

CHAPTER 2

LITERATURE REVIEW

This chapter presents a review of the theoretical and empirical literature related to schizophrenia, expressed emotion (EE) and its measurement, concepts related to EE, caregivers of schizophrenic patients, and the theoretical foundation of measurement. The purpose of the literature review was to identify gaps in the knowledge relevant to the influence of EE on caregiving and on patients, and to the instrumentation of the EE in the Thai context.

Schizophrenia

Schizophrenia is a complex disorder with an extremely varied presentation of symptoms (Kneisl, Wilson, & Trigoboff, 2004). It is the most common chronic and serious psychotic disorder. In Thailand, the Thai Department of Mental Health, Ministry of Health, reported that 281,462 schizophrenic outpatients attended the state hospitals in the year 2004 (Department of Mental Health, Ministry of Health, Thailand, 2004). Schizophrenia has the highest incidence of psychiatric illnesses. Approximately 50% of all hospital beds for the mentally ill are occupied by schizophrenic patients (Varcarolis, 1998). Approximately 1% of the general population will have schizophrenia during their life time (Saddock & Saddock, 2003). In Thailand schizophrenia is usually first diagnosed in adolescence or early adult life and often becomes chronic and disabling, which prevents the sufferer from leading a fully normal life. Schizophrenia is found in all societies and geographical areas, and

the incidence and prevalence rates are roughly equal worldwide and equally prevalent in men and women (Sadock & Sadock, 2003). The two sexes differ, however, in the onset and course of illness. The onset is earlier in men than in women, and more than half of all male schizophrenia patients but only a third of all female schizophrenia patients are first admitted to a psychiatric hospital before age 25.

Etiology of Schizophrenia

According to Sadock and Sadock (2003) there are four major etiologies of schizophrenia, as follows:

Stress-diathesis model and progression related to neurobiology, genetic factors, and psychosocial factors. These etiologies of patients with schizophrenia show differing clinical presentations, treatment responses, and courses of illness. First, the stress-diathesis model is an integration of biological, psychosocial, and environmental factors. A person may have a specific vulnerability that, when acted on by a stressful influence, allows the symptoms of schizophrenia to develop. The stress can be biological, environmental, or both. The environmental component can be either biological (e.g. an infection) or psychological (e.g. a stressful family situation or the death of a close relative). The biological basis of a diathesis can be further shaped by epigenetic influences such as substance abuse, psychosocial stress, and trauma.

Neurobiology. There is an increasing amount of research indicating a pathophysiological role for certain areas of the brain. The basis for the appearance of a brain abnormality may lie in abnormal development (e.g. abnormal migration of neurons along the radial glial cells during development) or degeneration of neurons after development.

Genetic factors. There were many associations between chromosomal sites and schizophrenia have been reported since the application of the techniques of molecular biology became widespread. More than half of all human chromosomes have been associated with schizophrenia. The long arms of chromosomes 5, 11, and 18, the short arm of chromosome 19, and the X chromosome have been implicated most commonly.

Psychosocial factors. Which are a group of theories that have been used to describe schizophrenia in a psychological-sociological framework. The main psychosocial theories are the following:

1) Psychoanalytic theory. Central to Freud's theories of schizophrenia were decaathexis of objects and regression in response to frustration and conflict with others. In the classic psychoanalytic view of schizophrenia, an ego defect affects the interpretation of reality and the control of inner drives, such as sex and aggression, related to distortions in the reciprocal relationship between the infant and the mother. Harry Stack Sullivan viewed schizophrenia as a disturbance in interpersonal relatedness, in which the patient's massive anxiety creates a sense of unrelatedness and that is transformed into distortions called *parataxic distortions*, which involve feelings of persecution. The source of pathological anxiety results from cumulative experimental traumas during development. Psychoanalytic theory also postulates that the various symptoms of schizophrenia have symbolic meaning for individual patients.

2) Learning theory. In learning theory the poor interpersonal relationships of persons with schizophrenia develop because of poor models for learning during childhood. Children who later develop schizophrenia learn irrational reactions and

ways of thinking from imitating their parents who have their own significant emotional problems.

3) Family dynamics. It is also clinically relevant to consider other pathological family behaviors that may significantly increase the emotional stress with which a vulnerable patient with schizophrenia must cope. The double bind concept describes a hypothetical family in which children receive conflicting parental messages about their behavior, attitudes, and feelings. Children withdraw into a psychotic state to escape the unsolvable confusion of the double bind. Unfortunately, the family studies that were originally conducted to validate this general theory were seriously flawed methodologically, and currently the theory has value only as a descriptive pattern, not as a causal explanation of schizophrenia.

4) Schisms and skewed families. There are two abnormal patterns of family behavior. In the first type, there is a prominent schism between the parents, and one parent is overly close to the child of the opposite sex. In the other family type, a skewed relationship between a child and one parent involves a power struggle between the parents and the resulting dominance of one parent. These dynamics stress the tenuous adaptive capacity of the schizophrenic person. In pseudomutual and pseudohostile families the family suppresses emotional expression by consistently using pseudomutual or pseudohostile verbal communication. In such families, a unique verbal communication pattern develops, and when a child leaves home and must relate to other persons, problems may arise due to the child's use of this pattern, which may be partly or largely incomprehensible to outsiders.

5) Expressed emotion. A parent or other caretaker may behave with overt criticism, hostility, and overinvolvement toward a person with schizophrenia. Many

studies have indicated that in families with high levels of EE, the relapse rate for schizophrenia is high. The assessment of EE involves analyzing both what is said and the manner in which it is said.

6) Social theories. Some researchers have suggested that industrialization and urbanization are involved in the etiology of schizophrenia. Although some data support such theories, these stresses are now thought to have their major effects on the timing of onset and the severity of the illness.

Reference to such psychosocial factors enables the attending physician to plan and implement treatments based on a scientific framework, thereby providing scientifically based care and also ensuring humanistic practices because the concepts are rooted in humanistic philosophies (Rittenmeyer, 1995).

Biopsychosocial Therapies for Schizophrenia

Hospitalization is indicated primarily for diagnostic purposes, for stabilization of medications, for patients' safety because of suicidal or homicidal ideation, and for grossly disorganized or inappropriate behavior, including the inability to take care of basic needs. Hospitalization decreases patients' stress and helps them structure their daily activities. The severity of a patient's illness and the availability of outpatient treatment facilities determine the length of the hospital stay. Research has shown that short stays of 4 to 6 weeks are just as effective as long term hospitalization and that a hospital setting with active behavioral approaches produces better results than do custodial institutions. Although antipsychotic medications are the mainstay of treatment for schizophrenia, research has found that psychosocial interventions, including psychotherapy, can augment the clinical improvement. Psychosocial

modalities should be carefully integrated into the drug treatment regimen and should support it. Most patients with schizophrenia benefit more from the combined use of antipsychotic drugs and psychosocial treatment than from either treatment used alone. Treatments for the schizophrenic patient can be categorized into three main therapy regimes: biological, psychological and social therapies.

1. Biological therapies. There are two common categories of biological therapies, pharmacotherapy and electroconvulsive therapy. In pharmacotherapy, there are two major classes of antipsychotic medication: dopamine receptor antagonists such as chlorpromazine and haloperidol, and SDAs such as risperidone and clozapine. Although much less effective than antipsychotic drugs, electroconvulsive therapy (ECT) may be indicated for catatonic patients and for certain patients who cannot take antipsychotic drugs. Patients who have been ill for less than 1 year are most likely to respond.

2. Psychosocial therapy. This includes a variety of methods to increase social abilities, self-sufficiency, practical skills and interpersonal communication in schizophrenic patients. The goal is to enable persons who are severely ill to develop social and vocational skills for independent living.

2.1 Social skill training. Social skill training is sometimes referred to as behavioral skills therapy. The therapy can be directly supportive and useful to the patients along with pharmacological therapy. The most noticeable symptoms the therapy tries to deal with involve the person's relationships with others, including poor eye contact, unusual delays in response, odd facial expressions, lack of spontaneity in social situations, and inaccurate perceptions or lack of perception of emotions in other people.

2.2 Family-oriented therapy. These therapies focus on the immediate situation of the patient and include identifying and avoiding potentially troublesome situations. When situations do emerge with the patient in the family, the aim of the therapy is to resolve the problem quickly. Therapists can direct later family therapy toward long-range application of stress-reducing and coping strategies and toward the patient's gradual reintegration into everyday life. The therapist must also try to control the emotional intensity of family sessions with patients with schizophrenia, as excessive expression of emotion during a session can damage a patient's recovery process and can undermine potentially successful future family therapy.

2.3 Assertive Community Treatment (ACT). The assertive community treatment program was originally developed by researchers in Madison, Wisconsin, in the 1970s (Sadock & Sadock, 2003) for the delivery of services for persons with chronic mental illness. In an ACT setting, patients are assigned to one multidisciplinary team, which has a fixed caseload of patients and delivers all services when and where needed by the patient, 24 hours a day, 7 days a week. This is a mobile and intensive intervention that provides treatment, rehabilitation, and support activities, including home delivery of medications, mentoring of mental and physical health, *in vivo* social skills, and frequent contact with family members. An ACT program can effectively decrease the risk of rehospitalization for persons with schizophrenia, but they are labor-intensive and expensive programs to administer (Sadock & Sadock, 2003).

2.4 Group therapy. Group therapy for schizophrenic patients generally focuses on real life plans, problems and relationships. Groups may be behaviorally oriented, psychodynamically or insight oriented, or supportive. Group therapy is

effective in reducing social isolation, increasing the sense of cohesiveness, and improving reality testing for patients with schizophrenia.

2.5 Cognitive behavioral therapy. This therapy has been used in schizophrenic patients to improve cognitive distortions, reduce distractibility, and correct errors in judgment.

2.6 Individual psychotherapy. The effect of individual psychotherapy in the treatment of schizophrenia has been found to be helpful, at least in some cases, with effects that are additive to those of pharmacological treatment.

2.7 Vocational therapy. This method is used to help patients regain old skills or develop new ones. Specific methods include such things as sheltered workshops, job clubs, and part-time or transitional employment programs. Enabling patients to become gainfully employed is both a means toward, and a sign of, recovery.

Expressed Emotion (EE)

For more than forty years the EE concept has dominated the literature on psychosocial influences in severe mental illness. Positive results from this emphasis have included a focus of attention on the importance of psychological processes in the course of schizophrenia as well as the development of psychological treatments to address aspects of high EE in the family environment (Barrowclough & Hooley, 2003).

EE was first discussed in a study by Brown and colleagues, a group of British investigators, in a paper on the prognosis of male mental patients with a variety of discharge arrangements (Brown 1959, Brown et al., 1958 cited in Bebbington &

Kuipers, 1993). They hypothesized that an unfavorable emotional environment in the patient's family household might increase the chances of readmission. Since that first paper, three of the five EE dimensions, hostility, criticism, and emotional overinvolvement, have been proven to be critical factors predicting relapse in schizophrenia and other disorders, while the remaining two EE dimensions, warmth and positive comments, have not been found to be associated with relapse. They found that patients who went back to live with parents or spouses did surprisingly badly, and also that the effect seemed to be dose related: it depended on the amount of contact between relative and patient. In a study of Hume and Pullen (1994), patients returning to live with high EE relatives had a higher relapse rate (51%) than those returning to live with low EE relatives (13%). Two factors appeared to lessen the effect of high EE relatives: the amount of face-to-face contact with the relative and medication. Low contact (less than 35 hours per week) and regular medication reduced the relapse rate (15%) in the high EE group, while lack of regular medication and high contact with the relative greatly increased the relapse rate (92%) (Vaughn & Leff, 1976). This finding was to lead to a hypothesis in a following research study that there would be an effect on relapse if face-to-face contact between the key relative and client was lowered in an adverse home environment.

According to the reviewed literature by Wearden and colleagues (2000), the model of EE proposed in most of the literature conceptualizes high and low EE classification as a trait-like measure (Leff & Vaughn, 1985 cited in Wearden et al, 2000). The characteristic response manner of low EE relatives is described as tolerant, non-intrusive, and sensitive to the patient's needs, while their high EE counterparts are prone to intolerance of the patient's problems, intrusiveness, and to the use of

inappropriate and inflexible strategies in dealing with difficulties. This model is clearly limited in providing explanations for the development and maintenance of high EE behaviors, suggesting only that a high EE response is a personality-related trait. Better theoretical models are important not only from an academic viewpoint, but increased understanding of factors underlying relatives' different reactions to events associated with an illness are fundamental to improving strategies to assist relatives and improve patient outcomes.

In an attempt to improve understanding of the nature of the concept or the mechanism involved in the EE concept, Wuerker, Fu, Hass, and Bellack (2002) examined the relationships of EE and changes in symptoms in schizophrenia patients, and interpersonal control patterns in the patients' relatives, over a 2-year period. The relationship among EE interpersonal control, as measured by the Relational Control Coding System (RCCS), at each assessment point was analyzed longitudinally with hierarchical linear modeling (HLM). They found no relationship between EE and symptoms, nor did control appear to contribute to symptoms. High EE relatives reacted more strongly to symptom change than low EE relatives, and each group tended to react in opposite directions, thus they concluded that EE may be an indicator of responsiveness rather than either a cause or result of symptoms. Understanding how EE attitudes impact the struggles patients and relatives have in coping with schizophrenia is crucial to knowing how the health care team can support these most effectively.

Measurement of EE

A search of the literature reveals many existing instruments that can be used for measuring EE in the families of schizophrenic patients. All will be critiqued for both strengths and weaknesses following (Table 1).

The Camberwell Family Interview (CFI). This semi-structured interview is now the standard instrument for assessing the emotional climate between a patient and a significant other. The aim of the interview is to gather factual and attitudinal information about the onset and development of the present illness episode, the illness history, the frequency of irritability and quarreling, the patient's symptomatology, and the quality of the relationship (Vaughn & Leff, 1976). The strength of the CFI is that it is a strong and robust relapse predictor, as shown in a meta-analysis wherein 27 studies were screened on the relationship between EE and relapse in a sample of patients with schizophrenia or mood disorder. In 24 studies (89%), this relationship was significant (Butzlaff & Hooley, 1998). However the weakness of the CFI is that it requires considerable time to administer and analyze, which precludes its routine clinical use (Humbeeck, Audenhove, Hert, Pieters, & Storms, 2002).

The Five Minute Speech Sample (FMSS). FMSS originally of Gottschalk & Gleser, (1969 cited in Magana, Goldstein, Karno, Miklowitz, Jenkins, & Falloon (1985). This is an alternative approach that has been used with the purpose of reducing the length of the CFI interview, based on asking a key relative to speak freely for 5 minutes about his or her sick family member. Even though the FMSS is less time-consuming than the CFI, it has been found to have a correspondence rate of 80-90% with the CFI rating for criticism and hostility (Kopelowicz et al., 2002;

Miklowitz & Goldstein, 1993), however, there is no strong evidence for its predictive power (Humbeeck et al., 2002).

The Patient Interview for Assessing Patient Perceptions of Family Relationships (PPI). PPI developed by Mintz and colleagues (cited in Humbeeck et al., 2002): this instrument consists of three scales: (1) perceived criticism; (2) perceived EOI and (3) the family members' perceived nagging. This tool has good internal consistency but it assesses only the perceived EE from patients, as no relatives are interviewed. There is no further information available concerning concurrent validity with other EE instruments, only the perceived criticism scale of the PPI which predicts psychotic exacerbation of patients after a 1-year follow-up (Tompson, Goldstein, Labell, Mintz, Marder, & Mintz 1995; cited in Humbeeck et al., 2002).

Level of EE (LEE). LEE was developed by Cole and Kazarian (1988). This self-report questionnaire requires true/false responses, with four dimensions that discriminate between high and low EE. These dimensions are intrusiveness, emotional response, negative attitude toward the illness, and tolerance and expectations concerning the patient. Although the instrument can be a good alternative for the CFI, more effort is needed to establish its concurrent validity. The LEE examines the perceived EE from the patient's perspective and stresses the sick relative's perception. Its main weakness is that the patients and their relatives may show differential readings on the correlates of EE (Kazarian, Malla, Cole & Baker, 1990).

Influential Relationships Questionnaire (IRQ). IRQ was developed by Baker, Helmes, and Kazarian (1984), this 37-item paper-and-pencil questionnaire is a modification of the Parent Bonding Instrument (Parker, Tupling, and Brown, 1979

cited in Humbeeck et al., 2002) and uses a 4-point rating scale. The patient is asked to rate the behavior of the two people they consider most important in their lives towards them. Even though the scale has good internal consistency and good test-retest reliability, no information is provided about the cut-off score for the classification into high or low EE.

The Perceived Criticism Scale (PCS). PCS was developed by Hooley and Teasdale (1989), this instrument has good predictive validity, good temporal stability and good concurrent validity with the CFI, ease of administration and scoring, and a clear breaking point. However, it has only been applied in samples of patients with a unipolar depressive disorder, except in the study of Chambless, Bryan, Aiken, Steketee, and Hooley (1999). In addition, the predictive validity of the PCS needs to be replicated in a sample of schizophrenic patients.

Family Emotional Involvement and Criticism Scale (FEICS). FEICS was developed by Shield, Franks, Harp, McDaniel and Campbell (1992; cited in Humbeeck et al., 2002), this instrument contains two major components to rate EE: criticism and emotional over-involvement (EOI). The aim of this questionnaire is to assess the behavior of relatives towards the patient. Although EOI and criticism are the starting points of this questionnaire, the authors of the FEICS did not study its concurrent validity with the CFI, and further research is recommended.

Patient Rejection Scale (PRS). PRS was developed by Kreisman, Simmens, and Joy, 1979; cited in Humbeeck et al., 2002): this instrument exists in two versions, an abbreviated and a more extended form, both based on the CFI. Both are easy to administer and to code and have good internal consistency. However, there is some

conceptual overlap between the hostility and the rejection scales of the CFI and the PRS. Furthermore a cut-off score is not available.

Adjective checklist (AC). AC was developed by Friedmann and Goldstien (1993), this is a self-report questionnaire for family members. Ten positive and ten negative scales are used. There is high internal consistency but no cut-off score for high or low EE. The predictive validity of the AC remains unclear.

Questionnaire Assessment of EE (QAEE). QAEE was developed by Docherty, Serper, and Harvey (1990). In this questionnaire, family members are asked to indicate how often they conduct a specific behavior towards the patient. The QAEE provides high internal consistency and a clear cut-off score; however the predictive validity of the QAEE has not yet been examined (Docherty et al., 1990).

Family Attitude Scale (FAS). FAS was developed by Kavanagh and colleagues (1997) and its 30 items assess the family member's amount of criticism and hostility. EOI items were not included because these items did not correlate with the total questionnaire. The strength of the FAS is its high internal consistency, but its weakness is that no information is available about the cut-off score, predictive validity or the temporal stability (Humbeeck et al., 2002).

The Family Environment Scale (FES). FES was developed by Moos and Moos (1981 cited in Humbeeck at al., 2002), and is the only instrument that assesses the emotional climate of both the patient and his or her relative. It consists of 90 true-or-false statements divided over the three dimensions of relationship, personal growth, and organization & control. Even though the scale has good internal consistency and temporal stability there is no clear cut-off point for classification into high and low-EE groups, and there is no evidence for concurrent validity with the CFI. Furthermore, due to

its length and the coding time required, the FES is not commonly used to assess emotional climate (Humbreeck et al., 2002).

A scale developed by Utoompruckporn (1990) with no formal name. This scale was developed from a literature review according to the concepts of Brown and colleagues (1972). It consists of three parts of EE; criticism, hostility and over-involvement. There are 21 items measured through a 5-point Likert Scale to assess EE with positive and negative questions. Even though this instrument has been used by Chaisin (2002) and found to be easy to read and uncomplicated, information about the cut-off score and validity are not available. Most importantly, this instrument was not developed from baseline data of Thai schizophrenic relatives.

Table 1

Existing Scales for Assessing EE

Author(s) and year	Name of scale	Characteristics	Strengths and Weaknesses
Vaughn & Leff (1976)	Camberwell Family Interview (CFI)	- semi- structured interviewed - approximately 4 hours per relative for recording and evaluation. - approximately 8 hours per family in the father-mother- patient constellation.	-time consuming procedure which precludes routine clinical use. - need for assessment of a key relative
Gottschalk & Gleser, (1969) Magana et al. (1986)	The Five Minute Speech Sample, (FMSS)	- Key relative asked to speak freely for 5 min about his or her sick family member after he or she has heard the instructions.	- Low sensitivity to detect EOI (Kopelowicz et al., 2002). - No strong evidence for predictive power (Humbeeck et al., 2002)
Mintz et al. (cited in Humbeeck et al.2002)	Perceptions of Family Relationships (PPI)	-Patient interviewed to assess patients' perception of family relationships	- Criticism scale positively correlated with the criticism scale of the FMSS - Good internal consistency
Cole and Kazarian (1988)	Level of Expressed Emotion (LEE)	- Self-report questionnaire, true/false responses. - Four dimensions discriminate between high and low EE.	- Patients and their relatives may show different correlates of EE (Kazarian et al., 1990).
Baker, Helmes, and	Influential Relationships	- Modification from the Parent Bonding Instrument, uses a 4-	- No information about cut- off score

Author(s) and year	Name of scale	Characteristics	Strengths and Weaknesses
Kazarian 1984	Questionnaire (IRQ)	point rating scale. - divided over three dimensions: criticism, care and protection.	- Good internal consistency and test-retest reliability

Table 1 (*Continued*)

Author(s) and year	Name of scale	Characteristics	Strengths and Weaknesses
Hooley and Teasdale (1989)	The Perceived Criticism Scale (PCS)	-Significant correlation between the scale scores on the PCS and the global level of EE (high vs. low). -Has been applied in samples of patients with unipolar depressive disorder in the study of Chambless et al. (1999).	- Needs more replication studies to assess predictive validity in a sample of schizophrenic patients.
Shield, Franks, Harp, McDaniel and Campbell (1992)	Family Emotional Involvement and Criticism Scale (FEICS)	- Contains two major components of EE: criticism and EOI. - Five-point Likert scale	- Not clear cut-off score - Not clear about the concurrent and predictive validity
Kreisman, Simmens, and Joy (1979)	Patient Rejection Scale (PRS).	- exists in two versions: an abbreviated 11- item version and an extended 24-item version, both based on the CFI.	- Some overlapping in concepts between the hostility and the rejection scales of the CFI and the PBR-1. - Easy to administer and to code

Author(s) and year	Name of scale	Characteristics	Strengths and Weaknesses
			- Good internal consistency
Friedmann and Goldstien (1993, 1994)	Adjective checklist (AC).	- Self-report questionnaire, 20 adjectives, 10 with positive value and 10 negative	- No cut-off score for high or low - High internal consistency of the positive and negative scales

Table 1 (*Continued*)

Author(s) and year	Name of scale	Characteristics	Strengths and Weaknesses
Docherty, Serper, and Harvey (1990)	Questionnaire Assessment of Expressed Emotion (QAEE).	- Likert scale (0 to 3)	- Predictive validity has not yet been examined (Docherty et al., 1990; cited in Humbeeck et al., 2002) - High internal consistency and a clear cut-off score
Kavanagh and colleagues (1997)	Family Attitude Scale (FAS).	- 30 items associated with reported anger, anger expression and anxiety of respondents.	- No clear cut-off point for high or low EE (Humbeeck et al., 2002)
Moos and Moos (1981)	The Family Environment Scale (FES)	- Assesses the emotional climate of both the patient and relative - 90 items, true-or-false statements divided over three dimensions of the relationship	- No clear cut-off point for the classification into high and low-EE groups - No evidence for concurrent validity with the CFI
Utoompruck porn (1990).	Does not have a specific name	- 21 items with 5 levels of Likert scale - Positive and negative	- The reliability of the EE scale was 0.72. - Never critiqued

Author(s) and year	Name of scale	Characteristics	Strengths and Weaknesses
questions			

Culture and Expressed Emotion

There appear to be cultural differences in the importance of EE to relapse. Studies suggest that criticism plays a key role in relapse in Anglo-American (Lopez, Hipk, Polo, Jenkins, Karno, & Vaughn 2004), British (Vaughn & Leff, 1976), Hungarian (Ivanovic, Vuletic, & Bebbington, 1994) and Japanese cultures (Mino, Tanaka, Tsuda, Babazono, Lnoe, & Aoyama 1995), especially a father's critical comments (King & Dixon, 1999). In contrast, the importance of criticism has not been supported in Malaysia (Azhar & Varma, 1996), Bali (Kurihara, Kato, Tsukahara, Takano, & Reverger, 2000), China (Ran, Leff, Hou, Xiang, & Chan 2003), East India (Leff, Wing, Ghosh, Bedi, Menon, & Kuipers 1987), or in the Mexican-American culture (Kopelowicz et al., 2002; Lopez et al., 2004). Furthermore, critical and intrusive behavior by relatives has been associated with better outcomes over a 2 year period in African Americans (Rosenfarb, Bellack, & Aziz, 2006). For Mexican-American and Hungarian families, warmth appears to protect against relapse while lack of warmth is a predictor of relapse (Ivanovic et al., 1994; Lopez et al., 2004; Lopez, Nelson, Snyder, & Mintz, 1999). Emotional over-involvement (EOI) was identified as the significant EE component in a Norwegian study (Bentsen, Boye, Munkvold, Notland, Lersbryggen, & Oskarsson 1996), where the mothers' EOI was linked to more affective disturbances but less aggressive and uncritical behavior by the patients.

The focus of this study was on EE in the Thai culture. Certain values and beliefs in the culture may affect how emotions are expressed toward a relative with schizophrenia. Buddhist teachings have a strong influence on social values, codes of ethics and behavior of Thai people. For example, outward expression of anger is considered to be a sign of ignorance, crudity, and immaturity so individuals are expected to show self-control and emotional restraint (Thailand the National Identity Office of the Prime Minister, 1991; Weisz, Suwanlert, Chaiyasit, Weiss, Achenbach, & Eastman 1993). As part of this belief system, they are taught to maintain harmonious interactions with others by adjusting to situations that they may not prefer and by deferring to the wishes of others (McCarty, Weisz, Wanitronmanee, Eastman, & Band, 1999). As a result, Thais typically do not express their feelings openly to others, especially negative feelings. In addition, the family is viewed as the basic training ground for learning about patterns of respect and deference to parents, elders, and others in positions of authority or esteem (Limanonda, 1995). Thais also believe in the repayment of their parents' goodness, expecting to live with the parents and care for them as they age (Caffrey, 1992; Mulder, 1994). These beliefs and expectations may influence how family members communicate and emotionally respond to each other in situations of caregiving.

Previous research in Thailand on family caregivers of the mentally ill has found an emphasis among caregivers on values such as Buddhist beliefs, suffering, compassion, management and acceptance (Sethabouppha & Kane, 2002). Whether such factors may influence the ways in which Thai caregivers express their emotions toward a relative with schizophrenia is not known.

The Relationships between EE and Caregiver of Schizophrenic Patients

Prior research which is relevant to the constructs of EE such as critical comments, hostility, emotional involvement, positive remarks, and warmth as characteristic of the caregiver and relevant to their schizophrenic patient will be discussed following.

Living arrangements and amount of contact with high EE relatives. Karanci and Inandilar (2002) examined the predictive power of patient and caregiver characteristics and caregivers' perceptions of coping, distress/discomfort, control of symptom behaviors by the patient, and attributions on the locus of causality for the development of the illness. Two components of EE (criticism/ hostility and emotional over-involvement) were studied in a sample of major caregivers of Turkish schizophrenic patients. They found that gender of the patient and the number of individuals living in the household were positively correlated with emotional over-involvement (EOI); also the mean distress score was significantly related to EOI. In addition, Bentsen and colleagues (1996) studied EOI and demographic and clinical predictors of EOI. They found that higher EOI was associated with high emotional over-involvement (EOI) in the female parent, living in a one-parent household, spending more time with the patient, no substance misuse and showing more anxious-depressive and less aggressive and uncritical behavior, according to the parents. However, EOI was not linked to psychotic relapse but rather to affective disturbances in the patient. King and Dixon (1999) studied the ability of EE to predict relapse in a sample of 69 schizophrenic outpatients and found that relapses were not associated with medication compliance or amount of contact with high-EE relatives.

Duration of patient's illness. Hooley and Richters (1995) found a relationship between the duration of a patient's illness and the level of critical comments made by a caregiver toward the patient. A parent who had been coping with schizophrenia in an offspring for 3-5 years expressed more critical comments (average of 15 critical comments during the Camberwell Interview) than parents who had coped with the illness for less than 1 year (average of 4.2 critical comments during the Camberwell Interview), and Kavanagh et al. (1997) found the EE was higher if the disorder duration was longer. In contrast, there was evidence that duration of illness was not different between high and low levels of EE in caregivers of patients. Also Kurihara et al. (2000) found that EE status was not a reliable predictor of patient re-admission over the 1-year period following discharge in Bali.

The psychological well-being. Fujita et al. (2002) studied family EE and its relationship with distress of family members. The EE was measured with the Family Attitude Scale (FAS), the Camberwell Family Interview (CFI), and the Five Minute Speech Sample (FMSS), while distress was measured with the General Health Questionnaire (GHQ). They found the means scores of the GHQ were higher in families with high FAS, a finding consistent with other studies (Barrowclough & Parle, 1997; Shimodera, Mino, Inoue, Izumoto, Fujita, & Ujihara 2000).

Number of patient admissions. Montero et al. (1992) found that the group of caregivers with high EE and low warmth had the highest rate of readmission of their patients. In contrast, no patient was readmitted from the high EE/high warmth group. Furthermore, they found all high EE/high warmth parents were high in EOI, and only one father was also high on critical comments. In addition, Marom, Munitz, Jones, Weizman, & Hermesh, (2002) found that high EE was related to a higher rate of

readmission, and the strongest predictor of a shorter time to readmission was the interaction of high criticism and poor compliance with medication.

Patients' self-care. Bentsen et al. (1998) reported that critical comments were positively associated with better cognitive functioning in the patients. Caregivers are the most important persons who provide care for patients in order to enhance the patients' self-care ability and their capability to carry out daily life tasks. However, distress and burdens associated with caring for a mentally ill family member has been found in 29-60% of caregivers suffering from significant psychological distress (Birchwood & Cochrane, 1990; Oldridge & Hughes, 1990; cited in Barrowclough & Parle, 1997; Quinn, Barrowclough, & Tarrier, 2003). Not only is such stress likely to affect the wellbeing of the relatives and compromise their long-term ability to support the patient, but it may also have an impact on the course of the illness itself and on outcomes for the patients. The family can display a wide array of emotions, ranging from overprotection and over-involvement to hostility and rejection.

Other research related to EE, schizophrenic patients and their caregiver

Many studies have attempted to clarify the determining aspects of EE that result in adverse effects on the patient and his or her illness. In other studies, relapses in high EE families have been reported to be independent of the patient symptoms (Doane, Falloon, Goldstein, & Mintz, 1985; Leff & Vaughn, 1980; cited in Gottschalk & Keatinge, 1993). Canive, Sanz-Fuentenebro, Vazquez, Qualls, Fuentenebro, & Tuason (1995) investigated the effects of perceived family environment on clinical outcomes among patients in Spain who suffered from schizophrenia. The family environment scale (FES) was used to assess the EE of parents and patients. The

results showed that patients' and mothers' rating of family control and fathers' scores of conflict and moral religious emphasis predicted psychotic relapse, while fathers' scores of family cohesion predicted higher negative symptoms. Prior admission, age of onset and use of depot medication tended to predict outcomes in conjunction with the family variables.

Butzlaff and Hooley (1998) conducted a meta-analysis of all available EE and outcome studies in schizophrenia; they also examined the predictive validity of the EE construct for mood disorders and eating disorders. Their extensive literature search revealed 27 studies of the EE-outcome relationship in schizophrenia. The results confirmed that EE is a significant and robust predictor of relapse in schizophrenia. Additional analyses demonstrated that the EE-relapse relationship was strongest for patients with more chronic schizophrenic illnesses. Interestingly, although the EE construct has been most closely associated with research in schizophrenia, the mean effect size for EE for both mood disorders and eating disorders was significantly higher than the mean effect size for schizophrenia. These findings highlight the potential importance of EE in the understanding and prevention of relapse in a broad range of psychopathological conditions.

Wuerker, Hass, and Bellack (2001) examined communication patterns in 62 families of persons with schizophrenia, comparing families with relatives who had low EE at the beginning and the end of a 2-year study with those who were high at the beginning and end, and those whose EE status changed. Interaction was coded with the Relational Control Coding System and analyzed as a Markov process. Dialogues in the stable low-EE and stable high-EE families were rather similar initially, and both groups showed increasing flexibility at year 1. However, at year 2, low-EE dyads

showed increasingly complex structures and flexibility in control, but high-EE dyads showed simpler structures and rigidly controlling patterns. When the EE status changed, so did the structure of the dialogues and the patterning of control. Although earlier research found more “tightly jointed” systems in families of high-EE relatives, it may be over time these family members distance from each other and so are less connected. It is also possible those relatives who remain high-EE despite intervention are a subset of high-EE relatives who need more support or different therapeutic approaches to maintain change.

Recent research suggests that relatives’ burden, distress and EE can be mediated by the way they appraise the symptoms and behaviors of schizophrenic illness rather than the actual symptoms *per se* (Barrowclough & Parle, 1997). For example Scazufca and Kuipers (1996) showed that high-EE relatives had considerably higher mean scores for burden of care than low-EE relatives (12.5 v 6.8, respectively, $p = 0.002$) and perceived more deficits in patients’ social functioning than low-EE relatives (mean: 16.2 v 6.9 respectively, $p = 0.004$) (Scazufca & Kuipers, 1996), supporting the idea that EE may represent complex interactions between patient and caregiver, or the circumstances of the relationship.

Barrowclough and Parle (1997) examined the cognitive aspects of caregivers’ coping in schizophrenia and explored how EE and psychological distress in relatives were related to appraisal variables. Relatives’ appraisals of their concern about patient symptoms and their coping efficacy were found to be related not only to relatives’ levels of concurrent distress (measured on the General Health Questionnaire, GHQ) and EE (measured by the CFI) at the time of patient relapse, but also to levels of distress experienced by the relative following the patient’s subsequent discharge from

hospital. The study provides further evidence that appraisals are related to relatives' distress but may not be directly related to patient symptomatology (Quinn et al., 2003).

Caring for a patient with schizophrenia in the community is related to high distress. Distress of the relatives is associated with the level of EE in the family. Relatives that have a persistent high distress level are more likely to have a high EE level also (Barrowclough & Parle, 1997). Boye and colleagues (2001) explored the relationship between relatives' distress and patients' symptoms and behaviors. Fifty relatives in close contact with 36 patients with schizophrenia filled in the General Health Questionnaire (GHQ) and the Perceived Family Burden Scale (PFBS) at the patient's hospital admission, and 4.5 and 9 months post-discharge. The patients were assessed by means of the Positive and Negative Syndrome Scale (PANSS). The results showed that the PFBS anxiety-depression cluster in all three assessments was positively correlated with relative's distress (GHQ), but not with the PANSS anxiety and depression measurements. They concluded that relatives' distress was related to their reports of problematic patient behaviors, especially anxiety-depressive behavior, not to symptoms as measured by clinical interviews. High distress is related to high EE, suggesting that relatives' reports of patient's behavior should be addressed to improve the patient's outcome.

Mubarak and Barber (2003) conducted a study aimed at identifying any association between key relatives' emotional expressiveness as primary caregivers and the quality of life of schizophrenia patients. Three components of emotional involvement of key caregivers (finance, occupation and safety) were found to have a significant association with the subjective QOL of schizophrenia patients. However, this interaction effect was found to be not uniform among all the components of

emotional expressiveness. It was found that only one component of emotional expressiveness, emotional overinvolvement, had a significant effect on subjective QOL. Based on this result the authors concluded that emotional involvement of key caregivers needs careful attention when planning psychosocial rehabilitation programs aimed at enhancing the quality of life of schizophrenia patients.

For more than forty years, research on EE has addressed the relationship between the family environment and the patient's outcome in schizophrenia and other disorders. While the EE effect is impressive in terms of its predictive power and replicability, these studies are nearly exclusively concerned with relapse and, therefore, address a very limited aspect of outcomes in schizophrenia. There has been some recognition in the EE literature that using relapse as the primary outcome variable may not tell the whole story. Vaughn, Snyder, Jomnes, Freeman, and Fallon (1984) have acknowledged that even though a patient in a low EE environment may be at a lower risk of relapse "it does not necessarily follow that the patients is well". They noted that other indices of outcome, such as quality of life and social adjustment, require increased attention. For example, King and Dixon (1995) investigated the extent to which family dynamics and EE may predict variance in patient social adjustment when controlling for some symptom severity. Sixty- nine schizophrenic outpatients and 108 of their relatives participated. The relatives' EE was assessed and the patients were interviewed at about the same time as their relatives, and again 9 months later, with the Social Adjustment Scale (SAS-II) and the PBRs. Between 9% and 58% of the variance of the SAS scale was explained by selected EE and family dynamics scales while symptom severity was held constant. The results showed that better social adjustment in patients was associated with less

family adaptability, and with greater emotional overinvolvement in relatives. Adjustment of patients in the work role was associated with more Critical Comments from mothers. They concluded that, contrary to many studies, some aspects of high EE are associated with better social adjustment in schizophrenic patients.

Karanci and Inandilar (2002) examined the predictive power of caregivers' characteristics of Turkish schizophrenia patients and caregivers' perceptions of frequency, coping, distress/discomfort, control of symptom behaviors by the patient, and attributions on locus of causality for the development of the illness on two components of EE (criticism/hostility and emotional over-involvement). The results showed that caregivers' perceptions of coping with specific symptom behaviors decreased criticism/hostility, where as perceptions of higher frequency of symptom behaviors increased criticism/hostility. For emotional over-involvement, the number of individuals living in the household, being the mother, father or spouse, perceptions of coping with symptom behaviors and reported distress/discomfort about symptom behaviors were significant predictors.

'Burden' is a loose construct that has been defined in various ways, but usually includes measures of subjective and objective distress as well as measures of the way in which a caregiver's life-style has been altered by financial difficulties, curtailed social activities, loss of vacation, etc. Objective burden is defined as observable concrete costs to the family resulting from mental illness, e.g., disruption to everyday life in the household and financial loss. Subjective burden is defined as the individual's personal appraisals of the situation and the extent to which people perceive they are carrying a burden. The association between objective burden and subjective burden is complex (Heru, 2000). Pipatananond (2001) examined causal

relationships among personal factors and other variables such as perceived seriousness of illness, sense of coherence, and caregiver burden in Thai family caregivers of schizophrenic patients. The Orem's General Theory of Nursing (Orem, 1995 cited in Pipatananond, 2001) was used as a conceptual framework. Five hundred and sixty-six caregivers for schizophrenic patients participated in the study. The main results showed that the caregiver sample reported a relatively low level of patient behavior and symptoms while the sense of coherence as reported by the caregivers was at a high level. The caregivers reported their 'burden' at a moderate degree, a finding consistent with other studies of Thai caregivers (Chaoum, 1994; Cheewapoonphon, 1998; Eamyngpanich 1996; Gasemgitvatana, 1994; Wittaya-Sooporn, 1996; cited in Pipatananond, 2001).

Schizophrenia patients returning to critical or emotionally overinvolved families are three to seven times more likely to relapse within one year than patients with relatives without such attitudes (Parker & Hadzi-Pavlovic, 1990; cited in Nugter, Dingemans, van der Does, Linszen, & Gersons, 1997). This finding has led to the development of family intervention programs aimed at reducing EE.

Lenior, Dingemans, Schene, Hart, and Linszen (2002) conducted a longitudinal study in which the stability of parental EE was analyzed over about 9 years, and related to the course of illness of patients with recent-onset schizophrenia. The involved families, which participated in a 15-month intervention, were randomized over two intervention conditions. Psychotic episodes were measured over 5 years after discharge. The FMSS was elicited two times during the 12-month outpatients' intervention and two times after discharge, on average. EE was expressed as criticism/dissatisfaction (CRIT), emotion overinvolvement (EOI), and as the

classical dichotomous index. They found that, in their subjects, EE was not stable over the years. The intervention condition had no differential effect on EE as measured with CRIT and the dichotomous index. For EOI, an interaction between the intervention condition and time was found. They concluded that EE, as assessed during intervention, does not predict psychotic episodes during follow-up. An association was found between psychotic episodes and CRIT as assessed at 34 months after discharge, indicating that family intervention may inhibit the development of high EOI for a limited period. This study supports the hypothesis that episodes in patients can affect the critical attitude in parents.

Nugter, Dingemans, van der Does, Linszen, and Gersons, (1997) studied a controlled longitudinal treatment to investigate the effect of behavioral family treatment on EE and to examine the correspondence between EE changes and relapse rates. The subjects were 52 patients with recent onset schizophrenia or related disorders and their parents. After completion of inpatient treatment they were randomly allocated to individual treatment or individual treatment plus family treatment. The family treatment consisted of education and training in communication and problem-solving skills. EE was measured with the Five-Minute Speech Sample (FMSS). The study found that family treatment did not have a significant positive effect on EE level, which supported the findings of prior EE research as noted previously. The scoring system in this study included all subscores of the FMSS, and was thus somewhat more sensitive to changes. In the individual treatment alone group, the relapse rate tended to co-occur with a change in FMSS/EE level, irrespective of the direction of this change.

While EE research has succeeded in demonstrating the importance of psychosocial factors in the course of schizophrenia, more research needs to be done before we can describe with precision the characteristics of the family environment that are most conducive to promoting positive outcomes in schizophrenia because in almost all developing countries, over 95% of the chronic mentally ill live with their families (WHO, 2001). It becomes urgent for researchers to attempt to find the most effective treatment approaches and related factors that can help to relieve the suffering of both patient and caregivers in these families, to help them achieve the best life possible in their circumstances.

In Thailand, there have been very few studies related to EE. Most research about schizophrenic patients and their caregiver has been related mainly to relapse and rehospitalization, distress and burden, etc. Most schizophrenic patients live with family members and the attitude of the caregivers toward schizophrenic patients is also at a generally good level. Sapavajit (2002) studied the attitudes of 47 caregivers of schizophrenic patients at Suanprung hospital in Chiang Mai province in northern Thailand. The results showed three aspects of attitude, behavior, sociality and psychology, were at a good level. The attitude of the caregiver toward the schizophrenic patient has a very high impact on both the care given and the outcome of treatment of the patients, as shown in the study of Laichartkul, Kirdjun, and Wittayathawornwong (1999), who conducted a comparative study between psychiatric patients who had rehospitalization within six months after first admission and another group who did not. They compared the knowledge, beliefs about psychiatric disorders and attitudes toward psychiatric patients of the relatives of the patients in Somdet Chaopraya Hospital. The results showed that the positive attitude

level of caregivers toward schizophrenic patients who were not rehospitalized within six months was higher than among those who were rehospitalized within six months. Furthermore, beliefs and knowledge of family members affects the management behavior of the family caregivers of schizophrenic patients.

Another study, conducted by Chuwong (2002), assessed the perception of schizophrenic patients concerning self-care, attitudes toward psychiatric illness and communicative behavior of the patients and their main caregiving family member(s). The subjects were 300 patients and 300 family members who attended for ongoing follow up treatment at the outpatient department of Suansaramrom Hospital in Suratthanee province. The results showed that 40.4% of schizophrenic patients had moderate abilities for self-care, 58.7% of them had medium level of positive attitude about their relative psychotic illness, and 52% experienced a low level of effective communicative behavior in the family. Factors that positive influenced communication between schizophrenic patients and their family members were knowledge of self-care at home, readmission rate, marital status, and occupation. In another study, Sitthimongkol, Napapongsuriya, and Kiatwuttinon (1999) studied the understanding of mental illness and management behavior of families having a member with acute schizophrenia. The sample consisted of 133 family members of 82 families of schizophrenic patients who had less than a two-year history of schizophrenia and continued to receive medications, who were selected from both outpatient and inpatient units at Somdet Chaopraya Hospital and Siriraj Hospital in Bangkok. There was quite general agreement among the families that appropriate treatment for their ill member included taking medication treatment (and taking the medication regularly), support from the family, professional help, self-care training,

hospitalization, and close observation of his/her symptoms. The information provided by mental health professionals about schizophrenia was significantly correlated with management behavior.

Hamtanon (2003) also studied the caregiving demands of schizophrenic patients, caring behaviors of family caregivers at home and outcomes. The subjects were 50 primary caregivers who were providing home care to schizophrenic patients receiving pharmacological therapy from the outpatient clinic in Nakhon Si Thammarat province in southern Thailand. The results showed that 1) the caregiving demands of schizophrenic patients upon family caregivers at home were: most patients made caregiving demands related to their psychosocial needs, complied with a treatment plan, and displayed psychotic symptoms and inappropriate behaviors; few patients made caregiving demands related to their physical needs, or showed any side effects of antipsychotic drugs; 2) the caring behaviors of family caregivers were “total care and partial care” (encouraging, inviting the patient to participate in activities, acting as a model, giving advice and information, giving support, monitoring, giving negative reinforcement, ignoring abnormal behaviors, and using firm strict rules to control the patient’s behavior) 3) there were three caring styles from this study; complete response, partial response, and no response to the caregiving demands.

Thongrin (2002) studied the needs of 271 caregivers of persons with schizophrenia, who had brought their relative to the outpatient department of the Prasrimahabhodi Hospital of Ubon Rachathani Province in northeastern Thailand. She found that both overall needs and specific dimensions of caregivers’ needs were at a high level. The specific needs were skill training for the caregivers to take care of their patients, mainly basic knowledge and information; plus a desire to participate in

planning care, and personal support. Another study by Karakeson (2002), on knowledge, practice, and support needs of Muslim caregivers in southern Thailand in caring at home for schizophrenic patients, found that most of the subjects who cared for schizophrenic patients were parents between 41-60 years old, with a good level of overall knowledge in each aspect of caring for their patient. Their overall practice, and each aspect, of caring for psychiatric patients at home by caregivers in Thai Muslim families, including such things as awareness of a potential relapse, reducing patient's stress, managing environments, work or occupation, taking care of patients' daily living, and giving medicine and observing side effects, were found to be consistently well provided. However, analysis of the qualitative data showed that some caregivers in Thai Muslim families also had some problems in caring for patients, although the treatment of the caregivers was generally acceptable, some of the Muslim caregivers faced problems with lacked knowledge to deal with problems in giving medicine during the Muslim fast periods, could not relieve patients' conflict or stress, and patients did not take part in community activities, and did not have enough income. Financially, most of the subjects in the study had a communication problem. They wanted to use Malayu and Yavee language than Thai language. Problems in caregiving noted in this study were also relevant to a study of caregivers of schizophrenic patients in the North of Thailand, as Pandok (2002) explored caregiving tasks among caregivers of persons with schizophrenia. She collected data on 85 caregivers at Maehongson province. The results showed that caregivers of persons with schizophrenia provided specific care in the area of daily living care tasks, symptom management tasks only rarely, and medication management tasks occasionally. In yet another Thai study, Tungpunkom (2000) studied the caregiving of

rural Thai mothers to the mentally ill in Northern Thailand, which focused on concepts of burden, coping and social support. This study was based on the grounded theory method, and two major types of activities emerged from the data: the caregivers' direct management of care and self-adaptation to the caregivers' roles. The major tasks of caregiving were in three domains: maternal care tasks (extension of normal parenting), psychiatric symptom management, and medication management. Caregivers reported using a body of skills that crossed throughout these three domains. Learning was experiential, often acquired through trial and error. Caregivers experienced two types of self-adaptation: emotional and role adaptation. The metaphor "staying in balance" described the caregivers' need to provide direct care while adapting to their role and mobilizing support for care management and adaptation. And again, Sethabouppha and Kane (2002) explored the lived experiences of Thai Buddhist family caregivers of seriously mentally ill relatives, in which the results defined a model of Thai Buddhist caregivers and the values of Buddhist beliefs concerning suffering, compassion, management and acceptance.

Caring for persons with schizophrenia can directly affect other family members, and lead to both physical and mental health problems. Kulvechakit, Rod-ong, Supataraniyapong, and Mahaton (1997) studied the mental health of psychiatric patients' families in Srinagarind Hospital, Khon Kaen province in the northeast of Thailand. The results showed that the mental health of family members of these patients was, overall, not good. There were significant differences in mental health between the members of the patient's families according to age, education, occupation and relationship with the patient. From this study the researcher suggested promoting and supporting the mental health of all members of the patients' families,

especially in aging, low-educated agriculturists and their parents. These findings are also relevant to the study of mental health of caregivers of persons with schizophrenia by Bhrombutr (2003). The subjects were 380 caregivers, who brought their schizophrenia patient to receive care at the outpatient department of Suanprung Hospital, Chiang Mai province. The results showed that 31.6% of the subjects had mental health problems with the potential to develop into full psychiatric disorders. Furthermore, there were significant relationships between mental health and occupation and sufficiency of incomes ($\alpha = .05$ and $.001$, respectively).

Wiwekwan (2000) studied the mental health status and caring behaviors of caregivers of schizophrenic patients and the relationship between mental health and caring behaviors of caregivers of schizophrenic patients who brought their patients to receive care at the outpatient departments of Srithanya Hospital and Somdeth Chaophraya Hospital in Bangkok. The results showed that 28.6% of the subjects had potential for a psychiatric abnormality, and the caregivers reported a moderate level of caring behaviors. Furthermore, there was a significant relationship between mental health and the caring behaviors.

Concepts Related to EE

Caregiver Burden

The burden of relatives in families with severe illness has been an issue that has attracted increasing interest both clinically and scientifically. The adverse consequences of disease for relatives, known as family caregiver burden, have been studied since the early 1950s. A number of investigators have explored the effect of

burden and course of illness and also the caring of ill relatives. Maurin and Boyd (1990) differentiated between burden and distress, distress was the impact of all the pressures of life on a family member, whereas burden was limited to the impact of the relative or family member who had the mental illness. Montgomery, Gonyea and Hooyman (1985) conducted another study which examined the conceptualization and measurement of the caregiver burden. They recognized the importance of the distinction between objective burden and subjective burden, which contribute differently to the cost of caring. They defined 'objective' burden as the extent of disruptions or changes on various aspects of the caregiver's life and household such as the amount of time, energy, privacy, and personal freedom required to care for the patient, while in contrast, they defined 'subjective' burden as the respondents' attitudes toward or emotional reactions to the caregiving experience, such as feelings of pain, fear, or nervousness (Montgomery, Gonyea & Hooyman, 1985 cited in Pipatananond, 2001).

There are several reasons for considering the concept of subjective burden to be close to the concept of EE:

1. Both concepts, subjective burden and EE, are attitudes or feelings towards the ill person. Subjective burden is a feeling of distress, strain, and/or a low level of personal satisfaction when caring for an ill family member, or attitudes toward, or emotional reaction to, the caregiving experience. EE involves the attitudes of a caregiver or relative towards the mentally ill family member. EE is composed of both positive attributes (warmth and positive comments) and negative attributes (hostility, criticism, and emotional over-involvement) (Brown 1959, Brown et al., 1958, cited in Bebbington & Kuipers, 1993).

2. Both concepts, subjective burden and EE, are associated with higher-risk psychosocial factors in families that have been linked to poor patient outcomes. Subjective burden can produce stress and distress in both patients and caregivers, and patients returning to live with high EE relatives have been found to have a higher relapse rate than those returning to live with low EE relatives (Hume & Pullen, 1994).

Attachment Theory

The emotional and behavioral adjustment of children and adults is associated with qualities of family relationships. Although this is accounted for in part by genetic influences, there is little doubt that family processes influence development and have a bearing on the risk of psychopathology (Reiss & Neiderhiser, 2000). Attachment theory was developed by Bowlby (1977, cited in Paley, Shapiro, & Worrall-Davies, 2000) to describe relational attributes, and may offer insight into the origins of EE. Attachment theory posits that, during childhood, individuals develop internal working models of self and others. These models influence adult relationships, to the extent that similarities are experienced between the other party to the adult relationship and the original attachment figure (Chorpita & Barlow, 1998, cited in Paley, Shapiro, & Worrall-Davies, 2000). More specifically, attachment theory proposes that early attachment is associated with later parenting, with adults using their introjections formed from childhood experiences of being parented as a template for subsequent parenting relationships with their own children. Paley and colleagues (2000) approached EE from an attachment theory perspective, and examined whether relatives' internal working models of their own parents influenced their subsequent

EE status in adult life. They found that maternal over-protection was positively related to emotional over-involvement. Jacobsen, Hibs, and Ziegenhain (2000) studied the maternal EE related to attachment disorganization in early childhood and found that maternal EE was significantly linked to mother-child attachment security at age 6 years. According to attachment theorists, a child's attachment quality to their primary caregiver is influenced to a large degree by the caregiver's internal representational model of attachment. From the literature review, we see that the concept of Attachment theory is related to the concept of EE because it is a concept which influences family attitudes, from mother to child, which affects the caregiving outcome.

The Concept of Affectionless Control

The concept of "affectionless control" as one type of parental bonding, developed by Parker, Tupling and Brown (1979 cited in Margareth, Helgeland, & Torgersen, 1997) is characterized by a mother who offers low care but shows high control. This concept relates to two key parental dimensions, protection and care. The first pole, the protection dimension, describes parental attitudes of overprotection, control, intrusion, infantilization, and prevention of independent behavior. The opposite pole of this dimension is defined by parental permissiveness and encouragement of the child's independence and autonomy. One pole of this dimension is defined by parental attitudes of genuine love, empathy, closeness, emotional warmth and understanding. Attitudes such as emotional coldness,

indifference, neglect and rejection are found at the opposite pole of this dimension.

The idea can be summarized as in the figure below.

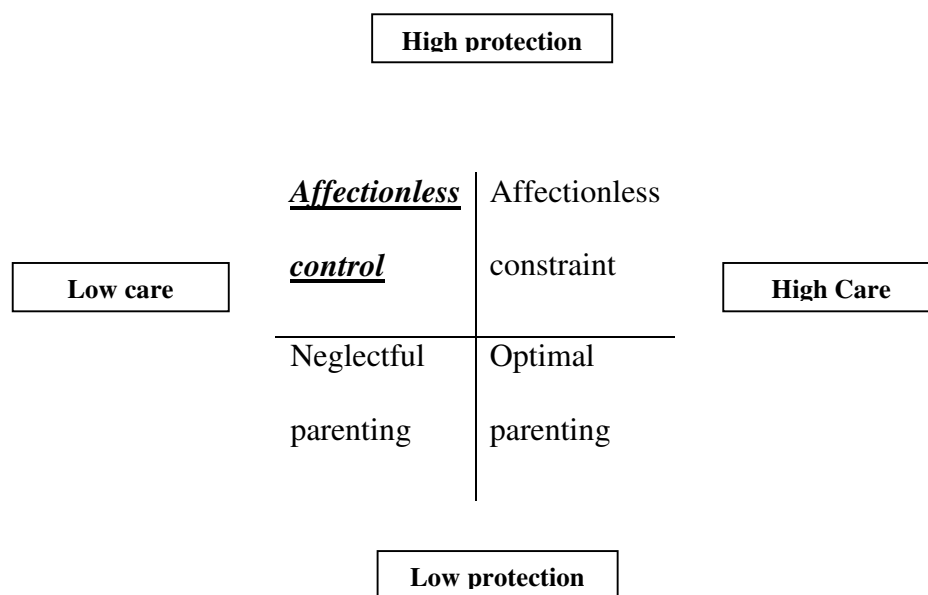


Figure 2 Type of parental bonding (Margareth et al, 1997)

Parker, Tupling and Brown (1979 cited in Margareth et al., 1997) developed the Parental Bonding Instrument (PBI) in 1979 in order to measure subjects' perceptions of parental characteristics in a reliable and systematic way. When applied to subjects with schizophrenia, it has been used for predicting relapse. The results of

this study demonstrate that parental attitudes characterized by over-control and lack of care are related to early onset of schizophrenia as well as to the more severe course and outcome of the disorder (Baker et al., 1984; Hafner & Miller, 1991 cited in Margareth et al., 1997). The consequences of deviate or optimal parenting are more likely to be related to the recipients' awareness or perceived quality of the parents, rather than to actual parental characteristics. Margareth and colleagues (1997) studied the maternal representations of patients with schizophrenia as measured by the Parental Bonding Instrument and found that subjects with schizophrenia perceived their mothers as less caring and more overprotective than did non-clinical subjects. Also, Willinger and colleagues (2002) compared schizophrenic and schizoaffective patients, depressive types with same sex, healthy siblings, with respect to maternal bonding behavior and premorbid personality traits. They found that significantly high maternal overprotection perceived by patients with schizophrenia and schizoaffective disorders still remained after correcting for the influence of premorbid personality traits. The concept of affectionless control has been studied not only in schizophrenia or schizoaffective behaviors, but also in depression. Patton and colleagues (2001), for instance, found low maternal and paternal care was associated with a two - to three - fold higher rate of depressive disorder.

There are two main reasons for believing that the concept of affectionless control is close to the concept of EE:

1. Both concepts deal with the influence of the family climate and how it affects the outcome of family caregiving, especially negative influences on patients who are the recipients of care; and.

2. This parental bonding style has been linked with distress and isolation. Both concepts are controlling and deal with parental bonding and attitudes between close family members.

Theoretical Foundation of Measurement

It is important that a measurement framework be identified and employed to guide the design and interpretation of the measurement.

Measurement Error, Reliability and Validity of Measure

The goal of measurement is to achieve accurate results, but this is not completely possible because measurement error, to some extent, is introduced into all measuring procedures (Waltz et al., 1991). There are two basic type of error that affect the precision of empirical indicators: random error and systematic error. Random error or chance error is caused by chance factors that confound the measurement of any phenomenon. Therefore, random error primarily affects the reliability, that is, the consistency of measurements, and consequently validity as well, because reliability is a necessary prerequisite for validity (Waltz et al., 1991). Systematic error, the second type of error that affects empirical measurements, has a systematic biasing influence on

measuring procedures. Then the validity of measurement is more threatened by the occurrence of systematic error (Waltz et al., 1991).

Issues of reliability and validity are of central concern to the researcher, as well as the critiquer of research (LoBiendo-Wood & Haber, 1998). Especially in the development of new instruments, establishing the reliability and validity of these tools is very challenging. Reliability refers to the consistency with which a measuring device assesses a content domain. As in the norm-reference case, reliability in the criterion-referenced context deals with the extent to which measurements are free from measurement error and the degree to which observed scores reflect true scores (Waltz et al., 1991). The error may be either chance error or random error, or it may be what is known as systematic error (LoBiendo-Wood & Haber, 1998). Validity is concerned with systematic error, whereas reliability is concerned with random error (Waltz et al., 1991). Chance or random errors are difficult to control, such as a respondent's anxiety level at the time of testing. Systematic or constant error is measurement error that is attributable to relatively stable characteristics of the study population that may bias their behavior and/or cause incorrect instrument calibration (LoBiendo-Wood & Haber, 1998) as shown in figure 2.

$$\begin{array}{rcccl}
 \text{Observed score (X}_O\text{)} & = & \text{True variance (X}_T\text{)} & + & \text{Error variance (X}_E\text{)} \\
 \textit{Actual score obtained} & & \textit{Consistent, hypothetical} & & \textit{Chance/Random error} \\
 & & \textit{Stable or true score} & & \textit{Systematic error}
 \end{array}$$

Figure 3 Components of Observed scores (LoBiendo-Wood & Haber, 1998)

Validity

Validity refers to whether a measurement instrument accurately measures what it is supposed to measure. When an instrument is valid, it truly reflects the concept it is supposed to measure. There are three kinds of validity; content, criterion-related, and construct validity (LoBiendo-Wood & Haber, 1998).

1. Content validity represents the universe of content, or the domain of a given construct. The universe of content provides the framework and basis of formulating the items that will adequately represent the content (LoBiendo-Wood & Haber, 1998). Especially for the criterion-reference measure, content validity is the first type of validity that should be established and is a prerequisite for all other types of validity (Waltz et al., 1991). Content is considered at the item and test levels. Item-content validity is the extent to which each item is a measure of the content domain. At the total test level, content validity relates to the representativeness of the total collection of test items or tasks as a measure of the content domain (Waltz et al., 1991). According to Waltz and associates (1991) there are two approaches that are useful for content validation, but the most frequently used approach uses content specialists to assess the quality and representativeness of the items within the test for measuring the content domain. Content specialists examine the format and content of each item and assess whether it is an appropriate measure of some part of the content domain of interest as determined by test specifications. Content validity index (CVI) indicate percent of agreement between experts for each item and subscale. After the questions are examined, a CVI is made. (LoBiendo-Wood & Haber, 1998). The second approach is an objective approach that uses empirical techniques in much the same manner as they are used to validate norm-referenced measures. Rovinelli &

Hambleton (1977 cited by Waltz et al., 1991) suggested that empirical methods used for item-discrimination indices have limited usefulness, because they can be used only to identify aberrant items without any intention of eliminating such items from the item pool. It is not appropriate to rely on item statistics to select the items for criterion-referenced measures, because theoretically this would alter the content domain and thereby weaken the representativeness of items and, thus, the interpretability of the domain score (Berk, 1980a; Hambleton et al., 1978; Millman, 1974; Popham, 1978 cited in Waltz et al., 1991).

A subtype of content validity is face validity. Face validity is a rudimentary type of validity that verifies basically that the instrument gives the appearance of measuring the concept. It is an intuitive type of validity in which colleagues or subjects are asked to read the instrument and evaluate the content in terms of whether it appears to reflect the concept the researcher intends to measure (LoBiendo-Wood & Haber, 1998).

2. Criterion-related validity indicates to what degree the subject's performance on the measurement tool and the subject's actual behavior are related. This validity is usually the second measure, which assesses the same concept under study. There are two forms of criterion-related validity; concurrent and predictive validity (LoBiendo-Wood & Haber, 1998).

2.1 Concurrent validity refers to the degree of correlation of two measures of the same concept administered at the same time. A high correlation coefficient indicates agreement between the two measures.

2.2 Predictive validity refers to the degree of correlation between the measure of the concept and some future measure of the same concept. Because of the passage of time, the correlation coefficient is likely to be lower for predictive validity studies.

3. Construct Validity is based on the context in which a test measures a theoretical construct or trait. It attempts to validate a body of theory underlying the measurement and testing of the hypothesized relationships. The establishment of construct validity is a complex process, often involving several studies and several approaches such as hypothesis testing, convergent divergent and contrasted-group approaches (LoBiendo-Wood & Haber, 1998), a multitrait-multimethod approach, a factor analysis approach, or a causal modeling approach (Gillis & Jackson, 2002).

Classical Measurement Theory

Classical measurement theory or classical true score theory is a model for assessing random measurement error (Waltz et al., 1991). The classical test theory assumes that traits are constant and that variations in observed scores are caused by random errors which may result from numerous factors. These random errors over many repeated measurements are expected to largely cancel each other out. Some true score (T) exists for the concept being measured. The equation of classical test theory is expressed as follows:

$$X = T + E$$

X = observed score, T = true score, and E = random error

Figure 4 The basic formulation of classical measurement theory (Waltz et al., 1991)

This equation indicates that every observed score that results from any measuring procedure is composed of two independent quantities: the true score and an error score. To the extent that a researcher reduces E , the observed score will converge with the true score of the concept. Practical implications of this assumption for research are as follows: All observations are imperfect measures of a concept and result from two types of error. First, random error refers to observation errors for individual cases that are unknown but offsetting. There is no bias in estimating T from the mean X . Second, systematic error refers to observation errors that are unknown but not offsetting. There is bias in estimating T from the mean X . A systematic error in measurement is difficult to resolve as the resolution depends on the theory and the problem. Unfortunately, measurement theory literature offers few formulaic solutions. Random error is a common problem that is easier to handle. The general approach is to use multiple indicators (composite measures). Sometimes these composite measures are called a scale, sometimes an index. The expected mean of measurement errors should be zero; when the error term is zero, the observed score is the true score. Therefore, an instrument is considered to be reliable when the observed scores are fairly consistent and stable throughout repeated measures. This is the theoretical foundation to test the reliability of an instrument. A research framework is then constructed to guide the process of this research study.

The two major frameworks for measurement are the norm-referenced and criterion-referenced approaches (Waltz et al., 1991). The concept of EE is conceivable with the feature of a norm-reference; a norm-referenced approach is employed when the interest is in evaluating the performance of a subject relative to the performance of other subjects in some well-defined comparison or norm group (Waltz et al., 1991).

After the measurement framework has been determined, the next step is selection of the specific type of measure to be employed. According to the low level of understanding of the concept of EE in Thai culture, in the first phase it was essential to explore this concept using qualitative measurements. The major goal of qualitative methods is to document and interpret as fully as possible the whole of what is being measured from the frame of reference of the subjects involved (Duffy, 1987; cited in Waltz et al., 1991). The second phase is quantitative measurement; this process assigns objects to categories that represent the amount of a characteristic possessed by the object. The quantitative method emphasizes the search for facts and causes of human behavior through objective, observable, and quantifiable data (Duffy, 1987; cited in Waltz et al., 1991).

Three components of instrument development were cited by Jones and Kay (1992, cited in Ferketich, Phillips, & Verran, 1993). The first was that preliminary qualitative work should be done to inform the researcher about the meanings and language used by the target population to describe the phenomenon. Immersion in the culture, contact with key informants and knowledge of the current literature are complementary means to begin to understand the cultural view of the group (Martin and Martin, 1991 cited in Ferketich, et al., 1993). The second component was that investigators need to clearly explicate whether the research goals are operational or comparative since the focus will guide translation and/or interpretation of results. By operational, Jones and Kay (1992) mean that the construct is grouping specific and one of the cultures is considered the criterion. Therefore, the language and terms are faithful to the language of origin even though the resulting translation to the second language might be awkward and/or inaccurate. If, however, the construct is universal,

a comparative study can be undertaken. The construct is referenced across the groups under study with none serving as the criterion. Thus, the construct serves as the reference with the goal being clarity and accuracy for the groups under study and symmetrical translation is used (Jones, 1987). The third component was to match translation methods with the goals of the research, if translation and/or modifications based on common usage are necessary (Jones & Kay, 1992).

There are many types of variables used for measuring in nursing research; for example cognition, affect, psychomotor skills, and physical functioning (Waltz et al., 1991). EE is determined as behaviors and attitudes that concern feelings about people (schizophrenic patients) for particular activities.

Nursing research that addresses psychological issues surrounding health and illness usually incorporates the measurement of various constructs such as pain, stress, and depression (Knapp, Kimble, & Dunba, 1998). One issue that occasionally arises is the difference between traits and states. The principle distinction between traits and states is that traits are supposed to show little variation across time for any given individual, whereas states can vary considerably from one time period to another (Knapp et al., 1998). As described in a literature reviewed by Leff & Vaughn, (1985) a high or low EE classification is a trait-like measure. The score on a trait measure for an attribute represents the probability that an individual will react in a defined way in response to a defined class of situations or stimuli.

Cronbach (1970; cited in Waltz et al., 1991) concluded that three assumptions underlie trait conceptualizations:

- 1) Behavior is habitual within individuals. A person tends to exhibit consistent reactions over a range of similar situations.
- 2) Different individuals vary in the frequency and degree of any type of behavior or response.
- 3) Personalities have some degree of stability

Traits, therefore, economically describe broad characteristics of phenomena. Measurement of trait attributes focuses on significant variation in general behavior over a wide range of situations and does not consider specific behaviors or responses in specific situations.

Summary

In summary, five major areas of literature were reviewed: schizophrenia, expressed emotion and its measurement, the relationship between EE and caregivers of schizophrenic patients, concepts related to the concept of EE, and theoretical foundations of measurement. The literature review reveals that a schizophrenic patient is more likely to have a subsequent relapse of symptoms if the patient is living with a family caregiver assessed to be high in expressed emotion. EE is now a well-validated predictor of poor clinical outcome for schizophrenia as well as for other psychiatric conditions. However, expressed emotion is accepted as culturally concept and there are few relevant research studies relevant to schizophrenia and EE in Thailand. Even though there are standard tools available for assessing EE, cultural differences arising from Thai culture make the usefulness of the present, non-Thai instruments questionable, and it is necessary to explore this concept from the Thai context. A greater understanding of EE will also help health care teams understand why

problematic interpersonal environments are associated with a more unfavorable course of schizophrenia and other psychiatric illnesses. Therefore, good psychometric properties of the EE measure is needed for enhance the effectiveness of clinical interventions by nurses and professionals health care team.