimes does massage for others, and he gets paid for it too, he is friendly and socializes with them very well." (Int 04; brother, lines 30-33).

"Of my eight children, he actually is a clever guy and is the most intelligent" (Int 02; father, lines 43-44).

Theme 5: Emotional Regulation

Some statements within the interviews indicated the caregiver's ongoing attempts to manage or control the negative or troubling emotions they may experience from the interactions with the ill relative. These strategies involved the use of cognitive reframing or reappraisal as well as suppression or inhibition of negative emotions toward the ill relative. For example, two mothers stated:

"I do nothing, and try to make my mind empty, and not think about it." (Int 07;

mother, lines 138-139).

"Sometimes, I tried to not think about it "Bplohng and Bplohng". (Int 05; mother, lines 53-54).

"When I told my husband, he told me to accept it and not think about it. "Whatever will be, will b." He told me to try to "Thum-jai." (Int 05; mother, lines 181-183).

"However, I think I should "Thum-jai" when I look at other people whose children have more severe conditions than my daughter. For example, some children have disabilities and need total care." (Int 05; mother, lines 207-210).
"He is sick like this, I think because of his Karma. So, I should be taking care of him and do as best I can." (Int 08; brother, lines 58-60).

Theme 6: Hostility

A small percentage of caregivers made hostile remarks about their ill relative, indicating a general or overall rejection of the relative (in contrast to the dislike of specific behaviors or personality characteristics in CC).

"I sometimes think it would be better if he died. Then I would be finished with the burden."(Int 02; father, lines 200-201).

"My feeling is to let him go far away from me, because if he stays at home I do not feel comfortable" (Int 07; mother, lines 254-255).

"Yes, sometimes I would say, "Go commit suicide. Why are you still alive? Your life is not useful." At those times, I was very discouraged." (Int 05; mother, lines 221- 223).

Theme 7: Emotional Under-Involvement

Lastly, interview data provided evidence of emotional detachment or disengagement from the ill relative in some caregivers. Such comments indicated minimal interest or satisfaction in interactions, little sense of loyalty toward the ill

relative as a family member, loss of feeling for the relative, or lack of concern for the relative's health status and feelings.

"I feel nothing. I mean, we work and live separately. He is living on his own and I feel nothing." Int 04; brother, lines 55-56).

"Normally, I have no feelings about him." Int 04; brother, line 122).

"Some of my other children said to me, "Don't bring her back because she will be mad again. Let her stay there, in the hospital." (Int 06; mother, lines 63-65).

"His siblings never pay attention to him. I even spoke with my oldest son but he did not respond (by getting more involved with his brother). The other children do not pay attention to any of this." (Int 07; mother, lines 256-265).

Expert Approval

The second step, expert approval, all of items pool which developed from the seven themes was reviewed by five experts. The process of this step was finding the content validity index, clarity and conciseness of the TEES items.

Content validity. After those seven central themes were identified, attitudes or behaviors indicated as part of and themes were then used to generate items. A total 50 items were developed from the seven themes. Following the development of the 50 items, the next step was the investigation for content validity. In this process of testing content validity, the 50 TEES items were assessed by a panel of five experts (Appendix E) to confirm the representative of the domain (the seven themes of EE). According to Lynn (1986), among a panel of five experts, the agreements of four of the person are needed to establish content validity beyond the 0.05 level of significance. The content validity index (CVI) for the entire instrument was

determined by dividing the judged content validity of each item by the total number of items (Waltz, Strickland, & Lenz, 1991). Following this procedure, the CVI of the TEES was shown to be 0.88 (CVI = 44/50). Three of the experts also recommended adding one more item in the themes of hostility, emotional involvement, and emotional under–involvement, and thus 53 items were re-written as questionnaire to form an original 4-point scale. Each item is anchored by "strongly agree" to "strongly disagree".

Factor Analysis

The third step, factor analysis was used to confirm the construct of the EE. Factor analysis was performed on the 53 items of the TEES which completed by 566 family caregivers of schizophrenic patient who took their relative to a psychiatric hospital in four regions of Thailand. The characteristics of the subjects were described below.

Characteristics of the samples

The subjects of this study were primarily family caregivers of schizophrenic patients who received care at an outpatient unit of psychiatric hospitals from four regions of Thailand: north, northeast, central and south. A total of 566 caregivers met the inclusion criteria and volunteered to participate in this study. The study also included a sample of 37 schizophrenic patients who came with their caregivers to receive services at the psychiatric hospital. The demographic characteristics of both family caregivers and schizophrenic patients are presented in Table 3.

The age of the caregivers ranged from 18 to 87 years, with a mean of 45.53 years (SD = 13.27). Most caregivers (65.3%) were female, and almost all (90.2%, n = 507) were

Buddhist. Almost half (49.8%) of the caregivers had only primary school education. Most (62.5%) were married. The duration of being a caregiver ranged from 1 to 50 years, with a mean of 8.90 (SD = 8.01). The fewest were from the northeastern region (19.9 %) and the most from the central region (29%), 28.2% of the caregivers were employees, 24.3 % were agriculturists, 20.6 % were business owners or traders and 11.9 % were government officers or public enterprise employees. More than 70% of the caregivers identified their income as adequate or more than adequate. Approximately one quarter of the caregivers described their income as inadequate.

More than one-third of the caregivers (36.9%, n = 209) were parents of the patients. The other largest group of caregivers was siblings of the patients (29.3 %). Table 3 shows those children, spouses, and other relatives or friends also assumed the role of caregivers in some situations. Most caregivers (77.6%) lived with the patients in the same household. Seventy-five percent of caregivers identified no personal physical health problems, while 24.8% noted at least one physical symptom or illness patients. The other largest group of caregivers was siblings of the patients (29.3 %). Table 3 shows those children, spouses, and other relatives or friends also assumed the role of caregivers in some situations. Most caregivers (77.6%) lived with the patients in the same household. Seventy-five percent of caregivers identified no personal physical health problems, while 24.8% noted at least one physical symptom or illness (Table 3).

Table 3

Demographic Characteristics of the Caregivers (N = 566)

Personal Characteristics	Frequency	Percentage
Gender		
Male	196	34.70
Female	369	65.30
Religion	507	90.20
Buddhist	42	7.50
Muslim	11	2.00
Christian	2	0.40
Other		
Education level	20	3.50
None	282	49.80
Primary school	139	24.60
Secondary school	38	6.70
Diploma	83	14.70
Bachelor degree	4	0.70
Master degree		
Marital status		
Single	121	21.50
Married	352	62.50
Widowed, Divorced, Separated	90	16.00
Region		
North		
Northeast	126	22.40
Central	112	19.90
South	163	29.00
	161	28.60
Occupation		
Employee	159	28.20
Business owner/trader	116	20.60
Agricultural worker	137	24.30
Government Officer/Public Enterprise Employee	67	11.90
Other	85	15.10

Table 3 (*Continued*)

Personal characteristics	Number	Percentage
Income	347	61.30
Adequate	153	27.00
Inadequate	63	11.10
More than adequate	3	0.50
Other		
Relationships with patients		
Parent	209	36.90
Child	65	11.50
Siblings	166	29.30
Relative	46	8.10
Spouse	55	9.70
Friends	2	0.40
Other	23	4.10
Household arrangement		
Living in the same house	434	77.60
Living in a separate house and far away	51	9.10
Living in a separate house but close by	70	12.50
Other	4	0.70
Caregiver illness		
At least one physical symptom/disease	134	24.80
No physical symptom/ disease	406	75.20

Demographic Characteristics of Patients Receiving Care

The demographic characteristics of the schizophrenic patients who were receiving care from the caregivers are presented in Table 4. The patients' mean age was 38.13 years (SD = 13.49). There were nearly twice as many male patients (61.1 %) receiving care as females. More than half of the patients (55.1%) were unemployed. Among the patients who were employed, most worked in agriculture. One-third of the patients were described by caregivers as having good self-care (39.5%) or partial self-

care (32.6%). The number of previous psychiatric hospitalizations for patients ranged from 1 to 40, with a mean of 4.37 (SD = 4.88) and mode of 1. The duration of their illness ranged from 1 to 45 years, with a mean of 10.28 (SD = 8.66) and mode of 10.

Table 4

Demographic Characteristics of Patients Receiving Care (N = 566)

Personal characteristics	Frequency	Percentage
Sex		
Male	344	61.10
Female	219	38.90
Occupation		
Employee	76	13.50
Business owner/trader	45	8.00
Agriculturist	52	9.20
Government Officer/Public Enterprise Employee	15	2.70
Do nothing	310	55.10
Other	65	11.50
Level of patients self-care		
Very good self-care	95	16.80
Good self-care	223	39.50
Partial self-care	184	32.60
Little self-care	63	11.20

Before factor analysis was carried out, the correlation matrix of the observed variables (53 items of TEES) was examined in order to gather rough information as to whether it was appropriate to use factor analysis with this data set. Tabachnick and Fidell (2001) have suggested that a suitable data set for factor analysis is one in which the correlation matrix contains several sizes of correlations and many of the correlations exceed .30 in absolute value. The data set of the TEES fit these criteria in that there were various sizes of correlations between items ranging from .31 - .81, and many of them exceeded .30.

Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) were then computed to confirm the appropriateness of applying factor analysis. Bartlett's test of sphericity was significant ($\chi^2 = 13494.06$, $\rho = .00$), indicating that the items were highly inter-correlated. The KMO value was .925. A KMO value > .90 is considered an excellent indication for using factor analysis. A principal components analysis was selected as the factor analysis extraction technique, as recommended by Nunnally and Bernstein (1994). Varimax orthogonal rotation was used to maximize the variance among the loadings on each factor.

When the principal components analysis was initially performed on the TEES data, nine factors with eigenvalues of 1 or greater emerged. As shown in Figure 2, only seven of the nine met the scree test criterion. In addition, two factors were considered low-level in the hierarchy of factors, that is, they contained only two similar variables (Comrey & Lee, 1992). The eighth factor consisted of only two similar items, item 20 "I suffer from pitying him" and item 23 "I feel I should take special care of him/her." The ninth factor contained only one item, item 18 "My own problems have caused his/her illness." As noted by Comrey and Lee (1992), low-level

factors seem to be less meaningful to the overall analysis. Of the seven factors, the first four had eigenvalues greater than 2 and the others had eigenvalues greater than 1. Five items loaded on 2 factors above .30. For four of these items, the loadings indicated a clearer association with one of the factors because of stronger loadings and its conceptual fit, and the fifth item was aligned conceptually with factor 7, which also had the fewest items.
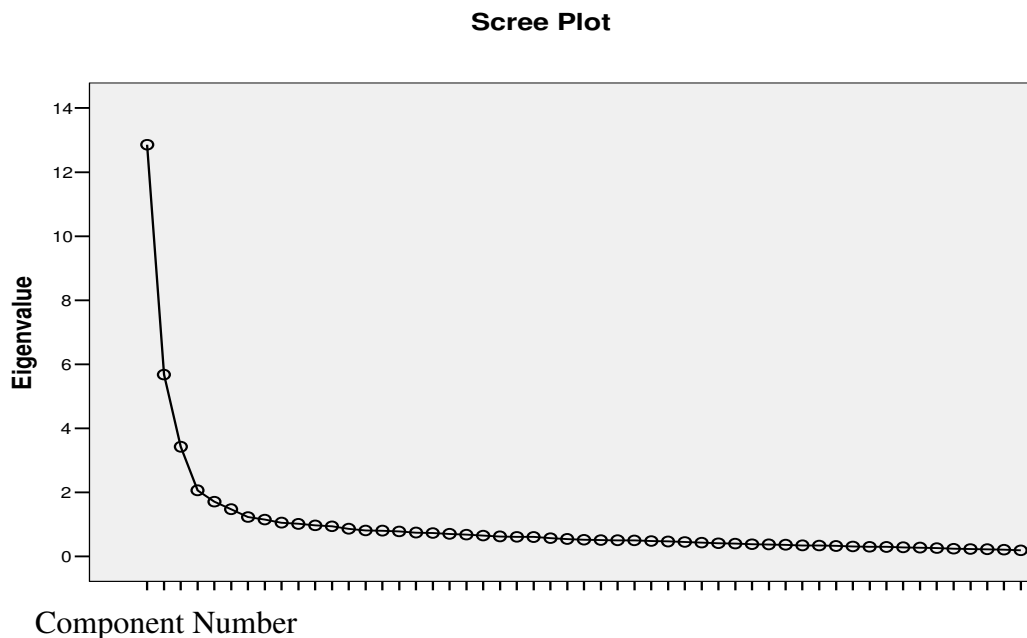
Scree Plot

Figure 6 Scree Plot for Principal Components Analysis

Communality, a measure of how much of the variability in a given variable is explained by all the factors in the analysis (Munro, 2001), ranged from .40 - .77. Thus items had very acceptable communalities with a value greater than .20 (Tabachnick & Fidell, 2001). The final factor solution is presented in Table 5. Four of the original items did not load on the final seven factors, leaving a total of 49 items. Eigenvalues ranged from 3.61 to 1.28. Five of the factors had eigenvalues of 3 or greater.

The first factor included all of the original items developed to examine the EE component of this factor. Positive remarks consisted of 7 items. The loadings of items on this factor ranged from .65 to .78, with an eigenvalue of 4.94 and accounted for 9.32 % of the percent of variance.

The second factor contained 8 items with factor loadings from .52 to .70 with an eigenvalue of 4.80 and accounted for 9.07 % of variance. Seven of the items were from those developed to examine hostility. One item, loading at .55, was from the set originally proposed to measure the component of emotional involvement.

The third factor included all of 8 items that were proposed to measure emotional under-involvement. Factor loadings ranged from .58 to .73 with an eigenvalue of 4.44 and accounted for 8.38 % of variance.

The fourth factor included 7 items. Six of these items were from those proposed to measure emotion regulation and one item came from the original warmth subscale. The factor loadings ranged from .41 to .74 with an eigenvalue of 3.93 and accounted for 7.42 % of variance.

The fifth factor consisted of 7 items, all of which were developed to measure critical comments. The factor loadings ranged from .56 to .69 with an eigenvalue of 3.86 and accounted for 7.28 % of variance.

The sixth factor included 7 items, all of which had been proposed for the original warmth subscale. However, as noted for factor 4, one item loaded more strongly on the emotional regulation factor at .42. The factor loadings ranged from .35 to .81 with eigenvalue of 3.76 and accounted for 7.11 % of variance.

The last factor had the lowest eigenvalues (2.20) and consisted of 5 items. The factor loadings ranged from .34 to .61 with eigenvalue 2.20 and accounted for

4.15 % of variance. Four of these items were from those developed to measure emotional overinvolvement. One additional item was originally developed to measure hostility but loaded with the emotional over-involvement items at .44. Those other items that had been developed for emotional overinvolvement did not load on this factor. One of the items loaded instead on hostility and the other 2 items did not load on any of the factors.

Table 5

Factor Loadings, Percent of Variance, Eigenvalues, and Communalities for Varimax actor Rotation

Items		Factor Loadings	Communal ities	Original T E E S subscale
	Factor I Positive Remarks			
Tees 32	He is not a harmful person	.65	.54	PR
Tees 33	He tries to do the right thing	.78	.72	PR
Tees 34	He has a good character.	.76	.68	PR
Tees 35	He does the best he can in spite of his illness	.77	.71	PR
Tees 36	He has many positive characteristics	.70	.66	PR
Tees 37	He does things that satisfy me in daily life	.71	.65	PR
		.73	.64	PR
Tees 38	Even though he is sick, he tries to follow my advice			
	Eigenvalues = 4.94			
	Percent of Variance = 9.32 %			
	Factor II Hostility	.59	.56	H
Tees 8	It would be better if he was far away from me	.67	.59	H
		.52	.56	H
Tees 9	He is a useless person			
Tees 10	I have to punish him in order to make him responsible	.67	.64	H
Tees 12	Sometimes I feel like hitting him or physically harming him	.63	.57	H
		.70	.60	H
Tees 13	I hate taking care of him	.58	.53	H
Tees 14	I think it would be better if he was dead	.55	.50	EOI
Tees 15	I want him to stay in the hospital forever			
Tees 21	He causes me to lose my patience			
	Eigenvalues = 4.80			
	Percent of Variance = 9.07%			

Table 5 *(Continued)*

Items		Factor Loadings	Communalities	Original T E E S subscale
	Factor III Emotional Under- Involvement			
Tees 46	I have no feelings about him	.59	.40	EU
Tees 47	We are living separately	.73	.63	EU
Tees 48	I don't know about him	.73	.60	EU
Tees 49	I don't know about his thinking or feelings	.58	.52	EU
Tees 50	I expect him to get better by himself	.68	.53	EU
Tees 51	Even though we live together, I feel like we live separate lives	.72	.63	EU
Tees 52	I don't want to hear about his problems any more	.66	.65	EU
Tees 53	What ever happened to him, it was not my responsibility	.63	.57	EU
	Eigenvalues = 4.44			
	Percent of Variance = 8.38 %			
	Factor IV Emotional Regulation			
Tees 31	I accept him regardless of what he does	.41	.47	W
Tees 39	I keep myself calm when his behavior becomes difficult	.59	.47	ER
Tees 40	I make my mind accept whatever difficulties he creates	.70	.65	ER
Tees 41	I try not to think about the problems that he creates	.74	.65	ER
Tees 42	Whenever he does something that might hurt my feelings, I keep the hurt silent in my heart	.69	.57	ER
Tees 43	When I feel distressed by his problems, I try to "let it be"	.70	.58	ER
Tees 44	I try not to get angry with him	.65	.55	ER
	Eigenvalues = 3.93			
	Percent of Variance = 7.42%			

Table 5 *(Continued)*

Items		Factor Loadings	Communalities	Original T E E S subscale
	Factor V Critical Comments			
Tees 1	I don't like many of his behaviors	.63	.57	CC
Tees 2	I feel ashamed of his behavior	.65	.55	CC
Tees 3	I feel distressed as a result of his	.63	.57	CC
	behavior	.69	.62	CC
Tees 4	He creates many problems/troubles for	.57	.51	CC
	me	.58	.60	CC
Tees 5	He doesn't appreciate anything I do for him.	.56	.54	CC
Tees 6	I think he hates me			
Tees 7	I feel disappointed with him			
	Eigenvalues = 3.86			
	Percent of Variance = 7.28 %			
	Factor VI Warmth			
Tees 24	I pity him			
Tees 25	I feel sorry for him	.35	.53	W
Tees 26	I love him/ her	.56	.46	W
Tees 27	I always pray for him/her to get well	.74	.70	W
Tees 28	Taking care of him is my responsibility	.76	.67	W
Tees 29	I feel good when he is happy	.67	.63	W
Tees 30	I am careful about how I talk to him so	.81	.76	W
	that I don't hurt his feelings	.61	.62	W
	Eigenvalues = 3.76			
	Percent of Variance = 7.11 %			

Table *5 (Continued)*

Items		Factor Loadings	Communalities	Original T E E S subscale
	Factor VII			
	Emotional Over-Involvement			
Tees 11	He has brought his sickness upon himself	.44	.39	H
Tees 16	I have physical health problems because I worry about him	.49	.52	EOI
Tees 17	I have to force him to do things that I know he must do	.58	.58	EOI
Tees 19	Sometimes I have to lie to him in order to control his behavior	.61	.56	EOI
Tees 22	It's hard for me to control my emotions when he does something that makes me angry	.34	.47	EOI
	Eigenvalue = 2.20			
	Percent of Variance = 4.15 %			

Note: PR=Positive Remarks, H=Hostility, EU=Emotional Under Involvement, W=Warmth, ER=Emotional Regulation, CC=Critical Comments, EOI=Emotional Involvement.

Reliability and Validity of the TEES

Subsequently, for the purpose of verifying the reliability and construct validity of the TEES, two data sets were used to examine reliability and validity. The first data set was collected from the 566 caregivers of schizophrenic patients (the same data set which used in factor analysis) and the second data set was collected from 37 dyads of caregivers and schizophrenic patients.

Demographic characteristics of patients participating in this study

The demographic characteristics of the small sample of schizophrenic patients who participated in the study were provided by their caregivers who participated in the study (Table 6). The patients' mean age was 37.62 years (SD = 13.59). More than two-thirds (70.3 %) were male and 29.7% were female. More than half (51.4%) were unemployed. Among the patients who were employed, most were employees or worked in agriculture. Most were described by their caregivers as capable of partial self-care (59.5%) or having good self-care (35.1%). The levels of self care of patients participating in this study (37 cases) as perceived by the caregivers were lower in the participating patients than in the patients receiving care in the other group (566 cases).

In this small sampled group, the number of previous psychiatric hospitalizations ranged from 1 to 10, with a mean of 3.19 (SD = 2.43). The duration of their illness ranged from 1 to 25 years, with a mean of 6.68 (SD = 5.51).

Table 6

Demographic Characteristics of Patients Participating in the Study (N = 37)

Personal characteristics	Frequency	Percentage
Sex		
Male	26	70.27
Female	11	29.73
Occupation		
Employee	3	8.10
Business owner/trader	10	27.00
Agricultural worker	3	8.20
Do nothing	19	51.40
Other	2	5.40
Level of patient self-care		
Very good self-care	2	5.40
Good self-care	13	35.10
Partial self-care	21	56.80
Little self-care	1	2.70

Reliability

The reliability of the TEES was tested in terms of internal consistency by using Cronbach's alpha. The internal consistency was examined for the extent to which all of the items within the various subscales measured the same attribute. Reliability coefficients above 0.80 indicated good internal consistency among items. According to Nunnally, (1978), alpha coefficients should be at least 0.70 for an instrument in the early stages of development. As shown in Table 7, factors 1, 2, 3, 4,

5, and 6 showed good internal consistency with alpha coefficients of .91, .86, .86, .85, .83 and .84 respectively. Even though the seventh factor displayed the lowest alpha coefficient at .75, this was still considered to be satisfactory internal consistency, as presented in table 7.

Table 7

Cronbach's Alpha Coefficient Reliabilities for the Seven Factors of the TEES (N = 566)

Factor	Number of items	Range of scores	M	SD	Alpha
1. Positive Remarks	7	7-28	22.56	3.75	.91
2. Hostility	8	8-32	14.59	4.32	.86
3. Emotional Under-Involvement	8	8-32	14.45	4.18	.86
4. Emotion Regulation	7	7-28	22.36	3.16	.85
5. Critical Comment	7	7-28	16.01	4.12	.83
6. Warmth	7	7-28	24.45	2.98	.84
7. Emotional Over-Involvement	5	5-20	12.15	3.04	.75

Validity

Construct validity was examined by hypothesis testing though the ability of the TEES to predict caregiver and patient status on a number of conceptually relevant variables. Caregivers or patients were divided into groups based on whether they were perform hypothesis testing validity, there above or below the mean on variables: number of patient of psychiatric hospital admissions, duration of the patient's illness, caregiver's psychological dysfunction and level of patient's self care. Patients were also divided based on whether they lived with the caregiver. Group differences in TEES scores were examined using Mann-Whitney tests. Nonparametric coefficients were computed because of the skew that existed in the distribution of theses variables. The following hypotheses were tested.

Hypothesis 1: Patients who live with the caregiver will have caregivers with higher scores on warmth, positive remarks, emotional overinvolvement, and emotion regulation.

Hypothesis 2: Patients who are not living with their caregiver will have caregivers with higher scores on hostility, criticism, and emotional under-involvement.

Findings related to these first two hypotheses are shown in Table 8. The statistical analysis shows that caregivers who had higher scores on warmth ($p<.01$), positive remarks ($p<.05$), and emotion regulation ($p<.01$) were more likely to be living with their schizophrenic relative. In contrast, caregivers who had higher scores for emotional under-involvement ($p<.01$) were more likely to not be living with their relative. These findings supported the hypotheses. However, hostility, critical comments and emotional involvement were not differentiated by living arrangements.

Table 8

Differences in TEES Subscale Scores for Caregivers Living with their Schizophrenic Relative versus Those Not Living with their Relative

TEES	Patients living with caregiver	N	Mean Rank	Z	Asymp. Sig. (2-tailed)
Positive remarks	No	125	253.56	-2.10	.03
	Yes	434	287.62		
Hostility	No	125	286.57	-.52	.60
	Yes	434	278.11		
Emotional under-involvement	No	124	318.92	-3.15	.00
	Yes	433	267.57		
Emotion regulation	No	124	240.04	-3.09	.00
	Yes	433	290.16		
Critical comments	No	125	291.66	-.92	.36
	Yes	434	276.64		
Warmth	No	125	243.24	-2.88	.00
	Yes	433	289.97		
Emotional over-involvement	No	125	294.22	-1.21	.23
	Yes	432	274.60		

Hypothesis 3: Caregivers who are higher in hostility, critical comments, emotional over-involvement, and emotional under-involvement will have significantly higher scores for duration of the relative's illness, caregiver's psychological dysfunction (total GHQ), and number of relative's previous hospitalizations.

Hypothesis 4: Caregivers who are higher in positive remarks, warmth, and emotion regulation will have significantly lower scores for duration of the relative's illness, caregiver's psychological dysfunction (total GHQ), and number of relative's previous hospitalizations.

For number of patient hospitalizations, hypotheses 3 and 4 received strong support. The number of admissions was greater for patients whose caregivers were high in hostility, emotional over-involvement and emotional under-involvement. Admissions were fewer for patients whose caregivers were high in positive remarks and emotion regulation. No relationship was found between number of admissions and either critical comments or warmth.

For duration of the patients' illness, neither of the hypothesis was supported. No relationship was found between caregiver EE and these variables.

For caregivers' psychological dysfunction, hypothesis 3 and 4 were only partially supported. Caregivers who were higher on hostility, critical comments, and emotional over-involvement had lower psychological functioning (lower psychological well being). Caregivers who were higher on positive remarks had better psychological functioning (higher psychological well being). However, emotional under-involvement, warmth and emotional regulation showed no relationship to this variable.

Hypothesis 5: Patients who have caregivers with higher scores on hostility, critical

comments, emotional over-involvement, and emotional under-involvement will have lower levels of self-care.

Hypothesis 6: Patients who have caregivers with higher scores on positive remarks, warmth and emotional regulation will have higher levels of self-care. Findings related to these hypotheses are shown in Table 9.

For patients' level of self care, hypotheses 5 and 6 received strong support. The predicted relationships were supported. The patients whose caregivers were high in hostility, critical comments, emotional overinvolvement, and emotional under involvement had worse self care. Patients whose caregivers were high in warmth, positive remarks and emotional regulation had better self care.

Table 9

Differences between Caregivers Who had High and Low Scores on the TEES Subscales Number of Hospitalizations, Duration of the Patient's Illness, Caregiver's Psychological Dysfunction level, and Level of Patient's Self Care

TEES Subscale	Variables	TEES	N	Mean Rank	Z	Asymp. Sig. (2-tailed)
Hostility	Number of psychiatric hospital admissions	High	231	232.45	-3.31	.00
		Low	197	193.45		
	Duration of the patient's illness	High	286	286.41		
		Low	266	256.85	-1.51	.12
	Caregiver's psychological dysfunction	High	289	310.55		
		Low	269	246.14	-4.92	.00
	Level of patient's self care	High	293	259.19		
		Low	272	308.65	-3.79	.00
Critical Comment	Number of psychiatric hospital admissions	High	205	223.51		
		Low	223	206.22	-1.47	.14
	Duration of the patient's illness	High	244	275.43		
		Low	308	277.35	-1.41	.88
	Caregiver's psychological dysfunction	High	245	323.11		
		Low	313	245.36	-5.90	.00
	Level of patient's self care	High	249	235.78		
		Low	316	320.21	-6.44	.00
Emotion Over Involvement	Number of psychiatric hospital admissions	High	206	231.27		
		Low	220	196.86	-2.93	.00
	Duration of the patient's illness	High	256	271.35		
		Low	294	279.12	-.57	.56
	Caregiver's psychological dysfunction	High	262	325.80		
		Low	295	237.44	-6.75	.00
	Level of patient's self care	High	263	241.81		
		Low	300	317.24	-5.79	.00
Emotional Under involvement	Number of psychiatric hospital admissions	High	233	225.33	-2.11	.03
		Low	194	200.40		
	Duration of the patient's illness	High	288	284.41	-1.383	.16
		Low	262	265.71		

Caregiver's psychological dysfunction		High	296	287.16	-1.245	.21
		Low	262	270.85		
Level of patient's self care		High	297	266.24	-2.565	.01
		Low	266	299.60		

Table 9 *(Continued)*

TEES Subscale	Variables	TEES	N	Mean Rank	Z	Asymp. Sig. (2-tailed)
Positive Remarks	Number of psychiatric hospital admissions	High	209	196.13	-3.05	.00
		Low	219	232.03		
	Duration of the patient's illness	High	271	271.26	-0.76	.44
		Low	281	281.55		
	Caregiver's psychological dysfunction	High	275	258.69	-3.13	.00
		Low	285	299.72		
	Level of patient's self care	High	278	330.02	-7.11	.00
		Low	287	237.45		
Warmth	Number of psychiatric hospital admissions	High	216	206.46	-1.30	.19
		Low	211	221.72		
	Duration of the patient's illness	High	297	276.67	-.10	.91
		Low	254	275.22		
	Caregiver's psychological dysfunction	High	298	279.59	-0.01	.98
		Low	260	279.39		
	Level of patient's self care	High	301	299.59	-2.81	.00
		Low	263	262.94		
Emotion Regulation	Number of psychiatric hospital admissions	High	204	198.76	-2.48	.01
		Low	223	227.94		
	Duration of the patient's illness	High	274	281.81	-0.93	.35
		Low	276	269.23		
	Caregiver's psychological dysfunction	High	275	282.28	-0.41	.67
		Low	283	276.80		
	Level of patient's self care	High	277	305.74	-3.59	.00
		Low	286	259.01		

Convergent validity

Convergent validity was measured by examining the correlation of the TEES with two other measures of EE: The Perceived Criticism Scale and the Adjective Checklist (Table 10). The results indicated that a significant relationship exists between the patient's perception of his/her own degree of criticism toward his/her caregiver and the TEES critical comments scores. However, there was no relationship between the patient's perception of the caregiver's criticism toward the patient and the TEES critical comments. Patients may have been more capable of judging their own criticism than the caregivers but their own criticism may be a good indicator of critical between the dyad. Also less openness by patient about caregiver might be possible due to caregivers' presence during interview.

Table 10

Spearman Correlation Coefficients between Perceived Criticism Scores and TEES Critical Comment Scores

Variables	*N*	*r*	*P*
Perceived Criticisms made by the patient toward the caregiver and Criticism score	37	.37 *	.02
Perceived Criticisms made by the caregiver toward the patient and Criticism score	37	.14	.40

Correlation is significant at the .05 level (2-tailed)

As shown in Table 11, the results for the Adjective Checklist were all highly significant. Scores on the positive EE subscale of the Adjective Checklist were related to the TEES subscales of positive remarks, warmth, and emotion regulation. The negative subscale of the Adjective Checklist was related to the TEES subscales for hostility, emotional over-involvement, critical comments, and emotional under-involvement. This finding suggests that there are two general or global EE factors; positive EE and negative EE.

Table 11

Spearman Correlation Coefficients between Sores on the Adjective Checklist and TEES Subscale Scores

TEES- Subscale	Adjective Checklist (Positive)		Adjective Checklist (Negative)	
	N	r	N	r
Positive remarks	565	.44 **	566	-.43 **
Warmth	564	.41 **	564	-.23 **
Emotion regulation	563	.46 **	564	-.32 **
Hostility	565	-.35 **	566	.45 **
Emotional under-involvement	563	-.34 **	564	.28 **
Critical comment	565	-.36 **	566	.54 **
Emotional over-involvement	563	-.28 **	564	.52 **

** Correlation is significant at the .001 level (2-tailed)

Discussion

This study focused on the development of the EE scale in the Thai cultural context, and then examined the psychometric properties of the resulting Thai Expressed Emotion Scale (TEES). Although there are several EE scales currently in use, such as the 'gold standard' Camberwell Family Interview (CFI) (Vaughn & Leff, 1976) for assessing the emotional climate between a patient and a significant other, none of these scales were felt to be entirely appropriate for use with Thai people.

The original 53 items of TEES was subjected to principal components of analysis, the initial solution yielded 9 factors with an eigenvalue greater than 1. An examination of the scree plot indicated that 7, 8, and 9 should be examined. However, from the qualitative phase, the TEES was hypothesized to have 7 factors underlying dimensions; a 7 factor solution using varimax and oblige rotations was originally specified. Varimax approached the problem of orthogonal analytic rotation by maximizing the sum of variances of squared structure elements in the columns of the structure matrix rather than the row (Kaiser, 1958 cited in Nunnally and Bernstein, 1994). The factor loading cutoff point was set at .30. However, theoretical congruence and consistent with the definition of the construct is meant to be tapping as recommended by Pedhazur and Schmelkin (1991). Finally, the 7 factor oblique solution was also judged to be the most parsimonious and interpretable. The result of the TEES as a total scale and the seven factors with 49 items of TEES had high

reliabilities (α = .91 and .75-.86 respectively). The seven factors include: factor I: Positive remark   (7 items), Factor II: Hostility (8 items) factor III: Emotional Under involvement (8 items), factor IV: Emotional Regulation (7 items), factor V: Critical Comments (7 items), factor VI: Warmth (7 items) and factor VII Emotional Over involvement (5 items). The discussion of the findings are presented according to the research question; the components of the TEES and its psychometric properties.

Components of the TEES

Factor I: Positive remark, this first factor including 7 items with factor loading ranging from .65 to .78. This factor was labeled as "positive remark". It was incorporated all of the original items (100%) developed to examine the EE component of this factor. All items in this factor included caregivers' attitudes rather than actions. Positive remarks reflected satisfaction with the behavior of the patient, such as the ability to provide self-care. This factor in this study was similar to "positive remarks", one of five subscale of the Camberwell Family Interview (CFI) (Vaughn & Leff, 1976). For example "He is not a harmful person" "He has a good character" "He does the best he can in spite of his illness "He has many positive characteristics." These example were close to another study, such as "I like and admire some aspects of him/her" "I enjoy talking with him/her" (Karanci & Inandilar, 2002) and "I find him getting easy to deal with" (Li & Arthur, 2005). Grant and colleagues have described the many rewards described by caregivers such as providing challenge, feeling needed, testing their abilities, providing a sense of purpose in life, and prevention of guilt (Grant, Ramcharan, McGrath, Nolan, & Keady, 1998). Schwart and Gidron (2002) found that Israeli parents reported satisfaction from their care giving roles as a feature of their positive remarks about ill

relatives.

Factor II: Hostility, the second factor contained 8 items with factor loadings from .52 to .70. Seven of the items (7 of 8 items or 87.5%) were from those developed to examine hostility. All items in this factor included caregivers' attitudes and actions. Which congruent with the definition of hostility in others research such as Kavanagh et al. (1997).One item, TEES 11 stated, "He causes me to lose my patience" loading at .55, was from the set originally proposed to measure the component of emotional over-involvement. Hostility by family caregivers may result from a range of practical and emotional stresses in caring for a mentally ill person. Previous research has shown that these ongoing stresses cause physical and emotional strain for Thai caregivers (Tungpunkom, 2000). They have difficulty in managing the patient's behaviors outside of the controlled hospital setting (Kulvechakit et al., 1997) and experience the ongoing effects of stigmatizing attitudes towards their mentally ill relative (Rungreangkulkij, 1997; Tsang, Tam, Chan, & Cheung, 2003). Hostile or rejecting attitudes of caregivers in our study were linked specifically to difficulties managing the patient's own threatening or hostile behavior. Other studies have also found a link between caregiver hostility and turbulent patient behavior (Winefield & Harvey, 1994). Chang and Horrocks (2006) found that some caregivers were scared to deal with their mentally ill relatives who were behaving aggressively or violent at home.

Factor III: Emotional under-involvement, the third factor included all of 8 items (100%) that were proposed to measure emotional under-involvement. Factor loadings ranged from .58 to .73. Emotional under-involvement was a component of EE identified in this study that has not fully been recognized in the literature. All items in this factor included caregivers' attitudes and emotional detachment or disengagement

from their ill relative, including minimal interest or satisfaction in interactions, little sense of loyalty toward the ill relative as a family member, loss of feeling for the relatives, or minimal concern for the relative's health status and feelings. One possible explanation for manifesting this factor might be due to the experience of caregiving in caring for chronic condition patients. The empirical evidence in this investigation also showed that none of the caregivers study in this study was new to the role, the duration of care ranged from 1 to 50 years, with a mean of 8.90 (SD = 8.01). As time goes by for some families, this process of negotiation may not be successful, leaving the caregiver unwilling to provide care. The personality traits and other characteristics of caregivers will influence their tolerance for various caregiving burdens or their ability to adapt to changing roles. These individual differences may result in the need for emotional withdrawal from the patient by some caregivers. As Yang and Pearson (2002) described that when a patient becomes chronically disabled due to schizophrenia, the family system must negotiate a series of reorganizations to avoid a state of crisis. This congruent with research study by Chaisena, Virekarat, and Prateepajitteand (1997) found 51.48% of Thai family caregivers wanted their mental ill relatives to be admitted to the hospital permanently because they believed it would improve compliance and behavioral management of their ill relative (Chaisena et al., 1997). Under-involvement has also been found in Chinese caregivers of people with schizophrenia who identified reduction in their involvement as a personal coping strategy for caregiver burden (Chang & Horrocks, 2006). In contrast to emotional over-involvement, emotional under-involvement reflects a caregiver's emotional disengagement from the ill relative. Under-involvement may help caregivers cope with their sense of burden and hopelessness regarding the patient's condition. Previous studies have identified emotional exhaustion or burnout as common

outcomes of caregiving (Cuijpers & Stam, 2000), stemming from factors such as loss of sleep, lack of time to oneself, and unfulfilled caregiver needs (Grant et al., 1998; Jungbauer, Stelling & Angermeyer, 2004).

Factor IV: Emotional Regulation, the fourth factor included 7 items. Six of these items were from those proposed to measure emotional regulation and one item "I accept him regardless of what he does" came from the original warmth subscale. The factor loadings ranged from .41 to .74. Emotional regulation was another new component of EE identified in this study. Other researchers have noted that, over time, some caregivers attempt to calm the emotions in their mind as a strategy for dealing with their sense of obligation and resignation to an unchangeable situation (Sethabouppha & Kane, 2002). Achieving a calm state of mind is the principle of equanimity (Ubekka) in Buddhism. How people regulate emotions affects their relationships, well-being and stress (Gross, 2002). Most Thai caregivers are Buddhist and believe the Buddhist teaching that a person will eventually receive the effects of what he does in life (Karma). So the practice of Buddhism involves controlling one's behavior, by refraining from bad deeds and performing good actions (Suvanasuthi, 1990). Thai caregivers identified the use of "Bplohng" and "Thum-jai" as strategies for emotional regulation in dealing with the day to day care of their ill relative. "Thum-jai" involves a sense of obligation to one's responsibilities while being accepting, patient, understanding, and reasonable when facing a situation that cannot be changed (Rungreangkulkij & Chesla, 2001). Spiritual or religious belief has been described as important in helping many families cope with the stress of caring for a mentally ill relative (Rammohan, Rao, & Subbakrishna, 2002). Other studies of caregivers of the mentally ill have found acceptance of the situation to be a useful approach for many caregivers in managing their emotions, maintaining hope, and

reducing guilt (Karp & Tanarugsachock, 2000; Ryan, 1993). This factor indicates at emotional regulation through cognitive reframing or inhibition of emotions.

Factor V: Critical comments, the fifth factor consisted of 7 items, all (100%) of which were developed to measure critical comments. The factor loadings ranged from .56 to .69. For example "I don't like many of his behaviors" "I feel ashamed of his behavior" these items were close to items in the study of Karanci and Inandilar (2002) "S/he gives me a lot of trouble" "I do not like anything s/he does" and " I shout at him" in Li and Arthur (2005). Critical comments are typically associated with hostility from caregivers (Vaughn et al., 1984). These data and those of previous studies suggest the likelihood of a bidirectional, transactional effect that underlies the expression of criticism and hostility in families (Nuechterlein, Snyder, & Mintz, 1992; Rosenfarb, Bellack, Aziz, Kratz, & Sayers, 2004; Rosenfarb, Goldstein, Mintz, & Nuechterlein, 1995; Woo, Goldstein, & Nuechterlein, 2004). However, it has been proposed that certain families may have more difficulty adapting to the limitations of the mentally ill family member, either because of a rigidity in family roles or an over-reliance on less healthy types of interaction (Yang & Pearson, 2002).

Factor VI: Warmth, the sixth factor included 7 items, all (100%) of which had been proposed for the original warmth subscale. However, as noted for factor 4, one item loaded more strongly on the emotional regulation factor at .42. The factor loadings ranged from .35 to .81. Examples of these items "I love him/ her" "I always pray for him/her to get well" were close to items in the study of Kavanagh and colleagues. (1997) "I feel very close to him" or in the study of Karanci and Inandilar (2002) " I give him/ her emotional support when s/he feels down "and "I cherish

him/her." Thai caregivers expressed warmth about their mentally ill relative. Similarly, Sethabouppa (2002) identified compassion as an emphasis in Buddhist family caregiving. In her study, compassion involved primarily elements of caring and support. The values of spontaneous warmth and compassion may help Thai families to find some meaning in dealing with severe illness.

Factor VII: Emotional Over-involvement, the last factor had the lowest eigenvalues (2.20) and consisted of 5 items. The factor loadings ranged from .34 to .61. Four of these items were from those developed to measure emotional overinvolvement. One additional item was originally developed to measure hostility but loaded with the emotional over-involvement items at .44. Those 3 other items that had been developed for emotional over-involvement did not load on this factor because the factor loading were lower than .30. One of the items loaded instead on hostility (item 21) and one item (item 22) even though the factor loading was higher in the factor of hostility (.49) when considered the meaning and parsimonies of this item the author desired to organize with in emotional over-involvement. For example of factor VII items were "I have to force him to do things that I know he must do" or "It's hard for me to control my emotions when he does something that makes me angry." These close to items in the study of Karanci and Inandilar (2002) "My mind is always full of her/him I cannot think of anything else" Or "His/her hospitalization make me despite and I cannot part from him/her." Emotional over-involvement of Thai family caregivers in this study reflected frustration or anxiety about their relative's illness and care, including constant needs to observe the patient, taking on all responsibilities for them, dealing with the unpredictability of symptom occurrence, and uncertainty about the patient's future. Other research has identified stress, anger, worries, and anxiety as problems

raised by caregivers (Vanaleesin, Chetchaovalit, Aowchareon, & Chaimongkol, 2003).

Previous research has found that caregivers of relatives with schizophrenia have trouble tolerating the patient's behaviors because of their unpredictability and the ongoing sense of uncertainty this produces (Chafetz & Barnes, 1989). Patients with schizophrenia often remain dependent on their parents' emotional, practical and financial support so that caregivers are faced with permanent parenthood and lifelong parental help (Jungbauer et al., 2006). As noted earlier, controlling behaviors and over protection have been found previously in the parent-patient relationships of schizophrenic patients (Mularlee, Sarapanditkul, Sirimukdakul, Arunkiatkul, & Mularlee, 2000). Borijun and colleagues reported that family caregivers used control of the stressful situation as a coping strategy (Borijun, Hutchapanom, Kaewaud, & Rachabut, 1992). Hamtanon (2003) also found that family caregivers used firm strict rules as a strategy to control the patient's behavior.

The Psychometric Properties of the Thai Expressed Emotion Scale (TEES)

The psychometric properties of the TEES included (1) a content validity index (CVI) of 0.88, (2) construct validity of the 7 TEES subscales using factor analysis (3) support for the hypotheses that patients whose caregivers were high in hostility, critical comments, emotional overinvolvement, and emotional under involvement had worse self care; while patients whose caregivers were high in warmth, positive remarks and emotional regulation had better self care (4) good internal consistency reliability of the seven factors, with alphas total ranging from .75 - .91. Initial psychometric testing suggests that the Thai Expressed Emotion Scale (TEES) provides a psychometrically sound measure of EE in family caregivers of people with

schizophrenia in the Thai culture and context. The discussions of the TEES as a valuable tool are as follows:

Reliability

The subscales of the TEES had coefficient alphas ranging from .75 (emotional over-involvement), to .91 (positive remarks). Pedhazur and Schmelkin (1991) stated that reliability is based on the notion that the items of the instrument measure the same phenomenon, or its mean that the items are homogeneous. This high range of subscales' alpha might came from the process of the 53-items generation which qualitative data enriched and extended what is known about these subscale and EE concept. Also Nunnally (1978) stated that reliability coefficient values above .70 are considered satisfactory. These high scores indicate good internal consistency among the TEES items and indicate that it is suitable for further evaluation.

Hypothesis testing approach

Certain hypotheses were tested to examine the construct validity of the TEES. It was found that caregivers who had significantly higher scores on warmth, positive remarks, and emotional regulation were more likely to be living with their schizophrenic relative, while caregivers who scored higher on emotional under–involvement were less likely to be living with the relative. This is somewhat comparable to a study of King and Dixon (1999) who found that the EE scores of patients who suffered a relapse of schizophrenia were not associated with living arrangements or amount of time in contact with high-EE relative. No relationship was found between caregiver EE and the duration of patients' illness. This is comparable to a

previous study by Monking, Hornung, Stricker, and Buchkremer (1997) found that there was no difference between duration of high and low EE patients with duration of illness of less than 4.5 years. Furthermore, Bachmann, Bottmer, Jacob, Kronmuller, Backenstrass, and Mundt (2002) found no significant differences in EE status between the first episode and chronic schizophrenic patients. However, Hooley and Richters (1995) found that CC in parents of schizophrenic offspring was different in groups of patients who had their illness 1 year versus 3-5 years.

Caregivers who were higher on hostility, critical comments, and emotional overinvolvement had poorer on psychological well being. In contrast, caregivers who were high on positive remarks had better psychological well being. However, emotional under-involvement, warmth and emotional regulation showed no relationship to this variable. Previous studies have not correlated psychological functioning with particular EE subscales but with overall EE scores, and generally found that higher levels of EE scores were correlated with worse psychological functioning (Barrowclough, Tarrier, & Johnston, 1996; Fujita et al., 2002; Kavanagh et al., 1997; Laidlaw, Coverdale, Fallon, & Kydd, 2002; Quinn et al., 2003; Shimodera et al., 2000).

The number of a patient's previous hospitalizations was greater for patients whose caregivers were high in hostility, emotional over-involvement and emotional under-involvement. Admissions were fewer for patients whose caregivers were high in positive remarks and emotional regulation. No relationship was found between the number of admissions and either critical comments or warmth. These results were consistent with Marom and colleagues (2002), found high EE and particularly high criticism were significantly associated with poorer outcome, higher rate of and earlier readmissions and poorer course of illness (higher annual number of prior psychiatric hospital

admissions). They found the strongest predictor of earlier readmission was the interaction of high criticism and poor compliance with medication. Their results further confirmed the notion that criticism appears to be the crucial EE component linked with short-term outcomes (Marom et al., 2002). Furthermore, Montero et al., (1992) found that the group of caregivers who had high EE / low warmth were associated with the highest readmission rate for their patients while, in contrast, no patients were readmitted from the high-EE/ high warmth group (Montero et al., 1992). In addition, CC was found to be a predictor of a patient's rehospitalization (Donat, 1996; Kazarian et al., 1990). Family control (in the Family Environment Scale, FES), comparable to EOI in this study, was found to be a significant predictor of relapse in a Spanish population (Canive et al., 1995). In contrast, Bentsen et al. (1996) found EOI was not significantly related to hospital admissions. Low warmth or poor empathic attitude, in the study of Giron and Gomez-Beneyto (1998) was found to be significantly related to relapse. A factor closely linked to relapse is a worsening level of a patient's self care. Lower levels of self care were associated with high in hostility, critical comments, emotional over-involvement, and emotional under–involvement. In contrast, patients whose caregivers were high in warmth, positive remarks and emotional regulation had better self care.

Convergent validity

The convergent validity was used to test the construct validity of the TEES. Findings show a significant relationship between the patient's perception of his/her own degree of criticism toward his/her caregiver and the caregivers rating of her own critical behavior on the TEES. This relationship supports the validity of the TEES in identifying a state of criticism in the dyad. However, there was no relationship

between the patient's and caregiver's perception of the caregiver's criticism toward the patient. Stronger support for convergent validity was found in the significant relationships between the TEES subscales and AC (positive and negative) subscales. Scores on the positive subscales of the Adjective Checklist were related to TEES subscales of positive remarks, warmth, and emotional regulation. The negative subscales of the Adjective Checklist were related to TEES subscales for hostility, emotional over-involvement, critical comments, and emotional under-involvement. These findings raise the possibility that EE constructs other than CC such as EU may accurately predict the course of illness and the outcome of schizophrenic patients.

Summary

Result of this study provided evidence that the TEES underlying structure consisting of seven factors has satisfactory reliability and validity and shows tremendous promise as a clinical research tool. The results provide a solid foundation for conducting further studies to clarify the predictive validity of the TEES, establishing such things as an appropriate cut off point for assessing the level of EE in clinical practice. Furthermore, data suggested that the TEES subscales of hostility, emotional over-involvement, critical comments, and emotional under-involvement may constitute a specific form of negative EE. Positive remarks, warmth, and emotional regulation, on the other hand, appear to reflect positive type of EE.These findings indicate that further research on the positive EE subscales might be important since they were linked to a number of patients and caregiver variables and had less attention in most literature. Further work on this and other aspects of both the EE and

the TEES could be quite beneficial in designing interventions to improve the family

situation of people suffering from various mental conditions and their caregivers.