Predicting Factors of Relapse among Persons with a Major Depressive Disorder

Khwanjit Mahakittikun, Darawan Thapinta, Hunsa Sethabouppha, Phunnapa Kittirattanapaiboon

Abstract : Major depressive disorder is the diagnosis used when an individual has chronic depression that may reoccur, whereby the affected person may experience a relapse of the illness. In order to prevent relapse of a major depressive disorder, it is essential to identify predictors of a potential relapse. Thus, this case-controlled study sought to examine psychosocial factors that might predict an impending relapse among persons with a major depressive disorder. Seventy-four individuals, diagnosed with a major depressive disorder, participated in the study. The data were analyzed via descriptive statistics and binary logistic regression.

The results revealed stressful life events, self-efficacy for coping with depression, and expressed emotion of family members as significant predictors of an impending relapse of a major depressive disorder. Together these three independent variables explained 52% (Cog and Snell R^2) or 69.3% (Nagelkerke R^2) of the variance of relapse among the subjects. Although the power of each independent variable in predicting the likelihood of a relapse of the illness was not high, the results support cognitive theory that hypothesizes stressful life events increase one's likelihood of having a depressive relapse. The findings also support those of previous studies wherein self-efficacy for coping with depression and expressed emotion of family members have been found to be factors that may influence the relapse of a major depressive disorder.

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Introduction

Major depressive disorder (MDD) is recognized as a chronic mental health problem characterized by a two-week episode of at least one of two major criterion symptoms, depressed mood and loss of interest in activities, in combination with at least five of the following nine symptoms: depressed mood; loss of interest in activities; weight loss or weight gain; insomnia or hypersomnia; psychomotor agitation or retardation; fatigue or loss of energy; feelings of

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worthlessness; diminished ability to think or concentrate; and, suicidal ideations or a suicide attempt.[1] One may experience relapses and recurrences of a MDD even though he/she undergoes treatment.[2-5] A relapse has been viewed as a return of symptoms, within the same episode, that occurs after treatment or during a period of remission of the illness.[6] Although a recurrence involves the same signs and symptoms as a relapse, a recurrence is recognized as a return of symptoms or an onset of a new MDD, after one has a period of recovery from a MDD episode.[6]

Prior research has revealed that treatment for a MDD is not enough to prevent a relapse even when one has responded positively to treatment and/or no longer has depressive symptoms.[7, 8] However, relapse prevention or the implementation of any strategy or treatment to prevent depressive symptoms, prior to a relapse of a MDD, appears to enhance and extend the effects of treatments and reduce the risk of a relapse when continued or maintained.[9, 10] Since a limited number of studies have been undertaken regarding factors that influence the relapse of a MDD, additional research needs to be conducted regarding the causes of relapses, so as to facilitate development of appropriate interventions for preventing and/or reducing relapses of the illness.

Review of Literature

Medical research has begun to examine demographic, clinical, psychosocial, and environmental factors that may lead one to experience a relapse of a major depression. Even though examination of demographic factors (i.e., age, sex, marital status, and education) have revealed incompatible findings regarding relapses,[3, 11-15] clinical factors, related to relapse, have been found to include: residual symptoms;[4, 16] partial remission;[15,17] medication nonadherence;[18] previous depressive episodes;[4, 17, 19, 20] symptom severity;[13,15] and, psychiatric comorbidity.[11] The psychosocial factors found to be associated with relapse include: cognitive vulnerability;[8, 19] stressful life events;[7, 14, 21] self-efficacy for coping with depression;[12, 22, 23] and, expressed emotion of family members.[20, 24] Although most of the factors identified are difficult to modify, the psychosocial factors may be managed through nursing actions, so as to avoid a relapse.

Cognitive vulnerability has been described as dysfunctional attitudes that are activated by dysfunctional schemas or negative cognitions triggered by naturally occurring stressors.[25, 26] Several studies have revealed cognitive vulnerability contributes to relapse,[8, 19] while others have not found cognitive vulnerability to be a causal risk factor for relapse.[2, 7] Thus, it appears that cognitive vulnerability needs to be re-examined as a critical factor associated with relapse.

Stressful life events (i.e., negative life events such as loss of job, divorce, and death of a loved one) that occur before or during a depressive episode have been found to play a major role in the onset of a MDD.[27, 28] These events have been found not only to precipitate the onset of a major depression, but also to be associated with a relapse of the illness.[7, 14, 21]

Self-efficacy for coping with depression has been viewed as one's confidence in his/her ability to perform behaviors specific to controlling or coping with the symptoms of a depression.[23, 29] In addition, self-efficacy for coping with depression is considered a dimension of symptom control and a predictor of a subsequent relapse of an illness.[12, 22, 23]

Expressed emotion of family members has been recognized as the affective attitudes and behaviors that a depressed person's key family members express or exhibit toward him/her.[30] Although the expressed emotion of family members have been studied in regards to schizophrenia,[31] there is growing concern about the role of expressed emotion among persons with mood disorders, including depression and bipolar disorder.[20,31,32] A high correlation has been found to exist between expressed emotion of family members

and relapses among individuals with depression.[20] However, inconsistencies have been noted in the explanation of the construct, expressed emotion, as well as regarding the role of expressed emotion in predicting relapse among persons with depression.[20, 24] Although little research has been supportive, the available data suggest a need for additional examination regarding whether expressed emotion of family members predict a depressive relapse.

Only one Thai study could be located that has explored factors related to the recurrence of depression.[33] Also, no study could be located that has investigated factors that affect relapses among persons with a MDD. Even though the etiology of relapse is unknown, Western research has focused on the clinical factors that may predispose relapse among individuals with a MDD.[13, 15, 16, 18] Less attention has been given to the psychosocial factors related to relapse (i.e., cognitive vulnerability, stressful life events, self-efficacy for coping with depression, and expressed emotion of family members) than to the clinical characteristics related to relapse. Although a relapse may originate from various factors, potential predictors that may best explain a relapse remain unknown. Thus, in order to provide a more comprehensive view of a depressive relapse and gain insight into the factors that contribute to an increased risk for a relapse, a need exists for examination of the relationship among psychosocial factors and relapse in persons with a MDD.

In this study, a hypothesized model of relapse among persons with a MDD was developed based on cognitive theory,[34] relevant literature, and empirical findings regarding factors associated with relapse of a MDD. According to cognitive theory, factors associated with depressive relapse involve cognitive vulnerability and stressful life events.[34] Cognitive theory focuses on cognitive structures (schemas), developed from life experiences, that guide cognitive processing. The schemas of vulnerable persons tend to be rigid, unrealistic, and negative.[26, 34] The belief that dysfunctional schemas are inactive until activated by relevant stimuli, [34] has become a condition for empirical investigation of the role and functioning of one's cognitive vulnerability to depression and relapse of a MDD.[8, 19, 25] Cognitive theory also originated the idea of traumatic or negative life events influencing depression. The belief is that when negative life events occur early in one's development, he/she may become sensitized to negative events. In addition, it is believed that generation of maladaptive cognitions to information processing about such events leads to activation of the schemas and, consequently, depression when similar events occur.[34] Accordingly, stressful life events may be linked to the development of a relapse of a depression.[26]

Relapse was defined in this study as a return, within six months of symptom improvement, of depressive symptoms required for a diagnosis of a MDD. In addition, relapse was operationally defined as an individual experiencing one or both of the following criteria within six months of discharge after hospitalization for a MDD: a depressive symptom score of seven or more on the Nine-Question Assessment for Depressive Disorders (9Q)[35] and/or readmission to a hospital due to the severity of depressive symptoms. To explain factors contributing to relapse among individuals with a MDD, four potential psychosocial factors (cognitive vulnerability, self-efficacy for coping with depression, stressful life events, and expressed emotion of family members) were proposed as being uniquely related to relapse of a MDD. Thus, based upon review of literature and prior research, the research question for this study was: How much of the variability of relapse in persons with a MDD could be explained by the psychosocial factors of cognitive vulnerability, stressful life events, self-efficacy for coping with depression, and expressed emotion of family members?

Method

Design: A case-controlled design was used in this study, which involved the use of subjects with a relapse of a MDD and subjects without a relapse of a MDD.

Ethical Considerations: Approval to conduct the study was obtained from the Research Ethics Committee of the Faculty of Nursing of the primary investigator's (PI) university and the Ethical Review Board of the hospital used as a study site. All potential subjects were informed about: the nature of the study; what study involvement entailed; confidentiality and anonymity issues; voluntary involvement in the study; and, the right to withdrawn from the study at any time without repercussions. Potential subjects who agreed to participate were asked to give written consent.

Setting and Sample: The setting for the study was the outpatient psychiatric clinic of a psychiatric hospital in northern Thailand. Eighty-eight potential subjects were identified from the psychiatric outpatient clinic patient roster and approached by the researchers. Fourteen of those identified declined to participate due to: their caregivers not allowing them to do so (n = 3); wanting to rapidly return to work (n = 6); and, wanting to "rush home," which was a considerable distance from the hospital (n = 5).

Through use of a power analysis, with an alpha of 0.05, a power of 0.80, and four selected predictors, a sample size of 74 subjects was determined to be needed. The inclusion criteria consisted of Thais who were: 18 to 60 years of age; being treated with antidepressant medications; able to demonstrate a score ≥ 3.5 on the Medication Compliance Inventory;[36] in full remission, for two to six months, upon hospital discharge; living with a key family member, since the onset of his/her current episode of MDD; able to understand and communicate in Thai; and, willing to participate in the study. Potential subjects were excluded if they were: experiencing their first episode of MDD; using alcohol/drugs during their current episode; receiving additional treatment (e.g., intensive psychotherapy, electroconvulsive therapy) during their current episode; or, diagnosed with a MDD with psychotic features.

To control the internal validity of the study, as well as decrease the problem of alternative hypotheses, a degree of control was imposed on the extraneous variables that might confound the data of relapse. The key extraneous variables of concern were: medication non-adherence; partial remission; previous depressive episodes; psychiatric comorbidity; and, symptom severity. The researchers screened all potential subjects for these factors and eliminated those from the study who had any of these factors present.

As shown in **Table 1**, the subjects predominantly: were female; had a mean age of 41.10 years; were married; had a primary school education; were unemployed; had been hospitalized twice; and were receiving selective serotonin reuptake inhibitors as antidepressants. Half of them (n = 37) were found to be experiencing a relapse of their MDD (had a score of ≥ 7 on the 9Q test[35]). When the demographic characteristics of the subjects currently in relapse were compared to those who were not experiencing a relapse no significant differences were noted with respect to their: gender; age; marital status; educational level; occupation; number of hospital admissions; or type of antidepressant received. However, those who currently were in relapse had a lower mean age and experienced their first depressive episode at a younger age than those currently not in relapse.

Table 1 Demographic Characteristics of Relapsed and Non-Relapsed Persons with a Major Depressive Disorder

Characteristics	Total	Group		*p*
		Relapsed	Non-Relapsed	
	(n = 74) n (%)	(n = 37) n (%)	(n = 37) n (%)	
Sex				0.588[a]
Male	18 (24.3)	10 (13.5)	8 (10.8)	
Female	56 (75.7)	27 (36.5)	29 (39.2)	
Age				0.013[a]
18-30	10 (13.5)	5 (6.8)	5 (6.8)	
31-40	13 (17.6)	11 (14.9)	2 (2.7)	
41-50	13 (17.6)	8 (10.8)	5 (6.8)	
51-60	38 (51.4)	13 (17.6)	25 (33.8)	
Mean age	$\overline{X}$= 46.10; SD = 12.87	$\overline{X}$= 43.32; SD = 12.24	$\overline{X}$= 49.89; SD = 12.81	0.027[t]*
Mean age at first onset	$\overline{X}$= 41.72; SD = 13.39	$\overline{X}$= 37.84; SD = 12.67	$\overline{X}$= 45.59; SD = 13.11	0.012[t]*
Marital status				0.377[a]
Single	17 (23)	9 (12.2)	8 (10.8)	
Married	40 (54.1)	21 (28.4)	19 (25.7)	
Divorced	6 (8.1)	4 (5.4)	2 (2.7)	
Widowed	11 (14.9)	3 (4.1)	8 (10.8)	
Education				0.110[a]
Primary school	29 (39.2)	10 (13.5)	19 (25.7)	
Secondary school	19 (25.7)	11 (14.9)	8 (10.8)	
Diploma	5 (6.8)	4 (5.4)	1 (1.4)	
Bachelor's degree	17 (23)	11 (14.9)	6 (8.1)	
Master's degree	4 (5.4)	1 (1.4)	3 (4.1)	
Occupation				0.618[a]
Unemployed	27 (36.5)	15 (20.3)	12 (16.2)	
Agriculturist	9 (12.2)	4 (5.4)	5 (6.8)	
Employee	10 (13.5)	4 (5.4)	6 (8.1)	
Tradesman	11 (14.9)	5 (6.8)	6 (8.1)	
Businessman	2 (2.7)	0 (0)	2 (2.7)	
Government official	15 (20.3)	9 (12.2)	6 (8.1)	
Number of hospital admissions				0.259[a]
1	5 (6.8)	3 (4.1)	2 (2.7)	
2	59 (79.7)	28 (37.8)	31 (41.9)	
3	4 (5.4)	1 (1.4)	3 (4.1)	
≥ 4	6 (8.1)	5 (6.8)	1 (1.4)	
Drug type of antidepressant used				0.342[a]
TCAs	10 (13.5)	7 (9.5)	3 (4.1)	
SSRIs	46 (62.2)	20 (27)	26 (35.1)	
SNRIs	7 (9.5)	3 (4.1)	4 (5.4)	
Other	11 (14.9)	7 (9.5)	4 (5.4)	

Note: a = Chi-square test (χ^2); t = Independent t-test; * $p < 0.05$

TCAs = Tricyclic antidepressants; SSRIs = Selective serotonin reuptake inhibitors;
SNRIs = Selective norepinephrine reuptake inhibitors.

Instruments: Data were collected via seven different instruments. They included the: *Demographic Data Form (DDF); Medication Compliance Inventory (MCI);*[36] *Nine-Question Assessment for Depressive Disorders (9Q);*[35] *Dysfunctional Attitude Scale (DAS);*[37] *Life Experiences Survey (LES);*[38] *Depression Coping Self-Efficacy Scale (DCSES);*[29] and, *Perceived Criticism Scale (PCS).*[30] The researcher-developed *Demographic Data Form (DDF)* consisted of seven items that obtained information about each subject's: gender; age; age at onset of first MDD; marital status; educational level; occupation; number of hospital admissions; and, type of antidepressant used during current episode.

The *Medication Compliance Inventory (MCI)*[36] consisted of five items that assessed the medication adherence of potential subjects for the purpose of determining if they met the inclusion criteria for participation in the study. The items were designed to measure each respondent's compliance in taking medications and the amount of medication taken. Examples of the items were: "You decrease or increase the dosage of your medication by yourself" and "When you get well, you stop taking your medication." Each subject was asked to rate each item, on a five-point Likert-like scale, ranging from 1 = "usually" to 5 = "never." A total score was obtained by summing the rated points and dividing by the total number of items to obtain an average score. The possible range for the total score was 1 to 5. A total score ≥ 3.5 was considered to show a high likelihood of medication adherence; while a total score < 3.5 was considered to indicate a low likelihood of medication adherence. The reliability of the instrument, for this study, was found to be 0.81.

The *Nine-Question Assessment for Depressive Disorders (9Q)*[35] was a nine item questionnaire that was used to assess the presence of depressive symptoms. Examples of items were: "I have low interest or pleasure in doing things" and "I am feeling down, depressed, or hopeless." Each item had possible responses that ranged from: 0 = "have not experienced any of these symptoms over the past two weeks" to 3 = "have experienced, to a significant degree, these symptoms every day over the past two weeks." A total score, which could range from 0 to 27, was obtained by summing the numerical values for all responses. A score ≥ 7 suggested the presence of a significantly depressed mood, thereby indicating a relapse of a MDD. The reliability of the 9Q, for this study, was 0.93.

The *Dysfunctional Attitude Scale (DAS)*[37] was a 40-item questionnaire used to assess a depressed individual's underlying cognitive vulnerability for relapse. The content of items represents major concerns for approval, love, achievement, perfectionism performance standards, omnipotence, autonomy, and rigid ideas about the world. Examples of the items were: "People probably will think less of me if I make a mistake"; "I am nothing if a person I love doesn't love me"; "To be a good, moral, worthwhile person, I must help everyone who needs it"; and, "I can reach important goals without pushing myself." Possible responses to the items ranged from 1 = "totally agree" to 7 = "totally disagree." A total score, which could range from 40 to 280, was obtained by summing the numerical values of the responses across all items. Scores above 125 were considered high and suggested the presence of more dysfunctional attitudes or beliefs, and, thus, cognitive vulnerability to a depressive episode.[7] Reliability of the instrument, for this study, was found to be 0.81.

The Life Experiences Survey (LES)[38] was used to assess stressful life events. The LES was a self-report scale containing 57 life events. Although the LES has two sections, only Section I of the scale, comprised of 47 life events, was use in this study. Section II was excluded because it was specifically designed for students. Section I of the LES requested respondents to indicate the life events they have experienced during the past six months (i.e., death of close family member, new job, trouble with employer [in danger of losing job, being suspended, being

demoted], major change in financial status [a lot better off or a lot worse off], divorce, and retirement from work). Each life event was then assessed using the following range of responses: -3 = "extremely negative" to +3 = "extremely positive." If an event had no impact or did not occur a value of 0 was indicated. Because positive life events do not tend to cause the type of life stress that could potentially lead to thoughts about depressive relapse, only negative life events were used in the analysis for the present study. To obtain a total score, which could range from 0 to 141, responses to all negative life events were summed. The total scores were classified as high negative impact (≥ 14); medium negative impact (4-13); or, low negative impact (0-3). The reliability of the instrument, for this study, was 0.84.

The 24 item *Depression Coping Self-Efficacy Scale (DCSES)*[29] was used to measure the subjects' confidence in their ability to manage their depressive symptoms and follow their treatment regimens. The items regarding coping self-efficacy were divided into three domains: seven negative cognitions items (i.e., "I am this percent confident (0-100) that I can recognize when I am blaming myself for my symptoms and try to stop."); ten behaviors items (i.e., "I am this percent confident (0-100) that I can plan pleasant things to do in my free time."), and seven somatic problems items (i.e., "I am this percent confident (0-100) that I can go to bed and get up at the same time every day.") Subjects were asked to rate their degree of confidence or self-efficacy in managing tasks, specific to coping with depressive symptoms and its treatment, by writing down a numerical value that could range from 0 = "not at all confident" to 100 = "completely confident."

A total score was calculated by summing the numerical values of the responses and dividing by 24 to obtain an average score. A score less than 50 represented a low sense of self-efficacy, scores between 50 and 75 represented moderate self-efficacy, and a score more than 75 represented a high sense of self-efficacy. A high total score suggested a more positive sense of self-efficacy or confidence for coping with depression.[23, 29] Reliability of the DCSES, for this study, was 0.96.

The *Perceived Criticism Scale (PCS)*[30] was used to assess the expressed emotion of family members from a depressed person's perspective. Subjects were asked two questions ("How critical of you do you think your relative is?" and "How critical of your relative do you think you are?") about the feelings they perceived regarding criticism from their key family member at the time of becoming ill, with the current episode, to when the scale was completed by the subject. Both questions required responses on a 10-point scale that ranged from 1 = "not at all critical" to 10 = "very critical." In this study, the key family member was one whom the depressed person perceived to be a significant other. In other words, the key family member was the individual who directly took care of and lived with the depressed person at the time the depressed person became ill with the current episode to when the scale was completed by the subject. A total score was obtained by summing the numerical values of the responses to the two items and then dividing by two to obtain a mean score. A score of four or more was considered a high expressed emotion from the key family member. The reliability of the PCS, for this study, was 0.82.

Appropriate approval was obtained for the use and translation of the instruments used in the study. The *MCI* and *9Q* originally were written in Thai and, therefore, did not require translation. However, the *DAS, LES, DCSES*, and *PCS* originally were written in English and translated from English to Thai by the PI and a translator, who was an expert in foreign languages, and then back translated from Thai to English by two psychiatrists, who were bilingual experts. The PI and one native English speaker compared the English back translated versions of the instruments to the original English versions of the instruments to assure no changes in meaning had

occurred. Finally, five patients with MDD assessed the Thai translated versions of the instruments for clarity, readability, and meaning. Based upon their feedback some minor revisions were made in the wording of several of the items.

Procedure: Once consent to conduct the study was obtained, data collection commenced. While waiting to be seen or after being seen by their respective psychiatrist, potential subjects who met the inclusion criteria were informed about the study and the ethical considerations. Those who agreed to participate were asked to sign a consent form. The PI then took each subject to a private area of the waiting room and read the questions, from each of the seven questionnaires, to each respective subject. The subjects' verbal responses were recorded on their respective copies of the questionnaires. Administration of all seven questionnaires took about 25 minutes. If a subject obtained a score < 3.5 on the MCI, data collection ceased because the subject did not meet one of the inclusion criteria (acceptable medication adherence). The excluded subject was thanked for his/her time and given information about the importance of medication adherence. Each questionnaire was given a code number for the purpose of identification. All completed questionnaires were kept in a locked cabinet to assure confidentiality.

Data Analysis: The demographic data and scoring for the questionnaires were assessed via descriptive statistics. Examination of difference among the variables between the two groups (subjects in relapse and subjects not in relapse) was accomplished via chi-square and the independent t-test, while examination of the variables predicting relapse for a MDD was accomplished by way of binary logistical regression.

Results

Based on the depressive symptom scores on the *9Q*, within six months after discharge from the hospital, the persons with MDD were categorized into two groups: relapse (n = 37) and non-relapse (n = 37). **Table 2** shows the descriptive analysis of the study variables. There was no difference in distribution of cognitive vulnerability between the relapse and non-relapse groups. Independent t-test analysis also showed that the mean scores of cognitive vulnerability between the relapse and non-relapse groups were not different. On the contrary, it was found that significant differences existed, between the relapse group and non-relapse group, regarding stressful life events, self-efficacy for coping with depression, and expressed emotion of family members. Most subjects in relapse: perceived a high negative impact of stressful life events at a high level; had moderate self-efficacy for coping with depression; and, perceived high expressed emotion of family members. While, most of those without relapse: perceived a low negative impact of stressful life events; had high self-efficacy for coping with depression; and, perceived low expressed emotion of family members.

In regards to factors predicting a relapse of a MDD, stressful life events, self-efficacy for coping with depression, and expressed emotion of family members entered into the predictive model (see **Figure 1** and **Table 3**). Interestingly, cognitive vulnerability did not significantly contribute to the prediction of relapse. The total variance in predicting relapse from the combination of the three variables was 52% (by the Cog and Snell R^2) or 69.3% (by the Nagelkerke R^2). The model was able to classify 89.2% of the subjects who relapsed and 81.1% of those who did not. Overall, 85.1% of the sample was correctly predicted.

Table 2 Comparison of Psychosocial Factors between Relapsed and Non-Relapsed Persons with a Major Depressive Disorder

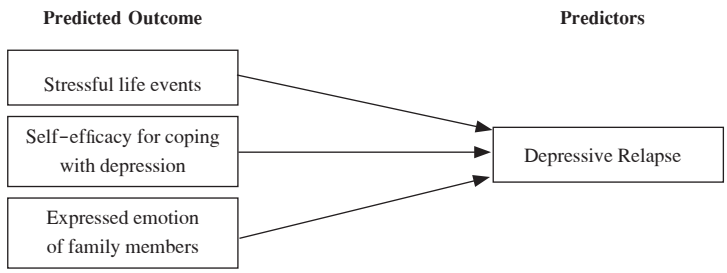
Psychosocial Factors	Possible Scores	Total (n = 74) n (%)	Groups		*p*
			Relapsed (n = 37) n (%)	Non-relapsed (n = 37) n (%)	
Cognitive vulnerability					1.000[a]
Low level	40-124	26 (35.1)	13 (17.6)	13 (17.6)	
High level	125-280	48 (64.9)	24 (32.4)	24 (32.4)	
	40-280	$\overline{X}$ = 139.59; SD = 30.52	$\overline{X}$ = 139.86; SD = 32.92	$\overline{X}$ = 135.32; SD = 27.75	0.523[t]
Stressful life events					0.000[a]*
Low level	0-3	35 (47.3)	7 (9.5)	28 (37.8)	
Moderate level	4-13	21 (28.4)	14 (18.9)	7 (9.5)	
High level	14-141	18 (24.3)	16 (21.6)	2 (2.7)	
	0-141	$\overline{X}$ = 9.59; SD = 13.01	$\overline{X}$ = 15.73; SD = 14.70	$\overline{X}$ = 3.46; SD = 7.09	0.000[t]*
Self-efficacy for coping with depression					0.000[a]*
Low level	0-49	14 (18.9)	13 (17.6)	1 (1.4)	
Moderate level	50-74	32 (43.2)	19 (25.7)	13 (17.6)	
High level	75-100	28 (37.8)	5 (6.8)	23 (31.1)	
	0-100	$\overline{X}$ = 65.20; SD = 17.73	$\overline{X}$ = 54.68; SD = 16.12	$\overline{X}$ = 75.73; SD = 12.24	0.000[t]*
Expressed emotion of family members					0.000[a]*
Low level	1-3	34 (45.9)	6 (8.1)	28 (37.8)	
High level	4-10	40 (54.1)	31 (41.9)	9 (12.2)	
	1-10	$\overline{X}$ = 3.95; SD = 2.35	$\overline{X}$ = 5.01; SD = 1.79	$\overline{X}$ = 2.89; SD = 2.38	0.000[t]*

Note: a = Chi-square test (χ^2); t = Independent t-test; * $p < 0.05$

Table 3 Predictors of Relapse among Persons with a Major Depressive Disorder

Predictors	B	Wald	*p*	Exp. (*B*)	95% CI for Exp. (*B*)	
					Lower	Upper
Stressful life events	0.140	7.905	0.005*	1.150	1.043	1.267
Self-efficacy for coping with depression	-0.113	11.797	0.001*	0.894	0.838	0.953
Expressed emotion of the family members	0.440	7.729	0.005*	1.553	1.139	2.117

Note: * p < 0.05; CI = confidence interval; Exp. (B) = exponentiation of the B coefficient



Hosmer-Lemeshow goodness-of-fit; Chi-square (χ^2) = 6.98; df = 8; p = 0.54

Figure 1 Model of Relapse for Persons with a Major Depressive Disorder

Discussion

Since no previous study in Thailand assessed a predictive model of relapse in persons with a MDD, the results of this study provided a model explaining depressive relapse in a Thai sample. As three psychosocial predictors in this model could explain 52% (by the Cog and Snell R^2) or 69.3% (by Nagelkerke R^2) of the variability of relapse in depressed persons, the remainder of the variance in predicting relapse might be explained by either constant variables or other modifiable variables.

The model of the current study was consistent with the model studied among Canadian women with a MDD.[39] Interestingly, a similarity in a set of psychosocial factors, between the current study and the Canadian study, to create the fitting model of relapse was that both models had more to do with the combination of life stressors, coping styles, and interpersonal relationships, but less to do with cognitive dimension. It should be noted that when creating relapse prevention strategies, health care providers need to simultaneously target the reduction of life stress, as well as improvement of coping responses and interpersonal relationships in persons with a MDD.

Cognitive vulnerability, between the relapse and non-relapse groups, demonstrated no significant differences. Both groups had a high level of cognitive vulnerability. This data supported the fact that cognitive vulnerability could not predict relapse. Possible explanations for this finding include: cognitive vulnerability is a result of the cognitive nature of persons with a MDD, regardless of whether they

are or are not in relapse; the direct effect of cognitive vulnerability may not be sufficient to predict relapse among persons with a MDD; and, cognitive vulnerability, as explained by cognitive theory, is interrelated to stressful life events leading to relapse rather than cognitive vulnerability itself having a direct effect on relapse. Prior research has suggested there is congruency between dysfunctional schemas and life events in relapse prediction.[40, 41] These studies have shown that persons with dysfunctional schemas are more likely to experience relapse when they have encountered stressful life events. Thus, it can be concluded that cognitive vulnerability may not be able to independently predict relapse among persons with a MDD. Cognitive vulnerability, instead, may be associated with stressful life events in predicting relapse.

Not everyone who experiences stressful life events will relapse. However, the fact that stressful life events, in this study, was a predictor of relapse in persons with a MDD was similar to the findings of previous studies that have examined stressful life events and depressive relapse.[7, 14] This finding demonstrates that, in this study, stressful life events played a role in relapse during the course of an episode of depression.

Depressed persons may fail to adapt to their life stressors and, as a result, become vulnerable to a relapse. Based on cognitive theory, stressful life events occurring during an episode of depression may be linked to the vulnerability to relapse. Stressful life events that are similar to the original traumatic experiences appear to reinforce existing dysfunctional schemas and induce a return of depressive symptoms.

According to a dimension of symptom control, this study found self-efficacy for coping with depression to be a predictor of relapse. This finding is consistent with those of previous studies regarding self-efficacy for coping with depression among hospital patients and primary care patients.[12, 29] A potential explanation of self-efficacy for coping with depression as a risk factor for relapse is the nature of a MDD itself. Since depressive symptoms may be a barrier to performing adaptive coping responses, persons with a MDD, who have low self-efficacy for coping depression, are less likely to perform successful coping behaviors through an episode of depression.[22, 23] Furthermore, persons with a MDD, who have relapsed, may have less improvement in coping with their symptoms. They are known to experience more symptom distress, perceive a decreased sense to manage their symptoms, and be less confident in their abilities to follow treatment recommendations after discharge from the hospital.[22, 23] Therefore, they are more likely to relapse.

Consistent with prior research,[24] high expressed emotion of family members predicted relapse in the study subjects. It is very likely that the psychopathology of a MDD (i.e., concentration on negative stimuli) makes depressed persons more vulnerable to criticism from key family members who are less willing to tolerate the depressed persons' behaviors that are perceived to be undesirable. Hence, when persons with a MDD are exposed to criticism, they are at an increased risk of relapse. Another possibility may be associated with the source of criticism. A key family member is an individual whom the person with a MDD perceives to be a significant other. He or she has the most important role in taking care of and living with the person with a MDD. Thus, criticism from a key family member may be more distressing for a person with a MDD than criticism from other relatives, because it is more likely to lead to feelings of insecurity, and fear concerning possible loss of affection and care.

Limitations and Recommendations

When applying the findings of the study, the study limitations need to be taken into consideration. First, based upon cognitive theory,[34] persons with a MDD, who relapse, are more likely to perceive themselves and their world in a more negative manner than those with a MDD who are not in relapse. Thus, regardless of the factors that may be related to relapse, a person with a MDD, who is in relapse, will be more likely to maintain symptoms of depression than a person who has a MDD but is not in relapse. This factor will continue to be a problem in future research studies.

Secondly, recall bias regarding the reporting of stressful life events and expressed emotion of the family members, over the past six months, could have been present. Future studies may need to implement multiple means of data gathering (i.e., observations, interviews of family members and persons with a MDD, and daily journal recordings of persons with a MDD) in addition to questionnaires that utilize recall.

Thirdly, although the proposed model worked well for predicting relapse, the odds ratio of each independent variable had weak predictive power for representing the probability of relapse. It is likely the mean score of depressive symptoms of the sample (7.85) was too close to the cut-off score (7) on the 9Q for determining relapse. For predicting relapse, this may not be sufficient for clearly defining a difference between persons with a MDD who are in relapse and those who are not in relapse. As a result, future researchers may want to consider the use of a more robust instrument for measuring depressive symptoms.

Finally, the study was conducted on subjects from only one hospital in one geographic location within Thailand. Thus, generalizability to the overall population of persons with a MDD is limited. Future studies need to consider using persons with a MDD from various locations throughout Thailand who are being treated in a variety of mental health settings.

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ปัจจัยทำนายการกลับเป็นซ้ำในผู้ที่เป็นโรคซึมเศร้า

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บทคัดย่อ: โรคซึมเศร้าเป็นการวินิจฉัยที่ใช้เมื่อบุคคลมีอาการซึมเศร้าเรื้อรังที่ซึ่งอาจเกิดขึ้นซ้ำได้ โดยผู้ที่ได้รับผลกระทบนี้อาจมีประสบการณ์การกลับเป็นซ้ำของการเจ็บป่วยได้บ่อยครั้งขึ้น เพื่อป้องกันการกลับเป็นซ้ำของโรคนี้จึงมีความสำคัญที่ควรระบุถึงตัวทำนายการกลับเป็นซ้ำที่เป็นไปได้ การศึกษานี้เป็นการศึกษาย้อนหลังแบบที่มีกลุ่มควบคุมเพื่อตรวจสอบปัจจัยทางจิตสังคมที่น่าจะใช้เพื่อทำนายการกลับเป็นซ้ำในผู้ที่เป็นโรคซึมเศร้า โดยมีผู้ที่ได้รับการวินิจฉัยว่าเป็นโรคซึมเศร้าเข้าร่วมในการศึกษาจำนวน 74 ราย วิเคราะห์ข้อมูลโดยใช้สถิติ เชิงพรรณนาและสถิติถดถอยโลจิสติค

ผลการศึกษาพบว่าเหตุการณ์ที่ก่อให้เกิดความเครียดในชีวิต สมรรถนะแห่งตนในการจัดการกับอาการซึมเศร้า และการแสดงออกทางอารมณ์ของสมาชิกครอบครัว เป็นตัวทำนายการกลับเป็นซ้ำของโรคซึมเศร้าที่สำคัญ ตัวแปรอิสระทั้ง 3 ตัวร่วมกันอธิบายความผันแปร ของการกลับเป็นซ้ำในผู้ที่เป็นโรคซึมเศร้าได้ร้อยละ 52 (โดยวิธีของค็อกและสเนลล์) หรือร้อยละ 69.3 (โดยวิธีของเนเกลเคิร์ก) แม้ว่าค่าอำนาจทำนายของตัวแปรอิสระแต่ละตัว ในการทำนายความเป็นไปได้ของการกลับเป็นซ้ำของการเจ็บป่วยไม่สูงมากนัก แต่ผลการศึกษานี้สนับสนุนทฤษฎีทางปัญญาที่มีสมมติฐานว่าเหตุการณ์ที่ก่อให้เกิดความเครียดในชีวิตทำให้บุคคลมีโอกาสกลับเป็นซ้ำของโรคซึมเศร้าเพิ่มขึ้น ผลการศึกษานี้สนับสนุนผลการศึกษาที่ผ่านมาอีกด้วยว่าสมรรถนะแห่งตนในการจัดการกับอาการซึมเศร้า และการแสดงออกทางอารมณ์ของสมาชิกครอบครัว เป็นปัจจัยสำคัญที่น่าจะมีอิทธิพลต่อการกลับเป็นซ้ำของโรคซึมเศร้า

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คำสำคัญ โรคซึมเศร้า ปัจจัยทำนาย การกลับเป็นซ้ำ

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