THE RELATIONSHIPS AMONG SOCIAL SUPPORT, THERAPEUTIC ALLIANCE, EXPERIENCE OF MEDICATION SIDE-EFFECTS, ILLNESS REPRESENTATION, INTENTION TO CHANGE ADHERENCE BEHAVIOR, AND SELF-REPORTED ADHERENCE BEHAVIOR IN SCHIZOPHRENIC PATIENTS AT THE FOLLOW-UP VISIT

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THE RELATIONSHIPS AMONG SOCIAL SUPPORT, THERAPEUTIC ALLIANCE, EXPERIENCE OF MEDICATION SIDE-EFFECTS, ILLNESS REPRESENTATION, INTENTION TO CHANGE ADHERENCE BEHAVIOR, AND SELF-REPORTED ADHERENCE BEHAVIOR IN SCHIZOPHRENIC PATIENTS AT THE FOLLOW-UP VISIT

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ABSTRACT

The purpose of this cross-sectional descriptive study was to examine the effect of 4 factors- social support, therapeutic alliance, experience of medication side-effects, and illness representation- on Thai schizophrenic patients' intention to change adherence behavior and self-reported adherence behavior. The Common-Sense Model of Illness Representation was used as the conceptual framework of this study.

225 schizophrenic patients from outpatient units were recruited based on the inclusion criteria. Participants were interviewed individually with the following questionnaires: 1) the Medical Outcomes Study Social Support Survey; 2) the California Pharmacotherapy Alliance Scale: Patient Version; 3) the Liverpool University Neuroleptic Side Effect Rating Scale: Thai version; 4) the Illness Perception Questionnaire for Schizophrenia; 5) the Stages of Change Readiness and Treatment Eagerness Scale; 6) the Medication Adherence Report Scale. Structural Equation Modeling was used for data analysis.

The result indicated that the modified model fit with the empirical data (Chi-Square = 91.17, df = 72, p-value = 0.063, RMSEA = 0.034, GFI = 0.95, AGFI = 0.91, CFI = 0.98). The variance explanation of medication adherence was 17%. This model showed that a therapeutic alliance and the experience of medication side-effects increased the patients' understanding of their illness and led to the intention to change adherence behavior. Social support did not increase the illness representation and self-reported adherence behavior. Illness representation influenced on the patients' intention to change adherence behavior.

The findings indicated that the proposed model provides a guideline for understanding medication adherence behavior in Thai schizophrenic patients. Mental health nurses should promote illness perception to enhance patients' intention to change adherence behavior. This will in on result increase in adherence behavior in this population.

KEY WORDS: MEDICATION SIDE-EFFECTS/ THERAPEUTIC ALLIANCE/ ILLNESS REPRESENTATION/ INTENTION TO CHANGE ADHERENCE BEHAVIOR/ SCHIZOPHRENIC

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ความสัมพันธ์ระหว่างการสนับสนุนทางสังคม ความผูกพันระหว่างผู้ป่วยและบุคลากรทางสุขภาพ ประสบการณ์การเกิดผลข้างเคียงจากยา มุมมองของผู้ป่วยที่มีต่อโรค ความตั้งใจในการเปลี่ยนพฤติกรรมการรับประทานยาอย่างสม่ำเสมอต่อเนื่อง และการรายงานพฤติกรรมการรับประทานยาอย่างสม่ำเสมอต่อเนื่อง ในผู้ป่วยจิตเภทที่มาตรวจตามนัด
(THE RELATIONSHIPS AMONG SOCIAL SUPPORT, THERAPEUTIC ALLIANCE, EXPERIENCE OF MEDICATION SIDE-EFFECTS, ILLNESS REPRESENTATION, INTENTION TO CHANGE ADHERENCE BEHAVIOR, AND SELF-REPORTED ADHERENCE BEHAVIOR IN SCHIZOPHRENIC PATIENTS AT THE FOLLOW-UP VISIT)

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บทคัดย่อ

การวิจัยนี้ เป็นการศึกษาภาคตัดขวาง มีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์เชิงสาเหตุของการสนับสนุนทางสังคม ความผูกพันระหว่างผู้ป่วยและบุคลากรทางสุขภาพ และประสบการณ์การเกิดผลข้างเคียงจากยา และมุมมองของผู้ป่วยที่มีต่อโรค ที่มีผลต่อความตั้งใจในการเปลี่ยนพฤติกรรมการรับประทานยาอย่างสม่ำเสมอต่อเนื่องและการรายงานพฤติกรรมการรับประทานยาอย่างสม่ำเสมอต่อเนื่องของผู้ป่วยจิตเภทไทย โดยเป็นการศึกษาภายใต้กรอบแนวคิดของ The Common-Sense Model of Illness Representation

กลุ่มตัวอย่างเป็นผู้ป่วยนอกจิตเภท จำนวน 225 คน โดยกลุ่มตัวอย่างได้รับการสัมภาษณ์เป็นรายบุคคลด้วยแบบประเมินดังต่อไปนี้ 1) แบบสอบถามเกี่ยวกับแหล่งสนับสนุนที่มี 2) แบบสอบถามเกี่ยวกับทัศนคติที่มีต่อการรักษาและเจ้าหน้าที่ 3) แบบสอบถามผลข้างเคียงจากยา 4) แบบสอบถามการรับรู้ความเจ็บป่วย 5) แบบสอบถามความตั้งใจต่อการรับประทานยา 6) แบบสอบถามวิธีการใช้ยา สถิติในการวิเคราะห์ข้อมูลในครั้งนี้คือ โมเดลสมการเชิงโครงสร้าง

ผลการศึกษาพบว่าโมเดลเชิงโครงสร้างมีความสอดคล้องกับข้อมูลเชิงประจักษ์ (Chi-Square = 91.17, df = 72, p-value = 0.063, RMSEA = 0.034, GFI = 0.95, AGFI = 0.91, CFI = 0.98) และสามารถทำนายความแปรปรวนของการรับประทานยาอย่างต่อเนื่องสม่ำเสมอได้ 17% ผลการศึกษาพบว่า ความผูกพันระหว่างผู้ป่วยและบุคลากรทางสุขภาพ และประสบการณ์การเกิดผลข้างเคียงจากยา ส่งเสริมให้ผู้ป่วยเกิดความเข้าใจในโรคของตนเองและนำไปสู่ความตั้งใจในการเปลี่ยนพฤติกรรมการรับประทานยาอย่างสม่ำเสมอต่อเนื่อง การสนับสนุนทางสังคมไม่ส่งผลต่อการเพิ่มขึ้นของมุมมองของผู้ป่วยที่มีต่อโรคและการรายงานพฤติกรรมการรับประทานยาอย่างสม่ำเสมอต่อเนื่อง มุมมองของผู้ป่วยที่มีต่อโรคมีผลต่อความตั้งใจในการเปลี่ยนพฤติกรรมการรับประทานยาอย่างสม่ำเสมอต่อเนื่องของผู้ป่วย

ผลการศึกษาครั้งนี้บ่งชี้ว่าโมเดลความสัมพันธ์ที่ศึกษาสามารถใช้เป็นแนวทางในการทำความเข้าใจพฤติกรรมการรับประทานยาอย่างต่อเนื่องสม่ำเสมอของผู้ป่วยจิตเภทไทย พยาบาลจิตเวชควรจะส่งเสริมให้ผู้ป่วยมีมุมมองของผู้ป่วยที่มีต่อโรคเพื่อเพิ่มความตั้งใจในการเปลี่ยนพฤติกรรมการรับประทานยาอย่างสม่ำเสมอต่อเนื่องของผู้ป่วย ซึ่งจะนำไปสู่การเพิ่มขึ้นของพฤติกรรมการรับประทานยาอย่างสม่ำเสมอต่อเนื่องของผู้ป่วยจิตเภท

คำสำคัญ: ผลข้างเคียงจากยา, ความผูกพันระหว่างผู้ป่วยและบุคลากรทางสุขภาพ, มุมมองของผู้ป่วยที่มีต่อโรค, ความตั้งใจในการเปลี่ยนพฤติกรรมการรับประทานยาอย่างสม่ำเสมอต่อเนื่อง, ผู้ป่วยจิตเภท

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CHAPTER I
INTRODUCTION

Background and Significance of the Problems

Medication is a major essential treatment of schizophrenia. The roles of medication are the reduction of symptoms, control of symptoms, and the improvement and maintenance of cognitive function of schizophrenic patients (Forchuk, Jewell, Tweedell, & Steinnagel, 2003; Mueser & McGurk, 2004). Moreover, taking medication regularly can decrease incidence of relapses, prevent deterioration of patients' functions and decrease the cost of hospitalization (Mueser & McGurk, 2004; Samanwongthai, 2001). Furthermore, taking medication prepares patients for the benefits of psychosocial interventions.

Although medication is a crucial element in management of schizophrenia, the issue of nonadherence is still the most common problem in this population. Prevalence of nonadherence in schizophrenic patients affects up to 48% within the first year, and up to 74% within the first two years (Hellewell & Salzman, 1999). Estimates of nonadherence to oral antipsychotic medications among schizophrenic patients have ranged from 12% to 65% over a 6-month period (Keith & Kane, 2003). In Thailand, survey research with a sample of 160 schizophrenic patients at Srithunya Hospital found that three-fourths of the patients were nonadherent (Tiralap, 1990).

Consequences of medication nonadherence affect quality of life and bring economic burdens to the patient, family, and community. Nonadherence increases severity of symptoms and relapse (Thieda, Beard, Richter, & Kane, 2003). The relapse rate in nonadherent patients is greater than that of adherent patients. The average risk is 3.7 times higher, over the 6-month to 2-year period, in a nonadherent group (Fenton, Blyler, & Heinssen, 1997). Moreover, among schizophrenic patients, the more symptoms occur, the higher the risk of suicide. A study of incidence and risk factors in attempted suicide in 28 schizophrenic inpatients at Siriraj hospital during 1992-1996

found 57.2% of patients who attempted suicide were nonadherent to prescribed medication regimens (Chulakadabba, Ngamthipwatthana, & Chantra, 1999).

Furthermore, consequences of nonadherence to medication regimens have a profound impact on the families of schizophrenic patients. Medication nonadherence can lead to severe psychotic symptoms (Mueser & McGurk, 2004). Severity of psychotic symptoms increases anxiety, guilt, stigma, and stress for family members of schizophrenic patients accordingly. Increased severity of symptoms can cause family conflicts and relationship problems (Nithikul, 1992). In the most extreme, a long duration of care for patients with severe symptoms can cause family members to themselves suffer mental health problems. In a study of 140 caregivers of schizophrenic outpatients at Somdet Chaopraya Institute of Psychiatry and Srithunya Hospital, Wiwekwon found that 28.6% of caregivers had the potential for psychiatric problems, including somatic symptoms, anxiety, insomnia, severe depression, and social dysfunction (Wiwekwon, 2000). Similarly, in a study of 380 caregivers of schizophrenic outpatients at Suanprung Hospital, it was found that 31.6% of caregivers had mental health problems and the potential for psychiatric problems (Bhrombutr, 2002).

Medication nonadherence can increase national health care costs. Many countries have explored the cost of nonadherence. Estimates of the total cost of nonadherence across all classes of medication in the US are as high as US$ 100 billion annually. The cost to Canada's health system has been estimated to be as high as Can$ 3.5 to 9 billion annually (Breen & Thornhill, 1998). Regarding the costs from prolongation of admission, Weiden and Olfson (1995), in their survey research, estimated the cost in the US for rehospitalization of patients with schizophrenia within 2 years of discharge to be nearly US$ 2 billion. Sixty percent of this cost could be attributed to relapse due to a loss of effectiveness of medication, while 40% was attributed to relapse due to nonadherence. In Great Britain, an analysis of data from a survey report on people with mental illness, between April and July 1994, reported nonadherence predicted an excess annual cost per patient of approximately 2,500 for in-patient services and over 5,000 for total service use (Knapp, King, Pugner, & Lapuerta, 2004).

In Thailand, though there is no report on the cost of nonadherence in schizophrenic patients, the cost of the patients' hospitalization is available. The cost of hospitalization of a schizophrenic patient in a psychiatric unit at Ramathibodi hospital was 3,670.86 baht per day (Homkanjun, 2008). In Khonkaen Hospital, Yataphutanon and colleagues (1995) found the cost of hospitalization per case was 9, 446.17 baht (269.89 us$, 1us$=35 baht), and the average duration of hospitalization was 25 days.

The consequences of nonadherence in schizophrenic patients are enormous. Hence healthcare providers currently pay more attention to decreasing the nonadherence rate. Various issues have been examined for increasing medication adherence phenomena in schizophrenic patients. First, factors associated with medication adherence have been examined (Adams & Scott, 2000; Bartko, Herczeg, & Zador, 1988; Coldham, Addington, & Addington, 2002; Fenton et al., 1997; Hui et al., 2006; Mutsatsa et al., 2003). Such findings reported associative factors but the mechanism of factors and medication adherence was not clearly defined. External factors have been explored, but little is known about patients' perceptions of schizophrenia and treatment. Nowadays, self-regulation of patients is well-known because of the consistent to patients' perspective. Therefore, illness representation which explains about patients' perception and definition to their illness and treatment will be selected to guide the understanding of mechanism among factors in medication adherence. Second, patterns of medication adherence have been investigated. In schizophrenic patients, medication adherence is related to relapse. A pattern is often seen in which patient nonadhere to medication, relapse, go back to adherence and then nonadhere again. This pattern is known as the "roller coaster" effect which can result in exacerbation of illness (Jarboe, 2002). The study of relapse and readmission rates in routine treatment condition found in the fifth year, nearly 80% of patients in one study had medication nonadherence, had relapsed, and were readmitted for their condition (Maurer & Biehl, cited in Jarboe, 2002). Jarboe (2002) reviewed previous studies and found that about 75% of patients who nonadhere to medication will ultimately relapse. Third, the definition of medication adherence and nonadherence has been explored. Definitions of medication adherence still vary greatly. The discrimination between adherence and nonadherence to medication in research has various levels (Lacro, Dunn, Dolder, Leckband, & Jeste, 2002; Velligan et al., 2006). This makes it difficult

to find any consistent pattern. For the strictest criteria, the definition of medication adherence includes regularly taking medications as prescribed. In order to prevent the course and prognosis of illnesses worsening from repetitive exacerbation, this study will explore medication adherence using these strict criteria.

There is an urgent need to investigate and understand the mechanism of medication adherence in schizophrenic patients. Mental health professionals, especially psychiatric nurses can facilitate better quality of life in a patient with an illness; they can help patients adhere to their medication regimen so that the treatment can be most effective. Providing psycho-social interventions to the patients will give better profit when a patient has a readiness for involvement. This study will explore the mechanism inside human cognition, which mediates cultural, social, and biological environments to effect medication adherence behavior in schizophrenic patients. Moreover, this study will encourage healthcare providers to be more aware of the autonomy of a schizophrenic patient. As Myers (1997) pointed out "active" adherent patients need to perceive or acknowledge their mental illness. Then they will assume the sick role and adhere to medication, even though they have to deal with medication side-effects. This study will give fundamental knowledge of association and interaction among factors. Moreover, the knowledge will provide specific data for interventions, which can target specific variables and promote medication adherence.

Theoretical Framework

The self-regulatory model of Leventhal and colleagues, the Common-Sense Model of Illness Representation, will be used to guide this study. The Common-Sense Model of Illness Representation was conducted in the late 1960s (Diefenbach & Leventhal, 1996). The model explains the dynamic process of information processing system and regulating system in a human. The assumption of the model is that people are active problem solvers, who perceive and interpret information from various sources, fitting it into their own model of the illness.

The model has three stages; **1) Representation of Danger.** People receive information from various sources. The information is organized by people's cognition. People then create an illness definition and construct representations from received information. Emotions related to the illness are involved in this process. Illness

representations and emotional representations occur simultaneously. **2) Coping Procedures.** Illness representations and emotional representations guide intention and coping strategies. Coping procedures are selected for managing the current situation and emotions. **3) Appraisal.** This stage is when people devise rules for evaluating the effectiveness of coping strategies, as compared to the expected goals. The outcome from the appraisal stage feeds back to the representation of health threat stage.

This model is recursive. The first stage reconsiders the congruence between illness representations and appraisal results. For example, if the outcome meets people's goals, the representations and coping strategy will remain. On the other hand, if the outcome does not fulfill the goal, the representations will be reconstructed and coping strategy will alter (Leventhal, Leventhal, & Schaefer, 1992; Leventhal, Nerenz, & Steele, 1984; Murray, 1990).

People react to health threats and construct illness representations from cultural, social, and biological environments. The information from all environments can be separated to three sources of information as follows (Hagger & Orbell, 2003; Leventhal et al., 1992; Leventhal et al., 1984).

First, the generalized pool of illness information current in the culture: this is a combination of all the previous communication and cultural interpersonal exchange on the topic of the illness. Two important cultural sources of information are 1) Linguistic, the language used to give specific meaning to a particular illness. For instance, the word 'stress' is frequently used for attributing hypertension. 2) Organization of medical services: the structure of the medical care system; for example, the design of a medical care system in order to deal with acute conditions. The expectations of diagnosis, treatment, and cure will fit with the acute disease model.

Second, social communication or information obtained in direct contact with other people, particularly practitioners; in communication with other people, information is shared. From the sharing, individuals will construct their model of illness. This source contains information from family, friends, and other significant people who can give both accurate and inaccurate information. Moreover, the communication between individuals and healthcare providers will expose the

individual to knowledge, beliefs, and expectations of the healthcare provider, and develop a client-professional relationship.

Third, the individual's personal illness experience, which contains current perceptions, previous experiences with the illness, and knowledge of the effectiveness of previous coping strategies. This knowledge interacts with the symptoms, diagnosis, and treatment procedures and shapes an individual's emotional and coping behaviors.

Information from all three broad sources is involved in the processing system. People integrate information into representations. Representations are constructed by symmetry rules. That is, construction under abstract (conceptual) and concrete (schematic) levels; for example, people seek to label their illness, which is abstract level construction next, they seek the symptoms. Searching symptoms for a symptom label is guided by concrete levels or schematics of illness. Ultimately, the symmetrical processing will construct illness representations, which involve emotional reactions. Emotional reactions are the emotions or feelings linked to the illness and treatment; such as, anxiety, fear, etc. Hence, the representations are bi-level, utilizing illness representations and emotional representations (Hagger & Orbell, 2003; Leventhal et al., 1997; Leventhal et al., 1992; Leventhal et al., 1984).

Illness representations contain attributes of illness. Leventhal and his colleagues used interviewing techniques with patients who suffer from a variety of different illnesses. The findings can be identified as covering five dimensions (Brewer, Chapman, Brownlee, & Leventhal, 2002; Diefenbach & Leventhal, 1996; Hagger & Orbell, 2003; Leventhal et al., 1997; Murray, 1990; Reynolds & Alonzo, 2000).

1) Identity, which is a person's label given to their illness, such as cancer, heart attack, or stress, and the experience of concrete signs and symptoms; for instance, bleeding, pain, nausea, headache, etc.

2) Consequences, which are the perceived impacts of the illness on their life, and involve physical, emotional, social, economic, and other areas of life; such as economic hardship or despair.

3) Causes, which are the perceived causes of the disease; for example genetic factors, environmental factors, individual's own behavior, or bad luck.

4) Timeline, which is the perceived duration of the illness. This refers to whether the illness is acute or has a chronic course.

5) Curability or controllability, which covers the beliefs about efficacy of treatment or efficiency of personal coping behaviors in curing or controlling the illness. Examples of patient beliefs include, 'If I rest, my cold will go away', or 'If I get medicine from my doctor, my cold will go away'.

While people construct representations of an illness, the representations of emotion occur simultaneously. Affect is one part of illness representation and is an independent component, which is elicited by cognitive aspects of the representation. These emotions can influence the construction of illness representation, inhibit or facilitate coping, and affect appraisal (Diefenbach & Leventhal, 1996).

From the model, illness representation and emotional representation generate coping procedures. The coping response consists of action intentions and actions which are expected to solve the problems arising from illness (Theunissen, Ridder, Bensing, & Rutten, 2003). Accordingly to the coping response, patients will evaluate the effectiveness of this behavior in the appraisal process.

The appraisal process consists of criteria and rules used to evaluate outcomes of the coping response. The outcome is evaluated in term of proximity to the expected goal. Finally, information from the appraisal stage feeds back into the representations stage. This information affects the maintenance of the coping response directly, and also alters the representations and hence the coping response. For example, if the patient appraises the first coping behavior as being ineffective, then this might result in the selection of an alternative coping strategy or even a change in the representation of the illness.

The dynamic information processing system that patients use when dealing with illness can be summarized as follows. Information from interaction with memories from illness experience, psychological, and social factors inform illness representation. Individuals then perceive and interpret the information, after which each individual operates two parallel pathways. The first pathway is illness representation, which gives definition to the illness, and the second pathway creates the emotional response to the problems. From both representations an individual develops a coping plan and coping actions to oppose problems and emotions. The individual evaluates coping strategy in the appraisal process, which loops so that the information from this process affects representation of health threat, emotional

representation and coping strategy. A graphic demonstration of this model is shown in figure 1.1

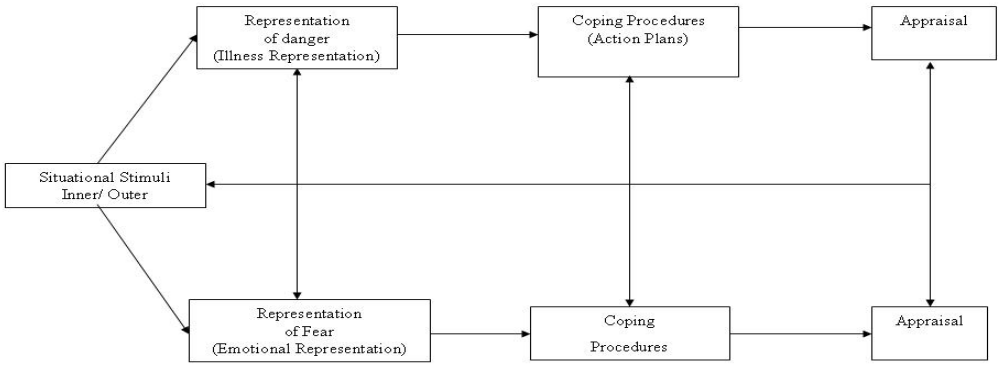

Figure 1.1: The Common-Sense Model of Illness Representation (Leventhal et al., 1997)

This study focuses on the phenomena of medication adherence in individuals with schizophrenia. The Common-Sense Model of Illness Representation was selected to explain this phenomenon. The strength of the model is that, it combines biological, psychological, sociocultural contexts in the human processing system to understand human behavior. This is similar to the characteristics of the adherent concept, which evaluates inner and outside factors relating to a patient's own decision behavior. Moreover, this model emphasizes the patients' cognition which is congruent to autonomy concerns in the adherence concept. Therefore, the Common-Sense Model of Illness Representation is an appropriate framework for facilitating the developing theory, which will lead to better understanding of individuals with medication adherence.

In this study, two sources of information, illness and emotional representations, and coping procedure, have been selected for use in the medication adherence model of schizophrenic patients. Two broad sources of information for illness representations are examined. First, direct contact with other people is the way to receive information from external stimuli which influence illness and emotional representations. External stimuli vary across cultures. Social support and therapeutic alliance that accord to Thai culture will be selected for this study. Second, the individual's personal illness

experience is the outcome from the appraisal stage. Medication side-effect is frequently reported as an illness and treatment experience. Experience of medication side-effects is the perception of patients about their medication side-effects. An individual's personal illness experience will be studied in terms of experience of medication side-effects. This study does not include the generalized pool of illness information current in the culture, which comprises language use related to illness in the culture and the structure of medical services, for two reasons. First, the effect of labeling from a community is weaker than support or labeling from significant others, especially the family. Although diagnostic labels and language used when discussing mental illness in a culture are used in the construction of illness and emotional representation (Lai, Hong, & Chee, 2000), Lee and colleagues (2005) stated that interpersonal communication with the family in everyday life has a higher stigmatizing effect. In Thai culture, family is the major source of patients' communication. Therefore, instead of examining the effect of society's labels, this study will examine the characteristics of support from family. Second, patients are admitted to hospital if they are in an acute stage. Patients will be discharged from hospital as soon as they show stable symptoms. During hospitalization, the patients receive treatments which have a consistency of medication, counseling, psychotherapy, occupational therapy, recreational therapy, etc. As an outpatient, the main treatment is medication. Some patients receive psychotherapy or occupational therapy in a day care program. Therefore, there is no variance to examine the different structures of medical services which affect illness representation and medication adherence. Illness and emotional representations are selected for study of the individual model of the illness. Emotions related to illness are also studied together with illness representations. Evaluating emotion involves the illness perception questionnaire. Coping procedure with schizophrenia is studied in terms of intention to change adherence behavior and self-reported adherence behavior.

The appraisal process evaluates the effectiveness of coping behavior to reach an expected goal. The expected goal might decrease threat from illness and aid living as normal in the patient's community. The expected goals of patients are improvement of illness and living well in the community. Appraisal stage is not take into account in this study because other factors also affect the mediating factor of coping procedure on

outcome (Brewer et al., 2002; Lobban, Barrowclough, & Jones, 2004). Medication adherence is not the only factor related to psychotic symptom improvement. The improvement of symptoms requires other psychosocial factors and appropriate medication over a long period of time (Kozuki & Schepp, 2006).

To facilitate the process of the deductive method from the Common-Sense Model of Illness Representation, the linkage among the conceptual, theoretical, and operational systems is presented in a hierarchical model as illustrated in Figure 1.2.

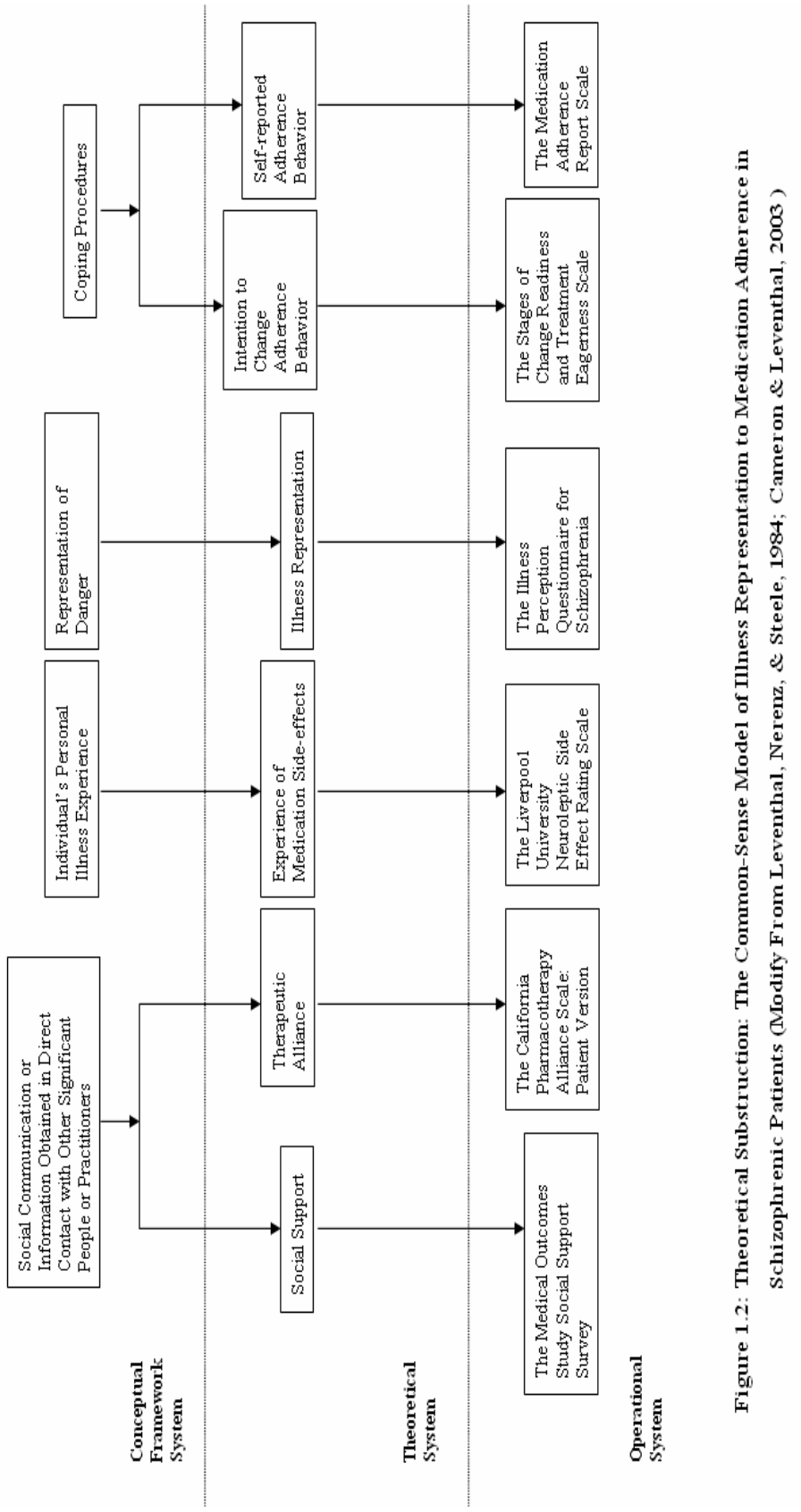

Figure 1.2: Theoretical Substruction: The Common-Sense Model of Illness Representation to Medication Adherence in Schizophrenic Patients (Modify From Leventhal, Nerenz, & Steele, 1984; Cameron & Leventhal, 2003)

Intention to Change Adherence Behavior and Self-Reported Adherence Behavior

Intention to change adherence behavior is patients' plan and making some change in their medication adherence behavior. Self-reported adherence behavior is a patient's behavior reporting by the patient. It describes when a patient chooses to follow the medical prescription under conditions of collaborative involvement to adjust their plans with a healthcare provider (Brawley & Culos-Reed, 2000; Evangelista, 1999; Haynes, McDonald, Garg, & Montague, 2004). Intention to change adherence behavior and self-reported adherence behavior is derived from coping procedures in the Common-Sense Model of Illness Representation, which is the intention and action for managing the problems and emotions of illness (Leventhal et al., 1997).

Sources of Information

Internal and external sources of information contribute to illness and emotional representations. Internal sources of information come from personal experience of illness and the outcome of appraisal (Leventhal et al., 1984; Talley, 1998). In this study, experience of medication side-effects is derived from experience of illness. From the literature reviews it can be seen medication side-effects have a strong relationship to nonadherence. Thus, the experience of medication side-effects might be related to illness representations and emotional reactions, which individuals with schizophrenia use to develop coping procedures. External sources of information come from perception of communication with significant others and healthcare providers. Social support and therapeutic alliance is derived from this communication. The evidence discussed in the literature review found that the kinds of support include information, appraisal, instrumental, and emotional support from family, friends, and significant others, and is related to medication adherence (Fenton et al., 1997; Karnrail, 1998; Kwon, 2000; Olfson et al., 2000; Parashos, Xiromeritis, Zoumbou, Stamouli, & Theodotou, 2000; Sellwood, Tarrier, Quinn, & Barrowclough, 2003). Furthermore, therapeutic alliance between the healthcare provider and patient has a strong relationship to adherence (Fenton et al., 1997; Kwon, 2000; Olfson et al., 2000; Parashos et al., 2000).

In conclusion, experience of medication side-effects was assumed to have a negative effect on self-reported adherence behavior; whereas, social support and therapeutic alliance were postulated to have a positive effect on self-repoted adherence behavior.

Illness Representation

Illness representation is the central construct that guides coping procedures (Diefenbach & Leventhal, 1996). Three studies (Hamera, Peterson, Handley, Plumlee, & Frank-Ragan, 1991; Lobban & Barrowclough, 2005; Talley, 1998) confirmed the existence of illness representation in individuals with schizophrenia. No study reported a relationship between illness representation and adherence intention and medication adherence in these population. However, other chronic illnesses have reported a relationship between these variables (Brewer et al., 2002; Maes, Leventhal, & Johnston, 1994; Tucker et al., 2001). Moreover, the findings of a meta-analysis of 45 studies reported a predictive relationship between illness representation and coping procedure (Hagger & Orbell, 2003). The inconsistent variables related to medication adherence might be related to a mediating factor: insight, which highlights illness attributes and need for treatment, both of which seem to have a significant relationship to medication adherence. Moreover, medication negotiation between the healthcare providers and patients increases patients' self-esteem in illness management. In conclusion, it might be that there is a mediating factor between predictive variables and medication adherence. Patients' cognition is one such possible mediating factor. Therefore, illness representations might relate to intention to change adherence behavior and self-reported adherence behavior. According to, emotional reactions occur simultaneously with illness representation. Emotional representation is also the mediating factor on intention to change adherence behavior and self-reported adherence behavior.

Figure 1.3 presented the hypothesized model of this study as described above.

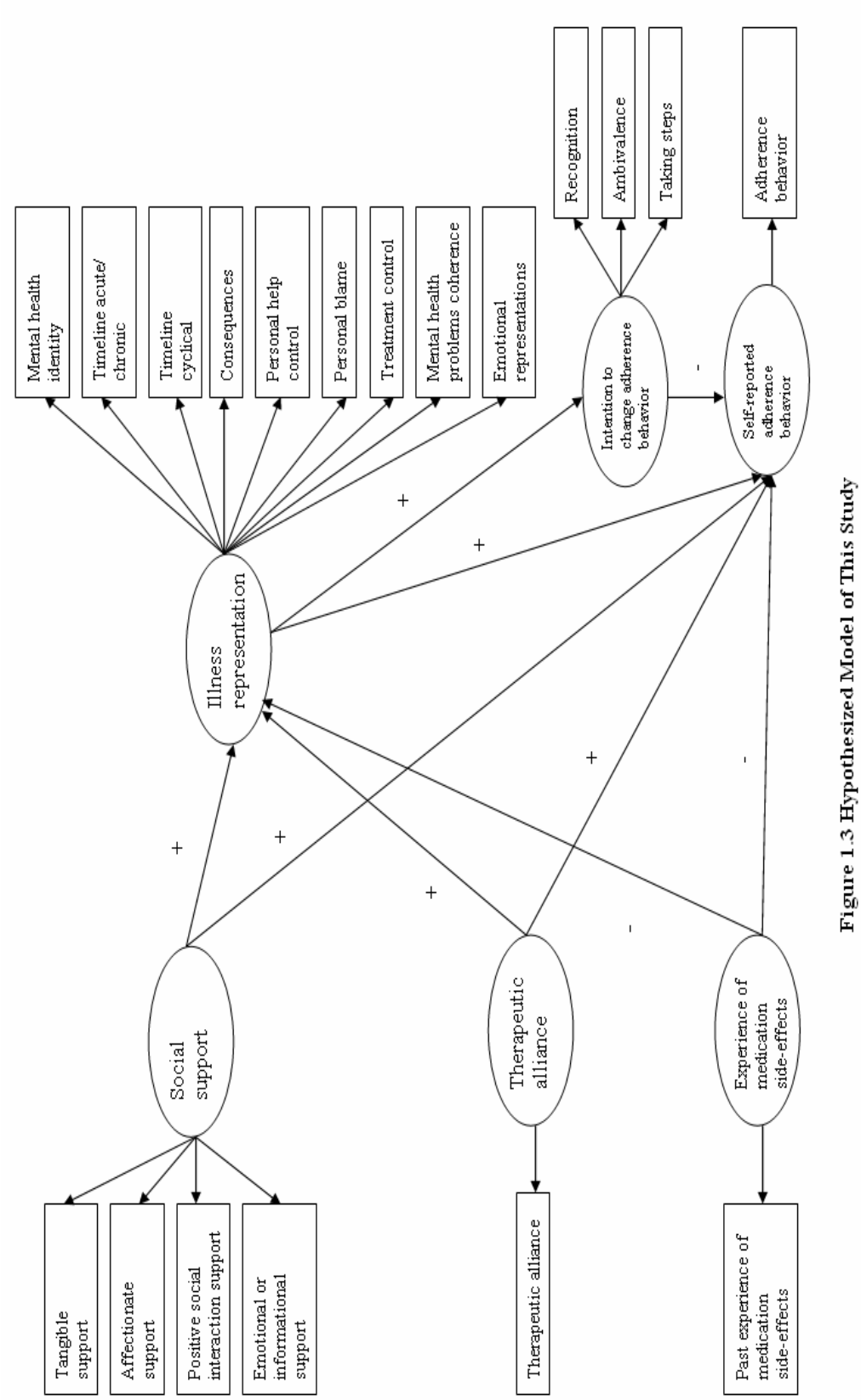

Figure 1.3 Hypothesized Model of This Study

Research Questions

How do social support, therapeutic alliance, experience of medication side-effects, and illness representation influence intention to change adherence behavior, and self-reported adherence behavior among schizophrenic patients at the follow-up visit?

Purpose of the Study

The purpose of this study is to examine whether and how social support, therapeutic alliance, experience of medication side-effects, and illness representation influence intention to change adherence behavior and self-reported adherence behavior.

Research Hypotheses

1. Social support has a positive direct effect on illness representation and self-reported adherence behavior as well as an indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation.

2. Therapeutic alliance has a positive direct effect on illness representation and self-reported adherence behavior as well as an indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation.

3. Experience of medication side-effects has a negative direct effect on illness representation and self-reported adherence behavior as well as an indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation.

4. Illness representation has a positive direct effect on intention to change adherence behavior and self-reported adherence behavior as well as an indirect effect on self-reported adherence behavior via intention to change adherence behavior.

5. Intention to change adherence behavior has a negative direct effect on self-reported adherence behavior.

Scope of the Study

This study purposed to examine the relationships among social support, therapeutic alliance, experience of medication side-effects, illness representation, and intention to change adherence behavior to self-reported adherence behavior. The population of this study is individuals with schizophrenia who receive oral medication treatment from the outpatient departments of Srithunya hospital, Ramathibodi hospital, and Phramongkutklao hospital. The data was collected since February 8, 2007 to March 20, 2008.

Definitions of Terms

The conceptual and operational definitions for the concepts used in this study are summarized as follows:

Social Support

Conceptual Definition: Social support is defined as interpersonal transactions that convey different aspects of support from significant people: a) family members b) friends and neighbours, c) spiritual carers in the community, and d) healthcare providers.

Operational definition: Social support is measured by the Medical Outcomes Study Social Support Survey (MOS-SSS) which was developed by Sherbourne and Stewart (1991). The MOS-SSS followed the logic of functional support which divided support into 4 categories: 1) Tangible support; 2) Affectionate support; 3) Positive social interaction support; and 4) Emotional or informational support. The questionnaire consists of 15 items plus one question, the patient was asked to write a number of close friends and close relatives. The 15 items asked patients to rate the perceived availability support, using a five-point Likert-type scale rated from 1 (none of the time) to 5 (all of the time). The range of scores is from 15 to 75. Scores were obtained by summing responses; with higher scores represent better socialsupport.

Therapeutic Alliance

Conceptual Definition: Therapeutic alliance is defined as perception of alliance between the patients and their healthcare providers.

Operational definition: Therapeutic alliance is measured by the California Pharmacotherapy Alliance Scale: Patient Version (CALPAS-P) developed by Gaston

and Marmar (1991). This scale combines four alliance dimensions: patient working capacity (PWC), patient commitment (PC), working strategy consensus (WSC), and therapist understanding and involvement (TUI). The questionnaire consists of 21 items, using a Likert-style scale consisting of not at all, a little bit, moderately, quite a bit, and very much. The total scores is computed by sum scores in each item and divide the sum by total number of items, which ranges from 0 to 4. High scores indicate high therapeutic alliance.

Experience of Medication Side-Effects

Conceptual Definition: Experience of medication side-effects is defined as the patients' perception of the presence of previous psychiatric medication side-effects.

Operational definition: Experience of medication side-effects is measured by the Liverpool University Neuroleptic Side Effect Rating Scale (LUNSERS): Thai version modified by Maneesakorn (2007). This questionnaire is a self-rating scale assessing the prevalence and intensity of past psychiatric medication side-effects. The LUNSERS scale consists of 41 items. Each statement is rated from 0 (not at all) to 4 (very much). The range of scores is from 0 to 164, with a high score indicating a high perception of medication side-effects.

Illness Representation

Conceptual Definition: Illness representation is defined as current cognitive representation and emotional involvement of individuals with schizophrenia of their illness and medication.

Operational definition: Illness representation is measured by the Illness Perception Questionnaire for Schizophrenia (IPQS) developed by Lobban and colleagues (2005). This questionnaire comprises of 113 items. Each IPQS item (excluding identity items) was measured on a scale of 1-5, representing strongly disagree to strongly agree respectively. The identity subscale comprises of 53 items. Each item were asked patients to indicate whether or not they had experience this symptom and whether they attributed each symptom experience as due to 'mental health problems', 'side effects of medication', and/or 'other factors'. The proportion of experiences attributed to each was then calculated.

High scores indicate high awareness of mental health symptom experience (mental health identity), more chronic and cyclical timeline, greater perceived negative

consequences, greater perceived personal control and personal blame, greater belief in treatment, less coherence understanding of illness, and greater perceived negative emotions.

Intention to Change Adherence Behavior

Conceptual Definition: intention to change adherence behavior is defined as an intention to change to adhere on medication in schizophrenic patients regarding their illness.

Operational definition: intention to change adherence behavior is measured by the modified items of the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) developed by Miller and Tonigan (1996), which comprises of three subscales: Recognition, Ambivalence, and Taking Steps. The SOCRATES consists of 18 items. Each item is rated from 1 (strongly disagree) to 5 (strongly agree). The scores for the 18 items are summed to determine the total score, which ranges from 18 to 90. High scores indicate high intention to change to adhere on prescribed medication.

Self-Reported Adherence Behavior

Conceptual Definition: Self-reported adherence behavior is defined as a report about medication adherence action in schizophrenic patients regarding their illness.

Operational definition: Self-reported adherence behavior is measured by the Medication Adherence Report scale (MARS) as developed by Horne (1996). The MARS consists of five items. Each item is rated from 1 (always) to 5 (never). Higher scores indicate greater reported of adherence behavior.

CHAPTER II
LITERATURE REVIEW

In this chapter, the related literature is reviewed and analysed. First, adherence is explored in terms of definitions, methods of measuring medication adherence, and gaps of existing knowledge to guide the methodology of this study. Next, experiences of living with schizophrenia and medication management are explored to create an overview of a schizophrenic patient's perspective. Finally, selected variables under the framework of the Common-Sense Model of Illness Representation are examined for their relationships with medication adherence.

Definition of Medication Adherence

The lack of consistency in definition of the term adherence is problematic in adherence research. As a consequence of ill-defined terms, adherence has been used interchangeably with co-operation, mutuality, therapeutic alliance, compliance, and concordance (Kemp, Kirov, Everitt, Hayward, & David, 1998; Kyngas, Duffy, & Kroll, 2000). From concept analysis literature it can be seen that each word has specific attributes which provide differentiated criteria. As Kyngas et al. (2000) reviewed; compliance and adherence refer to outcomes of the patient-provider interaction, whereas therapeutic alliance refers to the interaction process. Co-operation requires communication, competence, confidence, mutual respect and commitment by all parties. Mutuality was defined as a connection with understanding that facilitates joint exchange between people. Concordance reflects collaboration and patient involvement (Kemp et al., 1998), but the patient's priorities are the major concern in concordance (Britten, 2003).

It could be concluded that compliance and adherence have the closest meaning. However, compliance sounds more authoritative and physician-focused rather than patient-focused (Fenton, Blyler, & Heinssen, 1997). The study of compliance concept analysis by Evangelista (Evangelista, 1999) defined one antecedent as a directing

force. Moreover, compliance can follow with dependence and lack of control/ powerlessness in people. Coercion is stressed in compliance, whereas conformity is the emphasis in adherence (Cameron, 1996). Compliance includes attitude and behavior. Attitude is the intention to follow the regimens. Behavior is the medication compliance behavior (Cameron, 1996).

Adherence was defined in less judgemental terms than compliance, while clinicians have to be more responsible for forming therapeutic relationships. Adherence demonstrates patients' willingness to follow regimens and their self-management (Evangelista, 1999). It implies an active role and collaborative involvement of the patients with their healthcare providers to plan and implement treatment regimens. Adherence emphasizes the patient's role in decision-making to continue their particular treatment. Leventhal (cited in Myers & Midence, 1998) has suggested that the conceptual shift from compliance to adherence represents an important first step in changing from role of obedience into independence, or self-regulatory activity of the patient. Healthcare providers facilitate the patient to obtain information which allows the patient to make the decision to adhere to a mutually agreed regimen.

Methods of Measuring Medication Adherence

Not only are there various terms for medication adherence, but also there are various different methods of measuring medication adherence. Measuring methods depend on the terms of definition, as well as on the availability of time and research funding. Medication adherence can be measured both by direct and indirect methods (Lars & Terrence, 2005). **Direct methods** comprise the direct observation method, measurement of medication level, and measurement of biologic markers in blood. The advantages of the direct method are objectivity and accuracy. However, such methods have their own limitations; for example, the direct observation method is impractical. Medication level and biologic marker tests depend on individual metabolism and are expensive. Moreover, not all medications have evaluative methods for drug level. **Indirect methods** comprise self-report, pill counts, rates of prescription refills, assessment of clinical response, electronic medication monitors, patient diaries, significant other reports, and healthcare provider evaluations. Indirect methods are

generally inexpensive, with the exception of electronic medication monitors. However, this method can over-estimate adherence; for example, a patient might report adherence instead of nonadherence from motives of social desirability. Furthermore, memory deficits, psychotic level, substances used, denial of illness, and the interviewers themselves might influence the patient self-report (Diaz et al., 2001). Furthermore, pill counts, rates of prescription refills, and electronic medication monitors can measure only medications were taken. These methods do not tell us exactly what quantities of medications were taken. In addition, assessment of clinical response is disturbed by other factors. Clinical improvement is affected from various factors. In conclusion, adherence still lacks a gold standard of measurement.

No single method can fit all. In previous studies, adherence has been measured with direct and indirect methods. The measurement of adherence has varied among the various studies. Some studies combine many methods for measuring adherence (Hudson et al., 2004; Kozuki & Schepp, 2006; Rettenbacher et al., 2004; Rittmannsberger, Pachinger, Keppelmuller, & Wancata, 2004; Willey et al., 2000), while some studies use only one method (Hayward, Chan, Kemp, Youle, & David, 1995; Holzinger, Loffler, Muller, Priebe, & Angermeyer, 2002; Knapp, King, Pugner, & Lapuerta, 2004; Parashos, Xiromeritis, Zoumbou, Stamouli, & Theodotou, 2000; Rijcken, Tobi, Vergouwen, & De Jong-van Den Berg, 2004). Examples below described methods used for evaluating medication adherence.

In the study of Kozuki and Schepp (2006) measured medication adherence by direct and indirect methods. The indirect method was an electronic monitoring device using a specific pill box to monitor the time of opening of the pill box, and pill counts. The direct method was blood plasma concentration. This triangulation of adherence measures reported higher correlations in adherence rate among the three methods.

Kwon (2000) evaluated medication adherence from four indirect methods. These were MEMS rating, patients' self-report on a scale of 0-100%, physician ratings as a dichotomous variable (each patient was said to be either taking medication greater than or equal to 80% of time or less than 80% of time), and pill counts, which was converted to a scale of 0 to 100%. However, patients' self-report was the one method which was used for calculation. The comparison among different measurements indicated the only significant correlation found was between pill count and MEMS

($r = 0.46$, $p=0.005$). Moreover, the result found overestimated adherence when compared to MEMS. Totally 96.94% of patients reported adherence to medication, while the record from MEMS was only 66%.

Rettenbacher and colleagues (2004) measured medication adherence using both an indirect and a direct method. The methods are semistructured self-reporting compliance interview, and plasma levels of the antipsychotic medications. Plasma levels were congruent to self-report in 87.20 % of 61 schizophrenic patients. Only 77% of the patients were evaluated by plasma levels. Number of patients who agree to measurement by plasma levels and inability for all drugs to be measured by this method should be of concern.

Rijcken and colleagues (2004) evaluated medication adherence from indirect method via refill rate. Pharmacy prescription records databases are helpful to determine refill rate. The study suggested using refill rate only for additional data of medication adherence. Although this method is inexpensive, it gives objective information about the amount of pills, and it is easy to calculate over a longer period, it has a limitation of not reporting direct information about the number of pills swallowed, or the time the medication was taken. Patients also need to collect medications from only one pharmacy.

Rittmannsberger and colleagues (2004) also measured medication adherence by various indirect methods. They interviewed the patients and used additional data from psychiatrists, general practitioners, or relatives. The criterion was that whenever one of the informants severely doubted the patient's adherence, that patient was classified as nonadherent.

Most previous studies, then evaluate medication adherence using more than one method. Confirming the data seems the underlying intention. Self-report seems like a well-known means of measurement in this population. Many questionnaires have been chosen for evaluating adherence. For example, the Drug Attitude Inventory (DAI), the Medication Adherence Questionnaire (MAQ), the Medication Adherence Rating Scale (MARS), Medication Adherence Scale (MAS), The Rating of Medication Influences Scale (ROMI), The Attitudes to Neuroleptic Treatment Questionnaire (ANT), etc.

In Thailand, medication adherence has been measured by various methods. Three studies assessed medication adherence in a broad concept as the appointment visit (Karnrail, 1998; Luangpairoj, Klubwong, Mugsombut, Rintra, & Promtong, 1994; Samanwongthai, 2001). One study assessed medication adherence with a combined method; Chamroonsawasdi (1993) assessed knowledge about illness and treatment, appointment visit, pill counts, and satisfaction of nursing services for treatment adherence. Most studies used a self-report questionnaire; three studies used a Likert-scale questionnaire from the same construct as Farrager's concept. Poonkrajang, however, modified items differently from others; Poonkrajang (2005) assessed medication adherence by a medication behavior questionnaire. Here, medication behavior consists of 13 items related to medical adherence behavior, and 7 items related to ability to observe and manage medication side-effects. Two others studies assessed medication adherence using the questionnaires derived from the same construct, but only consisting of 9 items related to medical adherence behavior, and 9 items related to ability to manage medication side-effects (Kanchanarak, 2002; Pandaeng, 2004). Putkhao (1998) used the Medication Compliance Inventory to assess medication adherence. This questionnaire has 7 items. The questions are dichotomous scale.

In conclusion, appointment visit is easy to assess but is not representative of the medication taking behavior. A medication behavior questionnaire is convenient but it needs confirmation of the reliability of data. In addition, constructs related to medication management should be concerned about duplicated measures in independent variables. Moreover, a Likert scale might be better for evaluating different levels of medication adherence than a dichotomous scale. Combined methods make data more reliable but need to consider final agreement from various methods. All methods used in Thailand are varied, and depended on different operational definitions.

Overall, methods for evaluating adherence in schizophrenic patients are still in debate. Self-report is the most convenient but is less reliable. Electronic monitoring seems reliable but has a high cost. Urine or plasma level also depends on patients' metabolism and scientific tests do not cover all antipsychotic drugs. Plasma level

testing is also intrusive to patients. However, various studies suggest different measurements for gauging adherence.

In this study, adherence was measured using patients' self-reports. This method was selected for convenience, no intrusion, and low cost. According to the intention to increase reliability of the data, the selected questionnaire is asked about the frequency of nonadherence behavior in one week. Periods of time longer than one week might be difficult for patients to accurately recall. Moreover, medication adherence behavior was evaluated in the second last order of questionnaire interviewed. This was done with the intention of building trust before assessing the social desirability issue.

Gaps of Existing Knowledge in Medication Adherence

In the last two decades, medication adherence had been studied, but this phenomenon is still not clearly understood. There are a large number of studies examining factors related to adherence and testing the effectiveness of treatments that attempt to enhance medication adherence. In the literature review, factors associated with the relationship with medication adherence were investigated.

Demographic Variables have been studied in terms of age, gender, marital status, educational level, income, and occupation. The relationship between demographic variables and medication adherence is contradictory. For example, age was found to have a significant relationship to medication adherence both in younger (Coldham, Addington, & Addington, 2002; Rittmannsberger et al., 2004) and older age groups (Myers, 1997; Samanwongthai, 2001). However, Karnrail reported no significant relationship between age and adherence (Karnrail, 1998). This inconsistency in findings of the relationship between gender and adherence can be identified in several papers (Fenton et al., 1997; Karnrail, 1998; Kwon, 2000; Myers, 1997; Samanwongthai, 2001). Three of four studies also reported a non significant relationship between marital status and adherence (Karnrail, 1998; Kwon, 2000; Myers, 1997; Samanwongthai, 2001). Two of three found no association between adherence and educational level (Karnrail, 1998; Myers, 1997; Samanwongthai, 2001). Income and occupation was also found to have no association; however, the level of income in one study was found to have a significant relationship to medication adherence (Karnrail, 1998). The inconsistent findings were congruent to Myers (1997)

who commented that other variables underlie and manipulate the demographic variables.

Substance Abuse has also been investigated. However, the studies about past substance abuse and medication adherence showed inconsistent results. Coldham, Addington, and Addington (2002) conducted a study of 186 patients with a first episode of psychosis, and reported that cannabis use at 1-year was a significant determinant to medication adherence. There was no significant relationship to medication adherence with long term use of the substance (Karnrail, 1998; Olfson et al., 2000; Rittmannsberger et al., 2004). Fenton and colleagues (1997) suggested that more severe substance abuse is associated with medication nonadherence, but also found that substance abuse in the 30 days before assessment was the strongest predictor of medication nonadherence. Therefore, recent substance abuse seems to be associated with medication nonadherence. It might be explained that substance abuse affects the patient's cognition leading to disturbance of the patient's medication management ability.

Insight has been examined in previous studies. Most studies reported a significant relationship between insight and adherence to medication of schizophrenic patients (Adewuya, Ola, Mosaku, Fatoye, & Eegunranti, 2006; Mutsatsa et al., 2003; Myers, 1997; Parashos et al., 2000). Two studies reported no association to medication adherence (Budd, Hughes, & Smith, 1996; Kwon, 2000). This may be due to the incongruent definition of insight. Such incongruence leads to inconsistent measurements for some of the constructs (Magura, Laudet, Mahmood, Rosenblum, & Knight, 2002). For example, Carroll and colleagues (1999) defined insight as "the acceptance of personal mental illness and the need for ongoing psychiatric help", the result found a significant relationship to medication adherence. While in another study, insight was defined as disease awareness (Pinikahana, Happell, Taylor, & Keks, 2002), the result reported no relationship between insight and medication adherence. Moreover, in two studies which use the same insight definition and the same insight measurement the results were still different (Kwon, 2000; Mutsatsa et al., 2003). These findings are different because of the complexity of insight and the difference in measurement of medication adherence. As Kwon (2000) noted, using patient self-reports may lead to an overestimation of adherence rate. From the definitions above, it

can be seen poor insight reflects the inaccurate perception of schizophrenia in patients. Poor insight patients relate to poor medication adherence behavior. Therefore, accurate perception of illness might relate to medication adherence. In mental illness, individual labels had been found closely to insight (Lobban, Barrowclough, & Jones, 2003). Patients who had insight about their illness were generally adherence to treatment regimens. However, treatment adherence was found in some patients who had poor insight. The link between medication adherence and insight might have other mediating factors.

Regarding Severity of Psychotic Symptoms, one pilot study explored barriers to medication adherence in 153 schizophrenic patients from the VA Medical Center who enrolled in the Schizophrenia Guidelines Project (SGP) reported a higher score (OR= 1.02, 1.00-1.05 95% CI, p=.05) in the Positive and Negative Syndrome Scale (PANSS) of nonadherence patients (Hudson et al., 2004). Similarly, psychotic severity level had a stastistically significant relationship with the regularity of medication reception ($p<.05$) in schizophrenic out-patients in Thailand (Karnrail, 1998). In contrast, Rettenbacher and colleagues (2004) found no statistical association between adherence and positive symptoms. Adherent and partially adherent patients showed significantly more negative symptoms than non adherent patients (mean PANSS negative score = 15.10 vs. 9.80; p =.04). Moreover, psychotic symptoms, which are measured with PANSS, reported higher total score in adherent and partially adherent patients than in nonadherent patients. Although psychotic symptoms are accepted as having an effect on medication adherence, the findings are still contradictory. Reviewing the results, both positive and negative symptoms have an association with medication adherence. The effects of positive and negative symptoms on medication adherence can be explained as follows. Psychotic symptoms include hallucinations, delusions, loose associations, and bizarre behavior (Bendik, 1996) that affect patients' ability to perceive and manage their illness accurately. Negative symptoms include syndromes that are expressed as flat affect, poverty of speech, poor grooming, withdrawal, and disturbance in volition (Bendik, 1996). Negative symptoms will decrease motivation and capacity to think and manage the illnesses.

Medication Side-Effects: In three studies, side-effects were found to have an association with adherence (Hudson et al., 2004; Parashos et al., 2000; Robinson et al.,

2002), while several other studies suggest otherwise (Karnrail, 1998; Kwon, 2000; Mutsatsa et al., 2003; Rettenbacher et al., 2004). The results are inconsistent. The incidence of continuing medication when confronted with side-effects has been found (Luangpairoj et al., 1994). Hui and colleagues (2006) reported nonadherence behavior was related to feelings of embarrassment about taking medication. Moreover, this feeling is under detection from clinicians. Hughes, Hill, and Budd (cited in Pinikahana et al., 2002) believe understanding of side-effects in the patients' view impacts adherence. Patients' perceptions of medication side-effects lead to various negative feelings, such as, fear and stigma of treatment of the illness. Consequently, patients try to stay apart from medication treatment. That is patients determine to have nonadherence to medication. They perceive the consequences of medication side-effects as being worse than the consequences of the illness. Therefore, it might be interesting to explore the subjective response of the patients to side-effects. Patients' reported perceptions of medication side-effects might predict medication adherence, while actual side-effects as rated by healthcare providers might not.

Complexity of Regimens is also reported as a factor contributing to adherence. Kwon (2000), found patients prescribed medication twice daily are 37% in the nonadherent group, whereas only 12% are in the adherent group (p=.03). However, it is usual to prescribe 3 or more medications for treatment of a single psychiatric disorder (Breen & Thornhill, 1998). The study of Suzuki and colleagues (2005) demonstrated the effect of simplifying psychotropic regimens into a single night dose for schizophrenic patients. The results indicated decreasing complexity can make it increasingly feasible for the patients to correctly take medication. However, Suzuki and colleagues (2005) cautioned that single dose medication leads to increased side-effects. Therefore pharmocokinetics and pharmacodynamics should be taken to maximize the effective outcome of medication and minimize side-effects. In general, Thai psychiatrists prescribe medications in a single night dose, and evening and night doses when the side-effects of medication disturbs patients' daily activities and/ or patients need supervision from caregivers. This way of prescribing helps patients adhere to medication while they can live in the community and do things as usual.

Medication Costs constitute an economic burden for schizophrenic patients and their family. Most schizophrenic patients have a relatively low economic status.

Normally, costs of living in daily life are hard to afford. In these cases medication cost might be the extra expense which makes them tips the balance. A study in 912 patients with diabetes found that in similar cost pressures, only patients who had low income and low physician trust reported a significant risk of medication nonadherence. This finding suggests that therapeutic alliance moderates the impact of cost pressures on patients' adherence (Piette, Heisler, Krein, & Kerr, 2005). In schizophrenic patients, healthcare providers are the second source after family that help patients with their medication cost. For example, healthcare providers in Thailand provide low income patients with help by linking them to universal coverage projects or other supportive resources to make the treatment possible. They prescribe low cost but effective medication for patients who respond to their own medication cost.

Social Support was found to have an association to medication adherence (Coldham et al., 2002; Fenton et al., 1997; Karnrail, 1998; Kwon, 2000; Olfson et al., 2000). Emotional, informational, and instrumental are the frequent kinds of support which are assessed in medication adherence research. In schizophrenic patients, expressed emotions in the family had been found significant predictive factor with medication adherence (Kanchanarak, 2002). High expressed emotions in a family can overwhelm patients with criticism, and give negative perceptions of the family. Although the family supports the patient, the patient perceives no support. When they don't feel any support, it will lead to nonadherence to medication. Thus, while actual support might not relate to medication adherence, the patients' perception of support might relate to medication adherence in this population.

Therapeutic Alliance was found to have a significant association to medication adherence (Fenton et al., 1997; Kwon, 2000; Parashos et al., 2000; Pinikahana et al., 2002). There is no study reporting no association. A study from a Western country examined the relationship with healthcare providers in general and prescribers (Day et al., 2005). The result found alliance with prescribers is equally as strong as alliance with inpatient staff.

Stigma is also reported as one predictive factor (Hudson et al., 2004). A study in a Thai population reported a significant relationship with adherence (Luangpairoj et al., 1994). Being ill with schizophrenia, subjective distress from medication side-

effects can cause stigma. Therefore, stigma is one of the negative consequences of medication in patients' perspective.

Knowledge about Illness has also been investigated for an association with medication adherence. The results were again inconsistent; two studies reported no association (Budd et al., 1996; Karnrail, 1998), while another two studies reported an association to medication adherence (Parashos et al., 2000; Samanwongthai, 2001). Shooter (2003) asserted that knowledge alone does not improve medication adherence but increased knowledge increases the patient's mastery over illness and a sense of well-being. The results from intervention studies in Thailand reported significant improvement in medication adherence (Chaijareon, 2004; Chamroonsawasdi, 1993; Pandaeng, 2004; Poonkrajang, 2005) when those educational interventions increased patients' awareness of their own problems. Therefore, knowledge will affect medication adherence when it is congruent to the patients' view. Social support and therapeutic alliance also transfer knowledge about illness and treatment to patients.

In summary, there are several factors contributing to medication adherence in schizophrenic patients. Factors found to be related to medication adherence can be categorized into four groups: 1) Psychosocial factor including social support from family, and therapeutic alliance between patients and healthcare provider, knowledge about illness and stigma; 2) Medication treatment including complexity of regimens; 3) Illness condition of patients including severity of psychotic symptoms, insight, and medication side-effects; 4) Demographic characteristics including age, gender, educational level, history of substance abuse. However, from reviewing these literatures, the researchers could not explain the mechanism of how these factors influence medication adherence of patients with schizophrenia.

Although factors contributing to adherence need further examination, interventions for enhancing adherence had been developed and tested for efficacy. No single intervention strategy has been shown to be effective across all conditions and settings (Atreja, Bellam, & Levy, 2005). Most interventions for enhancing medication adherence in Thailand were based on psychoeducational approaches, but still involve patients'cognition (Chaijareon, 2004; Chamroonsawasdi, 1993; Pandaeng, 2004; Poonkrajang, 2005). As we can see, the interventions emphasized the patients' awareness of their illness. The family is also involved in the interventions.

Understanding the illness and treatment of the family is also included in the intervention's objective. However, limitations of the studies were found, including small sample size which might not be the representative of the populations, lack of long term evaluation which might make it hard to evaluate persistence of medication adherence, and lack of booster sessions which might be hard to develop persistent behavior change in a short period of time.

Based on research studies from Western and Thailand, interventions comprised behavioral intervention, cognitive intervention, educational intervention, and family intervention. The most effective interventions in increasing medication adherence targeted patients' cognition (Dolder, Lacro, Leckband, & Jeste, 2003; Kemp et al., 1998; Kozuki & Schepp, 2006; McDonald, Garg, & Haynes, 2002). Effective interventions similarly provide information and treatment to change perception of illness in patients. Moreover, treatments which include families in the study reported higher effective adherence than those dealing with patients alone (Ran & Xiang, 1995). The relationship with the healthcare provider, collaboratively over longer periods, is also reported as having a significant relationship to medication adherence. Coping skills and self-management have also shown development in research with schizophrenic patients. This might reflect a mediating factor of patients' cognition. Involvement of social support and therapeutic alliance facilitate accurate perception to illness which has an impact on medication adherence. Moreover, booster sessions are also needed in this population for developing persistent medication adherence behavior. Medication adherence phenomena are changing over time due to environmental factors, like social support and therapeutic alliance, and internal factors, like patients' cognition and appraisal. Therefore, one way to maintain adherence in patients should be to provide stability of contributing factors. Repeated intervention also helps to stabilize variables.

From these intervention studies, we might perceive that the research attempted to change the patient's cognition through various strategies. Many studies target insight and reframe illness cognition in order to change patient's cognition to an accurate one that can understand the illness and accept the necessity of treatment. Moreover, interventions should emphasize the content of medication adherence and involve family and healthcare providers in the intervention. Schizophrenic patients are

active problem solvers who can manage their illness. Therefore, other people may take roles in facilitating medication adherence by a communication process. Moreover, patients might include their own illness experience into illness cognition.

Therefore, the Common-Sense Model of Illness Representation (Diefenbach & Leventhal, 1996) is selected to guide medication adherence behavior in schizophrenic patients. Variables and relationships in the model are described below. First, an overview of experience of living with schizophrenia is presented for providing perspective on patients' perceptions. Next, factors contributing to medication adherence and relationship among variables are explained under the Common-Sense Model of Illness Representation.

Individual living with Schizophrenia

Schizophrenia is a major mental illness characterized by positive symptoms, negative symptoms, and cognitive impairment. Onset of illness is usually between 16 and 30 years, and infrequently after the age of 45 years. The management of schizophrenia can be divided into medication and psychosocial treatment (Mueser & McGurk, 2004). Medication is the essential treatment for schizophrenia. As with other chronic illness patients, schizophrenic patients can manage their illness. In this review, experiences of living with schizophrenia will be explained to provide the background of living with the illness and allow perspectives of patients on self-management to be explored in order to provide an understanding of human cognition of illness and medication adherence.

Navon and Ozer (2003) explored attitudes of 36 patients with schizophrenia toward their medical treatment. All patients were admitted to hospital during the study. The result found that patients had inaccurate perception of their illness. Patients did not perceive medication as a good way to manage their illness. For example, some patients perceived their illness in delusional ways, for example as the war from evil. Some patients felt that medication would weaken them. This is consistent with the patients' status, because admitted patients are in an acute stage of schizophrenia. As such, the patients' beliefs and actions are likely to be irrational and unusual. Therefore, illness perception represents inaccurate, and this can lead to medication nonadherence.

Forchuk and colleagues interviewed 10 patients with psychosis. The interviews were conducted monthly for 6 months, and at 9 and 12 months. Each person participated in 9 interviews. The participants described the experience of recovery from psychosis as the improvements in thinking, feeling, and extending their internal self to a larger world. Medication is one factor which all patients are concerned with in their experience of illness. Patients hope medication continues to work for the rest of their lives (Forchuk, Jewell, Tweedell, & Steinnagel, 2003).

A study was conducted of the perceptions in 28 women with schizophrenia and schizoaffective disorder about illness in the context of life stages and corresponding health needs. The findings indicated patients have to confront loss of life, loss of work, being stigmatized and rejection from society. Loneliness and isolation overwhelm their lives. Patients try to connect with others and perceive rejection from others as being caused by schizophrenia. Patients are reluctant to respond and neglect to respond at the onset of illness. However, patients still convey a sense of hope to reach individual life goals (Chernomas, Clarke, & Chisholm, 2000).

Rogers and colleagues (1998) interviewed 34 people with schizophrenia about their reasons for taking neuroleptics and the ways in which patients self-regulate their medication. The findings indicated the main reasons for taking medication are to control symptoms and gain personal ability to cope with symptoms. Side-effects as reported as the costs of taking medication, which some considered as equal to or even outweighing the benefits of medication. Patients adjusted medication by themselves as a way to represent autonomy and control everyday management of the illness. The coercion from social sanctions, significant others, and mental health professionals decrease self-regulatory action in patients. The perceived social and medical pressure to act appropriately and illness stigma were reported as reasons for nonadherence. In this study, patients' autonomies are less apparent. However, it presented the patients' views about adherence and medication decisions and suggested they were influenced by patients' knowledge, personal experience of possible coercion from external sources, and awareness of illness stigma.

Usher (2001), in his interview with 10 patients with schizophrenia, discovered that taking medication was expected to be a way to control patients' illness and live a normal life. When patients make a decision to take medication, they have to learn to

live with medication side-effects. Moreover, patients need to collect all information about illness experiences and incorporate them together. They need to accept their illness before taking medication. However, taking medication makes patients feel a lack of self-control over their body. Sometimes, surveillance from others makes them feel powerless. Therefore, taking medication is a struggle between managing themselves to remain healthy, and the negative effects of taking medication, which they have to learn to live with.

In summary, individuals with schizophrenia have their own perspectives about illness. Medication adherence is the behavior which results from the process of patient's understanding about illness and treatment benefits, and their decision to adhere with medication. Moreover, awareness of illness and perception of treatment required seem to be differential conditions for adherent and nonadherent schizophrenic patients. Significant others and mental healthcare providers who can facilitate patients' decision according to patients' perspective about illness and medication adherence are crucial factors for enhancing medication adherence in schizophrenic patients. Based on this finding, it is suggested that enhancing medication adherence needs to integrate help from the healthcare team, significant others, and system-related factors. This finding is consistent with the finding of Atreja and colleagues (2005).

The Common- Sense Model of Illness Representation (Diefenbach & Leventhal, 1996) serves as a patient perspective in medication adherence. Patients make a decision intentionally and rationally to take medicine. The model explains the effect of internal and external stimuli on illness and emotional representations, the effect of illness and emotional representations on coping behavior, and the effect of coping behavior on outcome appraisals. The model is bidirectional. In this study, social support and therapeutic alliance were derived from external stimuli. Experience of medication side-effects was derived from outcome appraisal or internal stimuli. Illness representation comprised of illness and emotional representations. Intention to change adherence behavior and self-reported adherence behavior were derived from coping behavior.

According to the Common- Sense Model of Illness Representation, coping behavior refers to the way patients act upon illness representation. Coping behavior relates to action intention and action (Theunissen, Ridder, Bensing, & Rutten, 2003).

Therefore, coping behavior was evaluated in terms of adherence intention and medication adherence. Adherence intention is the planning of a response to illness representation. Adherence intention is the intention to adhere in the future. In previous studies about medication adherence, medication adherence was frequently explored interchangeably with adherence intention, because adherence intention was found strongly correlate to medication adherence.

Illness Representation

Illness representation is multidimensional, and the dimensions are in turn multilevel. They are defined in both abstract and concrete terms (Leventhal & Nerenz, 1985). The origin of illness representation comprised of four attributes which were identity, consequences, causes, and time line. As the result uncovered from all dimensions, Lau and Hartmann (1983) added the fifth component, curability or controllability into the list. Moreover, emotional representation was involved in parallel to illness representation.

Illness Representations in Individual with Schizophrenia

One characteristic of schizophrenia is cognitive impairment. In an acute condition, patients are out of reality and at a high risk of violence. They are overwhelmed with psychotic symptoms. Patients may have little ability to recognize and regulate their own behaviors. In the recovery phase, patients still have cognitive impairment. The ability to identify and regulate their symptoms is still a doubtful issue. Many studies have tried to investigate the ability to identify symptoms and illness representations in this population. In Hamera et al. (1992), a self-regulation model was used as a framework to examine the characteristics and stability of indicators of illness identified by 51 individuals with schizophrenia. This study was a prospective 1 year follow-up. The result found individuals with schizophrenia can identify symptoms associated with illness onset. Similarly, a study of 51 schizophrenic patients reported all subjects could identify symptoms of illness and the actions to regulate their symptoms. The results found 41% of patients identified the primary illness indicator as anxiety, 28% as depression, and 31% as psychosis. The actions used for regulating symptoms assembled positive and negative actions. One class of actions comprised medical actions. Medical actions were reported as taking prescribed

medication or contacting health care professionals (Hamera, Peterson, Handley, Plumlee, & Frank-Ragan, 1991). In a similar way, Lobban and Barrowclough (2005) examined 19 people with schizophrenia. The question 'What do you understand by the term schizophrenia?' was asked the participants at one time point. The answer was divided into individual statements by Lobban. Sixty-two different patient statements represented the dimension of the Illness Perception Questionnaire-Revised (IPQ-R). Timeline acute/chronic, treatment control, and illness coherence did not generate any items. It can be summarized that people with a diagnosis of schizophrenia had cognitive understanding of their illness in the same dimensions as physical patients, although some dimensions contain no statement. Lau et al. (cited in Lobban and Barrowclough, 2005) repeated their interviews at three time-points, and found the number of dimensions increased with repeated interviews. This suggested one assessment does not suffice for spontaneous descriptions of illness. According to illness representations existing in schizophrenic patients, Lobban and colleagues (2005) developed an Illness Perception Questionnaire for Schizophrenia. They discovered that this measurement is more appropriate to evaluate perception of schizophrenic patients than the former illness perception questionnaire. This questionnaire is also included emotional reactions which occur simultaneously with illness representations. They designed a questionnaire to assess the beliefs about mental health problems in 124 schizophrenic patients. The beliefs about mental health problems were assessed by the Illness Perception Questionnaire for Schizophrenia (IPQS). The result found the IPQS subscales were shown reliably and validly.

No research from Thailand studies illness representation in schizophrenic patients. However, the available evidence can imply the existence of some attributes in illness representations in Thai schizophrenic patients. Changming and colleagues (2003) conducted a study in 100 schizophrenic patients from the Outpatient Department of the Galya Rajanagarindra Institute and Somdet Chaopraya Institute of Psychiatry. The results found that schizophrenic patients perceived themselves as having a psychotic disorder, psychotic disorder with auditory hallucination, stress or tension, and schizophrenia. More than half of schizophrenic patients believed that their illness had recovered but still needed treatment. Other patients believed that they were not recovered. This might represent the identity, treatment control, and timeline

dimensions. In conclusion, Thai schizophrenic patients seem to perceive and interpret the same illness representations as schizophrenic patients from the other countries.

Illness Representation and Coping Behavior

Many studies reported a link between illness and emotional representation, coping behavior, and behavioral outcomes in chronic illness and schizophrenic patients. The details of study were described below.

Gray and colleagues (2005) examined patients' satisfaction with and subjective experiences of taking antipsychotic medication in 69 patients with schizophrenia. The result indicated that reasons for taking medication were: 54% told by professionals (doctors and nurses) and 71% perceived medication benefits.

In a study of patients' beliefs about prescribed medicines and medication adherence in 324 patients with chronic illness (asthmatic, renal, cardiac, and oncology patients), findings reported medication beliefs were stronger predictors of medication adherence than clinical factors (type of illness and number of prescribed medicines) and sociodemographic factors (age, gender, and educational experience). It accounted for 19% of the variance in reported adherence (Horne & Weinman, 1999).

Lobban, Barrowclough, and Jones (2004) examined the impact of beliefs about mental health problems on coping in 124 patients diagnosed with schizophrenia, schizoaffective disorder, psychosis, paranoid psychosis, and delusional disorder. They divided patients into three groups: I) patients who perceived themselves as not having any problems, II) patients who perceived a problem, but had few positive coping strategies, and III) patients who perceived a problem, and had a high frequency of positive coping strategies. The results found **in positive coping strategies**, patients in group I reported fewer symptoms, a more acute and less cyclical timeline, greater belief in treatment to control symptoms, and a more coherent understanding of their mental health problems than at least one of the other two groups. Among participants who did perceive a problem, patients in group III reported more association with an increased perception of personal control than group II ($p=.002$). There were no significant differences between any of the groups at two time points. **In negative coping strategies**, patients in group I had the most acute and least cyclical timelines for their symptoms, and believed that they had greater control over their symptoms. There were no significant differences between the groups distinguished by their use of

negative coping styles on IPQS subscales. Use of negative coping strategies was positively associated with increased identity scores (p=.03), and more negative consequences (p=.04). At time 2 there were no significant differences between any of the groups.

Lobban, et al. (2005) examined 124 patients diagnosed with schizophrenia, schizoaffective disorder, psychosis, paranoid psychosis, and delusional disorder. The result demonstrated that experiencing symptoms which were attributed to mental health problems (mental health identity), belief in treatment control, and illness coherence were associated with positive attitudes to medication adherence ($r = .37$, $p < .01$; $r = .54$, $p < .01$; and $r = -.23$, $p < .05$ respectively).

Lobban, et al. (2003) reviewed articles about role of illness models in severe mental illness. The findings revealed that perceptions of high mental health identity, high negative consequences, chronic timeline, and high levels of belief in treatment control were associated with medication adherence in schizophrenic patients.

McCabe and Priebe (2004) explored explanatory models of illness in 119 patients with schizophrenia from four cultural backgrounds (African-Caribbean, Bangladeshi, West African, and UK). Explanatory models of illness seek to explain a person's ideas about the nature of their illness, cause, severity, prognosis, and treatment preferences. The results found that patients who prefer medication treatment were more likely to adhere to treatment (p=.04). A belief in treatment efficacy reflects in the treatment control dimension of illness representations. That suggests, unsurprisingly, that treatment control was related to medication adherence.

Perkins et al. (2006) investigated 254 patients recovering from a first episode of schizophrenia, schizophreniform, or schizoaffective disorder in a 2-year prospective. The result found that antipsychotic medication nonadherence was greater in patient who believed less in the need for treatment (HR = 1.75, 95% CI 1.16-2.65, p = 0.008), and found a low benefit of antipsychotic medication (HR = 2.88, 95% CI 1.79-4.65, $p < 0.0001$).

In summary, each subscale in illness representation has effect on adherence intention and medication adherence. The mechanism of illness representation has its own pattern. The mental health identity dimension affects patients' perception. Patients perceived their symptom experiences as related to mental disease (Lobban et

al., 2003). Chronic and cyclical timeline perceptions are the result of increased understanding of the nature of their illness. High negative consequences and emotional representation increase anxiety and motivate coping behavior in patients. Personal help control and personal blame had no clearly stated relationship with medication adherence in previous studies. However, personal help control was present as increases in positive coping behavior (Lobban, Barrowclough, & Jones, 2004). Treatment control is a strong predictor of medication adherence. Benefits of medication need to outweigh the medication side-effects. Moreover, relationship between patients and mental health professionals had effect on beliefs in treatment control (Gray, Rofail, Allen, & Newey, 2005). Therefore, high treatment control has effect on medication adherence. Illness coherence was found associated with social stigmatisation and lack of hope of recovery to premorbid levels of function (Lobban et al., 2003). A fair level of illness coherence seems to be associated with medication adherence (Lobban, Barrowclough, & Jones, 2005).

From the above details, it can be seen that any one subscale is inadequate to fully understand medication adherence behavior. The patterns of relationships across the subscales of illness representation are likely to have different impacts and more fully describe influences on medication adherence. External and internal stimuli affect illness representation. The selected external and internal stimuli were explained below.

Social Support

Buchanan (1995) reviewed literatures related to social support and schizophrenia. The results found that in general, social support has two major categories. First is the perception of support. The perception of support refers to a subjective assessment and belief in being cared for, and valued by, significant others, having significant others available in time of need, and being satisfied with relationships. It represents the degree to which interpersonal relationships to serve particular functions. The functions most often cited are emotional support, instrumental support, information, guidance support, appraisal support, and social companionship (Sherbourne & Stewart, 1991). Second is the provision of support. The provision of support can be conceptualized as an aid to coping which refers to the provision of direct help or material aid. As coping and support are related phenomena,

social support is often defined as coping resource or a coping strategy (Buchanan, 1995).

Most of medication adherence research, social support was examined in patients' perception to functional support. As Parisuttiman (2002) investigated 200 schizophrenic patients who received ongoing treatment at the Outpatient Department, Srithunya Hospital. The result stated parents, spouse, children, and relatives are the major sources of support for patients. Kinds of providing support consisted of love and attention support and assistance support.

Family is a valuable resource that can improve and nurture adherence. The results from Kwon (2000) found adherent patients felt significantly stronger family support compared to the nonadherent group ($p=0.01$).

Invested time from family might inspire and make patients more hopeful. An investigation of 213 psychiatric patients, between 18 and 64 years of age, reported family members of patients who became medication nonadherent were significantly ($\chi^2=4.60$, $p=.03$) more likely to refuse to get involved in treatment than family members of patients who continued to take their medications (Olfson et al., 2000). Similarly, Coldham et al. (2002) investigated 186 individuals with a first episode of psychosis who admitted to the Calgary Early Psychosis Program. The result represented family involvement as being significantly associated with better adherence ($p<0.001$). Furthermore, in some cultures, families are a more influencing factor to patients than in others (Breen & Thornhill, 1998).

In Thai culture, family plays a significant role in caring for patients, especially in mentally ill patients who cannot live independently, such as schizophrenic patients. As Nilchaikovit and colleagues (1993) stated that Asian families perceived that patient's illness is seen as a family problem. Then families take over responsibilities for caring patients. In the study by Karnrail (1998), the practical care of relatives was significantly related to appointment adherence ($p<.05$). In this study, the knowledge and attitudes/ beliefs about illness from relatives did not relate to appointment adherence but practical support of relatives was significantly related to appointment adherence. In contrast, the burden of relatives, misperception of illness, and the lack of knowledge from relatives brought about medication nonadherence. A study of 400 Srithunya psychiatric outpatients found some patients stopped follow-up treatment due

to family. Examples of family pressure included 11.30% of cases where the family was bored and stigmatized, 7.40% where the family moved to a new address, 6.60% where the family made a decision to use supernatural treatment instead of medical treatment, 5% where the family perceived medication as useless (Luangpairoj et al., 1994).

Patients need support in various dimensions from significant people or groups of significant people. The patients' support system comes from family, friends, coworkers, neighbors, spiritual carers, healthcare providers or elsewhere that inspires them to move on with their lives. Types of support for individuals with schizophrenia comprises of the following.

1) Informational support; information support is needed for medication adherence. In the Thai population, there is evidence of a relationship between knowledge about illness and medication adherence. A study about illness knowledge in 800 schizophrenic patients in Srithunya Hospital found 90.10% knew they should take medication as prescribed, but less than half of patients knew about their diagnosis, medication name or side-effects management (Samanwongthai, 2001).

Relatives who have a positive attitude and belief about efficacy of medication will encourage the patients to adhere to medication, while relatives who are less confident of medicine may increase patients' probability of nonadherence to medication. Supporters should have a positive attitude and realize the need of treatment, and be able to give accurate informational support. If patients receive incorrect information about their illness, they will decide to act on illness cognition that is not correctly related to medical treatment. For example, if patients perceived their illness was caused by devils, they would search for black magic treatment instead of medical treatment (Sukmak, Chaorathirun, & Srichunlah, 2001).

2) Emotional support; when living with schizophrenia, negative feelings like fear, stigma, etc. occurs in everyday life. Patients are more sensitive to their environment than usual. Stigma may also be an essential point regarding adherence. A patient who feels that the social rank imposed by having an illness is low will try to avoid anything connected to this illness, including treatment (Oehl, Hummer, & Fleischhacker, 2000). According to Hudson et al. (2004) the highest barrier to medication adherence is the stigma of taking medication. Social stigma is one strong

factor of nonadherence in the Thai culture, indeed, 14% of participants reported stigma as the reason for nonadherence of the 400 outpatients at the clinic at Srithunya hospital (Luangpairoj et al., 1994). Moreover, the side effects of taking medication are troublesome for patients' lives. Supporting all feelings associated with the illness and medication can help patients maintain their use of medication.

3) Tangible support; most patients lose jobs from their illness. Medication, transportation to hospitals, and cost of living need financial support and impact adherence (Oehl et al., 2000). For a low income patient, it is hard to afford the prescribed medication (Breen & Thornhill, 1998). Most schizophrenic patients in Thailand have no income or low income (Tiralap, 1990). Therefore, tangible support is needed for this population. Medical expenses, transportation costs, and follow up time have an influence on medication adherence. As Samanwongthai (2001) reported, transportation costs, treatment expenses, and trouble with journeys have significant effect on follow up adherence. Therefore, financial support and other tangible support should be provided for patients.

In summary, social support is a major moderator of illness threat. Social support has a relationship with adherence. Actual social support from significant others does not influence medication adherence. But the perception of social support has a significant effect on medication adherence. Therefore, patients' cognition about illness and treatment, which is called illness representation, might mediate social support to medication adherence. In this model, social support affects health by modifying the persons' appraisal of the stressfulness of the situation. The emotional reactions and appraisal of illness, such as stigma, and medication side-effects, may also be influenced by support which is received from others (Aalto, Heijmans, Weinman, & Aro, 2005). Social support affects health by modifying the persons' appraisal of the stressfulness of the situation. The emotional reactions and appraisal of illness; such as stigma, and medication side-effects, may also be influenced by support which received from others (Aalto et al., 2005).

Therapeutic Alliance

Therapeutic alliance has been defined in various terms related to the philosophical underpinnings. In the psychodynamic perspective, patients and

healthcare providers work through transference and counter-transference for change to be achieved collaboratively. In the humanistic perspective, healthcare providers provides a climate of warmth, empathy, genuineness and unconditional positive regard for growth and change through the therapeutic use of self (Hewitt & Coffey, 2005). Overall, a humanistic approach would appear to be the most frequently adopted in the mental health field. Empathy is seen as being the cornerstone of therapeutic alliance. The patients' experience of trustworthiness and empathy from healthcare providers appeared to be prerequisites for alliance development, and were closely linked with patients' perceptions of the appropriateness of treatment (Hewitt & Coffey, 2005).

Madden (1990) reviewed the literatures and observed the interactions between one primary nurse and her clients. She developed a comprehensive definition of therapeutic alliance as follows. "Therapeutic alliance is a process that emerges within a provider-client interaction in which both the client and the provider are (1) actively working toward the goal of developing client health behaviors chosen for consistency with the client's current health status and life style, (2) focusing on mutual negotiation to determine activities to be carried out toward that goal, and (3) using a supportive and equitable therapeutic relationship to facilitate that goal."

Gray and colleagues (2005) examined 69 patients diagnosed with schizophrenia; the result found that 75% of patients were satisfied with their communications with psychiatrists over the last 6 months. 71% of participants were satisfied with the outcome of the last meeting with their psychiatrist. 67% of patients received information about their diagnosis. Half of patients who received that information did not feel involved in treatment decisions.

Therapeutic alliance between patients and healthcare providers leads to the patient's satisfaction, which results in medication adherence in patients. Cameron (1996) reviewed the characteristics of therapeutic alliance, which is the process of negotiation about treatment to reach a mutual goal, between patient and healthcare provider. This process can be facilitated by a friendly manner, empathic understanding, optimistic attitude towards treatment efficacy, and adequate supervision from healthcare provider.

Therapeutic alliance can lead to congruent views between patient and healthcare provider. Congruent views increase patient satisfaction, which is a factor

influencing the intention to adhere (Theunissen et al., 2003). Frank and Gunderson (1990) found better therapeutic alliance after 6 months of treatment is associated with less denial of illness.

Relationships between therapeutic alliance and medication adherence appear to be congruent. Kwon (2000) investigated the characteristics that distinguish adherent patients from nonadherent patients. The result indicated significantly higher level of alliance with their psychiatrist (p=0.04) compared to the nonadherent group. Similarly, Holzinger et al. (2002) investigated determinants of therapeutic relationship with adherence with clozapine in 102 patients with schizophrenia, age 18-60 year-old. The result from the Helping Alliance Scale (HAS) was significant at the time of discharge and three months after discharge respectively (β=.36, p=.007; β=.29, p=.049 respectively). Also, Olfson et al. (2000) studied therapeutic alliance in 213 inpatients with schizophrenia or schizoaffective disorder. The result was significantly related to adherence (χ^2=6.20, p=.04). Patients who became medication nonadherent received significantly poorer means score on four of the Six Active Engagement Scale subscales. The four subscales are optimism about the usefulness of treatment, meaningful involvement in therapy, interest in understanding their illness, and realistic perceptions of the therapist.

No study investigated the relationship between therapeutic alliance and illness representation. However, another chronic illness was examined. Theunissen et al. (2003) collected data from 108 patients with essential hypertension who used anti-hypertensive medication. The results found that discussing illness representations and action plans can improve understanding of an illness. However, patients were less confident about taking medication and negotiating treatment-related issues with physicians. Therefore, therapeutic alliance with a physician who prescribes the medication might have a stronger effect on illness representation and medication adherence than in a healthcare provider who does not prescribe medication. However, a study of 228 patients diagnosed with schizophrenia and schizoaffective disorder during acute admission reported not only therapeutic alliance between prescribed psychiatrists and patients but also experience of alliance with healthcare providers during admission had a significantly effect on attitudes toward medication (Day et al., 2005). In 2001, the proportion of psychiatrists to psychiatric patients in Thailand was

1: 161,005 (Department of Mental Health, 2003). Therefore, in general, patients had a limited time to talk with their psychiatrist. In this study, therapeutic alliance will be examined in the relationship between patients and three healthcare provider professions (psychiatrist, psychiatric nurse, and pharmacist), focusing especially on the psychiatric nurse, who typically interacts more with the patients.

In conclusion, therapeutic alliance is a strong contributing factor to medication adherence. The characteristics of therapeutic alliance are shown in communication, which represents empathetic understanding. Therefore, healthcare providers need to listen to the patient, understand their concerns about the illness and medication, and treat them as a human not just treat the illness in them. Finally, accept and give opportunities for the patient to readhere after a period of nonadherence, without criticism or punishment, but with a shared understanding of the reasons for the previous nonadherence, and a shared desire to take appropriate action to prevent the recurrence of nonadherence. Moreover, therapeutic alliance is a mutual relationship between healthcare providers and patients. Both exchange information about illness and treatment. All information is transferred by communication. The sharedgoal s are congruent with the patient's goals for their health. Therapeutic alliance is the patients' perception on interaction process between healthcare providers and patients. Patients' perceptions include the attitude and behavior of healthcare providers towards them and their treatment plan. A collaborative manner, with empathy as perceived by the patients, has a significant influence on medication adherence. In the same way, cognition also mediates between therapeutic alliance and medication adherence.

Experience of Medication Side-Effects

Experience of illness and medication affect patients' perspective to their illness and coping behavior. Experience with medications can alter the patients' perspective. Medication side-effects vary depending on many factors, including medication pharmacodynamics and patients' metabolisms. Antipsychotic classifications are explained below, giving details of medication side-effect characteristics.

Classification of AntipsychoticM edications

Antipsychotic medications can be classified as follows (Bezchlibnyk-Butler & Jeffries, 2004; Sadock & Sadock, 2003):

1. First-Generation Antipsychotics: this drug group is effective in the treatment of positive symptoms but the side-effects of this group include akathisia, parkinsonian-like symptoms of rigidity and tremor, tardive dyskinesia, and neuroleptic malignant syndrome. Examples of medication in this group are Haloperidol, Pimozide, Thioridazine, Chlorpromazine, etc.

2. Second-Generation Antipsychotics: their side-effects are minimal, with few or no extrapyramidal symptoms, and they produce fewer neurological and endocrinological adverse effects. This group appears to be effective to treat both positive and negative symptoms. Examples of this type of medication are Risperidone, Clozapine, Olanzapine, Quetiapine, etc.

3. Third-Generation Antipsychotics: this is the newest generation. It appears to have fewer side-effects. The only medication in this group that is currently available is Aripiprazole.

According to the medication side-effects described above, most patients who take antipsychotic medication are likely to confront some adverse side-effects. All antipsychotic medications have side-effects. Medications may disturb patients' ability to work, making activities of everyday life difficult and increasing the social isolation of patients and their relatives (Blyler & Fenton, 1997; Naber & Kasper, 2000). Significant side-effects of antipsychotic medications include extrapyramidal side-effects (EPS), anticholinergic signs and symptoms, sedation, cognitive impairment, drug induced dysphoria, emotional blunting, weight gain, sexual and reproductive dysfunction, withdrawal syndromes, tardive dyskinesia, and neuroleptic malignant syndrome (Kopala & Whitehorn, 1999). In Karnrail's (1998) study of 131 schizophrenic patients from Suanprung Hospital, all participants received first generation antipsychotics. Eighty participants had occurrence of medication side-effects. They reported 77.50 % had anticholinergic syndrome (dry mouth, blurred vision, and difficulty in passing water), 75 % had tardive dyskinesia (Akathisia, difficulty movements of the tongue and neck muscles, Over-wet/ drooling mouth, and dystonia), and 68.80 % had parkinsonian syndrome (tremor, talking difficulty because of stiffening of the tongue,shuffling gait).

Patients who confront side-effects may also suffer subjective distress. Subjective distress is in addition to any actual medication side-effects; it is a

subjective response to perceived medication side-effects (Weiden & Zygmunt, 1999). Moreover, the impact from side-effects includes stigma from medication (Naber & Kasper, 2000). Patients' experience of side-effects may involve subjective distress and stigma from medication. Mizrahi and colleagues (2005) founded neuroleptic-naïve patients, who had no exposure to antipsychotic medications, expected detachment and eradication effect from medication. After 6 weeks of treatment, patients decreased the expectation of eradication effect. First-episode patients altered their perspectives consistent to chronic schizophrenic patients. Patients perceived that antipsychotic medications detach them from symptoms rather than eradicate symptoms. Therefore, patients need to evaluate the detachment and eradication effect along with medication side-effects. Especially in chronic schizophrenic patients, the detachment effect is stronger than the eradication effect. Then patients need to consider the benefits of medication against the adverse effects. If patients perceive medication side-effects are common and less serious, they decide to continue adherence. If patients perceive medication side-effects are serious, they decide to nonadhere to medication.

Different subjective evaluation leads to a controversial relationship between side-effects and medication adherence. Some studies reported a significant relationship. For example, the study of Hudson et al. (2004) reported adverse drug reactions as one of the most patient-reported barriers. The patients with high barriers were significantly more likely to be nonadherent (OR= 2.33, 1.00-5.43 95%CI, p=.05). According to the pilot study, which explored the reason for nonadherence, 10% of nonadherence comes from experiences of drug side-effects (Parashos et al., 2000). Similarly, Rettenbacher et al. (2004) found psychological side effects including concentration disturbances, loss of energy, loss of memory, and emotional indifference were significant predictors of adherence (χ^2=13.52, df=1, p<.001). But neurologic, autonomic, and others side effects, which were evaluated by the Udvalg for Klinske Undersogelser side effect rating scale (UKU) had no significant effect with adherence. In a similar way, in a study of 400 psychiatric patients in Thailand, nonadherence related to oversleeping in 25% of patients, which disturbed patients' work and daily routine, and to feelings of annoyance in 14.6% of patients (Luangpairoj et al., 1994). Adewuya et al. (2006) reported that dyskinesia and sedation were significantly associated with poor attitude towards medication ($p < .001$). However, some studies

reported no significant relationship between side-effects and medication adherence (Karnrail, 1998; Kwon, 2000; Mutsatsa et al., 2003). A Thai study reported that patients still adhered to medication in spite of confronting side-effects (Luangpairoj et al., 1994). In addition, patients' management after confronting side-effects reported that 66.30 % of patients were taking medication continually, 17.50 % adjusted the amount of medications, 10% consulted a mental health professional, and 6.30 % stopped taking medication (Karnrail, 1998).

The results above seem to support the suggestion by Mutsatsa et al. (2003) that the relationship between side-effects and adherence may not be straightforward. Attitudes might interact with side-effects before interacting with adherence. For example, some patients continue to adhere to medication although they have side-effects. It is believed that the patients received benefits from medication before, and would maintain their positive attitudes toward medication, thus they make a decision to continue to adhere to medication. The results reported that medication side-effects might not be the most important factor affecting medication adherence. As Kikkert and colleagues (2006) discovered, schizophrenic patients were more concerned about positive benefits from medication than about side effects. Moreover, adverse side-effects discussions can improve therapeutic relationships between patients and psychiatrists, thereby indirectly enhancing adherence.

After reviewing the previous literatures, it was found that schizophrenic patients received serious impacts from both illness and treatment. This illness threat leads patients to various processes of adaptation. In addition, patients perceive benefits of medication and their positive attitude toward medication were included in the process of adaptation. Evidence supported the idea of the existence of an active problem solving ability in many schizophrenic patients, which was used for adapting to live as normal a life as possible. Medication adherence is a major part of mentally ill patients' decisions in how they regulate their own behavior, with other factors also having a role in facilitating these decisions.

Factors related to medication adherence were studied. Factors were examined for relationship, but the mechanisms causing these relationships were unclear. Interventions with the aim of improving medication adherence indicated the effectiveness of intervention thattarget ed patients' cognition, and were supported by

the involvement of environmental factors like social support and therapeutic alliance. Cognition was found to have a significant influence on accurate representations of illness. Moreover, the available literatures in Thailand suggest a lack of in-depth understanding in the area of medication adherence maximization techniques in schizophrenia management.

Culture is an essential factor in patients' behavior. In this study, social support and therapeutic alliance in a Thai context will be examined. In Thailand, many families feel that they are largely, or wholly, responsible for the care of schizophrenic patients (Rungreangkulkij & Chesla, 2001). The number of psychiatrists in Thailand is generally agreed to be insufficient to deal effectively with the number of Thai psychiatric patients. Hence, other healthcare providers, especially psychiatric nurses, have a major role to play in patients' care. In outpatient units, nurses have a relatively small role in care programs. By contrast, in inpatient units, nurses have more opportunity to contribute to patients' care. This study seeks to explore therapeutic alliances with healthcare providers in both inpatient and outpatient settings. Medication is the mainstay in treatment for schizophrenia in Thailand as in western culture. Experience of medication side-effects was included in this study, which represents an appraisal of treatment in individuals with schizophrenia.

For this study, the Common-Sense Model of Illness Representation will be used to model the variables relevant to medication adherence phenomena. A study of social support and therapeutic alliance in a Thai context will help us to gain new knowledge concerning medication adherence in schizophrenic patients in Thailand.

CHAPTER III
METHODOLOGY

In this chapter, aspects of research design, population and sampling, inclusion and exclusion criteria, sample size determination, instruments, setting, protection of human subjects, data collection, and data analysis would be presented.

Research Design

A descriptive cross-sectional research design was used to examine the relationships between social support, therapeutic alliance, experience of medication side-effects, illness representation, intention to change adherence behavior, and self-reported adherence behavior among schizophrenic patients at the follow-up visit.

Population and Sampling

Several mental health hospitals which provide both inpatient and outpatient care in Bangkok and the vicinity under the Ministry of Public Health, the Ministry of Education, and the Ministry of Defence, were clusteredOne hospital will be selected randomly from each group by drawing lots. The hospitals include Srithunya Hospital, Ramathibodi Hospital, and Phramongkutklao Hospital. Quota sampling will be used to determine the number of participants from each hospital. This can prevent oversampling and undersampling in diverse population sectors (Polit & Hungler, 1987). Quota sampling uses information about the quantity of participants from each setting. Then, this can ensure that the diversity of the populations are correctly represented (Polit, Beck, & Hungler, 2001). Participants were recruited according to the number of patients per day at outpatient unit. Number of outpatients per day at Srithunya hospital, Ramathibodi hospital, and Phramongkutklao hospital are approximately 400, 120, and 50 patients respectively. Then, from Srithunya hospital was recruited 144 participants, from Ramathibodi hospital was recruited 60 participants, and from Phramongkutklao hospital was recruited 21 participants (see

Figure 3.1). The target population was individuals with schizophrenia who attended the psychiatric outpatient units from the three hospitals in Bangkok and vicinity and met the following criteria.

Inclusion Criteria

1. Patients diagnosed with schizophrenia and prescribed oral antipsychotic drugs.
2. Patients aged between 18 and 60 years old.
3. Patients have no severe psychotic symptom, have mental alertness, and have ability to give voluntary informed consent, as measured by BPRS (Brief Psychiatric Rating Scale).
4. Patients have ability to read and communicate in Thai
5. Patients had not received electroconvulsive therapy (ECT) during the last 6 months.
6. Patients have no history of brain injury, substance abuse, and depression.

Exclusion Criteria

Patients decided to drop out or withdraw during the interview.

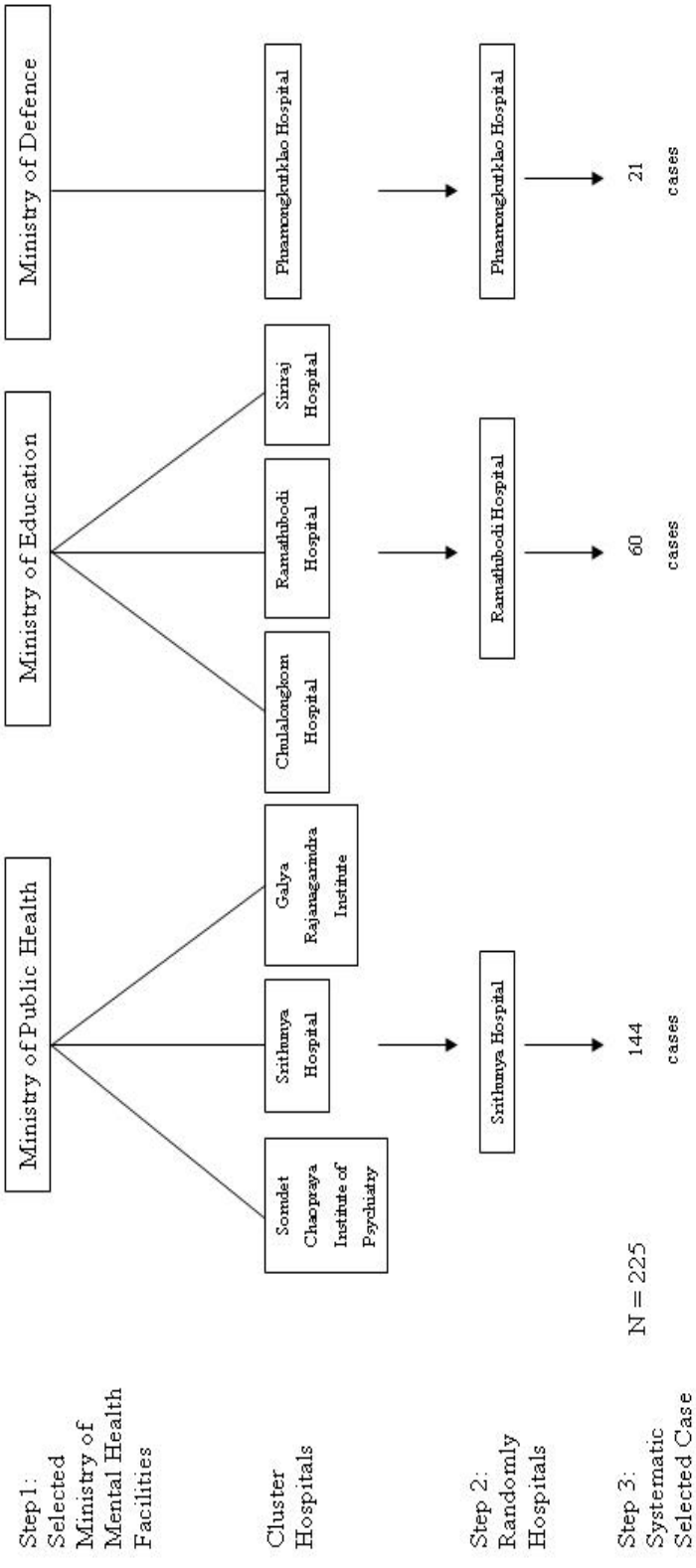

Figure 3.1: The Sampling Technique for Obtaining Participants into This Study

Sample Size Determination

In structural equation modeling, there is no single criterion for calculating sample size. However, there are at least four factors that impact the sample size requirements (Hair, Anderson, Tatham, & Black, 1998):

1) *Model misspecification*, the model suffers from the omission of relevant variables from the specified model. However, including all relevant variables to the model could neglect the model misspecification. Sample size impacts the ability of the model to be correctly estimated and identify specification error. Thus, concerning about the impact of specification error, sample size requirements should be increased over the required number of respondents.

2) *Model size*, the absolute minimum sample size must be at least greater than the number of covariances or correlations in the input data matrix. At least five respondents for each estimated parameter. A ratio of 10 respondents per parameter is considered most appropriate.

3) *Departures from normality*, when the data violates the assumptions of multivariate normality, the ratio of respondents to parameters needs to increase. Generally, the accepted ratio is 15 respondents for each parameter.

4) *Estimation procedure*, maximum likelihood estimation (MLE), the most common estimation procedure which has been found to provide valid results with sample sizes as small as 50. But this small sample size is not recommended. It is generally accepted that the minimum sample size to ensure appropriate use of MLE is 100 to 150. A large sample size (exceeding 400 to 500) leads to the method becoming "too sensitive". Almost any difference is detected, making all goodness-of-fit measures indicate poor fit. Recommended sample size is 100 to 200.

Hair et al (1998) suggested that the most appropriate sample size is 10 respondents per parameter. This study had 28 parameters (see Figure 1.3); therefore, the sample size is 280 schizophrenic patients. During the collecting process, it was found that there were a few numbers of participants per day. Maximum participants each day was 2. It took more than a year to recruit 225 participants in this study. Thus, the dissertation committees were consulted whether 225 participants were accepted as appropriate sample size.

The goal of a structural equation model is an overidentified model. That is number of observation has to be greater than the number of estimated parameters (Hair et al., 1998). A formula to calculate number of observations is (Kline, 1998):

$$\text{Number of observations} = \frac{v\,(v+1)}{2}$$

Where v = the number of observed variables

Therefore, the number of observations was 160. Estimated parameters from LISREL output were 64. Therefore, 225 schizophrenic patients were met the sample size requirements.

In this study, 239 schizophrenic patients were collected. Fourteen participants dropped out from the study, which ten participants dropped out because of lack of concentration, three participants dropped out because of increase tension, and one participant dropped out because of refuse to continue interviewing.

Instrumentations

The Personal Information and Medication History Sheet

The Personal Information and Medication History Sheet was used to obtain personal demographic data and medication and illness data. The data was collected from interviews and medical records. The personal information comprises gender, age, living area, educational level, religion, occupation, marital status, income, number of family members living in the same household, source of support for treatment cost, cost of medication and transportation per visit, time take per visit, and history of drug and substance use. History of illness was assessed concerning duration of illness, date of first prescription of medication, past medication prescription, present medication prescription, number of admissions, and frequency of appointment visits.

The Medical Outcomes Study Social Support Survey (MOS-SSS)

Social support is conceptualized in this study as patients' perceptions of support from family, friends, significant others, and healthcare providers and is measured by the Medical Outcomes Study Social Support Survey (MOS-SSS). The instrument is self-administered and uses five-point rating scales. Four subscales are derived: tangible support (items 2, 5, 12, 15), affectionate support (items 6, 10, 20), positive social interaction support (items 7, 11, 14, 18), and emotional or informational

support (items 3, 4, 8, 9, 13, 16, 17, 19). Score ranges from 1 to 5. High scores indicate more support. The structural item is not included in the subscores.

After content validity analysis from experts, four items were excluded. The reasons for deleting these items was that the content in item number 3, 7, and 13 was already included in other items. Item number 10 was considered irrelevant in Thai culture, because Thai people traditionally do not show physical affection through hugging. The excluded items were:

Affectionate support subscale: item no. 10.

Positive social interaction support subscale: item no. 7.

Emotional or informational support subscale: item no. 3, 13.

Then, items were rearranged by number. The final version of each subscale was:

Tangible support subscale: 2, 4, 9, 11.

Affectionate support subscale: 5, 16.

Positive social interaction support subscale: 8, 10, 14.

Emotional or informational support subscale: 3, 6, 7, 12, 13, 15.

The reliability coefficient from pilot study and this study were .86 and .87 respectively (see appendix I).

Psychometric Properties: The scale was developed by Sherbourne and Stewart (1991). They conducted a review of available support measures, focused on the perceived availability of functional support. They generated a pool of 50 items based on support items and dimensions identified in the literature review. After analysis of each items' face validity by six behavioral scientists, the 50 items were reduced to 37 items for appropriate categories of functional social support. Based on a pilot study in patients visiting a rural health clinic in Southern Illinois, they eliminated items that were not internally consistent with their hypothesized support dimension and that did not discriminate social support from other dimensions of health and health-related behavior. The final version of this scale contained 19 functional social support items. They included 2 single- item of structural support (i.e. the number of close friends and relatives, and marital status) in the questionnaires. Two single-item were added because of the intention to know how structural measures are related to support functions. The scale was designed for use in a study of chronically ill patients.

The items were designed to be comprehensive for participants to evaluate their social support and short enough for reducing respondent burden.

The MOS-SSS evaluated psychometric properties in 2,987 patients with hypertension, diabetes, coronary heart disease, and depression. The result found internal consistency of the overall scale was .97. One year test-retest reliability was .78. Criterion validity was tested using variables included in the Medical Outcome Study. The scale showed significant convergent correlations with loneliness (r = -.53 to -.69), marital and family functioning (.38 to .57), and mental health (.36 to .45). Correlations between the four sub-scales ranged from .69 to .82. Item-scale correlations ranged from .72 - .87 for the tangible support, .80 - .86 for the affection, .82 - .90 for the emotion/ information support, and .87 - .88 for the positive social interaction. The single-item structural support measure of close friends and relatives appears to be distinct from the functional support items. The single-item measure had a low to moderate correlation with the measures of tangible support (0.19), affection (0.18), emotional/ information (0.24), positive social interaction (0.20), and the overall support index (0.23). The indicator of marital status was not related to the number of close friends/ relatives item (r = .01). It was moderately related to the measures of functional support. Correlations between marital status and the functional support measures ranged from .20 to .33.

The California Pharmacotherapy Alliance Scale: Patient Version (CALPAS-P)

Therapeutic alliance is conceptualized in this study as perceived alliance of working with healthcare providers measured by California Pharmacotherapy Alliance Scale: Patient Version (CALPAS-P) developed by Gaston and Marmar (1991). This scale aims to assess the purposeful and active collaboration between the healthcare provider and the patient. The CALPAS-P contains 24 items that covers four alliance dimensions: patient working capacity (PWC), patient commitment (PC), working strategy consensus (WSC), and therapist understanding and involvement (TUI). Each item is rated on a 5-point scale, ranging from 0 (not at all) to 4 (very much). The scoring procedure for the CALPAS-P, items 4, 7, 8, 9, 12, 16, 18, 20, 21, and 23 should be reflected or inversed before undertaking this scoring procedure. A total CALPAS-P score is computed by adding item scores and dividing the sum by 24.

After content validity analysis from experts, one item was excluded. The excluded item was item no. 3 (Three experts reported item was too difficult to understand). Pilot study result showed the reliability coefficient was .69. After deleting item no. 14, the reliability coefficient was .73. After deleting item no. 6, the reliability coefficient was .75. In this study showed the reliability coefficient was .71 (see appendix I).

In this study, items in each subscale were:

Patient working capacity (PWC) subscale: 6, 9, 14, 19

Patient commitment (PC) subscale: 1, 3, 10, 12, 15, 18

Working strategy consensus (WSC) subscale: 8, 13, 16, 17, 20

Therapist understanding and involvement (TUI) subscale: 2, 4, 5, 7, 11, 21

Psychometric Properties: From an unpublished previous data of Gaston and Beauclair (1990), the internal consistency was .83. The test-retest reliability coefficient was .52 when the scores were obtained at the second and eighth sessions of pharmacotherapy.

The CALPAS-P was used for measured patients' perception of the therapeutic relationship with their prescribers in 228 patients diagnosed with schizophrenia and schizoaffective disorder. The Cronbach's alpha in this study was .87 (Day et al., 2005).

The Liverpool University Neuroleptic Side Effect Rating Scale (LUNSERS): Thai version

Experience of medication side-effects is conceptualized in this study as patients' perceptions of medication side-effects in terms of prevalence and intensity, measured by the Liverpool University Neuroleptic Side-Effect Rating Scale (LUNSERS): Thai version (Maneesakorn, Robson, Gournay, & Gray, 2007). The LUNSERS (Day, Wood, Dewey, & Bentall, 1995) is a 51-item self-rating scale to assess the prevalence and intensity of the last month's psychiatric medication side-effects. The fifty-one items in the LUNSERS cover psychological, neurological, autonomic, hormonal, anticholinergic, allergic, red herrings, and other miscellaneous side-effects. Responses are scored on a five point scale from 0 (not at all) to 4 (very much). The score ranges from 0-204.

In this study, the questionnaire excluded the red herrings subscale. Therefore, the total number of items in this study was 41 items. Number of each item was rearranged. Item in each subscale are

Extrapyramidal side effects: 15, 23, 26, 29, 32, 34, 38

Anticholinergic side effects: 5, 8, 25, 30, 41

Other autonomic side effects: 11, 12, 16, 22, 28

Allergic reactions side effects: 1, 27, 37, 39

Psychic side effects: 2, 3, 7, 10, 14, 17, 19, 21, 24, 33

Hormonal side effects: 6, 9, 13, 20, 36, 40

Miscellaneous side effects: 4, 18, 31, 35

The reliability coefficient from pilot study and this study were .82 and .92 respectively (see appendix I).

Psychometric Properties: The LUNSERS has been developed from the Udvalg for Klinske Undersogelser side effect rating scale (UKU), which is the standardized measurement. The LUNSERS examined psychometric properties in 50 schizophrenic patients and reported Cronbach's alpha coefficient on first testing as .89 and .89 on second testing. The test-retest reliability of the LUNSERS was .81 ($p<.001$). The concurrent validity with the UKU was .83 ($p<.001$).

Morrison et al. (2000) used the LUNSERS to examine the prevalence of neuroleptic side-effects in 44 patients diagnosed with schizophrenia, bipolar disorder, and psychotic depression. The LUNSERS in their study was a 41-item self-rating scale, because they examined only the side-effects of neuroleptic side-effects. The findings reported the LUNSERS has a Cronbach's alpha of .93 at time one and .90 at time two. The test- retest correlation was .67 ($p<.01$).

In the Thai version, Maneesakorn et al. (2007) tried out the measurement with 30 Thai patients with schizophrenia. The 4-point content validity index (CVI) was evaluated by the judgment of 3 experts. The CVI was .83. The Cronbach's Alpha Coefficient was .89.

The Illness Perception Questionnaire for Schizophrenia (IPQS)

Illness representation is conceptualized in this study as cognitive representations of illness and emotional involvement from illness measured by the Illness Perception Questionnaire for Schizophrenia (IPQS).

The IPQS comprises of subscales as described below (Lobban, Barrowclough, & Jones, 2004).

(1) Identity (58 items). Fifty-eight mental health experiences associated with schizophrenia were listed including positive symptoms, negative symptoms, affective symptoms, and side effects of medication. Each item, respondents were asked to indicate whether or not they had experienced this, and whether they attributed it to a "mental health problem", "side effects of medication", and/ or "other factors". The proportion of experiences attributed to each was then calculated. The identity which patients report as due to side-effects of medication is different from experience of side-effects in this study because it represents the attributes of medication side-effects from patients' perspective. It does not represent the prevalence of side-effects from the patients' own appraisal.

The remaining subscales all consisted of statements that were scored between 1(strongly disagree) to 5(strongly agree). Patients are asked to indicate how much they agree or disagree with the statement on a 5-point Likert scale.

(2) Cause (26 items). Each item was rated as to how much the patient agreed or disagreed that this item could be a causal factor in the development of their mental health problems.

(3) Timeline acute/ chronic (6 items). A high score denotes a chronic timeline.

(4) Timeline cyclical (4 items). The items were modified to reflect the nature of schizophrenia. A high score denotes a cyclical timeline.

(5) Consequences (11 items). The items ask about impact of illness on work, important relationships, family, social life, ability to do day-to-day things, and perception of value to others. Moreover, perceptions of positive effects of mental health were included for assessment. A high score denotes a perception of a high level of negative consequences as a result of mental health problems.

(6) Personal control (7 items). In the IPQS, this subscale was divided into personal control subscale (4 items) and personal blame subscale (3 items). A high score on the personal control subscale represents a perception of having a high degree of personal control. A high score on the blame subscale represents a high degree of self-blame.

(7) Treatment control (5 items). A high score denotes a belief in the treatment's efficacy in managing the patient's illness.

(8) Illness coherence (5 items). A high score denotes a sense of not having a coherent understanding of the mental health problem.

(9) Emotional representation (9 items). A high score on this subscale represents a strong negative emotional response from mental health problems.

After content validity analysis from experts, twenty-two items were excluded because experts determined items were ambiguous and/or duplicated in meaning or content. The excluded items were

Identity subscale: item no. 11, 15, 19, 47, 56.

Timeline acute/ chronic subscale: item no. 13, 20, 46.

Timeline cyclical subscale: item no. 38.

Consequences subscale: item no. 2, 33, 43.

Personal help control subscale: item no. 3, 16.

Personal blame subscale: item no. 34, 40.

Treatment control subscale: item no. 11.

Mental health problems coherence subscale: item no. 6, 12, 25.

Emotional representations subscale: item no. 10, 24.

The final version in each subscale includes a rearranged numbering system. The number of items in each subscale is shown below.

Identity subscale: 1-53

Timeline acute/ chronic subscale: 1, 4, 15

Timeline cyclical subscale: 12, 21, 27

Consequences subscale: 5, 7, 8, 13, 16, 22, 25, 29

Personal help control subscale: 6, 14

Personal blame subscale: 17

Treatment control subscale: 2, 10, 19, 24

Mental health problems coherence subscale: 11, 20

Emotional representations subscale: 3, 9, 18, 23, 26, 28, 30

Causes subscale: 1-26

In pilot study, the reliability coefficient for identity subscale was .94. The reliability coefficient for the other items was .87. In this study, the reliability

coefficient for identity subscale was .95. The reliability coefficient for the other items was .88 (see appendix I).

Psychometric Properties: The IPQS is a modified version of the Illness Perception Questionnaire Revised (IPQR) for assessing beliefs about mental health problems. The first illness perception measurement which derived from the self-regulation model of Leventhal and colleagues is the Illness Perception Questionnaire (IPQ). The IPQ comprises five subscales which are identity, cause, timeline, consequences, and cure/ control (Weinman, Petrie, Moss-Morris, & Horne, 1996). The IPQ has been used in various studies of physical illness and mental illness. The IPQ was also used without modification in psychiatric patients. Clifford (cited in Lobban et al., 2005) used IPQ with 38 psychotic patients. The internal reliability of subscales was reported as .60 - .92. Talley (1998) also used IPQ with 69 schizophrenic patients. The findings reported only the subscales measuring consequences and identity were internally reliable (α = .69 and α = .84 respectively). The limitations of the IPQ are the problems of psychometric properties in some subscales and the lack of emotional representation assessment. Internal consistency of cure/control and timeline subscales are the most reported problem of the IPQ (Moss-Morris et al., 2002); as a result the Illness Perception Questionnaire Revised (IPQ-R) was developed.

The IPQ-R divides cure/control subscale into personal control and treatment control and timeline subscale into timeline acute/chronic and timeline cyclical (Moss Morris et al., 2002). The IPQ-R also includes illness coherence and the emotional representation of illness. The test-retest reliability of the IPQ-R was examined in 711 patients with Asthma, Diabetes, Rheumatoid Arthritis, Chronic Pain, Acute Pain, Myocardial Infarction, Multiple Sclerosis, and HIV. The correlation ranged from .46 to .88. Personal control was the only a dimension showing a correlation less than .50 (Moss-Morris et al., 2002).

The IPQS is a modified version of the IPQ-R. The IPQS was developed based on qualitative interviews with 19 people diagnosed with schizophrenia. This questionnaire was modified from the IPQ-R for schizophrenic patients, which intended to make it suitable for this population. The psychometric properties of the IPQS were examined in psychiatric patients (Schizophrenic patients, schizoaffective disorder patients, psychosis patients, paranoid psychosis patients, and delusional disorder

patients). This study took measurements at two time points. At time one; data was obtained from 124 psychiatric patients. At time two, 6 months after time 1, data was obtained from 102 psychiatric patients. The result found each subscale of the IPQS had reliability ranging from 0.68-0.87, except for the personal blame subscale, which had only α = .47. In addition, test-retest reliability (without the personal blame subscale) ranged from 0.57-0.95 (Lobban, Barrowclough, & Jones, 2005).

The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES)

Intention to change adherence behavior is conceptualized in this study as patients' intention to change their behaviors to adhere to medication measured by the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES), The SOCRATES was initial developed by Miller in 1987, which established to use in the field of addictions (Miller & Tonigan, 1996). In this study, the content of the questions is slightly modified for evaluating patients' intention to change to medication adherence. For example: in the question "I have already started making some changes in my drinking", the sentence changed in to "I have already started to adhere to medication". The questionnaire comprises of 19 items, which has three subscales names recognition, ambivalence, and taking steps. Each item is rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). High scores indicate high intention to change to adhere to medication.

After content validity analysis from experts, one item was excluded. The excluded item was item no. 6 because of item was not relevant to adherence intention context. Each subscale contains

Recognition subscale: 1, 3, 6, 9, 11, 14, 16

Ambivalence subscale: 2, 10, 15

Taking steps subscale: 4, 5, 7, 8, 12, 13, 17, 18

Reliability coefficient from pilot study and this study was .87 and .75 respectively (see appendix I).

Psychometric Properties: The SOCRATES was developed by Miller based on the stages of change described in the transtheoretical theory described by Prochaska and DiClemente (Miller & Tonigan, 1996). A draft version of the SOCRATES was circulated for comment by about a dozen colleagues in substance abuse treatment

research. A 32-item version was then developed by using 5-point Likert scales, ranging from 5 (strongly agree) to 1 (strongly disagree). Eight items intended to correspond to the precontemplation, contemplation, determination, and action stages. Maintenance stage items were not included in the original version because it was intended for use with clients initially presenting for treatment. After discussion, the second version included the maintenance stage items. Factor analysis of the second version was tested with 224 patients in treatment for alcohol dependence. Several items loaded significantly on two different factors. A third version was prepared, substituting for, or rewording, items that loaded on two factors. Factor analysis was conducted in 40 items for a third version and a fourth version. A fifth version was developed, consisting of the 4 items for each scale, with a total of 20 items. One item was reported to be low in factor loading and confusing in context. Therefore, this item was eliminated, resulting in 19 items which are divided into three subscales: Recognition, Ambivalence, and Taking Steps. It is a public domain instrument and may be used without special permission. Scoring is accomplished by transferring to the SOCRATES Scoring Form the numbers circled by the respondent for each item. The sum of each column represents the three scale scores.

The internal consistency of each scale was calculated in 1,672 clients in the pretreatment assessment battery for Project MATCH, a multisite clinical trial of psychosocial treatments for alcohol problems. Cronbach alphas were .83 - .96 for taking steps, .85 - .95 for recognition, and .60 - .88 for ambivalence (Miller & Tonigan, 1996).

The Medication Adherence Report Scale (MARS)

Self-reported adherence behavior is measured by the Medication Adherence Report Scale (MARS). Medication Adherence Report Scale (MARS) was developed by Horne (1996). This scale measures the same construct in 5 items. A principle component was performed on pooled data from three samples. The items ask about “How often patients have been non-adherent”. This scale is rated on a five point scale (where 5 = never, 4 = rarely, 3 = sometimes, 2 = often, and 1 = always). The total score ranges from 5 to 25. The higher scores indicate higher levels of reported adherence behavior.

From pilot study, the reliability coefficient was .74. In this study, the reliability coefficient was .60 (see appendix I).

Psychometric Properties: The MARS reported internal reliability was .83. Test-retest reliability was .97, $p < .001$. Internal reliability in patients with hypertension, asthma, warfarin use, and diabetes were .68 - .86.

The Brief Psychiatric Rating Scale (BPRS)

The Brief Psychiatric Rating Scale (BPRS) was used for recruiting participants. Participants were selected when they had a mild level of psychotic symptoms.

Back Translation Process

1. According to Brislin's model, the IPQS was translated into the Thai language by a bilingual psychiatric nurse instructor. The MOS-SSS, CALPAS-P, SOCRATES, and MARS were translated into Thai language by a bilingual psychiatric nurse instructor.

2. The Thai version of the MOS-SSS, CALPAS-P, IPQS, SOCRATES, and MARS were blindly back translated into English language by two different bilingual psychiatric nurse instructors.

3. The back translated English version of measurements were compared with the original versions for consistency in meaning by two foreign English instructors. One instructor compared the IPQS. The other compared the MOS-SSS, CALPAS-P, SOCRATES, and MARS.

4. The items in SOCRATES were changed for evaluation of the "intention to change to adherence behavior" which is a management strategy for Schizophrenia. The items of CALPAS-P were changed from "doctor" into "healthcare provider"

5. Content validity and cultural accuracy of items were examined by five experts in schizophrenia and/or medication adherence. The five experts comprised two psychiatrists, one psychiatric nurse instructor, one psychologist, and one certified advanced practice nurse (psychiatric field).

6. The experts' degree of agreement was calculated. The content validity index for items (I-CVI) is computed as the number of experts giving a rating of either 3 or 4, divided by the total number of experts. The I-CVI for five or fewer experts should be

1.00 (Polit & Beck, 2006). The I-CVI was used to guide in revising and deleting items. The mean of content validity index for items (Mean I-CVI) ranged from .92 – 1.00. The scale-level content validity index, universal agreement calculation method (S-CVI/ UA) is the proportion of items on a scale for which all experts had given a rating of 3 or 4. The S-CVI/ UA ranged from .67 – 1.00. Mean expert proportion ranged between .92 – 1.00. Range of I-CVI per item was .40 – 1.00 for the CALPAS-P, .60 – 1.00 for the MOS-SSS, the LUNSERS, the IPQS, and the SOCRATES, and 1.00 for the MARS. Content validity of instruments is shown in Table 3.1.

Table 3.1 Content Validity Index of Instruments

Instrument	Mean I-CVI	S-CVI/ UA	Mean Expert Proportion	Range of I-CVI per item
MOS-SSS	.94	.75	.94	.60-1.00
CALPAS-P	.92	.67	.92	.40-1.00
LUNSERS	.97	.85	.97	.60-1.00
IPQS	.97	.88	.97	.60-1.00
SOCRATES	.94	.74	.94	.60-1.00
MARS	1.00	1.00	1.00	1.00

7. Face validity were examined by five schizophrenic patients from Ramathibodi hospital. Five schizophrenic patients who had the same characteristics as participants of this study were asked to be involved in an interview. The interview was intended to explore the, meaning and cultural accuracy of each item. Each patient was interviewed separately because of the intention to clearly define the terms.

8. Reliability of instruments was pilot tested in 30 Thai schizophrenic patients who met the criteria of participants. Participants in the pilot study were recruited from Srithunya hospital, Ramathibodi hospital, and Phramongkutklao hospital. The numbers of participants were 21, 7, and 2 patients respectively.

Setting

Data was collected from three hospitals. The study settings were the outpatient department from Srithunya Hospital, Ramathibodi Hospital, and Phramongkutklao Hospital, Srithunya Hospital is a mental health hospital under the Department of Mental Health, Ministry of public health, which provides care in the mental health field. Inpatient, outpatient, and day care programs are provided as routine programs. Whereas Ramathibodi Hospital is a university hospital under the Ministry of Education which has only one psychiatric inpatient ward and one outpatient department along with treatment for physical illness. No day care program is provided in Ramathibodi Hospital. Phramongkutklao Hospital is a military hospital under the Department of Defence. This hospital has the same characteristics as Ramathibodi Hospital, but with fewer patients per day at the outpatient unit. All selected hospitals were representative of psychiatric facilities which provide inpatient and outpatient care in Thailand.

Protection of Human Subjects

Prior to data collection, approval was obtained from the Institutional Review Board (IRB) of Mahidol University, the Ministry of public health, and selected sites. The purpose of this study was described to the administration of the hospitals or departments and the administration of the outpatient psychiatric clinics. The potential participants were informed that their information will be kept confidential. Information about the purpose of the study, the collecting method, and the time required were informed to the potential participants. They would be advised that they can withdraw from the study at any time without effect to their hospital treatments. Participants who agree to participate in this study were asked to sign a consent form. Meanwhile the inclusion process, some participants stated severe depression, suicidal idea, or severe psychotic symptoms, the researcher cancelled the process of recruitment, gave initial counseling, and referred those participants to proper treatment.

Data Collection

After the protection of human subjects' process was completed, the data collection procedure was initiated as follows:

1. The researcher informed the staff nurses and psychiatrists at data collection sites of the criteria for eligibility of subjects.

2. The staff nurses informed patients about the study, and invited them to participate. Those willing to participate in this study were invited to a private room or a calm area.

3. Subjects had their overall clinical condition assessed before being invited into the study with the BPRS. Subjects were informed that "only the patients who meet the criteria will be selected". This is to exclude patients who have severe hallucinations and delusions because sometimes severe hallucinations and delusions can be triggered when interview patients were asked specific questions. In addition, subjects who have a high level of hallucinations and delusions can disturb reliability of data and there is a risk of aggressive behavior at the time of interview. Excluded patients also received snacks, candy, and beverages.

4. Each subject received a verbal explanation of the study, duration time of interviews and written details to ensure informed consent. Written consent was obtained. After completion of the data, each subject received 100 baht for investing their time to this study. Two participants refused money. One asked for a small gift instead, and one refused money.

5. The interview was conducted individually. All subjects were interviewed once. Patients who did not have severe hallucinations and delusions continued to interview for personal demographics and medical history, followed by the MOS -SSS, the LUNSERS, the CALPAS-P, and part of the identity items in the IPQS. Patients were asked to take a break. If they refused to take a break, the researcher prepared small talk for relaxing. Most of participants took a break to follow up with the psychiatrist and came back after already receiving medication.

6. After break, the rest of IPQS, the MARS, and the SOCRATES were administered. The researcher read all the questionnaires and clarified each item for the interviewees.

7. Each day, the maximum number of recruited participants was 2. It was rarely recruited 3 patients per day. The duration time of interview per participant was approximately 1-3 hour. The researcher had to manage time for interviews consistent with the setting and environment. Sometimes, participants declined to take further part in the study after the break, because their follow-up processes were completed. Moreover, participants declined when they were interviewed, because they could not concentrate on the questions.

8. Snacks, candy, and beverages were provided during the interview. Permission would be given to break for water, using the bathroom, follow-up with psychiatrist, relaxation from answering the questions, etc. Subjects could stop participation at any time if they felt uncomfortable.

Data Analysis

Data was analyzed under the Statistic Package for the Social Science (SPSS version 11.5) and the Linear Structural Relationship (LISREL 8.52 program) as follows:

1.The reliability coefficient of the research instruments were examined by using SPSS version 11.5.

2. Descriptive statistics of each variable was examined in terms of frequency, mean, mode, median, standard deviation, range of score.

3. The normality and linearity assumptions were determined by a PRELIS program. The measured variables had a non-normality problem. Then data was transformed into normal score.

4. Multicollinearity assumption was tested with SPSS version 11.5.

5. Structural Equation Modeling (SEM) was used to test the causal relationship between social support, therapeutic alliance, experience of medication side-effects, illness representation, intention to change adherence behavior and self-reported adherence behavior. Data analysis was conducted in two-step approaches (Hair, Black, Babin, Anderson, & Tatham, 2006).

First, assessing the measurement model validity, the measurement model of social support, the measurement model of illness representation, and the measurement model of intention to change adherence behavior were tested the fit and construct

validity of the proposed measurement model. A confirmatory factor analysis (CFA) was used to test the measurement model. The measurement model of intention to change adherence behavior indicated an identification problem, which was a just-identification. The overidentification is the goal for CFA in general (Hair et al., 1998). Thus a just-identified model of the measurement model of intention to change adherence behavior was remedied by fixing two of the factor loadings and setting its value as suggested by two-stage least squares estimation. Finally, the overall model fit and the criteria for construct validity were examined for the three measurement models.

Second, assessing the structural model validity, the hypothesized full model was represented the path diagram, clarified exogenous and endogenous variables. Model fit was tested using maximum likelihood estimation. The structural model was refined by adding and evaluating the modify model for the best model fitted to answer the hypotheses. The modification indices were used as a guideline for model improvements of relationships between indicators, under theoretically based.

Evaluating the model fit is rarely accomplished by one criterion. A good-fitting model recommended by Hair and colleagues (2006) comprised of various indicators. Commonly used indexes for evaluating the model fit are:

1. Nonsignificant Chi-Square X^2 ($p>.05$), a large value of chi-square indicates the different between observed and estimated matrices. The low chi-square values, which result in significant levels greater than .05 or .01 indicates the actual and predicted input matrices, are not statistically different. In SEM, nonsignificant differences was desired because it indicates the proposed model fits the observed covariances and correlations well (Hair et al., 1998). Moreover, a relative chi-square (ratio of chi-square to degrees of freedom) was used for evaluating a good fit. A frequent suggestion guideline of X^2/ df is less than 3 was recommended (Kline, 1998).

2. Goodness-of-Fit Index (GFI), the GFI was producing a fit statistic, which less sensitive to sample size. The possible range of GFI values is 0 to 1. The higher values indicated better fit. The GFI greater than .90 was considered good (Hair et al., 2006). However, the GFI greater than .95 might more acceptance because they decrease an occurrence of type II error (Munro, 2005).

3. Adjusted Goodness-of-Fit Index (AGFI), the AGFI is an extension of the GFI. The recommended acceptance level of AGFI is a value greater than or equal to .90 (Hair et al., 1998).

4. Comparative Fit Index (CFI), the CFI is an incremental fit index. A value greater than .90 associated with a model fit (Hair et al., 2006).

5. Root Mean Square Error of Approximation (RMSEA), the RMSEA is a misfit index. Values close to zero indicate a good fit. The values less than .05 indicate a very good fit (Munro, 2005).

CHAPTER IV
RESULTS

This chapter consists of four parts. Data was presented with demographic characteristics of the sample and descriptive characteristics of hypothesized variables, assumptions testing result of the study variables, the measurement model and structural model testing, and hypothesis testing.

Demographic Characteristics of the Sample

Two hundred and twenty-five schizophrenic patients from three hospitals were recruited. Participants were selected from outpatient units at Phramongkutklao hospital, Ramathibodi hospital, and Srithunya hospital. Number of participants from each hospital comprised of 21, 60, and 144 patients, respectively. The BPRS scale was used to assess psychotic symptoms, in which those who hold mild psychotic symptoms were included in the study. The average score of BPRS is 23.70 (SD = 4.15). Number of male participants was higher than female (male = 56.9%, female = 43.1%). Average age of participants was 37.12 years (SD = 9.11, range between 19-59 years). Most of participants were Buddhist (92%). Two-third was single (65.8%). Approximately, half of participants lived in Bangkok (53.8%). About one-third had high school education (34.7%). Nearly half of participants (42.2%) were unemployed. Nearly half (45.8%) earned income more than 5,000 bath/ month (1US$ = 35 baht, 142.86 US$). One-fourth (24.9%) had no income. Nearly two-third had 1-3 household members (63.6%). Approximately half of participants lived with parents (48.44%). Nearly 80% of treatment cost was supported by family and reimbursement. Only 21.8% was paid by the patients. Two-third of participants paid 1-500 baht per month for medication. Transportation cost ranged from 0-2,000 baht (mean = 185.90, SD = 265.13). The demographic characteristics are summarized in Table 4.1.

Table 4.1 Demographic Characteristics of the Samples (n=225)

Variable	n	%
Gender		
Male	128	56.9
Female	97	43.1
Age		
18 – 30 years	67	29.8
31 – 45 years	109	48.4
46 – 60 years	49	21.8
Mean = 37.12, SD = 9.11, Mode = 29, Median = 36, Range = 19 - 59		
Religion		
Buddhism	207	92.0
Christianity	5	2.2
Islam	11	4.9
Others	2	0.9
Educational Level		
Primary School	29	12.9
High School	78	34.7
Technical School/ Diploma	39	17.3
Bachelor Degree	67	29.8
Master Degree	12	5.3
Marital Status		
Single	148	65.8
Married	60	26.7
Widowed/ Divorce	17	7.6
Living Area		
Bangkok	121	53.8
Vicinity Area	58	25.8
Other provinces	46	20.4

Variable	n	%
Occupation		
None	95	42.2
Merchant	23	10.2
Government Officer	30	13.3
Employee	53	23.6
Student	8	3.6
Others	16	7.1
Income (baht per month)		
None	56	24.9
1 – 5000 baht	66	29.3
5001 – 10000 baht	50	22.2
10001 – 15000 baht	18	8.0
> 15001 baht	35	15.6
Mean = 7667.93, SD = 9348.03, Median = 5000, Range 0-50000		
Number of household members		
None	17	7.5
1	48	21.3
2	51	22.7
3	44	19.6
4	21	9.3
5	22	9.8
6-10	22	9.8
Mean = 2.82, SD = 2.02		
Relationship of household members with patients		
Parent (s) and/ or other (s)	109	48.4
Sibling (s) and/ or other (s)	19	8.4
Spouse and/ or other (s)	58	25.8
Others (e.g., friends, colleagues.)	22	9.8
Living alone	17	7.6

Variable	n	%
Source of support for treatment cost		
Reimbursement		
- Social Security	4	1.8
- Universal Coverage	42	18.7
- Civil Service Medical Benefit Scheme	37	16.4
- Others (e.g., research grant, private agency)	17	7.6
Themselves	49	21.8
Family Support	76	33.8
Drug cost per month		
None	5	2.2
1-500 baht	149	66.2
501-1000 baht	32	14.2
1001-1500 baht	6	2.7
1501 – 2000 baht	8	3.6
> 2001 baht	25	11.1
Mean = 1236.34, SD = 3326.07, Median = 212.50, Mode = 100, Range = 0-35000		

Considering history of illness, first generation of antipsychotic drug was the highest type of prescription (58.7%). Approximately one-third of participants had duration of appointment frequency 1 month (32.4%). The duration of illness ranged from 1-34 years (mean 11.01, mode = 5, SD = 7.90). Average number of previous hospitalization was 2.16 times (SD = 4.20, mode = 0, range 0-50). The history of illness displayed in Table 4.2.

Table 4.2 Medical History of the Study Samples (n=225)

Variable	n	%
Group of Antipsychotic Medication		
First Generation	132	58.7
Second Generation	70	31.1

Variable	n	%
First and Second Generation	20	8.9
Third Generation	3	1.3
Duration of Appointment frequency		
< 1 month	11	4.9
1 month	73	32.4
> 1 - 2 months	67	29.8
> 2 - 3 months	53	23.6
> 3 months	21	9.3

Descriptive Characteristics of Hypothesized Variables

This study comprised of six major variables: social support, therapeutic alliance, experience of medication side-effects, illness representation, intention to change adherence behavior, and self-reported adherence behavior. The results of study variables are presented as followings.

Social Support

As shown in Table 4.3, the total score of social support ranged from 17-75 with a mean score of 51.33 (SD = 12.31). For subscale scores, the average score of tangible support was 14.53 (SD = 4.02). Affectionate support mean score was 8.06 (SD = 1.96). The average score of positive social interaction support was 9.64 (SD = 3.09). Emotional or informational support mean score was 19.10 (SD = 6.16).

Table 4.3 Possible Range, Actual Range, Mean, SD of the Social Support (n=225)

Variables	Possible Range	Actual Range	Mean	SD
Tangible Support	4-20	4-20	14.53	4.02
Affectionate Support	2-10	2-10	8.06	1.96
Positive Social Interaction Support	3-15	3-15	9.64	3.09
Emotional or informational Support	6-30	6-30	19.10	6.16
Total score of support	**15-75**	**17-75**	**51.33**	**12.31**

Therapeutic Alliance

Average score of therapeutic alliance was 3.14 (SD = 0.39). Mean score of subscale patient working capacity was 13.18 (SD = 2.32). The average score of patient commitment subscale was 21.30 (SD = 2.37). Mean score of subscale working strategy consensus, and therapist understanding and involvement were 14.86 (SD = 2.88) and 16.50 (SD = 3.43) respectively. The detail of therapeutic alliance score was presented in Table 4.4. It is interesting to note that the healthcare providers whom the patients reported having alliance with were psychiatrists. As shown in Table J.2 in appendix J, it was found that 61.8-90.7% of the participants reported having alliance with their psychiatrists.

Table 4.4 Possible Range, Actual Range, Mean, SD of the Therapeutic Alliance (n=225)

Variables	Possible Range	Actual Range	Mean	SD
Patient Working Capacity (PWC)	0-16	1-16	13.18	2.32
Patient Commitment (PC)	0-24	10-24	21.30	2.37
Working Strategy Consensus (WSC)	0-20	7-20	14.86	2.88
Therapist Understanding and Involvement (TUI)	0-24	8-24	16.50	3.43
Total score of Therapeutic Alliance	**0-4**	**1.62-3.95**	**3.14**	**0.39**

Experience ofM edication Side-Effects

As presented in Table 4.5, the mean score of participants' experience of medication side-effects was 20.79 (SD = 19.51) and mean score of each subscale score were: 3.53 (SD = 4.50) for extra-pyramidal side effects, 3.21 (SD = 3.22) for anticholinergic side effects, 1.61 (SD = 2.67) for other autonomic side effects, 0.83 (SD = 1.72) for allergic reactions side effects, 8.18 (SD = 7.40) for psychic side effects, 1.78 (SD = 2.59) for hormonal side effects, and 1.64 (SD = 2.12) for miscellaneous side effects.

Table 4.5 Possible Range, Actual Range, Mean, SD of the Experience of Medication Side-effects (n=225)

Variables	Possible Range	Actual Range	Mean	SD
Extrapyramidal Side Effects	0-28	0-20	3.53	4.50
Anticholinergic Side Effects	0-20	0-16	3.21	3.22
Other Autonomic Side Effects	0-20	0-16	1.61	2.67
Allergic Reactions Side Effects	0-16	0-8	0.83	1.72
Psychic Side Effects	0-40	0-30	8.18	7.40
Hormonal Side Effects	0-24	0-12	1.78	2.59
Miscellaneous Side Effects	0-16	0-11	1.64	2.12
Total score of Experience of medication Side-effects	**0-164**	**0-90**	**20.79**	**19.51**

Illness Representation

As indicated in Table 4.6, the average score of participants' illness representation was 114.24 (SD=21.52). They classified their symptom experiences as related to mental health identity, side-effect identity, and others identity which mean score were 15.94 (SD = 11.95), 3.14 (SD = 4.06), and 11.27 (SD = 8.66), respectively. Participants identified each symptom experience as identity related to three areas; mental health identity, side-effect identity, and others identity. Mean score of time line acute/ chronic, timeline cyclical, consequences, personal help control, personal blame, treatment control, mental health problems coherence, and emotional representations were 8.34 (SD = 3.15), 10.68 (SD = 2.03), 25.47 (SD = 5.60), 8.08 (SD = 1.06), 3.92 (SD = 0.75), 15.15 (SD = 1.76), 4.88 (SD = 1.82), and 21.79 (SD = 5.56), respectively (Table 4.6).

Table 4.6 Possible Range, Actual Range, Mean, SD of the Illness Representation (n=225)

Variables	Possible Range	Actual Range	Mean	SD
Identity (any of the list)	0-53	1-52	29.02	11.72
- Mental health identity	0-53	0-49	15.94	11.95
- Side – effect identity	0-53	0-20	3.14	4.06
- Others identity	0-53	0-46	11.27	8.66
Timeline Acute/ Chronic	3-15	3-15	8.34	3.15
Timeline Cyclical	3-15	3-15	10.68	2.03
Consequences	8-40	14-39	25.47	5.60
Personal Help Control	2-10	4-10	8.08	1.06
Personal Blame	1-5	2-5	3.92	0.75
Treatment Control	4-20	10-20	15.15	1.76
Mental Health Problems Coherence	2-10	2-10	4.88	1.82
Emotional Representations	7-35	8-35	21.79	5.56
Total score of illness representation	**30-203**	**69-167**	**114.24**	**21.52**

Intention to Change Adherence Behavior and Self-Reported Adherence Behavior

Table 4.7 presented that average score of intention to change adherence behavior was 47.60 (SD = 7.87). Average score of recognition, ambivalence, and taking steps subscale were 16.41 (SD = 3.72), 8.04 (SD = 2.09), and 23.16 (SD = 5.18), respectively. Mean score of self-reported adherence behavior was 23.56 (SD = 2.54).

Table 4.7 Possible Range, Actual Range, Mean, SD of theIntention to Change Adherence Behavior and Self-Reported Adherence Behavior (n=225)

Variables	Possible Range	Actual Range	Mean	SD
Intention to Change Adherence Behavior				
Recognition	7-35	7-29	16.41	3.72
Ambivalence	3-15	3-13	8.04	2.09
Taking Steps	8-40	9-36	23.16	5.18
Total Score of Intention to Change Adherence Behavior	**18-90**	**29-73**	**47.60**	**7.87**
Self Reported Adherence Behavior				
Total Score of Self-Reported Adherence Behavior	**5-25**	**13-25**	**23.56**	**2.54**

Assumption Testings

Structural equation modeling shares three assumptions with the other multivariate analysis which consisted of normality, linearity, and multicollinearity (Hair, Anderson, Tatham, & Black, 1998). Violating assumptions result in difficulty to identify a model fit and poorer fit indices (Munro, 2005). Therefore, all study variables were examined before further analysis.

Normality Testings

The first assumption was normality testings. If the calculated Z value exceeds a critical value, then the variables violate normal distributions. Critical value of $\pm$ 1.96 corresponds to a .05 error level (Hair et al., 1998). Data showed severe skewness and kurtosis (see Table G.1, in Appendix G). Only 7 variables were normal. Then a transformation was chosen as a selected method to remedy non-normality. Original score was converted to another metric, such as log transformation for severe skewness. However, they are still not normally distributed. Normal score is one of the transformation method which offers an effective way to normalize a continuous variable (Mathilda & Stephen, 2001). Therefore, normal score was used to normalize

the variables in this study. After transformation, only two variables were still not normally distributed. These variables were self-reported adherence behavior and affectionate support (see Table G.2, in Appendix G). If the score of variable violated assumption of normality, Kline suggested that the kurtosis would be considered. When the kurtosis was less than 10, the analysis could be performed (Kline, 1998). Although self-reported adherence behavior and affectionate support variables violated assumption of normality, the kurtosis was less than 10. Therefore, non-normality of self-reported adherence behavior and affectionate variables were considered not problematic.

Linearity

The second assumption is linearity. Nonlinearity results in an underestimation of the actual strength of the relationship. The most common way to assess linearity is to examine scatter plots of the variables (Hair et al., 1998). As shown in figure G.1 (appendix G), the scatter plot matrix showed that the relationships between independent and dependent variables were linear.

Multicollinearity

Multicollinearity occurs when independent variables are highly correlated. It results in sharing predictive power of the independent variables. Therefore, the effects on explanation of the independent variables are confounded. Multicollinearity was tested by correlation matrix, tolerance and the variance inflation factor. Multicollinearity is in high levels when correlation above .80 (Hair et al., 1998). Tolerance is the amount of variability of the selected independent variable not explained by the other independent variables (Hair et al., 1998). Tolerance is $1-R^2$ (Munro, 2001). Therefore, very small tolerance values denote high collinearity. The variance inflation factor (VIF) is the degree of each independent variable is explained by the other independent variables. VIF = 1/ tolerance. Large VIF values indicate a high degree of multicollinearity among the independent variables. The cutoff threshold is a tolerance value of .10, a VIF value above 10 (Hair et al., 1998). As shown in Table G.3, the result showed that the correlation ranged from -.100 to .299. The tolerance ranged from .850 to .945. The VIF ranged from 1.058 to 1.177 (see Table G.4, in Appendix G). Then, there was no multicollinearity.

Model Testing

Hypothesis testing was tested using LISREL 8.52 program. Structural Equation Modeling (SEM) was used for analysis. SEM was analysis in two steps. Measurement model testing and structural model testing.

1. Measurement Model Testing

In this study, three measurement models were tested. The measurement model of social support, the measurement model of illness representation, and the measurement model of intention to change adherence behavior.

Social support comprised of four indicators: tangible support, affectionate support, positive social interaction support, and emotional or informational support. From Table 4.8, the result indicated that the model fitted the data (χ^2 = .01, df = 2, p-value = 0.997, χ^2/ df = .005, RMSEA = .000). The standardized factor loading ranged from 0.58 to 0.82 and all indicators achieved the statistical significance. The reliability estimates (R^2) of all indicators ranged from 0.33 to 0.68. The composite reliabilities of tangible support, affectionate support, positive social interaction support, and emotional or informational support were 0.04, 0.08, 0.11, and 0.07 respectively (see Table 4.9). The findings verified that all indicators represented the construct of social support.

Table 4.8 The Measurement Model Goodness of Fit Indices (n=225)

Variables	χ^2	df	p-value	GFI	AGFI	RMSEA
Social Support	.01	2	0.997	1.00	1.00	.000
Illness Representation	4.10	5	0.535	.99	.98	.000
Intention to Change Adherence Behavior	.83	1	0.361	1.00	.99	.000

Note: χ^2 = Chi-Square, df = Degrees of Freedom,
GFI = Goodness of Fit Index, AGFI = Adjusted Goodness of Fit Index,
RMSEA = Root Mean Square Error of Approximation

Table 4.9 The Social Support Measurement Model Construct Measure

Variables	Standardized Factor Loading	SE	t-value	Factor Score Regression	R^2
Social Support					
Tangible	.62	.27	9.39	.04	.39
Affectionate	.58	.13	8.62	.08	.33
Positive Social Interaction	.78	.20	12.24	.11	.60
Emotional or Informational	.82	.39	13.16	.07	.68

Illness representation was measured by the Illness Perception Questionnaire for Schizophrenia (IPQS). According to the score of the cause subscale does not denote the meanings; this subscale was not including into illness representation measurement model. Illness representation measurement model included nine indicators each of mental health identity (TMH), timeline acute/ chronic (AC_CH), timeline cyclical (CYC), consequences (CONSEQ), personal help control (HELP), personal blame (BLAME), treatment control (TREAT), mental health problems coherence (ILLCO), and emotional representations (EMO). The initial model presented that the model did not fit the data (χ^2 = 165.78, df = 27, p-value = 0.000, χ^2/ df = 6.14, RMSEA = 0.151). Personal help control, personal blame, and treatment control were negatively related to other illness representation constructs. In the model, three indicators were nonsignificant. T-value of personal help control, personal blame, and treatment control were -1.31, -1.74, and -1.18, respectively. Therefore, personal help control, personal blame, and treatment control were deleted from the measurement model because these indicators did not represent the construct of illness representation. During the estimation process, the error covariance of TMH-CYC, TMH-ILLCO, CYC-ILLCO, and AC_CH-ILLCO were free. As presented in Table 4.8, the modified model was better fit the data (χ^2 = 4.10, df = 5, p-value = 0.535, χ^2/ df = 0.82, RMSEA = 0.000). Mental health identity, timeline acute/ chronic, timeline cyclical, consequences,

mental health problems coherence, and emotional representations paths were significant. The standardized factors loading ranged from 0.26 to 0.86. The reliability estimates (R^2) of all indicators ranged from 0.07 to 0.74. The composite reliabilities ranged from 0.01 to 0.08(see Table 4.10). In conclusion, only six indicators represented the construct of illness representation.

Table 4.10 The Illness Representation Measurement Model Construct Measure

Variables	Standardized Factor Loading	SE	t-value	Factor Score Regression	R^2
Illness Representation					
Mental Health Identity	.50	a	a	.01	.25
Timeline Acute/ Chronic	.26	.24	3.43	.01	.07
Timeline Cyclical	.55	.17	6.48	.05	.30
Consequences	.86	.66	7.24	.08	.73
Mental Health Problems	.27	.15	3.27	.03	.07
Coherence					
Emotional Representations	.86	.66	7.24	.08	.74

Intention to change adherence behavior composed of three subscales: recognition, ambivalence, and taking steps. The first model represented as just identified model. Purposing to remedy the identification problem, fixing the recognition path equal to 1.0 and Fixing ambivalence parameters equal 0.37 as suggested from two-stage least-squares (TSLS) method were used. As Table 4.8 indicated that the modified model fitted the data (χ^2 = .83, df = 1, p-value = 0.361, χ^2/ df = .83, RMSEA = .000). The standardized factor loading ranged from 0.28 to 0.74 and all components were significant. The reliability estimates (R^2) ranged from 0.08 to 0.55. The composite reliabilities were 0.47, 0.33, and 0.06 for recognition, ambivalence, and taking steps (see Table 4.11). Therefore, all indicators represented the construct of intention to change adherence behavior.

Table 4.11 The Intention to Change Adherence Behavior Measurement Model Construct Measure

Variables	Standardized Factor Loading	SE	t-value	Factor Score Regression	R^2
Intention to Change Adherence Behavior					
Recognition	.74	a	a	.47	.55
Ambivalence	.50	a	a	.33	.25
Taking Steps	.28	.17	3.06	.06	.08

2. The Structural Model Testing

The hypothesized model consisted of three exogenous variables (social support, therapeutic alliance, and experience of medication side-effects) and three endogenous variables (illness representation, intention to change adherence behavior, and self-reported adherence behavior). The result demonstrated χ^2 = 179.67, df = 95, p-value = 0.000, χ^2/ df = 1.891, GFI = 0.91, AGFI = 0.87, CFI = 0.92, RMSEA = .063 (See Table 4.12). The results showed that the model did not fit the data. Moreover, the smallest and largest standardized residual ranged from -3.18 to 3.34.

Table 4.12 Goodness of Fit indices of the Hypothesized and the Modified Model

Structutral model	X^2	df	p-value	Largest Standardized Residual	GFI	AGFI	CFI	RMSEA
Hypothesized model	179.67	95	0.000	3.34	0.91	0.87	0.92	0.063
Modified Model	91.17	72	0.063	3.18	0.95	0.91	0.98	0.034

Note: X^2 = Chi-Square, df = Degrees of Freedom, GFI = Goodness of Fit Index, AGFI = Adjusted Goodness of Fit Index, CFI = Comparative Fit Index, RMSEA = Root Mean Square Error of Approximation.

Six path coefficients were not significant (The path of SUPPORT-ILL_RE, SUPPORT-MED_AD, ALL-ILL_RE, ALL-MED_AD, EX_S-MED_AD, and ILL_RE-MED_AD). Four path coefficients (SUPPORT-ILL_RE, ALL-ILL_RE, EX_S-ILL_RE, and EX_S-MED_AD) had opposite direction as proposed in the hypotheses (see Figure 4.1).

The square multiple correlations (R^2) of each observed variables ranged from 0.05 to 1.00 (see Table 4.13). The model accounted for and explained 15% of variance in self-reported adherence behavior, 24% of variance in intention to change adherence behavior, and 15% of variance in illness representation.

In conclusion, the hypothesized model did not fit the data because of poor goodness-of-fit and some misspecified parameters. Therefore, the model would be modified.

Table 4.13 Path Coefficients, Standard Errors (SE), and T-values of Parameter estimates of the hypothesized model (n=225)

Path Diagram	Hypothesized Model			
	Standardized Path Coefficients	SE	t-value	R^2
LAMBDA-Y				
ILL_RE → TMH	.49	a	a	.24
ILL_RE → AC_CH	.26	.04	3.41	.07
ILL_RE → CYC	.56	.03	6.01	.31
ILL_RE → CONSEQ	.83	.11	7.25	.68
ILL_RE → ILLCO	.26	.02	3.44	.07
ILL_RE → EMO	.89	.11	7.33	.79
INTEND → REC	.86	a	a	.74
INTEND → AMB	.44	.07	4.22	.20
INTEND → TAK	.22	.13	2.64	.05
MED_AD → MARS	.99	a	a	.97

Path Diagram	Hypothesized Model			
	Standardized Path Coefficients	SE	t-value	R^2
LAMBDA X				
SUPPORT → TS	.61	.06	8.61	.37
SUPPORT → AS	.58	.03	8.15	.34
SUPPORT → PS	.76	.04	10.42	.58
SUPPORT → ES	.84	a	a	.70
ALL → PHA	.97	a	a	.93
EX_S → SEF	1.00	a	a	1.00
GAMMA				
SUPPORT → ILL_RE	-.11	.09	-1.39	
SUPPORT → MED_AD	.05	.04	.64	
ALL → ILL_RE	-.13	1.02	-1.68	
ALL → MED_AD	.01	.48	.17	
EX_S → ILL_RE	.33	.02	4.17	
EX_S → MED_AD	.01	.01	.16	
BETA				
ILL_RE → INTEND	.49	.05	5.02	
ILL_RE → MED_AD	.03	.05	.29	
INTEND → MED_AD	-.39	.12	-3.04	

Note: SE = Standard Error

a = Values were not calculated because the coefficients were set to constant number

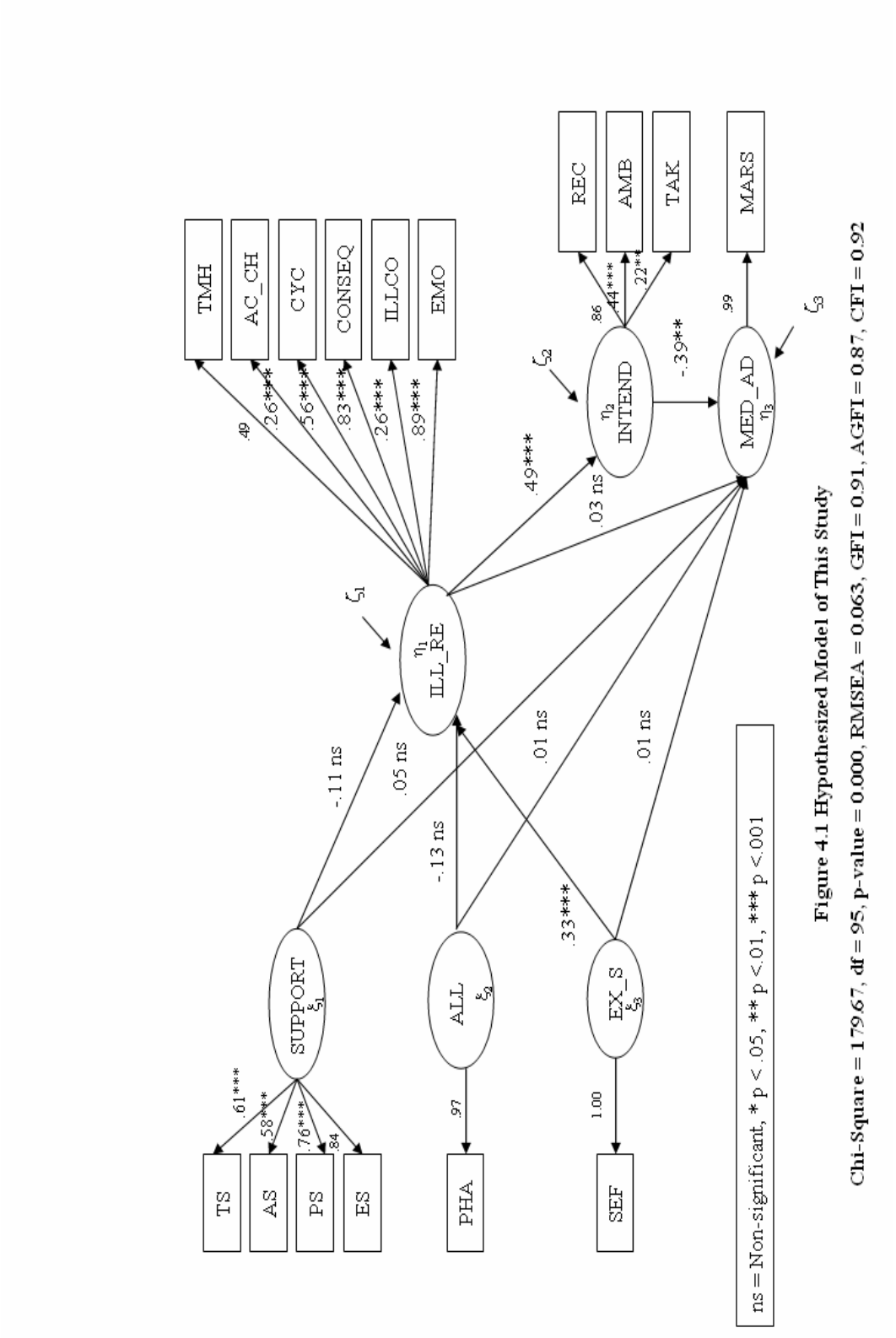

Figure 4.1 Hypothesized Model of This Study

Chi-Square = 179.67, df = 95, p-value = 0.000, RMSEA = 0.063, GFI = 0.91, AGFI = 0.87, CFI = 0.92

The model was modified by using the modification indices and theoretical support. Error covariance of EMO-TMH, TAK-TMH, AC_CH-AMB, CYC-AMB, ILLCO-TMH, ILLCO-TAK, EMO-CYC, ILLCO-CYC, ILLCO-AC_CH, REC-TMH, EMO-CONSEQ, REC-CYC, TAK-EMO, CYC-TMH, SEF-AS, REC-AC_CH, PHA-ES, MARS-TAK, TAK-CYC, AMB-TMH, TAK-AC_CH, MARS-TMH, CONSEQ-AC_CH, PHA-AS, ILLCO-PHA, and AS-ILLCO were set free. Three paths were fixed direction as hypothesized (SUPPORT-ILL_RE, ALL-ILL_RE, and ALL-MED_AD).

The final model was better fit the data than hypothesized model. (χ^2 = 91.17, df = 72, p-value = 0.063, χ^2/ df = 1.266, GFI = 0.95, AGFI = 0.91, CFI = 0.98, RMSEA = .034 (See Table 4.12). Five path coefficients (SUPPORT-ILL_RE, SUPPORT-MED_AD, ALL-MED_AD, EX_S-MED_AD, and ILL_RE-MED_AD) were not significant, however, the researcher decided to undelete path coefficients. Although the non-significant path coefficients demonstrated small effect, the theoretical support from literature review was strong. As shown in Table 4.14, the direction of two path coefficients (EX_S-ILL_RE and EX_S-MED_AD) had opposite direction as proposed in the hypotheses.

The square multiple correlation (R^2) of each observed variables ranged from 0.06 to 1.00 (see Table 4.14). The model accounted for and explained 17% of variance in self-reported adherence behavior, 44% of variance in intention to change adherence behavior, and 11% of variance in illness representation (see Table 4.15).

In conclusion, the modified model fitted the data. Therefore, this modified model was used to test the research hypotheses.

Table 4.14 Path Coefficients, Standard Errors (SE), and T-values of Parameter Estimates of the Modified Model (n=225)

Path Diagram	Modified Model			
	Standardized Path Coefficients	SE	t-value	R^2
LAMBDA-Y				
ILL_RE → TMH	.83	a	a	.69
ILL_RE → AC_CH	.26	.02	3.35	.07
ILL_RE → CYC	.84	.02	7.45	.70
ILL_RE → CONSEQ	.56	.07	4.69	.32
ILL_RE → ILLCO	.27	.02	3.09	.07
ILL_RE → EMO	.77	.07	5.68	.59
INTEND → REC	.81	a	a	.66
INTEND → AMB	.46	.07	4.79	.22
INTEND → TAK	.25	.15	2.93	.06
MED_AD → MARS	.99	a	a	.97
LAMBDA X				
SUPPORT → TS	.62	.06	8.63	.39
SUPPORT → AS	.57	.03	8.01	.33
SUPPORT → PS	.78	.05	10.27	.61
SUPPORT → ES	.82	a	a	.67
ALL → PHA	.96	a	a	.93
EX_S → SEF	1.00	a	a	1.00
GAMMA				
SUPPORT → ILL_RE	.06	a	a	
SUPPORT → MED_AD	.04	.04	.60	
ALL → ILL_RE	.11	a	a	
ALL → MED_AD	.03	a	a	

Path Diagram	Modified Model			
	Standardized Path Coefficients	SE	t-value	R^2
EX_S → ILL_RE	.31	.03	5.12	
EX_S → MED_AD	.02	.01	.23	
BETA				
ILL_RE → INTEND	.66	.04	5.09	
ILL_RE → MED_AD	.13	.05	.78	
INTEND → MED_AD	-.48	.18	-2.54	

Note: SE = Standard Error

a = Values were not calculated because the coefficients were set to constant number

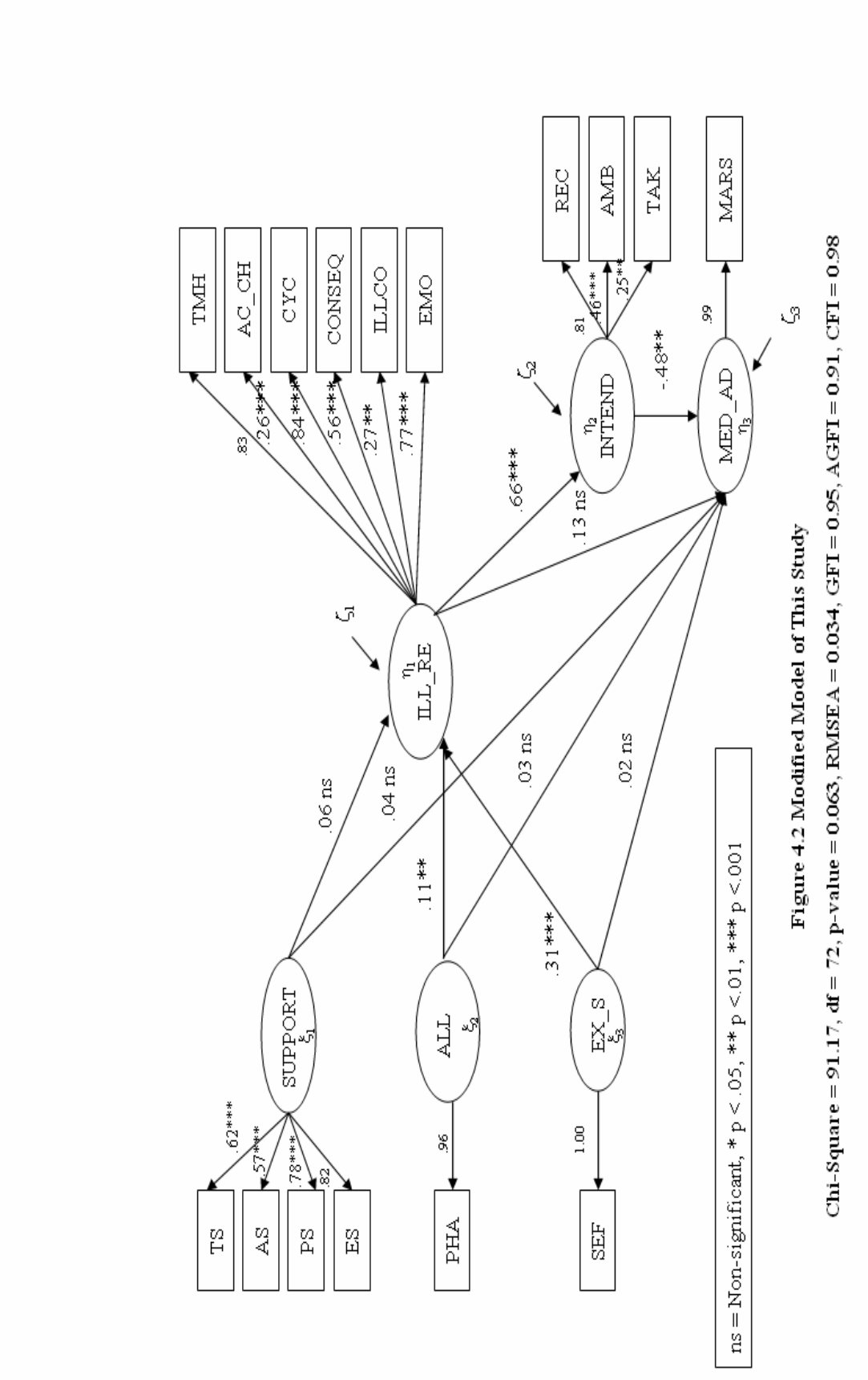

Figure 4.2 Modified Model of This Study

Chi-Square = 91.17, df = 72, p-value = 0.063, RMSEA = 0.034, GFI = 0.95, AGFI = 0.91, CFI = 0.98

Table 4.15 Summary Total Effects, Indirect Effects, and Direct Effects of Causal Variables on Endogenous latent variables

Causal Variables	Affected Variables								
	Illness Representation			Intention to Change Adherence Behavior			Self-Reported Adherence Behavior		
	TE	IE	DE	TE	IE	DE	TE	IE	DE
Social Support	.06	-	.06	.04***	.04***	-	.03	-.01*	.04
Therapeutic Alliance	.11**	-	.11**	.08***	.08***	-	.01	-.02*	.03
Experience of Side-effects	.31***	-	.31***	.21***	.21***	-	-.04	-.06*	.02
Illness Representation	-	-	-	.66***	-	.66***	-.19*	-.32*	.13
Intention to Change Adherence Behavior	-	-	-	-	-	-	-.48*	-	-.48*
Structural Equation Fit	R^2 = .11			R^2 = .44			R^2 = .17		
Modified Model	χ^2 = 91.17, df =72, χ^2/ df = 1.266, p value = .063, GFI =.95, RMSEA =.034								

Note: TE = Total Effects, IE = Indirect Effects, DE = Direct Effects

* p<.05, ** p<.01, *** p<.001

Hypotheses Testing Results

Hypothesis 1: Social support has a positive direct effect on illness representation and self-reported adherence behavior as well as an indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation.

The findings demonstrated that social support had a non-significant positive direct effect on illness representation (.06) and self-reported adherence behavior (.04). But social support had a significant indirect effect on intention to change adherence behavior (.04, p<.001) and self-reported adherence behavior (-.01, p<.05) through illness representation. Therefore, hypothesis 1 did not support.

Hypothesis 2: Therapeutic alliance has a positive direct effect on illness representation and self-reported adherence behavior as well as an indirect effect on

intention to change adherence behavior and self-reported adherence behavior through illness representation.

The findings indicated that therapeutic alliance had a significant positive direct effect on illness representation (.11, p<.01), a non-significant positive direct effect on self-reported adherence behavior (.03), significant indirect effect on intention to change adherence behavior (.08, p<.001) and self-reported adherence behavior (-.02, p<.05) through illness representation. Thus, hypothesis 2 was mostly supported.

Hypothesis 3: Experience of medication side-effects has a negative direct effect on illness representation and self-reported adherence behavior as well as an indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation.

. The results demonstrated that experience of medication side-effects had a significant positive direct effect on illness representation (.31, p<.001), a non-significant positive direct effect on self-reported adherence behavior (.02), significant indirect effect on intention to change adherence behavior (.21, p<.001) and self-reported adherence behavior (-.06, p<.05) through illness representation. Therefore, hypothesis 3 was partially supported.

Hypothesis 4: Illness representation has a positive direct effect on intention to change adherence behavior and self-reported adherence behavior as well as an indirect effect on self-reported adherence behavior via intention to change adherence behavior.

The findings revealed that illness representation had a significant positive direct effect on intention to change adherence behavior (.66, p<.001), a non-significant positive direct effect on self-reported adherence behavior (.13), and a significant indirect effect on self-reported adherence behavior via intention to change adherence behavior (-.32, p<.05). Therefore, hypothesis 4 was mostly supported.

Hypothesis 5: intention to change adherence behavior has a negative direct effect on self-reported adherence behavior.

The findings indicated that intention to change adherence behavior had a negative direct effect on self-reported adherence behavior (-.48, p<.05). Thus, hypothesis 5 was supported.

In summary, this chapter presented the demographic characteristics of Thai Schizophrenic patients from outpatient units. Descriptive characteristics of social

support, therapeutic alliance, experience of medication side-effects, illness representation, intention to change adherence behavior, and self-reported adherence behavior were performed. The SPSS 11.5 program and PRELIS 2.52 package were used to examine assumption testing. LISREL 8.52 was used to test the measurement model and structural model. The final modified model fitted the data. It explained 17% of the variance in self-reported adherence behavior in Thai schizophrenic patients.

CHAPTER V
DISCUSSION

This chapter covers three parts. Firstly, the results are discussed with respect to hypotheses testing, secondly, the characteristics of illness representation are presented, and finally, the methodological aspects are discussed.

Discussion on Hypotheses Testing Results

Hypothesis 1: *Social support has a positive direct effect on illness representation and self-reported adherence behavior as well as an indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation.*

The findings in this study did not support this hypothesis. Based on the Common-Sense model of Illness Representation, social support from significant others increase the patients' ability to understand situation and ability to cope effectively. When the patients received information from significant others, it contributed to an individual for evaluating their hypotheses about causes, consequences, duration of illness, treatment options, and tentative treatment outcomes (Leventhal, Nerenz, & Steele, 1984). Therefore, schizophrenic patients who receive social support could construct more realistic illness representation. The realistic illness representation guides intention to change adherence behavior and self-reported adherence behavior in patients. Thus, it is expected that illness representation would serve as a mediating factor of social support and intention to change adherence behavior and/or self-reported adherence behavior of schizophrenic patients. But the result revealed that social support had no direct effect on illness representation and self-reported adherence behavior, while illness representation had significant effect on intention to change adherence behavior. This finding also was not congruent with a previous study (Clinton, Lunney, Edwards, Weir, & Barr, 1998), which reported that high perceived support increased positive perception of lives and coping in schizophrenic patients.

Moreover, this finding was in contrast to previous studies (Coldham, Addington, & Addington, 2002; Eksuweerapong & Kasettratat, 2007; Kwon, 2000; Olfson et al., 2000). The findings in this study may be due to the homogeneity of participants as described below.

Participants of this study had relatively little variation in terms of educational level and social support. As can be seen in Table 4.1, around 87% of the participants had a higher educational level than primary school. They received a high level of social support from family members. Approximately 82% of the participants lived with parents, siblings, and/or spouse, who are the most important sources of support for schizophrenic patients. The result was consistent with Asian culture, in which ill people are allowed to depend on their family. Much more regression is permissive. (Nilchaikovit, Hill, & Holland, 1993). In table 4.3, they reported a high score of social support. In addition, they reported that they received emotional support from close relationships. Table J.1 (Appendix J) presented approximately two-third of the participants (65.3 %) had closed relatives to talk about their concern whereas nearly one-third (31.6%) had close friends.

Homogeneity of samples decrease the ability of instrument to differentiate variable attributes (Polit, Beck, & Hungler, 2001). Therefore, homogeneity of the samples has influenced on reliability of an instrument. In structural equation model, the reliability of instrument has an influence on the variance explained in the model. Therefore, homogeneity limits the subjects to one level of variable, result into reducing the impact of study findings (Burns & Grove, 2005). Then the result was found social support did not have direct effect on illness representation and self-reported adherence behavior.

Moreover, Table G.1 (Appendix G) presented the self-reported adherence behavior had severe skewness (z-score=-9.03). Although normal score was used to remedy non-normal distributions, the self-reported adherence behavior still had non-normality (z-score=-5.00, see Table G.2, Appendix G). The explanation for the non-normality is that the items of the MARS were asked to report their frequency of nonadherence behavior. Therefore, participants might underreport their nonadherence behaviors because of social desirability concerns. This might lead to a measurement error. Kline (1998) proposed that the measurement error result in biased estimated of

direct effects. Hence, the measurement error of the MARS might influence the causal relationship between social support and self-reported adherence behavior.

Hypothesis 2: *Therapeutic alliance has a positive direct effect on illness representation and self-reported adherence behavior as well as an indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation*

The findings mostly supported this hypothesis because therapeutic alliance had a positive direct effect on illness representation, therapeutic alliance also had significant indirect effect on intention to change adherence behavior and self-reported adherence behavior. But there was no direct effect between therapeutic alliance and self-reported adherence behavior.

This finding supported the validity of the Common-Sense Model of Illness Representation. This model explained that while participants share information and build therapeutic alliance with their healthcare providers, patients search their observable symptoms and match the symptoms with the disease labels (Leventhal, Leventhal, & Contrada, 1998). This process would help patients to construct their illness representation. The stronger the therapeutic alliance between patients and healthcare providers, the more understanding of illness patterns in the patients. When the patients have realistic illness representation, they will select proper coping procedures. Thus based on this model illness representation would mediate therapeutic allance and intention to change adherence behavior and self-reported adherence behavior.

The findings of this study could be explained by stating that patients interacted with healthcare provider to exchange information about illness discomfort and medication side-effects, symptom experiences, and crisis situations (Diefenbach & Leventhal, 1996). Patients generally had their initial illness representation and coping. Their initial illness representations are the result from the observation of their bodies. The observation data is often vague and diffuse. The information exchange from the interaction between patients and healthcare providers can initiate the comparison between the initial perception and the reference value from healthcare provider. Thus patients initiate a process of self-analysis and trigger important self-care, such as medication adherence (Leventhal, Brissette, & Leventhal, 2003). Illness

representation was confirmed as a mediating factor between therapeutic alliance and intention to change adherence behavior. Schizophrenic patients appraised information from the healthcare provider and generated a more realistic illness representation. The realistic illness representation comprised of patients' understanding about nature of illness and the efficacy of treatment. The selection of coping is shaped by illness representation (Leventhal et al., 1998). Therefore, the realistic illness representation enhanced intention to change adherence behavior in schizophrenic patients.

In this study, therapeutic alliance did not have effect on self-reported adherence behavior via illness representation. The finding that therapeutic alliance had a nonsignificant effect on self-reported adherence behavior, was not congruent with previous studies (Fenton, Blyler, & Heinssen, 1997; Kwon, 2000; Parashos, Xiromeritis, Zoumbou, Stamouli, & Theodotou, 2000; Pinikahana, Happell, Taylor, & Keks, 2002). Structural equation modeling in this study revealed that illness representation acts as a mediating variable between therapeutic alliance and intention to change adherence behavior, whereas the mediating effect of illness representation on self-reported adherence behavior did not confirmed because of the non-normality problems.

Hypothesis 3: *Experience of medication side-effects has a negative direct effect on illness representation and self-reported adherence behavior as well as an indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation.*

. The results partially supported this hypothesis in that experience of medication side-effects had a significant positive direct effect instead of negative direct effect on illness representation, and had a non-significant positive direct effect on self-reported adherence behavior. But experience of medication side-effects had a significant indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation.

According to the Common-Sense Model of Illness Representation (Diefenbach & Leventhal, 1996), prior illness experience can generate memories. These memories had an impact on illness representation, emotional response, and coping. The memory structures operate automatically, creating experiences of negative emotional reactions without conscious participation. When patients experience their somatic change in

daily living, this experience and the memory structure are evaluated. The somatic change provides a backdrop for evaluating the memory structure. Prior illness experience changes overtime depending on the individual's somatic self and duration of illness. Somatic experience and duration of illness increases the understanding of illness. Then patients have clear ideas about illness and its symptoms (Leventhal, Leventhal, & Schaefer, 1992). In summary, patients evaluate prior illness experience with somatic change. Patients distinguish the somatic change which is signs of illness or signs of others. Then they construct a clear illness perception. The clear illness perceptions influenced on coping.

In schizophrenic patients, experience of medication side-effects is a necessary part of the illness experience. Previous studies found that experience of medication side-effects was perceived by the schizophrenic patients as more threatening than illness symptoms and increased stigmatization from medication (Naber & Kasper, 2000). Thus experience of medication side-effects was hypothesized to have negative direct effect on illness representation. Therefore, greater experience of medication side-effects would be expected to decrease the realism of the illness representation. However, the result revealed that experience of medication side-effects had positive direct effect on illness representation, which meant that experience of medication side-effects increase the realism of the illness representation. The explanation of this finding was the following.

Participants of this study were in chronic condition (duration of illness ranged from 1-34 years, Mode = 5). Illness experience was gathered from time to time. They evaluated their experience about medication side-effects, efficacy of medication, and illness experience. Therefore, they increased their understanding of their illness. Mizrahi and colleagues (2005) explored how experience with medication altered the patients' perception. They found that schizophrenic patients, who did not have experience about taking medication, perceived the efficacy of medication to control symptom after 6 weeks of treatment. This is consistent with Horne (1997), who stated that patients observe their symptoms' improvement and determined whether medication adherence lead to symptom control, and hence evaluated whether the medication was of benefit to them.

In addition, as can be seen in Table 4.5, participants of this study reported less medication side-effects (Mean=20.79, SD=19.51). This result might indicate that medication side-effects were manageable and medications were helpful for controlling their symptoms. Compared to previous studies, types of medication side-effects related to medication adherence were different. Whereas previous studies found psychological side-effects (Rettenbacher et al., 2004), dyskinesia and sedation (Adewuya, Ola, Mosaku, Fatoye, & Eegunranti, 2006) had significant association with medication adherence, more than 50% of participants in this study did not report incidence of those side-effects (see Table J.3, in Appendix J). The psychological side-effects as mentioned in Rettenbacher's study were concentration disturbances, loss of energy, loss of memory, depression, inner unrest, increase of sleeping duration, reduction of sleeping duration, increased dream activity, and emotional indifference (Rettenbacher et al., 2004). In summary, participants of this study perceived less side-effects of medication and the side-effects were more manageable. Hence, their experience of medication side-effects could rather increase the understanding of illness patterns and efficacy of treatment.

Furthermore, the participants in this study had been treated for a long time with their psychiatrists (mean=11.01 years, SD=7.90, mode=5). They reported high alliance with their psychiatrists (see Table 4.4). They discussed their distress about medication side-effects with their psychiatrists and result to adjust the dose of medication for them. When psychiatrists adjusted the dose of medication for patients, then the side-effects of medication would be decreased or managed. This condition would help increased the patients' positive attitude toward treatment and toward the healthcare provider. Moreover, experience of medication side-effects provided a topic for patients to discuss with their psychiatrists. All of these processes enhanced their understanding of illness patterns. This finding also emphasizes the importance of the healthcare provider who has a role in helping patients manage their side-effects. As Gray and colleagues (2005) stated the reasons of schizophrenic patients still took medication although they currently experienced medication side-effects. The majority of patients reported that their healthcare provider managed their side-effects effectively. Moreover, this finding needs to be discussed in the light of adequate information-giving for patients. Fleischhacker and colleagues (1994) asserted that healthcare

providers who gave adequate informing about medication side-effects and that properly treated side-effects could improve the patient's medication adherence. The positive direct effect between experience of medication side-effects and illness representation and the indirect effect on intention to change adherence behavior confirms the finding of previous studies suggesting that positive attitude toward medication led to medication adherence despite medication side-effects (Kikkert et al., 2006; Mutsatsa et al., 2003). This result suggested that illness representation was mediated the experience of medication side-effects and intention to change adherence behavior.

The finding that experience of medication side-effects had a non-significant relationship on self-reported adherence behavior was congruent with some previous studies (Hudson et al., 2004; Luangpairoj, Klubwong, Mugsombut, Rintra, & Promtong, 1994; Parashos et al., 2000; Rettenbacher et al., 2004), while it was contradict to other studies (Karnrail, 1998; Kwon, 2000; Lambert et al., 2004; Mutsatsa et al., 2003). This finding could be explained that it is a consequence of measurement error of self-reported adherence behavior as mentioned previously. Thus, the standardized path coefficient of experience of medication side-effects and self-reported adherence behavior was not significant.

Hypothesis 4: *Illness representation has a positive direct effect on intention to change adherence behavior and self-reported adherence behavior as well as an indirect effect on self-reported adherence behavior via intention to change adherence behavior.*

The findings mostly supported this hypothesis because illness representation had a positive direct effect on intention to change adherence behavior and a significant indirect effect on self-reported adherence behavior via intention to change adherence behavior but illness representation had a nonsignificant positive direct effect on self-reported adherence behavior.

The findings supported the mechanism among variables under the Common-Sense Model of Illness Representation. Leventhal and colleagues (1998) postulated that coping procedures follow from illness representation. Coping derives from illness representation by IF-THEN rules. The rules comprises of two parts: the IF part and the THEN. The IF part of the rule is the illness belief, which establishes particular coping

procedures. The THEN is coping procedures, which comprised of the selection and performance of coping procedures (Leventhal et al., 1998).

The significant findings could be explained as schizophrenic patients generating their own illness beliefs and treatment beliefs. Realistic illness representations guided adherence intention and medication adherence in response to illness threats. The finding confirmed the effect of illness representation on coping procedures from previous study. Different illness representation led to different coping procedures (Lobban, Barrowclough, & Jones, 2004). In addition, this finding was similar to that of Watson and colleagues' study (2006) which found the effect of illness representation on medication adherence in patients with schizophrenia, schizoaffective disorder and delusional disorder. The finding of causal relationship between illness representation and intention to change adherence behavior and self-reported adherence behavior reflected an appraisal process of illness representation, which generated to adherence intention and medication adherence. Patients appraised that adherence intention and medication adherence could help them manage the illness threat. This finding and reflection were congruent to the study of Lobban and colleagues (2005), which found a significant relationship between illness representation and positive attitudes toward medication adherence of schizophrenic patients.

Illness representation was found not to have a direct relationship with self-reported adherence behavior. In the model, illness representation set the stage of coping by guiding the selection of a procedure to control and/or eliminate the potential of illness threat (Leventhal et al., 2003). The result was different from that in a previous study, which reported illness representation affected medication adherence (Watson et al., 2006). The different finding could be explained that in Watson and colleagues' study assessed medication adherence by the Medication Adherence Rating Scale. This questionnaire measures behavioral aspects of adherence and attitudes towards medication. Therefore, the significant relationship between illness representation and medication adherence in previous study seems to combine both adherence intention and medication adherence together. Thus the significant relationship between illness representation and medication adherence could not clearly determine that illness representation had effect on medication adherence. In addition,

Lobban and colleagues (2005) found illness representation had effect on attitudes toward medication. They claimed that attitudes toward medication correlate highly with adherence. In conclusion, previous study explored the relationship between illness representation and coping procedures, by examined adherence intention and medication adherence simultaneously, and examined medication adherence in terms of attitude toward medication. Furthermore in Table 4.15, illness representation had a strong effect on intention to change adherence behavior (β_{21}=.66, p<.001), whereas illness representation had a nonsignificant effect on self-reported adherence behavior. It seems that realistic illness representation lead to intention to change adherence behavior. Furthermore, the result did not prove that illness representation had effect on self-reported adherence behavior. According to, non-normality of the MARS score, which elicited from social desirability concerns item, then the causal relationship was not found.

Hypothesis 5: *Intention to change adherence behavior has a negative direct effect on self-reported adherence behavior.*

The finding confirmed this hypothesis that intention to change adherence behavior had effect on self-reported adherence behavior. The finding supports the proposition of the Common-Sense Model of Illness Representation. Coping behaviors are the cognitive and behavioral actions for dealing with the health threat (Leventhal et al., 1998). Coping behavior also refers to action intentions (planning the responses) and actions (implementing the responses) for solving illness threat (Godoy-Izquierdo, Lopez-Chicheri, Lopez-Torrecillas, Velez, & Godoy, 2007). In medication adherence research, coping was evaluated in terms of adherence intention and medication adherence. Previous review indicated that adherence intention was found in self-medication, which patients considered taking medication is their rational response to managethe illness threat (Mitchell, 2007). In addition, it emphasizes that patients have abilities to use their cognition to think about illness and generate their own coping behaviors to manage the illness threat.

However, the result that intention to change adherence behavior had negative direct effect on self-reported adherence behavior could be explained as the followings. The SOCRATES was intended to measure the patients' intention to change their adherence behavior. The participants who intended to change to adhere were those

who had nonadherence to medication, whereas the participants who did not intend to change their behaviors were the adherent participants. This finding is also confirmed; adherence intention was a causal variable to medication adherence. Similar to Shaw, who asserted that behavioral intention has influence on behavior when patients perceive that benefits from that behavior are outweighted by costs from that behavior. In addition, costs and barriers are added as a predictor of that behavior (Shaw, 1999). Likewise, patients' perception of cost and benefits of medication have a strong influence on medication adherence. Thus,evaluating the patie nts' adherence behavior should be performed after the patients had their intention to change adherence behavior for such a period of time.

Characteristics of Illness Representation

The following section discussed the characteristics of illness representation in this study. Different representations among cultures are also discussed below.

It was found that the average score of each item in mental health identity, timeline acute/ chronic, timeline cyclical, consequences, mental health problems coherence, emotional representations subscale of the IPQS in this study was lower than two previous studies. But the personal help control and treatment control subscales has higher score than those studies (see Table J.7, in appendix J) (Lobban et al., 2004; Lobban, Barrowclough, & Jones, 2005). This result reflects that Thai schizophrenic patients could generate their own illness representations, even though the score was lower than western studies. The low score might reflect the way of Thai culture. Thai patients might perceive psychiatrists are expertise on illness and treatment (Nilchaikovit et al., 1993). The patients did not have much thinking about their illness since it was the psychiatrist responsibility.

Moreover, it is interesting that the score of personal help control and treatment control of the present study is higher than those in western culture. The result could be explained that in Asian culture, patients respect competence of psychiatrists and deference for psychiatrist's suggestions (Nilchaikovit et al., 1993), then patients perceived treatment to control over illness in a high level. In addition, previous study found Thai patients have traditional Thai cultural practices such as making merit as their choices of mental illness treatment. (Burnard, Naiyapatana, & Lloyd, 2006). The

high score of personal help control might indicate patients' belief in their roles for managing illness. Participants not only think about taking care of themselves as recommended by modern treatment, but also they think about other traditional ways.

Most of the Thai schizophrenic participants (84%) perceived that the cause of their illness was related to stress (see Table J.6, in appendix J). The cause of illness was similar to a study conducted in African-Caribbean, Bangladeshi, and West African schizophrenic patients which perceived social sources (interpersonal problems/ stress/ negative childhood events/ personality) as their major cause of illness. In contrast, white UK patients reported biological sources (physical illness/ substance misuse) and non-specific sources (do not know/ mental illness/ other) causes of their illness. Moreover, whereas supernatural cause was perceived as a cause of illness in Thai, African-Caribbean, Bangladeshi, and West African patients, UK white patients did not perceive supernatural cause of illness (McCabe & Priebe, 2004). The result of this study is also consistent with the previous study. Furnham and Chan (2004), in their study with 339 Chinese psychiatric patients, found that the patients believe social stress plays a role in illness causation, and showed moderate views on biological explanations. The participants in this study also reported on their other identities including possession by evil spirits. This finding was congruent with cultural belief. As a previous study reported, people believe mental illness was influenced by spirits and ghosts in rural areas of Thailand (Burnard et al., 2006). The finding emphasizes that cultural beliefs had effects on patients' illness beliefs. Although medical knowledge is moving forward, illness belief is paying more attention to culture.

Methodological Aspects

This section discusses several issues regarding instruments, data collection procedures, and generalizability of the study findings.

Instrumental Aspects

The Illness Perception Questionnaire for schizophrenia (IPQS) was developed based on the data from qualitative interview with 19 people with schizophrenia. The IPQS contains 135 items (Lobban et al., 2005). In this study, after content validity was approved by 5 experts, twenty-two items were deleted from the IPQS. The modified

IPQS in this study contains 113 items. Participants in this study were interviewed individually by the researcher. Although the questionnaire was modified to be more concise and shorter than the original, patients still need concentration which resulted by their cognitive function. Therefore, the IPQS might decrease the number of items in identity subscale, which comprised of 53 items. The items that the patients frequently reported as mental health identity could be selected only. Therefore, the IPQS will be shortening.

In this study, medication adherence was measured by the Medication Adherence Report scale (MARS). This is a self-reported questionnaire and might not accurately assess the patient's adherence behavior. The reliability of this questionnaire in pilot study was .74 whereas in present study the reliability decreased to .60. Self-reported questionnaire found frequently affected by social desirability (Polit et al., 2001). The reliability of instrument also affects the result of structural equation modeling. Therefore, other direct methods for evaluation medication adherence were recommended.

Data Collection Procedures

This study comprised of eight questionnaires, for which Interviewing time took approximately 1-3 hours per patient. Data was collected from people with schizophrenia. Meanwhile collecting the data and/or recruiting participants, different symptoms were found, such as hostile, paranoid, anxiety, stress, and depression. The researcher needs to manage the situation for continuing interview, stopping the interview, and/or decreasing participants' tension. Furthermore, patients were dropped out because of high stress, lack concentration, and/or unreliable answering. Thus the researcher needs to have experience in caring and evaluating psychiatric patients, which can handle unpredicted situation effectively. Moreover, the IPQS questionnaire relates to illness symptom. Therefore, the researcher had to explain and clarify the detail for participants. Thus it is necessary for the researcher to be expertise in psychiatric field.

Intention to change adherence behavior had negative direct effect on self-reported adherence behavior. Because they were evaluated at the same time. The process of intention to change behavior might need a period of time for transforming intention to behavior. Therefore, intention to change adherence behavior is suggested

to evaluate before and take a period of time for evaluating medication adherence behavior.

Generalizability

Participants were schizophrenic patients who came to hospital and could access to secondary healthcare services. This study did not include patients who could not access healthcare services, totally loss follow up, or could access only primary care settings. Therefore, this model could not be generalized to patients who are in outreach groups. Moreover, patients who were in acute condition related to medication side-effects or their illness did not involve in this study, because these symptoms decrease their abilities to concentrate on the questionnaires. Thus this model could be generalized to patients who are in chronic and rather in patients with stable condition.

Summary

In this chapter, results of hypothesis testing were discussed, and characteristics of illness representation were provided to increase understanding about cultural effects on illness representation, and specifically illness representation in Thai schizophrenic patients. Methodological aspects and generalizability were also discussed.

CHAPTER VI
CONCLUSION

This chapter consists of a summary of the study, as well as its implications and recommendations. The summary includes sample characteristics, instruments, and research findings. The implications and recommendations are discussed on implications for nursing science, nursing practice, and healthcare policy. Strength, limitation and recommendations are also discussed.

Summary of the Study

Sample Characteristics

Two hundreds and twenty-five schizophrenic patients from three outpatient unit were recruited during the period from February 8, 2007 to March 20, 2008. Participants' ages ranged from 19-59 years, with a median age of 36. Most of participants had educational background higher than high school. Their income ranged from 0-50,000 baht, with a median income of 5,000. Nearly half of participants (48.4 %) lived with their parents. Medication cost ranged from 0-35,000 baht per month. Their medication cost was mostly supported by family members and some patients was reimbursed from social security, universal coverage, civil service medical benefit schemes, research grants, and private agency funding. The first generation of antipsychotic drug was the most frequent prescription (58.7%). The duration of their illness ranged from 1-34 years. Average number of previous hospitalizations was 2.16 times (SD=4.20).

Instruments

This study consisted of eight questionnaires as followed: 1) the Brief Psychiatric Rating Scale (BPRS); 2) the Personal Information and Medication History Sheet; 3) the Medical Outcomes Study Social Support Survey (MOS-SSS) developed by Sherbourne and Stewart (1991); 4) the California Pharmacotherapy Alliance Scale: Patient Version (CALPAS-P) developed by Gaston and Marmar (1991); 5) the

Liverpool University Neuroleptic Side Effect Rating Scale (LUNSERS): Thai version developed by Day and colleagues (1995) and translated into Thai by Maneesakorn (2007); 6) the Illnes Perception Questionnaire for Schizophrenia (IPQS) developed by Lobban, Barrowclough, and Jones (2005); 7) the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) developed by Miller in 1987 and modified item for evaluation intention to change adherence behavior by the researcher; and 8) the Medication Adherence Report Scale (MARS).

The MOS-SSS, the CALPAS-P, the IPQS, the SOCRATES, and the MARS were back-translated into Thai. Content validity was applied for all questionnaires except the BPRS and the Personal Information and Medication History Sheet. Items of the MOS-SSS, the CALPAS-P, the LUNSERS, the IPQS, and the SOCRATES were revised by suggestion from experts. Confirmatory factor analysis of the MOS-SSS, the IPQS, and the SOCRATES were examined. All indicators of the MOS-SSS and the SOCRATES were represented the construct of variables. Personal help control, treatment control, and personal blame did not represent the construct of the IPQS. Therefore, the IPQS comprised of six subscales instead of nine subscales.

Research Findings

The results indicated that the modified model fitted with the empirical data (Chi-Square = 91.17, df = 72, p-value = 0.063, RMSEA = 0.034, GFI = 0.95, AGFI = 0.91, CFI = 0.98). The modified model could explain 17% of variance in self-reported adherence behavior of Schizophrenic patients. The findings indicated that

1. Social support had a non-significant positive direct effect on illness representation and self-reported adherence behavior. But social support had a significant indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation.

2. Therapeutic alliance had a significant positive direct effect on illness representation, a non-significant positive direct effect on self-reported adherence behavior, a significant indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation.

3. Experience of medication side-effects had a significant positive direct effect on illness representation, a non-significant positive direct effect on self-reported

adherence behavior, a significant indirect effect on intention to change adherence behavior and self-reported adherence behavior through illness representation.

4. Illness representation had a significant positive direct effect on intention to change adherence behavior, a non-significant positive direct effect on self-reported adherence behavior, and a significant indirect effect on self-reported adherence behavior via intention to change adherence behavior.

5. Intention to change adherence behavior had a significant negative direct effect on self-reported adherence behavior.

Implications and Recommendations

Implications for Nursing Science

The findings of this study could contribute to nursing knowledge, although the finding partially supported the construct validity of the Common- Sense Model of Illness Representation. The empirical findings increase the understanding of medication adherence accords with the perception of schizophrenic patients. Medication adherence depends on the patients' perception of illness and patients' intention to change to adhere to medication. Perception of illness in patients is the result of patients' cognition, which merge external factors and internal experience into their own perception. In the adherence model, therapeutic alliance and experience of medication side-effects influence on human cognition. Thus, medication adherence research might concern about these variables. Moreover, the result of this study reflects the existence of illness representation in schizophrenic patients in Thai cultures. In addition, culture has effect on illness representation, as Western culture and Asian culture had different on illness perception in some subscales.

Implications for Nursing Practice

The findings of this study demonstrated that predictive variables had 17% variance explained on self-reported adherence behavior. Although variance explained was rather low and need to replicate the study, the interesting issue of high variance explained on intention to change adherence behavior (R^2=44%) was found. This finding reflected that changing illness representation lead to intention to change to medication adherence. Factors influencing on illness representation might be interested to apply in the intervention for enhancing medication adherence.

Nowadays, therapeutic group relate to illness and treatment knowledge was only provided for admitted patients. From this study, illness representation is the essential factors for changing patients' intention, which lead to increase medication adherence in schizophrenic patients. Therefore, medication adherence intervention target on changing illness representation and increasing adherence intention is suggested for all schizophrenic patients. Elements of interventions might include educating patients' relatives about how to support the patients, promoting therapeutic alliance between patients and healthcare provider, exchanging knowledge about illness and treatment with the patients, informing patients about medication side-effects, and teaching patients about side-effects management.

Furthermore, illness representation can predict intention to medication adherence. It is interesting to incorporate illness representation assessment into psychiatric discharge plan. Therefore, nurses can predict and protect the patients from medication nonadherence.

Implications for Healthcare Policy

The result found that the standardized direct effect between illness representation and intention to change adherence behavior was higher than the standardized direct effect between illness representation and self-reported adherence behavior. Therefore, it is suggested to develop a new protocol for increasing illness representation and intention to change adherence behavior in mental health care. This protocol could increase quality of life in schizophrenic patients.

Strength of the Study

In this study, illness representation was first investigated in Thai schizophrenic patients. The findings revealed two important issues regarding to illness representation.

First, previous study in Thailand explored the effect of insight and external factors (substance abuse, medication complexity, etc.) on medication adherence. This study explored medication adherence behavior under theoretical support. The result explained the mechanism of social support, therapeutic alliance, and experience of medication side-effects on illness representation. Mechanisms of these factors on illness representation increase the understanding of patients' cognition to generate

external factors into themselves. Moreover, illness representation was found as a mediating factor on intention to change adherence behavior. Then it is challenging for healthcare providers to respect and listen to patients' perception. Moreover, the more accepting patients' abilities might increase the alternative way of treatment for enhancing autonomy of schizophrenic patients.

Second, the researcher collected the data by interviewing 225 patients with schizophrenia individually. Collecting data from the large number of vulnerable population take time and require various skills. Data was confirmed with the patients when the answers contradicted. Some answers were asked to clarify for approving the understanding of questions. Thus the collecting procedures were carefully managed.

Limitation of the Study

Participants of this study were patients who could access to healthcare system and had chance to receive care from secondary care services. Therefore, the findings of this study could not be generalized to patients who could not access to healthcare system, patients who stopped treatment, and patients who receive care from primary care services.

Recommendations for Further Study

Plan for further study was suggested on collection of sample, questionnaire, research design, and planning for intervention.

1. In this study, the characteristics of participants limited generalization. Therefore, collecting data from community and/or from primary care service might increase variation of samples. In addition, data collection at home might increase participants who are nonadherent to medication.

2. The rather low variance explained on medication adherence in this study could be improved by expanding subjects as mentioned before and adding representation of medication into the model. The reason of adding representation of medication into the model is it might be more specific than treatment control. According to the result, treatment control could not differentiate the perception of treatment between adherent and nonadherent patients. Both groups reported high in treatment control, therefore it might need more specific about how patients appraised

their treatment and this could generate to their selective coping strategy. Representation of medication is the result of evaluation process on the cost and benefits of medication. Therefore, representation of medication might increase the variance explained on medication adherence in schizophrenic patients.

3. Medication adherence behavior was measured by self-reported questionnaire, which might not be accurate to detect the patient's behavior. It is suggested to use another method which can measure behavior directly.

4. Adherence intention and medication adherence behavior might need to evaluate in a period of time. Patients intend to adhere before taking medication regularly. Therefore, it is suggested that adherence intention should be measured before evaluating medication adherence behavior

5. Since the IPQS questionnaire does not provide how to interpret the score from the subscale of "cause", the score from this subscale did not use to analyze in the hypothesized model. Thus it is interesting to explore this subscale by clustering the items into categories. This analysis would increase the understanding about cause of illness from patients' perspectives. Moreover, new knowledge about category of illness causes could be used to explore the relationship with medication adherence.

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APPENDIX

APPENDIX A
DOCUMENTARY PROOF OF ETHICAL CLEARANCE

บันทึกข้อความ

ส่วนราชการ มหาวิทยาลัยมหิดล กองบริหารงานวิจัย โทร.๐-๒๘๔๙-๖๒๔๖ โทรสาร ๐-๒๘๔๙-๖๒๔๗
ที่ ศธ ๐๕๑๗.๐๑๖/๑๐๖(๑) วันที่ ๒๔ กุมภาพันธ์ ๒๕๕๐
เรื่อง หนังสือรับรองโครงการวิจัยของคณะกรรมการสิทธิมนุษยชนเกี่ยวกับการทดลองในมนุษย์ของมหาวิทยาลัยมหิดล

เรียน รองศาสตราจารย์ ดร. ยาใจ สิทธิมงคล

ตามที่ นางสาวมาลาตี รุ่งเรืองศิริพันธ์ นักศึกษาปริญญาเอก สาขาการพยาบาล (หลักสูตรนานาชาติ และหลักสูตรร่วมกับมหาวิทยาลัยในต่างประเทศ) โครงการร่วมคณะพยาบาลศาสตร์และคณะแพทยศาสตร์โรงพยาบาลรามาธิบดี ได้เสนอโครงการวิจัยเรื่อง "Illness Perception and Medication Adherence in Individuals with Schizophrenia" มาเพื่อขอหนังสือรับรองจากคณะกรรมการสิทธิมนุษยชนเกี่ยวกับการทดลองในมนุษย์ของมหาวิทยาลัยมหิดล

บัดนี้ โครงการวิจัยเรื่องดังกล่าวได้รับการรับรองจากคณะกรรมการสิทธิมนุษยชนเกี่ยวกับการทดลองในมนุษย์ของมหาวิทยาลัยมหิดลแล้ว กองบริหารงานวิจัย จึงขอส่งหนังสือรับรองโครงการวิจัยตามที่แนบมาพร้อมนี้เพื่อโปรดทราบ และแจ้งนักศึกษาต่อไปด้วย จักขอบพระคุณยิ่ง

(นางรัตนา เพ็ชรอุไร)
ผู้อำนวยการกองบริหารงานวิจัย
กรรมการและเลขานุการ ฯ

สำเนาเรียน คณบดีบัณฑิตวิทยาลัย

No. MU 2007-027

Documentary Proof of Ethical Clearance
The Committee on Human Rights Related to
Human Experimentation
Mahidol University, Bangkok

Title of Project: Illness Perception and Medication Adherence in Individuals with Schizophrenia
(Thesis for Ph.D.)

Principle Investigator: Miss Malatee Rungruangsiripan

Name of Institution: Faculty of Nursing

Approved by the Committee on Human Rights Related to Human Experimentation

Signature of Chairman: .....
(Professor Dr.Srisin Khusmith)

Signature of Head of the Institute: .....
(Professor Dr.Pornchai Matangkasombut)

Date of Approval: - 9 FEB 2007

Date of Expiration: - 8 FEB 2008

COA. No. MU-IRB 2008/164.1111

Documentary Proof of Mahidol University Institutional Review Board

Title of Project: Illness Perception and Medication Adherence in Individuals with Schizophrenia
(Thesis for Ph.D.)

Principle Investigator: Miss Malatee Rungruangsiripan

Name of Institution: Faculty of Nursing

Approval includes: Annual Report version received date 31 October 2008

Mahidol University Institutional Review Board is in full compliance with International Guidelines for Human Research Protection such as Declaration of Helsinki, The Belmont Report, CIOMS Guidelines and the International Conference on Harmonization in Good Clinical Practice (ICH-GCP)

Date of Renewal (1st): 9 February 2008

Date of Expiration: 8 February 2009

Signature of Chairman: .....
(Professor Shusee Visalyaputra)

Signature of Head of the Institute: .....
(Associate Professor Sansanee Chaiyaroj)
Vice President for Research and Academic Affairs

Office of the President, Mahidol University, 999 Phuttamonthon 4 Rd., Salaya, Phuttamonthon District, Nakhon Pathom 73170. Tel. (662) 8496223-5 Fax. (662) 8496223

สำนักงานคณะกรรมการจริยธรรมการวิจัยในคน
กองบริหารงานวิจัย สำนักงานอธิการบดีมหาวิทยาลัยมหิดล
โทร. ๐-๒๘๔๕-๖๒๒๓-๕ โทรสาร ๐-๒๘๔๕-๖๒๒๓

ที่ ศธ ๐๕๑๗.๐๑๖(๑)/ ๑๘๕
วันที่ ๑๗ มีนาคม ๒๕๕๒
เรื่อง รับทราบการขอปรับเปลี่ยนรายละเอียดโครงการวิจัยเรื่อง "Illness Perception and Medication Adherence in Individuals with Schizophrenia"

เรียน รองศาสตราจารย์ ดร. ยาใจ สิทธิมงคล

ตามที่ ท่านได้ส่งแบบขอปรับเปลี่ยนรายละเอียดโครงการวิจัยเรื่อง "Illness Perception and Medication Adherence in Individuals with Schizophrenia" รหัสโครงการ MU-IRB 2008/281.3110 ของ นางสาวมาลาตี รุ่งเรืองศิริพันธ์ นักศึกษาปริญญาเอก สาขาการพยาบาล คณะพยาบาลศาสตร์ มายัง คณะกรรมการจริยธรรมการวิจัยในคนของมหาวิทยาลัยมหิดล เพื่อขอปรับเปลี่ยนชื่อโครงการวิจัยเป็น "The Relationships among Social Support, Therapeutic Alliance, Experience of Medication Side-Effects, Illness Representation, Intention to Change Adherence Behavior, and Self-Reported Adherence Behavior in Schizophrenic patients at the Follow-up Visit" เพื่อให้เห็นตัวแปรที่ศึกษาได้ชัดเจนขึ้น นั้น

คณะกรรมการจริยธรรมการวิจัยในคนฯ ได้พิจารณารายละเอียดการขอปรับเปลี่ยนโครงการวิจัยดังกล่าวแล้ว ในการประชุม ครั้งที่ ๕/๒๕๕๒ เมื่อวันที่ ๑๒ มีนาคม ๒๕๕๒ แล้ว ที่ประชุมมีมติรับทราบ ตามเอกสารที่แนบมาพร้อมนี้

จึงเรียนมาเพื่อทราบ และแจ้งนักศึกษาต่อไปด้วย

(ศาสตราจารย์แพทย์หญิงชูศรี พิศลยบุตร)
ประธานคณะกรรมการจริยธรรมการวิจัยในคนมหาวิทยาลัยมหิดล

สำเนาเรียน คณบดีบัณฑิตวิทยาลัย

หมายเหตุ: ถ้ามีคำถามใดที่ท่านอ่านแล้วไม่เข้าใจ สามารถติดต่อนัดหมายเพื่อการสอบถามได้ที่ นางศรีประภา ปิยะศิริศิลป์ และ น.ส. วทินา วัชระรังษี เบอร์โทรศัพท์ ๐-๒๘๔๕-๖๒๒๓-๕

ที่ สธ 0327/ ๔๑๑

กระทรวงสาธารณสุข
ถนนติวานนท์ จังหวัดนนทบุรี 11000

12 มีนาคม 2550

เรื่อง อนุมัติให้ดำเนินการวิจัยได้

เรียน คณบดีคณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล

สิ่งที่ส่งมาด้วย 1. หนังสืออนุมัติ ฉบับภาษาไทย จำนวน 1 ฉบับ
2. หนังสืออนุมัติ ฉบับภาษาอังกฤษ จำนวน 1 ฉบับ
3. รายชื่อคณะกรรมการพิจารณาศึกษาวิจัยในคน กระทรวงสาธารณสุข จำนวน 1 ฉบับ

ตามที่ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล โดย นางสาวมาลาตี รุ่งเรืองศิริพันธ์ ซึ่งเป็นหัวหน้าโครงการวิจัย เรื่อง "การรับรู้ความเจ็บปวยและความร่วมมือในการับประทานยาของผู้ป่วยจิตเภท (Ref. No. 4/2550)" ได้เสนอโครงการดังกล่าวให้คณะกรรมการพิจารณาการศึกษาวิจัยในคน กระทรวงสาธารณสุข พิจารณาอนุมัติ นั้น

ในการนี้ กระทรวงสาธารณสุข โดยคณะกรรมการพิจารณาการศึกษาวิจัยในคน กระทรวงสาธารณสุข อนุมัติให้ดำเนินการตามโครงการดังกล่าวได้ อนึ่งคณะกรรมการฯ ขอแจ้งเกี่ยวกับหน้าที่และความรับผิดชอบของผู้วิจัยภายหลังได้รับการอนุมัติ คือ จะต้องแจ้งหรือรายงานสถานะ (status) ให้คณะกรรมการฯ ทราบทุกปี และเมื่อเกิดเหตุการณ์ต่อไปนี้ทุกครั้ง ได้แก่

1. เมื่อโครงการวิจัยยุติลง ซึ่งอาจจะเป็นการดำเนินการวิจัยเสร็จสิ้นสมบูรณ์ หรืออาจจะไม่สามารถดำเนินการวิจัยต่อไปได้ พร้อมทั้งแจ้งสาเหตุของการยุติโครงการวิจัยให้ทราบด้วย
2. เมื่อมีการเปลี่ยนแปลงในโครงการวิจัยต้องระบุให้ชัดเจนว่า มีการเปลี่ยนแปลงอะไร อย่างไร พร้อมเหตุผลที่ต้องเปลี่ยนแปลง
3. เมื่อมีการเปลี่ยนแปลงหัวหน้าโครงการวิจัยหรือเพิ่มเติมคณะผู้วิจัย ต้องส่งประวัติของคนที่เปลี่ยนแปลงพร้อมเหตุผลให้คณะกรรมการ ฯ ทราบด้วย
4. เมื่อมีอาการไม่พึงประสงค์เกิดขึ้นในโครงการวิจัย ขอให้ผู้วิจัยวิเคราะห์สถานการณ์การเกิดอาการไม่พึงประสงค์ที่ร้ายแรง relate, possible/likely, probably related, fatal กับโครงการวิจัยที่ท่านรับผิดชอบอย่างไร รวมทั้งขอทราบมาตรการในการดูแลป้องกันอาสาสมัครในประเทศไทยด้วย ภายใน 10 วันหลังจากรับทราบข้อมูล

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

(นายสุวัจน์ เฑียรทอง)
รองปลัดกระทรวงสาธารณสุข
หัวหน้ากลุ่มภารกิจด้านพัฒนาการแพทย์
ปฏิบัติราชการแทน ปลัดกระทรวงสาธารณสุข

กรมการแพทย์
สำนักงานเลขานุการคณะกรรมการพิจารณาการศึกษาวิจัยในคน
โทรศัพท์ 02-590-6171-2 โทรสาร 02-591-8251

เอกสารเลขที่ ...23.../2550

คณะกรรมการพิจารณาการศึกษาวิจัยในคน
กระทรวงสาธารณสุข

โครงการวิจัย : การรับรู้ความเจ็บป่วยและความร่วมมือในการรับประทานยาของผู้ป่วยจิตเภท
(Ref. No. 4/2550)

ผู้ดำเนินการวิจัย : นางสาวมาลาตี รุ่งเรืองศิริพันธ์

สถานที่ดำเนินการวิจัย : โรงพยาบาลศรีธัญญา โรงพยาบาลรามาธิบดี
โรงพยาบาลพระมงกุฎเกล้า

เอกสารที่อนุมัติ :

1. โครงร่างการวิจัยภาษาไทย ฉบับแก้ไข วันที่ 15 กุมภาพันธ์ 2550
2. เอกสารแนะนำสำหรับอาสาสมัคร ฉบับแก้ไข วันที่ 15 กุมภาพันธ์ 2550
3. ใบยินยอมด้วยความสมัครใจ ฉบับแก้ไข วันที่ 15 กุมภาพันธ์ 2550
4. แบบประเมินอาการทางด้านจิตเวช ฉบับวันที่ 2 กุมภาพันธ์ 2550
5. แบบสอบถามข้อมูลทั่วไป ฉบับวันที่ 2 กุมภาพันธ์ 2550
6. แบบสอบถามผลข้างเคียงจากยา ฉบับวันที่ 2 กุมภาพันธ์ 2550
7. แบบสอบถามการรับรู้ความเจ็บป่วย ฉบับวันที่ 2 กุมภาพันธ์ 2550
8. แบบสอบถามเกี่ยวกับแหล่งสนับสนุนที่มี ฉบับวันที่ 2 กุมภาพันธ์ 2550
9. แบบสอบถามเกี่ยวกับทัศนคติที่มีต่อการรักษาและเจ้าหน้าที่ ฉบับวันที่ 2 กุมภาพันธ์ 2550
10. แบบสอบถามความตั้งใจต่อการรับประทานยา ฉบับวันที่ 2 กุมภาพันธ์ 2550
11. แบบสอบถามวิธีการใช้ยา ฉบับวันที่ 2 กุมภาพันธ์ 2550

คณะกรรมการพิจารณาการศึกษาวิจัยในคน กระทรวงสาธารณสุข ได้พิจารณาโครงการฉบับภาษาไทยแล้ว คณะกรรมการฯ พิจารณาอนุมัติในแง่จริยธรรมให้ดำเนินการศึกษาวิจัยเรื่องข้างต้นได้ ทั้งนี้โดยยึดตามเอกสารฉบับภาษาไทยเป็นหลัก อนึ่ง ท่านต้องรายงานสถานะของโครงการให้คณะกรรมการฯ ทราบทุกปี เพื่อขออนุมัติดำเนินโครงการต่อจนกว่าจะหมดอายุโครงการ

..... ประธานคณะกรรมการ
(นายชาตรี บานชื่น)

..... กรรมการและเลขานุการ
(นายปกรณ์ ศิริยง)

รับรองตั้งแต่วันที่ 28 กุมภาพันธ์ 2550 ถึงวันที่ 27 กุมภาพันธ์ 2551

Document No. 23 /2007

The Ethical Review Committee for Research in Human Subjects
Ministry of Public Health, Thailand

Title of Project : Illness Perception and Medication Adherence in Individuals with Schizophrenia.
(Ref. No. 4/2550)

Principle Investigator : Miss Malatee Rungruangsiripan

Place of proposed study : Srithanya Hospital Ramathibodi Hospital
Phramongkutklao Hospital

Document Approved:

1. Thai Protocol version dated February 15, 2007
2. Patient/Participant Information Sheet dated February 15, 2007
3. Informed Consent Form dated February 15, 2007
4. Brief Psychiatric Rating Scale (BPRS) dated February 02, 2007
5. The Personal Information and Medication History Sheet dated February 02, 2007
6. The Liverpool University Neuroleptic Side Effect Rating Scale (LUNSERS) dated February 02, 2007
7. Illness Perception Questionnaire for Schizophrenia (IPQS) dated February 02, 2007
8. Medical Outcomes Study Social Support Survey (MOS-SSS) dated February 02, 2007
9. California Pharmacotherapy Alliance Scale : Patient version (CALPAS-P) dated February 02, 2007
10. The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES) dated February 02, 2007
11. Medication Adherence Report Scale (MARS) dated February 02, 2007

We also confirm that we are an ethics committee constituted in agreement and in accordance with the ICH-GCP.

The Ethical Review Committee for Research in Human Subjects Ministry of Public Health, Thailand had reviewed Thai protocol. In ethical concern, the committee has reviewed and approved for implementation of the research study as above mention, therefore the Thai protocol will be mainly conduct. The protocol must be approved by continuation review for the duration of one year until expired.

Chatri Banchuin ..... Chairman
(Mr. Chatri Banchuin)

Pakorn Siriyong ..... Secretary
(Mr. Pakorn Siriyong)

Date of Approval February 28, 2007 Date of Expired February 27, 2008

Document No....23..... / 2007

The Ethical Review Committee for Research in Human Subjects
Ministry of Public Health, Thailand
29 August 2001 - Present

Member Title and Name	Occupation (Position)	Qualification (If applicable)	Male/Female (M/F)	Yes/No
Chairman Mr. Chatri Banchuin	Director-General, Department of Medical Services	M.D.	M	-
Vice Chairman Mr. Vichai Chokevivat	Director-General, Department of development of Thai traditional and alternative medicine	M.D., M.P.H.	M	-
Member Mr. Luecha Wanaratana	Senior Public Health officer (Nutrition), Office of the Permanent Secretary	M.D.	M	✓
Mr. Tawee Chotpitayasunondh	Deputy director general, Department of Medical Services	M.D.	M	-
Mrs. Nanta Auamkul	Senior Medical Officer, Department of Health	M.D. M.Sc., MCH	F	✓
Mr. Supachai Rerkhngarm	Senior Expert in Preventive Medicine, Department of Communication Disease Control	M.D.	M	-
Mr. Kasem Tantiphlachiva	Senior Psychiatrist Somdet Chaopraya Hospital	M.D., B.Sc., FRCP sychT.	M	✓
Mr. Terdsak Detkong	Department of Mental Health	M.D.	M	-
Representative of Senior Principal Medical Scientist, Department of Medical Sciences (Mrs. Pimjai Naigowit)	Senior Principal Medical Scientist, Department of Medical Sciences	M.D.	F	-
Ms. Yuppadee Javroongrit	Senior Pharmacist, The Food and Drug Administration	B.Sc.in.Pharm. M.S. , Ph.D.	F	✓
Mr. Pinit Kunlavanit	Secretary General, The Thai Medical Council	M.D., M.Sc.	M	✓
Director of Legal Affairs Division (Mr.Panya Buitong/delegate)	Director of Legal Affairs Division, Office of the Permanent Secretary	Bachelor LL.b	F	✓

Document No....23..../ 2007

Member Title and Name	Occupation (Position)	Qualification (If applicable)	Male/Female (M/F)	Yes/No
Director of Medical Registration Division (Mr.Phattarapol Jungsomjatepaisal/ delegate)	Director of Medical Registration Division, Office of the Permanent Secretary	M.D.	M	-
Mrs. Oratai Rauyajin	Associate Professor, Faculty of Social Science and Humanities, Mahidol University	MA., M.P.H., Dr.PH	F	-
Secretary Mr. Pakorn Siriyong	Senior Medical Doctor Department of Medical Services	M.D., M.P.H.	M	✓
Assistant Secretary Mr.Korakot Chutasmit	Physician , Department of Medical Services	M.D. M.P.H.	M	✓
Mr. Suchart Chongprasert	Senior Pharmacist, The Food and Drug Administration	B.Sc in Pharm. Ph.D.	M	✓
Mrs. Rachneebool Udomchairat	Senior Health Technical Officer, Department of Medical Services	B.Sc. in Public Health nursing., M.A.	F	-
Mrs. Porntiva Chaloemvipaht	Senior Health Technical Officer, Department of Medical Services	B.Sc. in Nurse & Midwife., M.P.H.	F	✓
Ms. Narukorn Thamkasem	Health Technical Officer, Department of Medical Services	B.Sc. in Nurse & Midwife.,M.A.	F	✓

Date of Approval : February 28, 2007

For Protocol : Illness Perception and Medication Adherence in Individuals with Schizophrenia. (Ref. No. 4/2550)

Signed : .....(Secretary of Ethics Committee)

บันทึกข้อความ

ส่วนราชการ คณะกรรมการด้านการวิจัยโรงพยาบาลศรีธัญญา ต่อ ๒๑๗๘,๒๗๐๘

ที่ สธ. ๐๘๐๗.๒๐๑/๗๕ **วันที่** ๒๙ มีนาคม ๒๕๕๐

เรื่อง การแจ้งผลการพิจารณาเก็บข้อมูลเพื่อการวิจัย

เรียน นางสาวมาลาตี รุ่งเรืองศิริพันธ์

ตามหนังสือเลขที่ ศธ ๐๕๑๗.๐๒ (ศย) / ๑๙๘๖ ลงวันที่ ๔ ธันวาคม ๒๕๔๙ จากบัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล ได้ขอความอนุเคราะห์ให้ นางสาวมาลาตี รุ่งเรืองศิริพันธ์ ซึ่งทำการศึกษาวิจัยเรื่อง Illness perception and medication adherence in individuals with schizophrenia

☑ ซึ่ง ได้ผ่านการพิจารณาจากคณะกรรมการวิจัยในคน ของกระทรวงสาธารณสุขแล้ว

☐ ซึ่ง ไม่ต้องผ่านการอนุมัติการทำวิจัยในคน

บัดนี้ คณะกรรมการด้านการวิจัยโรงพยาบาลศรีธัญญา ขอแจ้งว่าเรื่องของท่านได้ผ่านการพิจารณาจากคณะกรรมการด้านการวิจัยโรงพยาบาลศรีธัญญาแล้ว จึงขอแจ้งผลการพิจารณาดังนี้

☑ อนุญาตให้ดำเนินการเก็บข้อมูลได้ ตั้งแต่วันที่ ๒๙ มี.ค. ๕๐ ถึง คณะกรรมการ

☐ อนุญาต แต่มีเงื่อนไขดังนี้ .....

☐ ไม่อนุญาต เนื่องจาก.....

ลงนาม.....

แพทย์หญิงอรวรรณ ศิลปกิจ

ประธานคณะกรรมการด้านการวิจัย

โรงพยาบาลศรีธัญญา

วันที่ ๒๙ มี.ค. ๕๐

Q034q/49_Exp

คณะอนุกรรมการพิจารณาโครงการวิจัยกรมแพทย์ทหารบก
ชั้น 5 อาคารพระมงกุฎเกล้าเวชวิทยา วิทยาลัยแพทยศาสตร์พระมงกุฎเกล้า
315 ถนน ราชวิถี เขต ราชเทวี กรุงเทพฯ 10400 โทรศัพท์ (662)354-7600-28 ต่อ 94270 โทรสาร (662)354-9011

ที่ 1341 /2549

วันที่ 29 ธันวาคม 2549

เรื่อง แจ้งผลการพิจารณาโครงการวิจัย

เรียน นางสาวมาลาตี รุ่งเรืองศิริพันธ์ นศ.ป.เอก คณะพยาบาลศาสตร์และคณะแพทยศาสตร์ มหาวิทยาลัยมหิดล

สิ่งที่ส่งมาด้วย - แบบรายงานสรุปผลการวิจัย

ตามที่ ท่านได้ส่งโครงการวิจัย เรื่อง "การรับรู้ความเจ็บป่วยและความร่วมมือในการรับประทานยาของผู้ป่วยจิตเภท" [Illness Perception and Medication Adherence in Individuals with Schizophrenia.] เพื่อพิจารณาระเบียบวิธีวิจัย และจริยธรรมจากคณะอนุกรรมการพิจารณาโครงการวิจัย กรมแพทย์ทหารบก เพื่อประกอบการพิจารณาสนับสนุนการเก็บข้อมูล นั้น คณะอนุกรรมการพิจารณาโครงการวิจัย กรมแพทย์ทหารบก อนุมัติเมื่อวันที่ 20 ธันวาคม 2549 เมื่อท่านได้ทำวิทยานิพนธ์เสร็จสิ้นลง กรุณาส่งวิทยานิพนธ์ของท่านและแบบรายงานสรุปผลการวิจัยมายังคณะอนุกรรมการฯ 1 ชุด

จึงเรียนมาเพื่อทราบ

ขอแสดงความนับถือ

พันเอกหญิง

(เยาวนา ธนะพัฒน์)

ประธานคณะอนุกรรมการพิจารณาโครงการวิจัย กรมแพทย์ทหารบก

คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล
ถนนพระราม 6 กทม. 10400
โทร. (662) 354-7275, 201-1296 โทรสาร (662) 354-7233

Faculty of Medicine, Ramathibodi Hospital, Mahidol University
Rama VI Road, Bangkok 10400, Thailand
Tel. (662) 354-7275, 201-1296 Fax (662) 354-7233

ที่ จวค ๓๕/๒๕๕๐ คณะกรรมการจริยธรรมการวิจัยในคน

วันที่ ๑๒ มกราคม ๒๕๕๕

เรื่อง แจ้งผลการพิจารณาของคณะกรรมการจริยธรรมการวิจัยในคน

เรียน นางสาวมาลาดี รุ่งเรืองศิริพันธ์

อ้างถึงโครงการวิจัยเรื่อง การรับรู้ความเจ็บป่วยและความร่วมมือในการรับประทานยาของผู้ป่วยจิตเภท

หมายเลขโครงการวิจัย ID ๑๒-๔๕-๓๘ ข

ในนามของคณะกรรมการจริยธรรมการวิจัยในคน ผมขอแสดงความยินดีที่โครงการวิจัยดังกล่าวข้างต้นของท่านได้ผ่านความเห็นชอบจากคณะกรรมการฯแล้ว

เพื่อให้สอดคล้องกับระเบียบปฏิบัติคณะแพทยศาสตร์โรงพยาบาลรามาธิบดี ว่าด้วยการศึกษาวิจัยและการทดลองในมนุษย์ พ.ศ. ๒๕๔๔ คณะกรรมการฯ ขอให้ท่านถือปฏิบัติโดยเป็นไปตามข้อแนะนำดังต่อไปนี้

๑. การดำเนินการวิจัยจะต้องเป็นไปตามโครงร่างวิจัยล่าสุดที่ผ่านการพิจารณาจากคณะกรรมการจริยธรรมการวิจัยในคนแล้ว
๒. การดำเนินการวิจัยจะต้องไม่เบี่ยงเบนไปจากโครงร่างวิจัยหรือมีการเปลี่ยนโครงร่างการวิจัยก่อนที่การแก้ไขเพิ่มเติมโครงร่างวิจัยนั้นจะได้รับการอนุมัติและเห็นชอบจากคณะกรรมการจริยธรรมการวิจัยในคนก่อน ยกเว้นในกรณีจำเป็นที่จะต้องกระทำไปก่อนเพื่อขจัดอันตรายเฉพาะหน้าที่เกิดขึ้นกับผู้ยินยอมตนให้ทำวิจัย
๓. ในกรณีที่มีการเปลี่ยนแปลงชื่อโครงการจากชื่อเดิมที่เสนอไว้ ต่อคณะกรรมการฯ ต้องแจ้งชื่อมายังคณะกรรมการฯ เพื่อออกหนังสือรับรองให้เสมอ
๔. ผู้ยินยอมตนให้ทำวิจัยจะต้องได้รับเอกสารชี้แจงข้อมูล/คำแนะนำแก่ผู้ยินยอมตนให้ทำวิจัย (Patient/Participant Information Sheet) และลงนามในหนังสือยินยอมโดยได้รับการบอกกล่าวและเต็มใจ (Informed Consent Form) ก่อนเริ่มดำเนินการวิจัย
๕. ในเอกสารชี้แจงข้อมูล/คำแนะนำแก่ผู้ยินยอมตนให้ทำวิจัย (Patient's Information Sheet) จะต้องพิมพ์ข้อความดังต่อไปนี้ไว้ด้วยทุกครั้ง

" ถ้าท่านมีข้อข้องใจหรือมีความกังวลใจเกี่ยวกับวิธีดำเนินการวิจัยของโครงการวิจัยนี้ ท่านสามารถติดต่อได้ที่ ประธานกรรมการจริยธรรมการวิจัยในคน คณะแพทยศาสตร์โรงพยาบาลรามาธิบดีหน่วยจริยธรรมการวิจัยในคนชั้น ๓ สำนักงานวิจัยคณะฯ อาคารวิจัยและสวัสดิการ โทรศัพท์ ๐๒-๒๐๑ ๑๕๔๔ ในเวลาราชการ "

๖. ความลับของผู้ยินยอมตนให้ทำวิจัย จะต้องถูกปกปิดไว้ตลอดเวลา ยกเว้นถ้าเป็นคำสั่งตามกฎหมาย

สุดท้ายนี้ ขอให้โครงการวิจัยของท่านประสบผลสำเร็จตามความมุ่งหมายอันจะนำมาซึ่งความเจริญก้าวหน้าทางวิชาการ และเพื่อประโยชน์ของมนุษยชาติสืบต่อไป

ขอแสดงความนับถือ

(ศาสตราจารย์บุญส่ง องค์พิพัฒนกุล)
ประธานกรรมการจริยธรรมการวิจัยในคน

คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล
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Rama VI Road, Bangkok 10400, Thailand
Tel. (662) 354-7275, 201-1296 Fax (662) 354-7233

Documentary Proof of Ethical Clearance Committee on Human Rights Related to Researches Involving Human Subjects Faculty of Medicine, Ramathibodi Hospital, Mahidol University

MURA2006/462

Title of Project	Illness Perception and Medication Adherence in Individuals with Schizophrenia
Protocol Number	ID 12-49-38
Principal Investigator	Miss. Malatee Rungruangsiripan
Official Address	Department of Nursing Faculty of Medicine, Ramathibodi Hospital Mahidol University

The aforementioned project has been reviewed and approved by Committee on Human Rights Related to Researches Involving Human Subjects, based on the Declaration of Helsinki.

Signature of Secretary Committee on Human Rights Related to Researches Involving Human Subjects	..... Assoc. Prof. Duangrurdee Wattanasirichaigoon, M.D.
Signature of Chairman Committee on Human Rights Related to Researches Involving Human Subjects	..... Prof. Boonsong Ongphiphadhanakul, M.D.
Date of Approval	January 3, 2007

คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล
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Rama VI Road, Bangkok 10400, Thailand
Tel. (662) 354-7275, 201-1296 Fax (662) 354-7233

เอกสารรับรองโดยคณะกรรมการจริยธรรมการวิจัยในคน
คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี
มหาวิทยาลัยมหิดล

เลขที่ ๒๕๔๕/๔๖๒

ชื่อโครงการ	การรับรู้ความเจ็บป่วยและความร่วมมือในการรับประทานยาของผู้ป่วยจิตเภท
เลขที่โครงการ/รหัส	ID ๑๒-๔๕-๓๘ ย
ชื่อหัวหน้าโครงการ	นางสาวมาลาตี รุ่งเรืองศิริพันธ์
ที่ทำงาน	ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล

ขอรับรองว่าโครงการดังกล่าวข้างต้นได้ผ่านการพิจารณาเห็นชอบโดยสอดคล้องกับแนวปฏิญญา เฮลซิงกิ จากคณะกรรมการจริยธรรมการวิจัยในคน คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี

ลงนาม _____

กรรมการและเลขานุการจริยธรรมการวิจัยในคน (รองศาสตราจารย์ แพทย์หญิงดวงฤดี วัฒนศิริชัยกุล)

ลงนาม _____

ประธานกรรมการจริยธรรมการวิจัยในคน (ศาสตราจารย์ นายแพทย์บุญส่ง องค์พิพัฒนกุล)

วันที่รับรอง ๓ มกราคม ๒๕๕๐

APPENDIX B

PERMISSION LETTERS FOR USING THE INSTRUMENTS

RE: request from Thai student about MOS social support survey
"Stewart, Anita" <Anita.Stewart@ucsf.edu>
Monday, August 14, 2006 10:46:37 PM

Dear Malatee
You are free to use the MOS social support survey, as it is in the public domain. If you go to the RAND website (www.rand.org) and search for MOS Social Support Survey, you will find the items and scoring rules. There should also be a general statement on the website giving permission to use materials listed there.
Anita Stewart

Here are a few applications – I suggest that you search Google Scholar for other research that cites this work -

Original development in the Medical Outcomes Study (MOS):

Sherbourne CD, Stewart AL. The MOS Social Support Survey: Reliability and validity in a patient population. Social Science and Medicine. 32:705-714, 1991.

Applications of the MOS Social Support Scale (From Cathy Sherbourne)

Sherbourne, C.D., Hays, R.D., Wells, K.B., "Personal and Psychosocial Risk Factors for Physical and Mental Health Outcomes and Course of Depression Among Depressed Patient," Journal of Consulting and Clinical Psychology, 63(3):345-355, 1995.

Sherbourne, C.D., Meredith, L.S., Rogers, W.R., and Ware, J.E., Jr. "Social Support and Stressful Life Events: Age Differences in their Effects on Health-Related Quality of Life Among the Chronically Ill." Quality of Life Research, 1(4):235-245, 1992.

Sherbourne, C.D., Hays, R.D., Ordway, L, DiMatteo, M.R., and Kravitz, R.L. "Antecedents of Adherence to Medical Recommendations: Results from the Medical Outcomes Study," Journal of Behavioral Medicine, 15 (5), 447-468, 1992.

……..

RE: request CALPAS-P from Thai student
"Louise Gaston" <gaston@traumatys.com>
Wed, 23 Nov 2005 09:00:40 – 0800

Hi Malatee,

Here is the material you requested, and a bit more. The article on the CALPAS in pharmacotherapy was first authored by Margaret Weiss, then at McGill University:

Weiss, M., **Gaston**, L., Propp, A., & Zickerman, V. (1997). The clinical alliance in the pharmacological management of depression. Journal of Clinical Psychiatry, 58, 196-204.

Few more researchers have asked me to use it in clinical trials of pharmacotherapy. I do not have the references though.

You can translate it in Thai, no problem.
Good luck in your endeavour,
Dr. Louise Gaston, Ph.D.
……

RE: request LUNSERS from Thai student
"Day, Jennie" <jennie.day@merseycare.nhs.uk>
Monday, June 26, 2006 7:31:57 PM

Dear Malatee Rungruangsiripan

You have permission to use LUNSERS in clinical work and research. We would be interested to see your results when your study is complete. Could you please provide us with a translated copy of LUNSERS, as this would be very useful if we have any further requests.

The psychometric properties of the scale are described in the following paper:
Day, J.C., Wood, G. Dewey, M. & Bentall, R.P. (1995) A self-rating scale for measuring neuroleptic side effects. validation in a group of schizophrenic patients. British Journal of Psychiatry, 166, 650-653.

You can get more information including scoring from: http://www.lunsers.co.uk

The following may also be of interest to you:

Day, J.C., Bentall, R.P. & Warner, S. (1996) Schizophrenic patients' experiences of neuroleptic medication: A Q-methodological investigation. Acta Psychiatrica Scandinavica, 93, 397-402.

Day, J.C., Kinderman, P. & Bentall, R.P. (1998) A comparison of patients' and prescribers' beliefs about neuroleptic side effects: prevalence, distress and causation.

Acta Psychiatrica Scandinavica, 97, 93-97.

Day, J.C., Bentall, R.P., Roberts, C., Randall, F., Rogers, A., Cattel, D., Healy, D., Rae, P. & Power, C. (2005) Attitudes to antipsychotic medication: The impact of clinical variables and relationships with health professionals. Archives of General Psychiatry, 62, 717-724.

Best wishes

Jennie Day

……

nicky manee <nicky_manee@yahoo.com>
ViewFriday, October 5, 2007 3:02:17 PM
To:malatee rungruangsiripan <ramru8@yahoo.com>

Dear Ms. Rungruangsiripan,

Thank you for your interest in using the Thai version of LUNSERS. You have permission to use the scale for your PhD project, if not funded by a drug company.

Best wishes
Suparpit Maneesakorn

……

Re: request IPQS from student
Dr Fiona Lobban <fiona.lobban@liverpool.ac.uk>
Wednesday, July 13, 2005 11:25:00 PM
To:malatee rungruangsiripan <ramru8@yahoo.com>

Dear Malatee,
I am mor than happy for you to use this measure - I have attached all the relevant papers etc.
Good luck!
Fiona

Dr Fiona Lobban
Lecturer in Clinical Psychology
University of Liverpool
0151 7945528

……..

Re: request from Thai student about SOCRATES
"William R. Miller, Ph.D." <wrmiller@unm.edu>
Monday, August 14, 2006 10:12:34 PM
To:malatee rungruangsiripan <ramru8@yahoo.com>

Yes, the SOCRATES is in the public domain, version 8 is the most recent, and you are welcome to use it.

Bill Miller

……...

RE: request about MARS from Thai student
Prof. Robert Horne <rob.horne@pharmacy.ac.uk>
ViewTo: malatee rungruangsiripan <ramru8@yahoo.com>

Dear Malatee

I ma happy for you to translate the MARS according to our standard conditions attached. Please could you arrange for the Principal Investigator on your study to sign the form and return it to me by post

Kind regards
Rob

Rob Horne
Professor of Behavioural Medicine
Director, Centre for Behavioural Medicine
Department of Policy & Practice
The School of Pharmacy, University of London
Mezzanine Floor, BMA House
Tavistock Square, London WC1H 9JP
Email: rob.horne@pharmacy.ac.uk Web: www.pharmacy.ac.uk
Direct line: tbc; Dept tel: 020 7874 1270 Dept fax: 020 7387 5693

APPENDIX C
PATIENT/ PARTICIPANT INFORMATION SHEET AND CONSENT FORM

เอกสารคำแนะนำสำหรับอาสาสมัคร

1. **ชื่อโครงการวิจัย** การรับรู้ความเจ็บป่วยและความร่วมมือในการรับประทานยาของผู้ป่วยจิตเภท
2. **ชื่อผู้วิจัย** นางสาวมาลาตี รุ่งเรืองศิริพันธ์
   สังกัด นักศึกษาปริญญาเอก ทางการพยาบาลในโครงการร่วมระหว่างคณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดลและภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล
3. **หมายเลขโทรศัพท์** 0-2446-7226, 081-482-0266
4. **เนื้อหาสาระของโครงการวิจัยและความเกี่ยวข้องกับอาสาสมัคร**

4.1 เหตุผลและความจำเป็นที่ต้องทำการศึกษาวิจัย

ในการรักษาโรคจิตเภทยามีความสำคัญมาก หน้าที่ของยาคือการช่วยในการควบคุมและรักษาอาการของโรค แม้ว่ายาเป็นสิ่งสำคัญ แต่กลับพบว่าผู้ป่วยยังคงมีอัตราในการขาดยาสูง การศึกษาที่ผ่านมาพยายามศึกษาปัจจัยหลายปัจจัยด้วยกันที่ส่งผลให้ผู้ป่วยรับประทานยา ไม่ว่าจะเป็นอายุ เพศ การสนับสนุนทางสังคมจากญาติและผู้ใกล้ชิด การรับรู้โรค ความผูกพันระหว่างผู้ป่วยและบุคลากรทางสุขภาพ และผลข้างเคียงจากยา เป็นต้น การศึกษาที่ผ่านมายังขาดการอธิบายในการช่วยให้เข้าใจพฤติกรรมดังกล่าว มุมมองของผู้ป่วยที่มีต่อโรคจัดได้ว่าเป็นสิ่งสำคัญที่ได้รับการศึกษามากขึ้นในระยะหลัง แต่ก็ยังขาดความเชื่อมโยงปัจจัยเหล่านี้ที่ชัดเจน งานวิจัยนี้จึงศึกษาและทำความเข้าใจเรื่องดังกล่าว

4.2 วัตถุประสงค์ของการศึกษาวิจัย

เพื่อศึกษาและทำความเข้าใจมุมมองของผู้ป่วยที่มีต่อโรคและปัจจัยต่าง ๆ ที่แวดล้อมและส่งผลต่อการตัดสินใจและการรับประทานยาของผู้ป่วย

4.3 วิธีการศึกษาวิจัยโดยสังเขป

โครงการวิจัยนี้ทำในประเทศไทย เก็บข้อมูลจากผู้เข้าร่วมวิจัยจำนวน 290 คน จากโรงพยาบาล 3 แห่ง ได้แก่ โรงพยาบาลรามาธิบดี โรงพยาบาลศรีธัญญา โรงพยาบาลพระมงกุฎเกล้า โดยในแต่ละแห่ง จะมีผู้เข้าร่วมวิจัยจำนวน 62, 207, และ 21 คน ตามลำดับ อาสาสมัครที่ได้รับการสุ่มมาจากรายชื่อที่มีลักษณะตรงตามเกณฑ์ จะได้รับการติดต่อเพื่อขอสัมภาษณ์โดยผู้วิจัยจะแจ้งให้อาสาสมัครทราบก่อนว่าจะมีการสัมภาษณ์เพื่อประเมินคะแนนก่อนจากแบบประเมินฉบับย่อในเวลาไม่เกิน 10 นาที ถ้าคะแนนไม่อยู่ในเกณฑ์ก็จะไม่ได้รับการคัดเลือกเพื่อสัมภาษณ์ต่อ แต่จะมีของขอบคุณให้ เมื่อคะแนนจากแบบประเมินอยู่ในเกณฑ์ที่ผู้วิจัยตั้งไว้ ท่านจะได้รับการทาบทามให้เป็นผู้เข้าร่วมโครงการวิจัย จากนั้นผู้วิจัยจะสัมภาษณ์ท่านตามรายละเอียดในแบบสอบถาม จะมีการแบ่งการสัมภาษณ์เป็น 2 ช่วงเพื่อให้ท่านได้พัก แต่ถ้าท่านต้องการพักมากกว่านั้นท่านสามารถบอกได้

4.4 ระยะเวลาที่อาสาสมัครต้องเกี่ยวข้องในการศึกษาวิจัย

ระยะเวลาที่ใช้ในการสัมภาษณ์จะอยู่ระหว่าง 11/2 – 2 ชั่วโมง ในวันเดียวกัน โดยจะมีการแบ่งช่วงเวลาออกเป็น 2 ช่วง ช่วงละประมาณ 1 ชั่วโมง เพื่อให้ผู้เข้าร่วมวิจัยไม่เหนื่อยเกินไป

4.5 ประโยชน์ที่คาดว่าจะเกิดขึ้น

ข้อมูลที่ได้จะช่วยให้บุคลากรทางสุขภาพเข้าใจมุมมองของผู้ป่วยต่อการรับประทานยามากขึ้น ซึ่งจะส่งผลต่อการพัฒนาแนวทางในการช่วยให้ผู้ป่วยจิตเภทรับประทานยาอย่างต่อเนื่องต่อไป

4.6 ความเสี่ยงหรือความไม่สบายทุกประการที่คาดว่าจะเกิดขึ้นกับอาสาสมัครในการเข้าร่วมการศึกษา หรือความเสี่ยงทางร่างกายจิตใจและผลกระทบทางสังคม

ไม่มีอันตรายใด ๆ จากการวิจัยนี้ ท่านอาจจะรู้สึกว่าแบบสอบถามค่อนข้างมาก ใช้เวลานาน แต่ท่านจะมีเวลาพักครึ่งหรือขอพักสักครู่ได้

4.7 การป้องกันความเสี่ยง และการแก้ไขกรณีเกิดปัญหา

ในการเข้าร่วมการวิจัยในครั้งนี้ ไม่มีอันตรายใด ๆ ต่อท่าน ทั้งนี้ถ้าท่านมีข้อสงสัยใด ๆ ท่านสามารถติดต่อผู้วิจัย "นางสาวมาลาตี รุ่งเรืองศิริพันธ์" ได้ที่เบอร์โทรศัพท์ 081-482-0266 ได้ทั้งในและนอกเวลาราชการ

4.8 ขอบเขตการดูแลรักษาความลับของข้อมูลต่าง ๆ ของอาสาสมัคร

การนำเสนอข้อมูลที่ได้จากโครงการวิจัย จะเป็นไปเพื่อประโยชน์ทางวิชาการโดยไม่เปิดเผยชื่อนามสกุล ที่อยู่ของผู้เข้าร่วมในโครงการวิจัยเป็นรายบุคคล และมีมาตรการในการเก็บรักษาข้อมูลส่วนตัวและข้อมูลที่ได้จากโครงการวิจัย การนำเสนอข้อมูลจะนำเสนอเป็นภาพรวมในวิทยานิพนธ์ของนักศึกษาพยาบาล ในระดับปริญญาเอก

4.9 ค่าตอบแทนที่จะได้รับเมื่อเข้าร่วมโครงการวิจัย

ภายหลังจากการสัมภาษณ์สิ้นสุดลง ท่านจะได้รับค่าเดินทางจำนวน 100 บาท ตอบแทนในการสละเวลาในการเข้าร่วมการวิจัยในครั้งนี้

4.10 การถอนตัวจากโครงการวิจัย

การเข้าร่วมโครงการวิจัยนี้เป็นไปโดยความสมัครใจของท่านเท่านั้น ท่านสามารถปฏิเสธการเข้าร่วมโครงการวิจัยนี้ได้ โดยไม่มีผลเสียใด ๆ ต่อการรักษาที่ท่านได้รับอยู่เดิม นอกจากนี้ท่านสามารถถอนตัวจากการเข้าร่วมวิจัยเมื่อใดก็ได้ โดยไม่มีผลใด ๆ ต่อการรักษาที่ท่านได้รับ

ใบยินยอมด้วยความสมัครใจ

การวิจัยเรื่อง การรับรู้ความเจ็บป่วยและความร่วมมือในการรับประทานยาของผู้ป่วยจิตเภท

วันให้คำยินยอม วันที่..... **เดือน**.....**พ.ศ.** .....

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย อันตรายหรืออาการที่อาจเกิดขึ้นจากการวิจัย รวมทั้งประโยชน์ที่คาดว่าจะเกิดขึ้นจากการวิจัยอย่างละเอียด และมีความเข้าใจดีแล้ว

ผู้วิจัยรับรองว่าจะตอบคำถามต่าง ๆ ที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบัง ซ่อนเร้น จนข้าพเจ้าพอใจ

ข้าพเจ้ามีสิทธิที่จะบอกเลิกการเข้าร่วมในโครงการวิจัยนี้เมื่อใดก็ได้ และเข้าร่วมโครงการวิจัยนี้โดยสมัครใจและการบอกเลิกการเข้าร่วมการวิจัยนี้ จะไม่มีผลต่อการรักษาโรคที่ข้าพเจ้าจะได้รับต่อไป

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับ และจะเปิดเผยได้เฉพาะในรูปที่เป็นสรุปผลการวิจัย หรือการเปิดเผยข้อมูลต่อผู้มีหน้าที่ที่เกี่ยวข้องกับการสนับสนุนและกำกับดูแลการวิจัย

ข้าพเจ้าจะได้รับเอกสารชี้แจงและหนังสือยินยอมที่มีข้อความเดียวกันกับที่นักวิจัยเก็บไว้ เป็นส่วนตัวข้าพเจ้าเอง 1 ชุด

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว มีความเข้าใจดีทุกประการ และลงนามในใบยินยอมด้วยความเต็มใจ

ลงนาม.....**ผู้ยินยอม**
ลงนาม..... **พยาน**
ลงนาม..... **พยาน**

เอกสารประกอบ 4

เอกสารชี้แจงข้อมูล/คำแนะนำแก่ผู้เข้าร่วมการวิจัย

(Patient/Participant Information Sheet)

ชื่อโครงการ การรับรู้ความเจ็บป่วยและความร่วมมือในการรับประทานยาของผู้ป่วยจิตเภท

ชื่อผู้วิจัย นางสาวมาลาตี รุ่งเรืองศิริพันธ์

สถานที่วิจัย แผนกผู้ป่วยนอกจิตเวชและสุขภาพจิต โรงพยาบาลรามาธิบดี

บุคคลและวิธีการติดต่อเมื่อมีเหตุฉุกเฉินหรือความผิดปกติที่เกี่ยวข้องกับการวิจัย
นางสาวมาลาตี รุ่งเรืองศิริพันธ์ เบอร์โทรศัพท์ 081-482-0266

ผู้สนับสนุนการวิจัย -

ความเป็นมาของโครงการ การรับประทานยาเป็นสิ่งสำคัญในการรักษาโรคจิตเภท มีการศึกษาปัจจัยที่สัมพันธ์กับการรับประทานยาในผู้ป่วยมานาน แต่การศึกษาที่ผ่านมายังไม่อธิบายความเชื่อมโยงของแต่ละปัจจัย อีกทั้งยังขาดความรู้เกี่ยวกับการทำความเข้าใจมุมมองของผู้ป่วยเองต่อการรับประทานยาอย่างสม่ำเสมอ ดังนั้นในงานวิจัยนี้จึงจะศึกษาปัจจัย ความเชื่อมโยงระหว่างปัจจัยและมุมมองของผู้ป่วยที่มีต่อการรับประทานยา

วัตถุประสงค์ เพื่อศึกษาความสัมพันธ์ของตัวแปรที่ศึกษาต่อการรับประทานยาอย่างสม่ำเสมอของผู้ป่วย

รายละเอียดที่จะปฏิบัติต่อผู้เข้าร่วมการวิจัย ผู้เข้าร่วมวิจัยจะได้รับการทาบทาม จากนั้นผู้วิจัยจะประเมินผู้เข้าร่วมวิจัยด้วยแบบประเมิน 1 ชุด ถ้าคะแนนอยู่ในเกณฑ์ที่ผู้วิจัยกำหนดไว้ ผู้เข้าร่วมวิจัยจะได้รับการสัมภาษณ์ต่อโดยแบบสอบถาม ซึ่งผู้วิจัยจะเป็นผู้อ่านให้ฟัง ระยะเวลาในการตอบแบบสอบถามประมาณ 11/2 – 2 ชั่วโมง ผู้เข้าร่วมวิจัยจะมีการพักระหว่างการตอบแบบสอบถามไปประมาณครึ่งหนึ่งของแบบสอบถามประมาณ ½ -1 ชั่วโมง ก่อนที่จะตอบแบบสอบถามที่เหลือจนครบ และผู้เข้าร่วมวิจัยสามารถขอพักหรือยุติได้โดยไม่ส่งผลใด ๆ ต่อการรักษาที่ได้รับ

ประโยชน์และผลข้างเคียงที่จะเกิดแก่ผู้เข้าร่วมการวิจัย ข้อมูลที่ผู้ป่วยให้จะมีประโยชน์ในการช่วยให้บุคลากรทางสุขภาพมีความเข้าใจการรับประทานยาในมุมมองของผู้ป่วยมากขึ้น ซึ่งส่งผลให้

บุคลากรทางสุขภาพมีความรู้ในการพัฒนาแนวทางในการส่งเสริมให้ผู้ป่วยรับประทานยาอย่างสม่ำเสมอต่อเนื่องต่อไป ในเรื่องเกี่ยวกับผลข้างเคียงนั้นไม่มีผลเสียในทางลบใด ๆ ต่อผู้เข้าร่วมวิจัย

การเก็บข้อมูลเป็นความลับ ข้อมูลจากผู้ป่วยจะเป็นความลับ และการนำเสนอจะนำเสนอเป็นภาพรวมเท่านั้น

ถ้าท่านมีข้อข้องใจหรือมีความกังวลใจเกี่ยวกับวิธีการดำเนินการวิจัยของโครงการวิจัยนี้ ท่านสามารถติดต่อได้ที่ ประธานกรรมการจริยธรรมการวิจัยในคน คณะแพทยศาสตร์โรงพยาบาลรามาธิบดีหน่วยจริยธรรมการวิจัยในคน ชั้น3 สำนักงานวิจัยคณะฯ อาคารวิจัยและสวัสดิการ โทรศัพท์ 02-201 1544 ในเวลาราชการ

เอกสารประกอบ 5ก.

หนังสือยินยอมโดยได้รับการบอกกล่าวและเต็มใจ

(Informed Consent Form)

ชื่อโครงการ การรับรู้ความเจ็บป่วยและความร่วมมือในการรับประทานยาของผู้ป่วยจิตเภท
ชื่อผู้วิจัย นางสาวมาลาตี รุ่งเรืองศิริพันธ์
*ชื่อผู้เข้าร่วมการวิจัย .....
อายุ ..... เลขที่เวชระเบียน .....

คำยินยอมของผู้เข้าร่วมการวิจัย

ข้าพเจ้า นาย/นาง/นางสาว ..... ได้ทราบรายละเอียดของโครงการวิจัยตลอดจนประโยชน์ และข้อเสี่ยงที่จะเกิดขึ้นต่อข้าพเจ้าจากผู้วิจัยแล้วอย่างชัดเจน ไม่มีสิ่งใดปิดบังซ่อนเร้นและยินยอมให้ทำการวิจัยในโครงการที่มีชื่อข้างต้น และข้าพเจ้ารู้ว่าถ้ามีปัญหาหรือข้อสงสัยเกิดขึ้นข้าพเจ้าสามารถสอบถามผู้วิจัยได้ และข้าพเจ้าสามารถไม่เข้าร่วมโครงการวิจัยนี้เมื่อใดก็ได้ โดยไม่มีผลกระทบต่อการรักษาที่ข้าพเจ้าพึงได้รับ นอกจากนี้ผู้วิจัยจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับและจะเปิดเผยได้เฉพาะในรูปที่เป็นสรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่างๆที่เกี่ยวข้องกระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ลงชื่อ.....(ผู้เข้าร่วมการวิจัย)
.....(พยาน)
.....(พยาน)
วันที่ .....

คำอธิบายของแพทย์หรือผู้วิจัย

ข้าพเจ้าได้อธิบายรายละเอียดของโครงการ ตลอดจนประโยชน์ของการวิจัย รวมทั้งข้อเสี่ยงที่อาจจะเกิดขึ้นแก่ผู้เข้าร่วมการวิจัยทราบแล้วอย่างชัดเจนโดยไม่มีสิ่งใดปิดบังซ่อนเร้น

ลงชื่อ.....(แพทย์หรือผู้วิจัย)
วันที่.....

หมายเหตุ : กรณีผู้เข้าร่วมการวิจัยไม่สามารถอ่านหนังสือได้ ให้ผู้วิจัยอ่านข้อความในหนังสือยินยอมฯ นี้ให้แก่ผู้เข้าร่วมการวิจัยฟังจนเข้าใจดีแล้ว และให้ผู้เข้าร่วมการวิจัยลงนามหรือพิมพ์ลายนิ้วหัวแม่มือรับทราบในการให้ความยินยอมดังกล่าวข้างต้นไว้ด้วย

* ผู้เข้าร่วมการวิจัย หมายถึง ผู้ยินยอมตนให้ทำวิจัย

เอกสารชี้แจงข้อมูลแก่ผู้เข้าร่วมโครงการวิจัย (Research Subject Information sheet)

ชื่อโครงการวิจัย การรับรู้ความเจ็บป่วยและความร่วมมือในการรับประทานยาของผู้ป่วยจิตเภท

วันที่ชี้แจง.....

ชื่อและสถานที่ทำงานของผู้วิจัย นางสาวมาลาตี รุ่งเรืองศิริพันธ์
นักศึกษาปริญญาเอก ทางการพยาบาลในโครงการร่วมระหว่างคณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดลและภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์ โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล

ชื่อผู้วิจัยร่วม -

ผู้ให้ทุนวิจัย -

ท่านได้รับการเชิญชวนให้เข้าร่วมในโครงการวิจัยนี้ แต่ก่อนที่ท่านจะตกลงใจเข้าร่วมหรือไม่ โปรดอ่านข้อความในเอกสารนี้ทั้งหมด เพื่อให้ทราบว่า เหตุใดท่านจึงได้รับเชิญให้เข้าร่วมในโครงการวิจัยนี้ โครงการวิจัยนี้ทำเพื่ออะไร หากท่านเข้าร่วมโครงการวิจัยนี้ท่านจะต้องทำอะไรบ้าง รวมทั้งข้อดีและข้อเสียที่อาจจะเกิดขึ้นในระหว่างการวิจัย

ในเอกสารนี้ อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามผู้วิจัยหรือผู้ช่วยผู้วิจัยที่ทำโครงการนี้เพื่อให้อธิบายจนกว่าท่านจะเข้าใจ การเข้าร่วมในโครงการวิจัยครั้งนี้จะต้องเป็น**ความสมัครใจ**ของท่าน ไม่มีการบังคับหรือชักจูง ถึงแม้ท่านจะไม่เข้าร่วมในโครงการวิจัย ท่านก็จะได้รับการรักษาพยาบาลตามปกติ การไม่เข้าร่วมหรือถอนตัวจากโครงการวิจัยนี้ จะไม่มีผลกระทบต่อการได้รับบริการ การรักษาพยาบาลหรือผลประโยชน์ที่พึงจะได้รับของท่านแต่อย่างใด

โปรดอย่าลงลายมือชื่อของท่านในเอกสารนี้จนกว่าท่านจะแน่ใจว่ามีความประสงค์จะเข้าร่วมในโครงการวิจัยนี้ คำว่า “ท่าน” ในเอกสารนี้ หมายถึงผู้เข้าร่วมโครงการวิจัยในฐานะเป็นอาสาสมัครในโครงการวิจัยนี้

โครงการวิจัยนี้มีที่มาอย่างไร และวัตถุประสงค์ของโครงการวิจัย

ในการรักษาโรคจิตเภทยามีความสำคัญมาก หน้าที่ของยาคือการช่วยในการควบคุมและรักษาอาการของโรค แม้ว่ายาเป็นสิ่งสำคัญ แต่กลับพบว่าผู้ป่วยยังคงมีอัตราในการขาดยาสูง การศึกษาที่ผ่านมาพยายามศึกษาปัจจัยหลายปัจจัยด้วยกันที่ส่งผลให้ผู้ป่วยรับประทานยา ไม่ว่าจะเป็นอายุ เพศ การสนับสนุนทางสังคมจากญาติและผู้ใกล้ชิด การรับรู้โรค ความผูกพันระหว่างผู้ป่วยและบุคลากรทางสุขภาพ และผลข้างเคียงจากยา เป็นต้น การศึกษาที่ผ่านมายังขาดการอธิบายในการช่วยให้เข้าใจพฤติกรรมดังกล่าว มุมมองของผู้ป่วยที่มีต่อโรคจัดได้ว่าเป็นสิ่งสำคัญที่ได้รับการศึกษามากขึ้นในระยะหลัง แต่ก็ยังขาดความเชื่อมโยงปัจจัยเหล่านี้ที่ชัดเจนดังนั้นงานวิจัยนี้จึงมี

วัตถุประสงค์เพื่อศึกษาและทำความเข้าใจมุมมองของผู้ป่วยที่มีต่อโรคและปัจจัยต่าง ๆ ที่แวดล้อมและส่งผลต่อการตัดสินใจและการรับประทานยาของผู้ป่วย

ท่านได้รับเชิญให้เข้าร่วมโครงการวิจัยนี้เพราะคุณสมบัติที่เหมาะสมดังต่อไปนี้

1. เป็นผู้ป่วยที่แพทย์ให้การรักษาโดยการให้ยาชนิดรับประทาน
2. มีอายุระหว่าง 18-60 ปี
3. ไม่ได้รับการรักษาด้วยไฟฟ้าในระหว่าง 6 เดือนที่ผ่านมา
4. ไม่มีประวัติการบาดเจ็บที่สมอง

ท่านไม่สามารถเข้าร่วมโครงการวิจัยได้หากท่านมีคุณสมบัติดังต่อไปนี้

ในระหว่างนี้ท่านมีภาวะซึมเศร้าหรือท่านได้มีการใช้สารเสพติดในช่วง 1 เดือนก่อนการสัมภาษณ์

จะมีการทำโครงการวิจัยนี้ที่ใด และมีจำนวนผู้เข้าร่วมโครงการวิจัยทั้งสิ้นเท่าไร

โครงการวิจัยนี้ทำในประเทศไทย เก็บข้อมูลจากผู้เข้าร่วมวิจัยจำนวน 290 คน จากโรงพยาบาล 3 แห่ง ได้แก่ โรงพยาบาลรามาธิบดี โรงพยาบาลศรีธัญญา โรงพยาบาลพระมงกุฎเกล้า โดยในแต่ละแห่ง จะมีผู้เข้าร่วมวิจัยจำนวน 62, 207, และ 21 คน ตามลำดับ

ระยะเวลาที่ท่านจะต้องร่วมโครงการวิจัยและจำนวนครั้งที่นัด

ระยะเวลาที่ใช้ในการสัมภาษณ์จะอยู่ระหว่าง 11/2 – 2 ชั่วโมง ในวันเดียวกัน โดยจะมีการแบ่งช่วงเวลาออกเป็น 2 ช่วง ช่วงละประมาณ 1 ชั่วโมง เพื่อให้ผู้เข้าร่วมวิจัยไม่เหนื่อยเกินไป

หากท่านเข้าร่วมโครงการวิจัยครั้งนี้ ท่านจะต้องปฏิบัติตามขั้นตอน หรือได้รับการปฏิบัติอย่างไรบ้าง

ท่านได้รับการสุ่มมาจากรายชื่อที่มีลักษณะตรงตามเกณฑ์ จากนั้นท่านจะได้รับการสัมภาษณ์โดยผู้วิจัยจากแบบประเมินฉบับย่อ เมื่อคะแนนจากแบบประเมินอยู่ในเกณฑ์ที่ผู้วิจัยตั้งไว้ ท่านจะได้รับการทาบทามให้เป็นผู้เข้าร่วมโครงการวิจัย จากนั้นผู้วิจัยจะสัมภาษณ์ท่านตามรายละเอียดในแบบสอบถาม จะมีการแบ่งการสัมภาษณ์เป็น 2 ช่วงเพื่อให้ท่านได้พัก แต่ถ้าท่านต้องการพักมากกว่านั้นท่านสามารถบอกได้

ความไม่สุขสบาย หรือความเสี่ยงต่ออันตรายที่อาจจะได้รับจากกรรมวิธีการวิจัยมีอะไรบ้าง และวิธีการป้องกัน/แก้ไขที่ผู้วิจัยเตรียมไว้หากมีเหตุการณ์ดังกล่าวเกิดขึ้น

ไม่มีอันตรายใด ๆ จากการวิจัยนี้ ท่านอาจจะรู้สึกว่าแบบสอบถามค่อนข้างมาก ใช้เวลานาน แต่ท่านจะมีเวลาพักครึ่งหรือขอพักสักครู่ได้

ประโยชน์ที่คาดว่าจะได้รับจากโครงการวิจัย

ข้อมูลที่ได้จะช่วยให้บุคลากรทางสุขภาพเข้าใจมุมมองของผู้ป่วยต่อการรับประทานยามากขึ้น ซึ่งจะส่งผลต่อการพัฒนาแนวทางในการช่วยให้ผู้ป่วยจิตเภทรับประทานยาอย่างต่อเนื่องต่อไป

ค่าใช้จ่ายที่ผู้เข้าร่วมในโครงการวิจัยจะต้องรับผิดชอบ (ถ้ามี)

การเข้าร่วมในการวิจัยครั้งนี้ไม่มีการเสียค่าใช้จ่ายใด ๆ ทั้งสิ้น

ค่าตอบแทนที่จะได้รับเมื่อเข้าร่วมโครงการวิจัย

ภายหลังจากการสัมภาษณ์สิ้นสุดลง ท่านจะได้รับค่าเดินทางจำนวน 100 บาท ในการสละเวลาในการเข้าร่วมการวิจัยในครั้งนี้

หากท่านไม่เข้าร่วมโครงการวิจัยนี้ ท่านมีทางเลือกอื่นอย่างไรบ้าง

ท่านสามารถปฏิเสธการเข้าร่วมวิจัยได้โดยไม่มีผลใด ๆ ต่อการรักษาที่ท่านได้รับ

หากเกิดอันตรายที่เกี่ยวข้องกับโครงการวิจัยนี้ จะติดต่อกับใคร และจะได้รับการปฏิบัติอย่างไร

ในการเข้าร่วมการวิจัยในครั้งนี้ ไม่มีอันตรายใด ๆ ต่อท่าน ทั้งนี้ถ้าท่านมีข้อสงสัยใด ๆ ท่านสามารถติดต่อผู้วิจัย “นางสาวมาลาตี รุ่งเรืองศิริพันธ์” ได้ที่เบอร์โทรศัพท์ 081-482-0266 ได้ทั้งในและนอกเวลาราชการ

หากท่านมีคำถามที่เกี่ยวข้องกับโครงการวิจัย จะถามใคร ระบุชื่อผู้วิจัยหรือผู้วิจัยร่วม

นางสาวมาลาตี รุ่งเรืองศิริพันธ์

หากท่านรู้สึกว่าได้รับการปฏิบัติอย่างไม่เป็นธรรมในระหว่างโครงการวิจัยนี้ ท่านอาจแจ้งเรื่องได้ที่

สำนักงานพิจารณาโครงการวิจัย พบ. เบอร์โทร 02-3547600 ต่อ 94270

ข้อมูลส่วนตัวของท่านที่ได้จากโครงการวิจัยครั้งนี้จะถูกนำไปใช้ดังต่อไปนี้

การนำเสนอข้อมูลที่ได้จากโครงการวิจัย จะเป็นไปเพื่อประโยชน์ทางวิชาการ โดยไม่เปิดเผยชื่อนามสกุล ที่อยู่ของผู้เข้าร่วมในโครงการวิจัยเป็นรายบุคคล และมีมาตรการในการเก็บรักษาข้อมูลส่วนตัวและข้อมูลที่ได้จากโครงการวิจัย การนำเสนอข้อมูลจะนำเสนอเป็นภาพรวมในวิทยานิพนธ์ของนักศึกษาพยาบาล ในระดับปริญญาเอก

ท่านจะถอนตัวออกจากโครงการวิจัยหลังจากได้ลงนามเข้าร่วมโครงการวิจัยแล้วได้หรือไม่

ท่านสามารถถอนตัวออกจากโครงการวิจัยได้ตลอดเวลา โดยจะไม่มีผลเสียใดๆ เกิดขึ้น

หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัย (Informed Consent)
รับรองโดยคณะอนุกรรมการพิจารณาโครงการวิจัย พบ.

ชื่อโครงการวิจัย การรับรู้ความเจ็บป่วยและความร่วมมือในการรับประทานยาของผู้ป่วยจิตเภท

วันที่ลงนาม.....

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย รวมทั้งประโยชน์ที่คาดว่าจะเกิดขึ้นจากการวิจัยอย่างละเอียด และมีความเข้าใจดีแล้ว

ผู้วิจัยรับรองว่าจะตอบคำถามที่ข้าพเจ้าสงสัยด้วยความเต็มใจและไม่ปิดบังซ่อนเร้น จนข้าพเจ้าพอใจ

ข้าพเจ้าเข้าร่วมในโครงการวิจัยนี้ด้วยความสมัครใจ โดยปราศจากการบังคับหรือชักจูง

ข้าพเจ้ามีสิทธิที่จะบอกเลิกการเข้าร่วมในโครงการวิจัยเมื่อใดก็ได้ และการบอกเลิกนี้จะไม่มีผลต่อการรักษาพยาบาลที่ข้าพเจ้าจะพึงได้รับในปัจจุบันและในอนาคต

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเกี่ยวกับตัวข้าพเจ้าเป็นความลับ และจะเปิดเผยเฉพาะในรูปของสรุปผลการวิจัยโดยไม่มีการระบุชื่อนามสกุลของข้าพเจ้า การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่างๆ ที่เกี่ยวข้อง จะกระทำด้วยเหตุผลทางวิชาการเท่านั้น

ข้าพเจ้าจะได้รับเอกสารชี้แจงและหนังสือยินยอมที่มีข้อความเดียวกันกับที่นักวิจัยเก็บไว้ เป็นส่วนตัวข้าพเจ้าเอง 1 ชุด

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว มีความเข้าใจดีทุกประการ และลงนามในใบยินยอมด้วยความเต็มใจ

ลงชื่อ.....**ผู้เข้าร่วมโครงการวิจัย**
(.....**ชื่อ-นามสกุล ตัวบรรจง)**

ลงชื่อ .....**ผู้ดำเนินโครงการวิจัย**
(...นางสาวมาลาตี รุ่งเรืองศิริพันธ์..ชื่อ-นามสกุล ตัวบรรจง)

ลงชื่อ.....**พยาน**
(.....**ชื่อ -นามสกุล ตัวบรรจง)**

ลงชื่อ.....**พยาน**
(.....**ชื่อ -นามสกุล ตัวบรรจง)**

APPENDIX D
LISTS OF CONTENT VALIDITY EXPERTS

1. Assoc. Prof. Sudsabuy Chulakadabba, M.D.
   Faculty of Medicine, Siriraj Hospital, Mahidol University
   Thailand

2. Assoc. Prof. Sucheera Phattharayuttawat, Ph.D.
   Faculty of Medicine, Siriraj Hospital, Mahidol University
   Thailand

3. Assoc. Prof. Manote Lotrakul, M.D.
   Faculty of Medicine, Ramathibodi Hospital, Mahidol University
   Thailand

4. Assoc. Prof. Wandee Suttharangsee, Ph.D.
   Faculty of Nursing, Prince of Songkla University
   Thailand

5. Mrs. Duangta Kulrattanayan, RN
   Honourary Diplomate Thai Board of Advanced Nursing Practice
   (Mental Health and Psychiatric Nursing)
   Somdet Chaopraya Institute of Psychiatry
   Thailand

APPENDIX E
LISTS OF INSTRUMENT TRANSLATORS

Translating English to Thai Version

1. Asst. Prof. Sopin Sangon, Ph.D.
   Department of Nursing, Faculty of Medicine, Ramathibodi Hospital,
   Mahidol University
   Thailand
2. Dr Supapak Petrasuwan
   Faculty of Nursing, SrinakharinWirot University
   Thailand

Translating Thai to English Version

1. Asst. Prof. Piyanee Klainin, Ph.D.
   Faculty of Nursing, Mahidol University
   Thailand
2. Dr. Atittaya Pornchaikate
   Faculty of Nursing, Mahidol University
   Thailand

APPENDIX F
INSTRUMENTS

THE PERSONAL INFORMATION AND MEDICATION HISTORY SHEET
(แบบสอบถามข้อมูลส่วนบุคคลและประวัติการรักษา)

No. of questionnaire…… Date…….
Name of hospital……

General Information

1. Gender _____Male _____Female
2. Age _____Years
3. Your present living province_____
4. Educational level
   - None
   - Primary School
   - High School
   - Technical School/Diploma
   - Bachelor Degree
   - Higher than Bachelor Degree
5. Religion
   - Buddhism
   - Christianity
   - Islam
   - Others (Please specify)_____
6. Occupation
   - None
   - Merchant
   - Government Officer
   - Employee
   - Student
   - Others (Please specify)_____
7. Marital Status
   - Single
   - Married
   - Widowed/Divorce
   - Others (Please specify)_____
8. Income_____Baht/month
9. Number of household members_____
   Relationship of household members with you _____
10. Medical payment
    - Own Responsibility
    - Family Support
    - Social Security
    - Universal Coverage
    - Government or State Enterprise Support
    - Others (Please specify)_____
11. Drug cost _____Baht/visit
12. Transportation Cost_____Baht
13. Duration of waiting time for psychiatrist_____hour_____minute

14. During this month did you use any substances? If use, please specify type and the amount of use.

_____
_____

History of Illness and Treatment (from medical record)

15. Duration of illness _____ year
16. Year of first diagnosis_____
17. Medical Prescription (last month)

_____
_____
_____
_____

18. Present Medical prescription

Before having checkup with the psychiatrist

_____
_____

After having checkup with the psychiatrist

_____
_____

19. Previous hospitalization number from mental illness_____time.
20. Frequency of appointment visit _____week/ month

THE PERSONAL INFORMATION AND MEDICATION HISTORY SHEET
(แบบสอบถามข้อมูลส่วนบุคคลและประวัติการรักษา)

เลขที่แบบสอบถาม_____ วันที่สัมภาษณ์ _____

โรงพยาบาล_____

ข้อมูลทั่วไป

1. เพศ _____ชาย _____หญิง
2. อายุ _____ ปี
3. ปัจจุบันอาศัยอยู่ในจังหวัด _____
4. ระดับการศึกษา
   - ไม่ได้เรียน
   - ประถมศึกษา
   - มัธยมศึกษา
   - อาชีวศึกษา
   - ปริญญาตรี
   - สูงกว่าปริญญาตรี
5. ศาสนา
   - พุทธ
   - คริสต์
   - อิสลาม
   - อื่น ๆ โปรดระบุ _____
6. อาชีพ
   - ไม่ได้ประกอบอาชีพ
   - ค้าขาย
   - รับราชการ
   - รับจ้าง
   - นักศึกษา
   - อื่น ๆ โปรดระบุ _____
7. สถานภาพสมรส
   - โสด
   - คู่
   - หม้าย/ หย่า/ แยก
   - อื่น ๆ โปรดระบุ _____
8. รายได้เฉลี่ยต่อเดือน _____ บาท
9. จำนวนคนที่อยู่บ้านเดียวกัน _____ คน
   เกี่ยวข้องเป็น _____
10. ค่ารักษาของคุณจ่ายโดย (ตอบได้มากกว่า 1 ข้อ)
    - จ่ายเอง
    - ครอบครัวจ่ายให้
    - เบิกประกันสังคม
    - ใช้สิทธิ 30 บาท
    - เบิกจากกรมบัญชีกลางหรือรัฐวิสาหกิจ
    - อื่น ๆ โปรดระบุ _____
11. ค่ายาเฉลี่ยต่อครั้ง _____ บาท
12. ค่ารถมาโรงพยาบาล (คิดทั้งไปและกลับ) _____ บาท

13. เวลาที่รอตรวจต่อครั้งโดยเฉลี่ย _____ ชั่วโมง _____นาที

14. คุณเคย/ ขณะนี้ ใช้สารเสพติดหรือไม่ ถ้ามีใช้ชนิดใดและใช้อย่างไร

_____

ประวัติการเจ็บป่วยและการรักษา (ข้อมูลจากแฟ้มประวัติผู้ป่วย)

15. ป่วยมานาน _____ ปี _____ เดือน

16. มาพบแพทย์ครั้งแรกเมื่อ _____

17. รายชื่อและจำนวนยาที่เคยกินในแต่ละวัน (ย้อนหลัง 1 เดือน)

_____

_____

_____

18. รายชื่อและจำนวนยาที่กินในปัจจุบัน

ก่อนพบแพทย์

_____

_____

หลังพบแพทย์

_____

_____

19. ประวัติการนอนโรงพยาบาลด้วยปัญหาสุขภาพจิต _____ ครั้ง

20. โดยเฉลี่ยแพทย์นัด ห่างกันกี่สัปดาห์/ เดือน _____

THE MEDICAL OUTCOMES STUDY SOCIAL SUPPORT SURVEY
(แบบสอบถามเกี่ยวกับแหล่งสนับสนุนที่มี)

Next are some questions about the support that is available to you.
1. About how many close friends and close relatives do you have (people you feel at ease with and can talk to about what is on your mind)?
Write in number of close friends and close relatives:
_____/_____

People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kinds of support available to you if you need it?

	None of the time	**A little of the time**	**Some of the time**	**Most of the time**	**All of the time**
2. Someone to help you if you were confined to bed.	1	2	3	4	5
3. Someone to give you good advice about a crisis.	1	2	3	4	5
4. Someone to take you to the doctor if you needed it.	1	2	3	4	5
5.					
6.					
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.					
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.					
16. Someone to love and make you feel wanted.	1	2	3	4	5

THE MEDICAL OUTCOMES STUDY SOCIAL SUPPORT SURVEY
(แบบสอบถามเกี่ยวกับแหล่งสนับสนุนที่มี)

คำถามต่อไปนี้เป็นคำถามเกี่ยวกับแหล่งสนับสนุนที่คุณมี

1. คุณมีเพื่อนสนิทและญาติสนิทกี่คน (คนที่คุณรู้สึกสบายใจเมื่ออยู่ด้วยและสามารถพูดคุยเกี่ยวกับเรื่องราวที่อยู่ในใจคุณได้)

โปรดบอกจำนวนของเพื่อนสนิทและญาติสนิทที่คุณมี

เพื่อนสนิท_____คน ญาติสนิท _____คน

คนเราบางครั้งต้องการคนอื่นๆเพื่อเป็นเพื่อน เพื่อความช่วยเหลือ หรือเป็นแหล่งสนับสนุนอื่นๆ คุณสามารถหาแหล่งความช่วยเหลือหรือแหล่งสนับสนุนต่างๆต่อไปนี้ได้บ่อยครั้งเท่าใดเมื่อคุณต้องการ

โปรดบอกในสิ่งที่ตรงกับความคิดของคุณ

	ไม่เคยเลยสักครั้ง	ไม่กี่ครั้ง	บางครั้ง	ส่วนใหญ่	ตลอดเวลา
2. มีคนช่วยเหลือคุณเมื่อคุณไม่สบายจนล้มหมอนนอนเสื่อ	1	2	3	4	5
3. มีคนที่ให้คำแนะนำที่ดีแก่คุณ เมื่อคุณมีปัญหายุ่งยาก	1	2	3	4	5
4. มีคนพาคุณไปพบแพทย์เมื่อคุณเจ็บป่วย	1	2	3	4	5
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16. มีคนที่คุณรักและทำให้คุณรู้สึกว่าคุณเป็นที่ต้องการ	1	2	3	4	5

THE CALIFORNIA PHARMACOTHERAPY ALLIANCE SCALE: PATIENT VERSION

(แบบสอบถามเกี่ยวกับทัศนคติที่มีต่อการรักษาและเจ้าหน้าที่)

Directions: The questions listed below describe attitudes people might have about their treatment and doctor. Think about the session you just completed and, for each item, decide which category best describes your attitude. Using the scale provided below, circle the number corresponding to that category. Please answer all items.
Reminder: Your responses are confidential and will not be seen by your doctor. You are, of course, free to discuss with your doctor any of these questions.

	Not at all	**A little bit**	**Moderately**	**Quite a Bit**	**Very much**
1. Did your doctor show a sincere desire to understand you and your problems?	0	1	2	3	4
2. Did you feel free to express things that were worrying you?	0	1	2	3	4
3. Did you find it difficult to ask questions concerning your medication/ illness?	4	3	2	1	0
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21. During this session, have you been able to involve yourself in the decisions that were taken?	0	1	2	3	4

THE CALIFORNIA PHARMACOTHERAPY ALLIANCE SCALE: PATIENT VERSION

(แบบสอบถามเกี่ยวกับทัศนคติที่มีต่อการรักษาและเจ้าหน้าที่)

คำถามต่อไปนี้ถามถึงทัศนคติที่คุณอาจมีต่อการรักษาและเจ้าหน้าที่ (เจ้าหน้าที่ หมายถึง แพทย์ พยาบาล และเภสัชกร) กรุณา**เลือกคำตอบ**ที่ตรงกับทัศนคติที่คุณมีได้ดีที่สุด โดยเลือกระดับความมากน้อยตั้งแต่ ไม่เลย เล็กน้อย ปานกลาง ค่อนข้างมาก และมาก และ**ระบุว่า**เจ้าหน้าที่ที่คุณนึกถึงในข้อนั้น ๆ เป็นใคร โปรดตอบให้ครบทุกคำถาม

	ไม่เลย	เล็กน้อย	ปานกลาง	ค่อนข้างมาก	มาก	คุณได้รับจาก		
						แพทย์	พยาบาล	เภสัชกร
1.เจ้าหน้าที่แสดงให้คุณเห็นถึงความปรารถนาอย่างจริงใจที่จะเข้าใจคุณและปัญหาของคุณ	0	1	2	3	4			
2.คุณรู้สึกว่าคุณสามารถเล่าความกังวลใจให้เจ้าหน้าที่ฟังได้	0	1	2	3	4			
3.คุณรู้สึกลำบากใจที่จะถามคำถามเกี่ยวกับความเจ็บป่วยของคุณหรือยาที่คุณได้รับ	4	3	2	1	0			
.								
.								
9.คุณรู้สึกว่าถึงแม้คุณอาจจะเคยสงสัย สับสน หรือไม่วางใจในการรักษา แต่การรักษาโดยรวมก็ยังมีประโยชน์	0	1	2	3	4			
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.								
.								
.								
21.ในระหว่างการรักษา คุณมีส่วนร่วมในการตัดสินใจต่าง ๆ	0	1	2	3	4			

THE LIVERPOOL UNIVERSITY NEUROLEPTIC SIDE EFFECT RATING SCALE

(แบบสอบถามผลข้างเคียงจากยา)

		Not at all	**Very little**	**A little**	**Quite a lot**	**Very much**
1	Rash	0	1	2	3	4
2	Difficulty staying awake during the day	0	1	2	3	4
3	Increased dreaming	0	1	2	3	4
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41	Passing a lot of water	0	1	2	3	4

THE LIVERPOOL UNIVERSITY NEUROLEPTIC SIDE EFFECT RATING SCALE

(แบบสอบถามผลข้างเคียงจากยา)

โปรดระบุว่า**ภายในระยะเวลา 1 เดือนที่ผ่านมา** คุณมีอาการแต่ละข้อต่อไปนี้มากน้อยเพียงใด โดยเลือกระดับความมากน้อยตั้งแต่ ไม่มีเลย น้อยมาก มีบ้าง เป็นค่อนข้างบ่อย และบ่อยมาก

		ไม่มีเลย	น้อยมาก	มีบ้าง	เป็นค่อนข้างบ่อย	บ่อยมาก
1	ผื่น	0	1	2	3	4
2	ง่วงมากในเวลากลางวัน	0	1	2	3	4
3	ฝันบ่อยขึ้น	0	1	2	3	4
.						
.						
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41	ปัสสาวะปริมาณมากกว่าปกติ	0	1	2	3	4

THE ILLNESS PERCEPTION QUESTIONNAIRE FOR SCHIZOPHRENIA
(แบบสอบถามการรับรู้ความเจ็บป่วย)

YOUR VIEWS ABOUT YOUR MENTAL HEALTH PROBLEMS

Please tick any of the following terms that have been used to describe your mental health problems, and add any other terms that may have been used. For each term, please indicate the extent to which you would agree that this label describes the experiences you have had.

Label/ term	Tick if been used	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Psychosis		1	2	3	4	5
Depression		1	2	3	4	5
Anxiety		1	2	3	4	5
Schizophrenia		1	2	3	4	5
Other_____		1	2	3	4	5

Please write the term/ label that you feel best describes your mental health problems:

_____

Listed below are a number of experiences that you may or may not have had since your mental health problems began, Please indicate by circling YES or NO whether or not you have had each of these experiences SINCE YOUR MENTAL HEALTH PROBLEMS BEGAN. In the next column, please indicate whether you think that this experience is part of your mental health problems, due to side-effects of medication, or due to other factors. If you feel that it is due to an equal combination of these factors, then you can put a tick in more than one column.

		I have had this experience since my mental health problems		This experience is/ was;		
		Yes	No	Part of my mental health problems	Due to side effects of my medication	Due to other factors
1	Being irritable					
2	Pacing					
.						
.						
.						
53	Feeling nervous					

We are interested in your own personal views of how you NOW see your mental health problems. We understand that your views are likely to have changed considerably over time, but please indicate how you NOW view things. Please indicate how much you agree or disagree with the following statements about your mental health problems by ticking the appropriate box.

	VIEWS ABOUT YOUR MENTAL HEALTH PROBLEMS	**Strongly disagree**	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly agree**
1	My mental health problems will last a short time	5	4	3	2	1
2	There is little treatment available that can improve my mental health problems	5	4	3	2	1
.						
.						
30	I feel a sense of loss due to my mental health problems	1	2	3	4	5

CAUSES OF MY MENTAL HEALTH PROBLEMS

We are interested in what you consider may have been the causes of your mental health problems. As people are very different, there is no correct answer for this question. We are most interested in your own views rather than what others including doctors or family may have suggested to you. Below is a list of possible causes for your mental health problems. Please indicate how much you agree or disagree that they were causes for you by ticking the appropriate box.

	Possible Causes	**Strongly disagree**	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly agree**
1	Stress or worry	1	2	3	4	5
2	Hereditary; it runs in my family	1	2	3	4	5
.						
.						
.						
26	Being bullied at school	1	2	3	4	5

Below, please list in rank order the three most important factors that you now believed caused YOUR mental health problems. You may use any of the items from the box above, or you may have additional ideas of your own.

The most important causes for me:
1. _____
2. _____
3. _____

THE ILLNESS PERCEPTION QUESTIONNAIRE FOR SCHIZOPHRENIA
(แบบสอบถามการรับรู้ความเจ็บป่วย)

มุมมองที่คุณมีต่อปัญหาสุขภาพจิตของคุณ

กรุณาระบุชื่อที่เคยถูกใช้ในการเรียกปัญหาสุขภาพจิตของคุณ และโปรดระบุด้วยว่าคุณเห็นด้วยหรือไม่ว่าชื่อเหล่านี้อธิบายปัญหาสุขภาพจิตที่ตัวคุณเองเคยมีประสบการณ์

	ชื่อ	ชื่อที่เคยถูกใช้	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
	โรคจิต		1	2	3	4	5
	ภาวะซึมเศร้า		1	2	3	4	5
	วิตกกังวล		1	2	3	4	5
	โรคจิตเภท		1	2	3	4	5
	อื่นๆ ถ้ามี		1	2	3	4	5

กรุณาระบุชื่อ ที่คุณคิดว่าอธิบายปัญหาสุขภาพจิตของคุณได้ดีที่สุด

……..

โปรดฟังอาการต่างๆ ต่อไปนี้ และ

1. ระบุว่าคุณเคยมีอาการเหล่านั้นหรือไม่ตั้งแต่คุณมีปัญหาสุขภาพจิต โดย**เลือกตอบว่า** “ใช่” หรือ “ไม่ใช่”
2. โปรดให้ข้อคิดเห็นว่า อาการที่คุณตอบว่า “ใช่” มีความเกี่ยวข้องกับสิ่งใดต่อไปนี้ **โดยเลือกว่า** “เกี่ยวกับผลข้างเคียงของยา” “เกี่ยวกับปัญหาสุขภาพจิตของคุณ” หรือ “เกี่ยวข้องกับปัจจัยอื่นๆ”

ถ้าคุณคิดว่าเกี่ยวข้องกับสิ่งต่อไปนี้พอ ๆ กัน คุณสามารถเลือกได้มากกว่า 1

ข้อ		คุณเคยมีอาการนี้ตั้งแต่คุณมีปัญหาสุขภาพจิต		คิดว่าอาการนี้เกี่ยวข้องกับ		
		ใช่	ไม่ใช่	ปัญหาสุขภาพจิตของคุณ	ผลข้างเคียงของยา	เกี่ยวข้องกับปัจจัยอื่นๆ
1	หงุดหงิดง่าย	ใช่	ไม่ใช่			
2	เดินไปเดินมา	ใช่	ไม่ใช่			
.						
.						
.						
53	หงุดหงิด ตึงเครียด	ใช่	ไม่ใช่			

โปรดฟังข้อความต่อไปนี้ และแสดงความคิดเห็นว่าคุณเห็นด้วยหรือไม่เห็นด้วยกับข้อความที่คุณได้ฟัง

โปรดตอบตามความคิดเห็นของคุณ

แต่ละข้อความจะเกี่ยวข้องกับมุมมองของคุณที่มีต่อปัญหาสุขภาพจิตของคุณ

	มุมมองที่คุณมีต่อปัญหาสุขภาพจิตของคุณ	**ไม่เห็นด้วยอย่างยิ่ง**	**ไม่เห็นด้วย**	**ไม่แน่ใจ**	**เห็นด้วย**	**เห็นด้วยอย่างยิ่ง**
1	ปัญหาสุขภาพจิตของฉันเดี๋ยวก็หาย	5	4	3	2	1
2	มีการรักษาอยู่ไม่กี่ชนิด ที่จะช่วยทำให้ฉันดีขึ้นได้	5	4	3	2	1
.						
.						
30	ฉันรู้สึกสูญเสีย เนื่องจากการที่ฉันมีปัญหาสุขภาพจิต	1	2	3	4	5

ข้อความต่อไปนี้คือ สิ่งที่คาดว่าจะเป็นสาเหตุของการเกิดปัญหาสุขภาพจิต

กรุณาฟังข้อความ แล้วแสดงความคิดเห็นว่าคุณเห็นด้วยหรือไม่ว่า สาเหตุเหล่านั้นเกี่ยวข้องกับการเกิดปัญหาสุขภาพจิตของคุณ ข้อความดังกล่าวไม่มีถูกและผิด เป็นเพียงการแสดงความคิดเห็นของคุณเท่านั้น

โปรดเลือกตอบ ในสิ่งที่ตรงกับความคิดเห็นของคุณ

	สาเหตุที่อาจจะเป็นไปได้	**ไม่เห็นด้วยอย่างยิ่ง**	**ไม่เห็นด้วย**	**ไม่แน่ใจ**	**เห็นด้วย**	**เห็นด้วยอย่างยิ่ง**
1	ความเครียดหรือความกังวลใจ	1	2	3	4	5
2	กรรมพันธุ์ มีคนในครอบครัวของฉันเป็น	1	2	3	4	5
.						
.						
.						
26	ถูกรังแกที่โรงเรียน	1	2	3	4	5

กรุณาจัดอันดับ 3 สิ่งแรก ที่คุณคิดว่าเป็นสาเหตุของปัญหาสุขภาพจิตของคุณ คุณอาจจะใช้สาเหตุจากที่กล่าวมาหรือคุณอาจจะบอกเล่าสิ่งที่คุณคิดเองก็ได้

1. _____
2. _____
3. _____

THE STAGES OF CHANGE READINESS AND TREATMENT EAGERNESS SCALE
(แบบสอบถามความตั้งใจต่อการรับประทานยา)

INSTRUCTIONS: Please read the following statements carefully. Each one describes a way that you might (or might not) feel *about your drinking*. For each statement, circle one number from 1 to 5, to indicate how much you agree or disagree with it *right now*. Please circle one and only one number for every statement.

	Strongly Disagree	**Disagree**	**Undecided or Unsure**	**Agree**	**Strongly Agree**
1. I really want to make changes in my drinking.	1	2	3	4	5
2. Sometimes I wonder if I am an alcoholic.	1	2	3	4	5
.					
.					
.					
.					
.					
.					
.					
.					
.					
.					
.					
.					
18. I have made some changes in my drinking, and I want some help to keep from going back to the way I used to drink.	1	2	3	4	5

THE STAGES OF CHANGE READINESS AND TREATMENT EAGERNESS SCALE
(แบบสอบถามความตั้งใจต่อการรับประทานยา)

โปรดฟังข้อความต่อไปนี้อย่างรอบคอบแต่ละข้ออธิบายถึงความรู้สึกของคุณต่อการกินยาที่ได้รับจากแผนกจิตเวช โปรด**เลือกตอบเพียงหนึ่ง**หมายเลขจาก 1 ถึง 5 ที่แสดงความรู้สึกของคุณในขณะนี้มากที่สุด

โดยภาพรวมนิสัยการกินยาของคุณใน 1 อาทิตย์ที่ผ่านมา เป็นแบบใด

_____ กินยาตามแพทย์สั่งครบถ้วน

_____ ไม่ได้กินยาตามแพทย์สั่ง โดยรับประทาน _____

เนื่องจาก _____

_____ หยุดกินยาแล้ว เนื่องจาก _____

	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ/ตัดสินใจไม่ได้	เห็นด้วย	เห็นด้วยอย่างยิ่ง
1.ฉันต้องการที่จะเปลี่ยนแปลงนิสัยการกินยาของฉันจริง ๆ	1	2	3	4	5
2.บางครั้งฉันสงสัยว่าฉันเป็นคนที่มีปัญหาสุขภาพจิต	1	2	3	4	5
.					
.					
.					
.					
.					
.					
.					
.					
.					
.					
.					
18.ฉันได้มีการปรับปรุงการไม่กินยาตามแพทย์สั่งบ้างแล้วและต้องการความช่วยเหลือเพื่อไม่ให้ฉันไม่กินยาตามแพทย์สั่งอีก	1	2	3	4	5

THE MEDICATION ADHERENCE REPORT SCALE
(แบบสอบถามวิธีการใช้ยา)

- Many people find a way of using their medicines which suits them.
- This may differ from the instructions on the label or from what their doctor has said.
- We would like to ask you a few questions about how you use your medicines.

Here are some ways in which people have said that they use their medicines
For each of the statements, please tick the box which best applies to you

	Your own way of using your medicines	**Always**	**Often**	**Sometimes**	**Rarely**	**Never**
1	I forget to take them	1	2	3	4	5
.						
.						
.						
5	I take less than instructed	1	2	3	4	5

THE MEDICATION ADHERENCE REPORT SCALE
(แบบสอบถามวิธีการใช้ยา)

หลายคนหาวิธีการใช้ยาที่เหมาะสมกับตนเอง ซึ่งในบางครั้งอาจจะแตกต่างจากวิธีการใช้ที่มีบนฉลากยาหรือจากที่แพทย์แนะนำ คำถามต่อไปนี้ถามถึงวิธีการใช้ยาของคุณ

ในแต่ละข้อความ โปรดเลือกตอบในสิ่งที่ตรงกับสิ่งที่คุณปฏิบัติมากที่สุด**ในช่วง 1 อาทิตย์ที่ผ่านมา**

	วิธีการใช้ยาของคุณ	**ตลอดเวลา/ เป็นประจำ**	**บ่อย ครั้ง**	**บางครั้ง**	**นานๆครั้ง**	**ไม่เคย เลย**
1	ฉันลืมกินยา	1	2	3	4	5
.						
.						
.						
5	ฉันกินยาน้อยกว่าที่แพทย์สั่ง	1	2	3	4	5

ใครเป็นผู้ดูแลจัดยาที่บ้าน .....

APPENDIX G
ASSUMPTION TESTING

Table G.1 Univariate Normality of Study Variables

	Skewness		Kurtosis	
Variables	**Z-Score**	**P-Value**	**Z-Score**	**P-Value**
Mental Health Identity (TMH)	3.574	0.000	-1.646	0.100
Timeline Acute/ Chronic (AC_CH)	2.154	0.031	-6.993	0.000
Timeline Cyclical (CYC)	-5.875	0.000	2.821	0.005
Consequences (CONSEQ)	0.549	0.583	-2.199	0.028
Mental Health Problems Coherence (ILLCO)	5.515	0.000	-0.026	0.979
Emotional Representations (EMO)	-0.844	0.398	-4.868	0.000
Personal Help Control (HELP)	-6.427	0.000	5.037	0.000
Personal Blame (BLAME)	-5.261	0.000	2.901	0.004
Treatment Control (TREAT)	-0.203	0.839	1.110	0.267
Recognition (REC)	4.055	0.000	1.941	0.052
Ambivalence (AMB)	0.299	0.765	-2.195	0.028
Taking Steps (TAK)	1.237	0.216	-1.193	0.233
Medication Adherence (MARS)	-9.028	0.000	5.373	0.000
Tangible Support (TS)	-3.052	0.002	-1.142	0.254
Affectionate Support (AS)	-6.029	0.000	2.639	0.008
Positive Social Interaction (PS)	-1.238	0.216	-2.300	0.021
Emotional or Informational Support (ES)	-1.164	0.245	-2.826	0.005
Therapeutic Alliance (PHA)	-2.929	0.003	1.242	0.214
Experience of Medication Side-Effects (SEF)	6.441	0.000	2.956	0.003

Table G.2 Univariate Normality of Study Variables after being transformed to normal score

	Skewness		Kurtosis	
Variables	**Z-Score**	**P-Value**	**Z-Score**	**P-Value**
Mental Health Identity	0.306	0.759	-0.515	0.607
Timeline Acute/ Chronic	0.114	0.909	-0.498	0.618
Timeline Cyclical	-0.616	0.538	0.559	0.576
Consequences	0.043	0.965	-0.096	0.924
Mental Health Problems Coherence	1.044	0.297	1.491	0.136
Emotional Representations	0.022	0.983	0.050	0.960
Personal Help Control	0.018	0.986	1.401	0.161
Personal Blame	-0.881	0.379	1.151	0.250
Treatment Control	0.021	0.983	0.117	0.907
Recognition	0.053	0.958	0.157	0.875
Ambivalence	0.037	0.970	-0.036	0.971
Taking Steps	0.024	0.981	0.074	0.941
Medication Adherence	-4.999	0.000	-0.875	0.382
Tangible Support	-0.785	0.433	-1.706	0.088
Affectionate Support	-2.097	0.036	-3.082	0.002
Positive Social Interaction	-0.237	0.813	-1.129	0.259
Emotional or Informational Support	-0.137	0.891	-0.882	0.378
Therapeutic Alliance	-0.006	0.995	0.084	0.933
Experience of Medication Side-Effects	0.377	0.706	-0.718	0.473

Linearity Testing

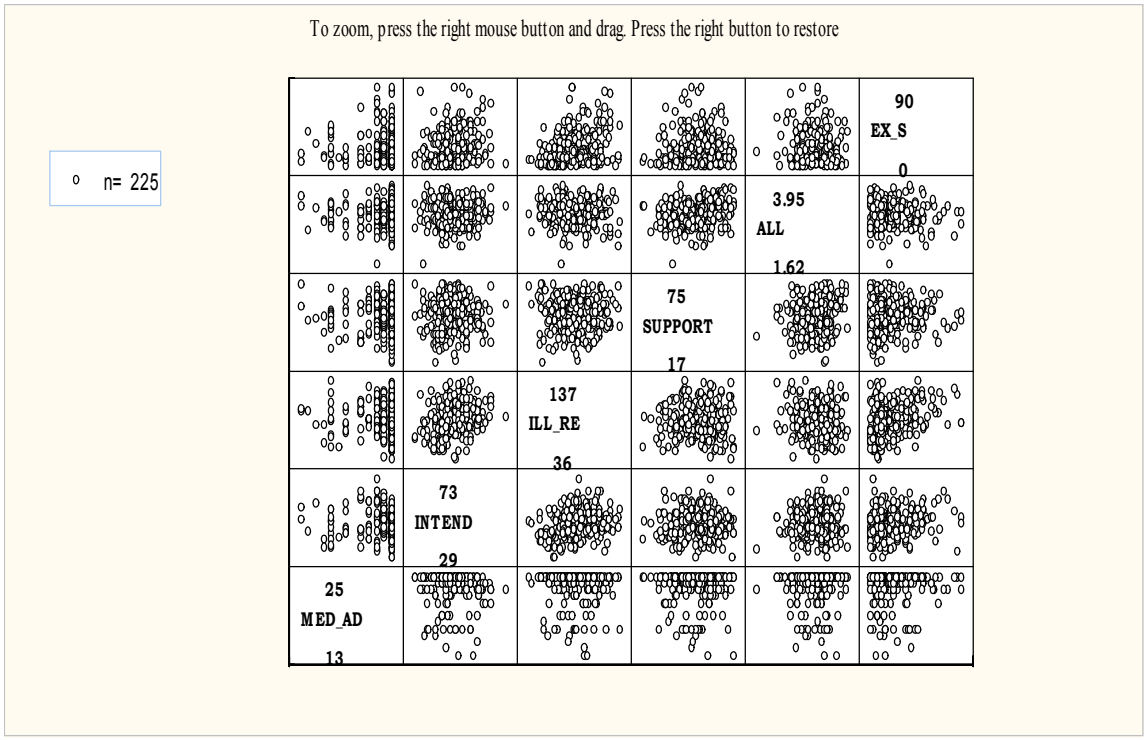


Figure G.1 Scatter plot Matrix of the Study Variables (n = 225)

Multicollinearity Testing

Table G.3 Correlation Matrix of Studied Variables (n=225)

Variables	Self-Reported Adherence Behavior	Intention to Change Adherence Behavior	Illness Representation	Social Support	Therapeutic Alliance	Experience of Medication Side-effects
Self-Reported Adherence Behavior	1.000					
Intention to Change Adherence Behavior	-.076	1.000				
Illness Representation	-.068	.290**	1.000			
Social Support	.032	.031	-.016	1.000		
Therapeutic Alliance	.025	.041	-.082	.230**	1.000	
Experience of Medication Side-effects	.010	.191**	.299**	.018	-.100	1.000

Note: ** $p < .01$

Table G.4 Testing for Multicollinearity of Studied Variables

Variables	Tolerance	VIF
Intention to Change Adherence Behavior (INTEND)	.898	1.113
Illness Representation (ILL_RE)	.850	1.177
Social Support (SUPPORT)	.945	1.058
Therapeutic Alliance (ALL)	.929	1.076
Experience of Medication Side-Effects (EX_S)	.891	1.123

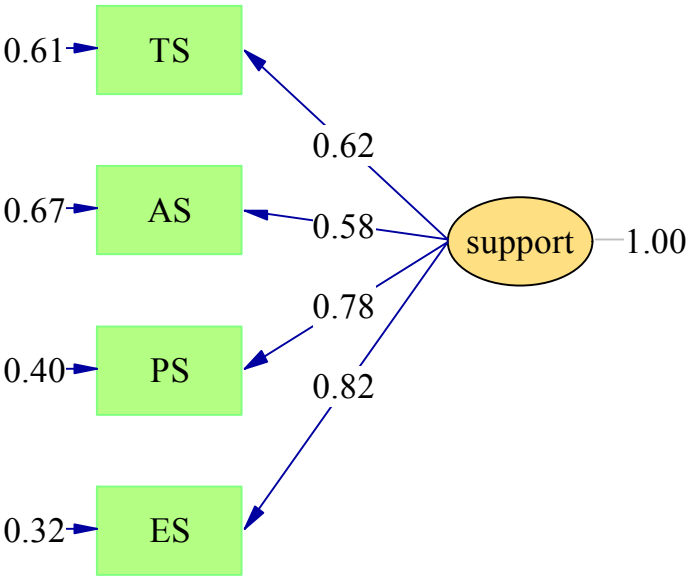
Table G.5 Variance Proportion of the Studied Variables

			Proportion of Coefficient Variance					
Dimension	Eigenvalue	Condition Index	(constant)	INTEND	ILL_RE	SUPPORT	ALL	EX_S
1	5.481	1.000	.00	.00	.00	.00	.00	.01
2	.407	3.670	.00	.00	.00	.00	.00	.89
3	.056	9.932	.00	.01	.41	.44	.00	.06
4	.032	13.112	.02	.14	.51	.44	.06	.02
5	.018	17.406	.03	.74	.03	.11	.25	.02
6	.006	30.207	.95	.11	.05	.00	.68	.00

Note: INTEND = Intention to Change Adherence Behavior, ILL_RE = Illness Representation, SUPPORT = Social Support, ALL = Therapeutic Alliance, EX_S = Experience of Medication Side-effects,

APPENDIX H

THE MEASUREMENT MODEL OF THE STUDY VARIABLES



Chi-Square=0.01, df=2, P-value=0.99672, RMSEA=0.000

Figure H.1 The Social Support Measurement Model (n=225)

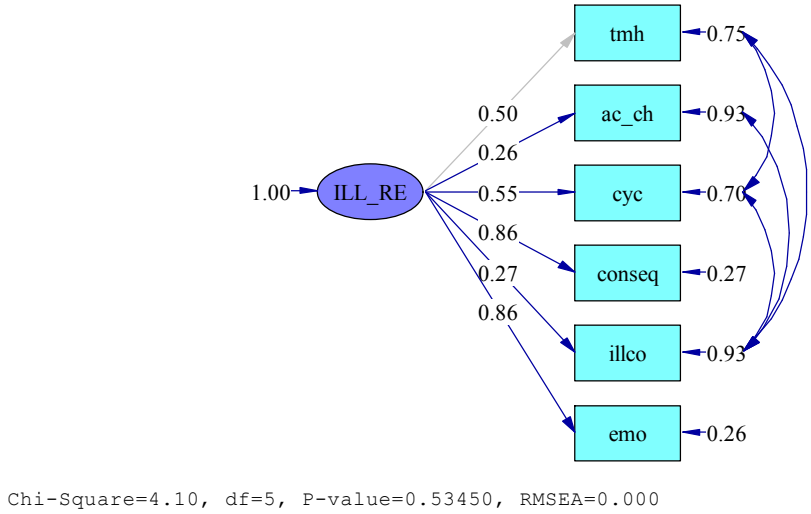


Figure H.2 The Illness Representation Measurement Model (n=225)

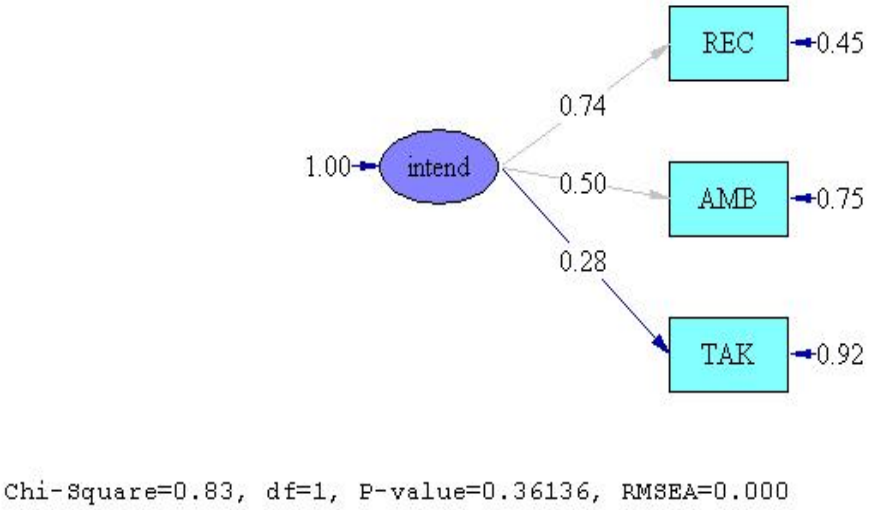


Figure H.3 The Adherence Intention Measurement Model (n=225)

APPENDIX I
RELIABILITY COEFFICIENTS OF INSTRUMENTS

Instruments	Scale	Number of Items	Pilot Reliability	Present Reliability
MOS-SSS	1-5	15	.86	.87
CALPAS-P	0-4	21	.75	.71
LUNSERS	0-4	41	.82	.92
IPQS				
- Identity subscale	0-1	53	.94	.95
- Other subscale	1-5	56	.87	.88
SOCRATES	1-5	18	.87	.75
MARS	1-5	5	.74	.60

APPENDIX J
ADDITIONAL RESULTS

Table J.1 Characteristics of Structural Support

Variable	Category	N	%
Structural Support			
Number of Close Friends	No	154	68.4
	Yes	71	31.6
Number of Close Relatives	No	78	34.7
	Yes	147	65.3

Table J.2 Healthcare Provider who facilitate alliance in each item

ข้อ		ผู้ป่วยได้รับจาก					
		1	**2**	**3**	**4**	**5**	**6**
1	เจ้าหน้าที่แสดงให้คุณเห็นถึงความปรารถนาอย่างจริงใจที่จะเข้าใจคุณและปัญหาของคุณ	189 (84.0%)	17 (7.6%)	-	15 (6.7%)	-	4 (1.8%)
2	คุณรู้สึกว่าคุณสามารถเล่าความกังวลใจให้เจ้าหน้าที่ฟังได้	196 (87.1%)	13 (5.8%)	-	9 (4.0%)	-	1 (0.4%)
3	คุณรู้สึกลำบากใจที่จะถามคำถามเกี่ยวกับความเจ็บป่วยของคุณหรือยาที่คุณได้รับ	171 (76.0%)	2 (0.9%)	-	9 (4.0%)	2 (0.9%)	2 (0.9%)
4	เจ้าหน้าที่เข้าใจความคาดหวังของคุณในการมารับการรักษาที่นี่	204 (90.7%)	7 (3.1%)	1 (0.4%)	7 (3.1%)	-	1 (0.4%)

ข้อ		ผู้ป่วยได้รับจาก					
		1	**2**	**3**	**4**	**5**	**6**
5	เจ้าหน้าที่กดดันคุณให้เกิดการเปลี่ยนแปลงในขณะที่คุณยังไม่พร้อม	145 (64.4%)	2 (0.9%)	-	5 (2.2%)	-	-
6	ข้อคิดเห็นของเจ้าหน้าที่ทำให้คุณเข้าใจว่าเป้าหมายของเจ้าหน้าที่ในการรักษาแตกต่างจากของคุณ	153 (68.0%)	2 (0.9%)	-	4 (1.8%)	-	-
7	ดูเหมือนว่าเจ้าหน้าที่รู้สึกฉุนเฉียว รำคาญ หรือผิดหวังในตัวคุณ	141 (62.7%)	4 (1.8%)	1 (0.4%)	6 (2.7%)	-	-
8	เมื่อคุณถามเจ้าหน้าที่ถึงข้อมูลต่าง ๆ เพิ่มเติมคุณได้รับคำตอบที่น่าพอใจ	186 (82.7%)	19 (8.4%)	1 (0.4%)	7 (3.1%)	-	2 (0.9%)
10	เจ้าหน้าที่ทำตามวิธีการของตนโดยไม่สนใจความคิดเห็นของคุณว่าการรักษาควรดำเนินการอย่างไร	146 (64.9%)	6 (2.7%)	1 (0.4%)	5 (2.2%)	-	-
14	คุณรู้สึกว่าเจ้าหน้าที่เข้าใจถึงสิ่งที่คุณอยากได้จากการรักษา	189 (84.0%)	6 (2.7%)	-	6 (2.7%)	-	2 (0.9%)
16	ข้อคิดเห็นของเจ้าหน้าที่ช่วยให้คุณมองเห็นปัญหาหรืออุปสรรคในแง่มุมใหม่	163 (72.4%)	9 (4.0%)	-	5 (2.2%)	-	-
18	คุณไม่เข้าใจคำแนะนำ	139 (61.8%)	4 (1.8%)	1 (0.4%)	2 (0.9%)	4 (1.8%)	1 (0.4%)

ข้อ		ผู้ป่วยได้รับจาก					
		1	2	3	4	5	6
	ของเจ้าหน้าที่เกี่ยวกับยาและการรักษา						
20	เจ้าหน้าที่ไม่มั่นใจในการช่วยเหลือคุณให้พ้นจากปัญหา	139 (61.8%)	3 (1.3%)	-	3 (1.3%)	-	-
21	ในระหว่างการรักษาคุณมีส่วนร่วมในการตัดสินใจต่าง ๆ	191 (84.9%)	-	-	2 (0.9%)	-	1 (0.4%)

Note: 1=doctor, 2=nurse, 3=pharmacist, 4=doctor and nurse, 5=doctor and pharmacist, 6=doctor, nurse, and pharmacist

Table J.3 Patients' perceptions of medication side-effects

No.		Not at all	A little bit	Moderately	Quite a bit	Very much
1	Rash	95.6%	1.3%	2.7%	-	0.4%
2	Difficulty staying awake during the day	37.3%	9.3%	34.7%	7.1%	11.6%
3	Increased dreaming	68.9%	4.0%	15.1%	4.4%	7.6%
4	Headaches	77.8%	6.7%	12.9%	2.2%	0.4%
5	Dry mouth	48.4%	9.8%	24.4%	8.0%	9.3%
6	Swollen/ tender chest	94.7%	3.1%	1.8%	-	0.4%
7	Difficulty concentrating	62.7%	5.8%	20.0%	6.2%	5.3%
8	Constipation	71.6%	6.7%	9.8%	4.9%	7.1%
9	Period problems	90.2%	0.4%	2.7%	1.3%	5.3%
10	Tension	72.9%	8.4%	14.2%	2.2%	2.2%
11	Dizziness	80.0%	5.8%	11.1%	2.7%	0.4%
12	Feeling sick	88.0%	4.4%	4.4%	1.8%	1.3%
13	Increased sex drive	82.2%	6.2%	9.3%	1.3%	0.9%

No.		Not at all	A little bit	Moderately	Quite a bit	Very much
14	Tiredness	77.8%	4.0%	13.8%	2.7%	1.8%
15	Muscle stiffness	82.2%	2.2%	10.2%	4.4%	0.9%
16	Palpitations	76.4%	5.8%	13.8%	2.7%	1.3%
17	Difficulty remembering things	62.2%	6.7%	17.8%	8.0%	5.3%
18	Losing weight	87.1%	4.0%	7.6%	0.9%	0.4%
19	Lack of emotions	63.6%	8.4%	20.0%	4.0%	4.0%
20	Difficulty achieving orgasm/ climax	84.9%	4.9%	5.3%	1.8%	3.1%
21	Depression	80.0%	5.8%	12.4%	0.9%	0.9%
22	Increased sweating	86.2%	4.0%	4.9%	1.8%	3.1%
23	Slowing of movements	61.3%	6.2%	18.2%	6.2%	8.0%
24	Sleeping too much	49.3%	3.1%	16.9%	14.7%	16.0%
25	Difficulty in passing water	92.0%	4.0%	2.7%	0.9%	0.4%
26	Muscle spasms	76.4%	8.4%	11.1%	2.2%	1.8%
27	Sensitivity to sun	86.7%	3.1%	6.2%	1.8%	2.2%
28	Diarrhoea	89.3%	2.2%	7.1%	0.4%	0.9%
29	Over-wet/ drooling mouth	77.8%	4.0%	8.9%	4.9%	4.4%
30	Blurred vision	79.1%	3.6%	12.0%	1.8%	3.6%
31	Putting on weight	65.3%	4.0%	15.6%	3.6%	11.6%
32	Restlessness	75.1%	4.9%	12.4%	4.4%	3.1%
33	Difficulty in getting to sleep	74.2%	4.9%	10.2%	4.9%	5.8%
34	Shakiness	83.6%	2.7%	12.0%	0.9%	0.9%
35	Pins and needless	96.0%	0.9%	2.7%	-	0.4%
36	Reduced sex drive	78.2%	7.6%	8.9%	1.8%	3.6%
37	New/ unusual skin	93.8%	0.9%	4.4%	-	0.9%

No.		Not at all	A little bit	Moderately	Quite a bit	Very much
	marks					
38	Parts of body moving of their own accord	84.0%	3.1%	10.2%	0.9%	1.8%
39	Itchy skin	84.0%	1.8%	13.8%	-	0.4%
40	Periods less frequent	90.7%	0.4%	3.6%	0.9%	4.4%
41	Passing a lot of water	71.6%	4.0%	13.3%	4.4%	6.7%

Table J.4 Illness Representation: Label of Illness

Item	Label/ term	Has been used	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	Psychosis	91 (40.4%)	18 (8.0%)	31 (13.8%)	10 (4.4%)	29 (12.9%)	3 (1.3%)
2	Depression	70 (31.1%)	2 (0.9%)	9 (4.0%)	13 (5.8%)	45 (20.0%)	1 (0.4%)
3	Anxiety	95 (42.2%)	2 (0.9%)	15 (6.7%)	15 (6.7%)	57 (25.3%)	6 (2.7%)
4	Schizophrenia	51 (22.7%)	3 (1.3%)	7 (3.1%)	8 (3.6%)	29 (12.9%)	4 (1.8%)

Table J.5 Illness Representation: Identity subscale relate to Perception of participants

Item	Identity	Mental Health Identity	Side-effect Identity	Others Identity
1	หงุดหงิดง่าย (Being irritable)	97 (43.1%)	14 (6.2%)	79 (35.1%)
2	เดินไปเดินมา (Pacing)	78 (34.7%)	27 (12%)	47 (20.9%)
3	กังวลใจ (Worrying)	92 (40.9%)	9 (4%)	89 (39.6%)
4	เชื่อว่าคนอื่นอ่านใจฉันได้ (Believing people can read my mind)	57 (25.3%)	2 (0.9%)	54 (24%)
5	รู้สึกว่าคนหรือเหตุการณ์ในโทรทัศน์หรือวิทยุพูดกับตนเอง (Receiving messages from the TV or media)	70 (31.1%)	4 (1.8%)	21 (9.3%)
6	ขาดความกระตือรือร้น (Loss of motivation)	79 (35.1%)	26 (11.6%)	51 (22.7%)
7	ไม่มีความอยากอาหาร (Poor appetite)	46 (20.4%)	16 (7.1%)	44 (19.6%)
8	อารมณ์เปลี่ยนแปลงง่าย (Mood swings)	92 (40.9%)	9 (4%)	49 (21.8%)
9	อารมณ์รุนแรงชอบใช้กำลัง (Being violent)	57 (25.3%)	2 (0.9%)	29 (12.9%)
10	แยกตัวไม่ค่อยสุงสิงกับผู้อื่น (Being withdrawn)	89 (39.6%)	3 (1.3%)	70 (31.1%)

Item	Identity	Mental Health Identity	Side-effect Identity	Others Identity
11	นอนมาก (Sleeping a lot)	39 (17.3%)	94 (41.8%)	42 (18.7%)
12	ไม่ค่อยทำอะไร (Not doing much)	61 (27.1%)	35 (15.6%)	58 (25.8%)
13	ไม่ค่อยมีเรี่ยวแรง (Lack of energy)	42 (18.7%)	46 (20.4%)	43 (19.1%)
14	หวาดระแวง (Paranoia)	118 (52.4%)	6 (2.7%)	49 (21.8%)
15	หูแว่ว (Hearing voices)	127 (56.4%)	10 (4.4%)	38 (16.9%)
16	รู้สึกอยู่ไม่สุขนั่งไม่ติด (Feeling restless)	80 (35.6%)	30 (13.3%)	39 (17.3%)
17	ไม่ค่อยมีสมาธิ (Difficulty concentrating)	107 (47.6%)	13 (5.8%)	55 (24.4%)
18	รู้สึกหวาดระแวงคนอื่น (Being suspicious of other people)	97 (43.1%)	5 (2.2%)	43 (19.1%)
19	รู้สึกเหมือนถูกครอบงำ (Feeling I am possessed)	65 (28.9%)	4 (1.8%)	28 (12.4%)
20	มีปัญหาเกี่ยวกับความจำ (Memory problems)	84 (37.3%)	37 (16.4%)	55 (24.4%)
21	เชื่อว่าความคิดของตนเองกระจายออกไปจนคนอื่นรู้หมด (Believing that my thoughts are being broadcast to others)	72 (32%)	4 (1.8%)	33 (14.7%)

Item	Identity	Mental Health Identity	Side-effect Identity	Others Identity
22	รู้สึกว่าตนเองถูกติดตามจ้องมอง (Feeling I am being watched)	78 (34.7%)	5 (2.2%)	43 (19.1%)
23	คิดว่าคนอื่นหัวเราะเยาะ (Thinking people are laughing at me)	65 (28.9%)	2 (0.9%)	39 (17.3%)
24	เชื่อว่าตัวเองเป็นคนอื่น (Believing I am a different person)	37 (16.4%)	-	12 (5.3%)
25	น้ำหนักขึ้น (Gaining weight)	12 (5.3%)	72 (32%)	106 (47.1%)
26	หงุดหงิด กระวนกระวาย (Feeling agitated)	91 (40.4%)	19 (8.4%)	55 (24.4%)
27	ชอบเถียง ทะเลาะ (Being argumentative)	62 (27.6%)	-	48 (21.3%)
28	รู้สึกอยากตาย (Feeling suicidal)	74 (32.9%)	3 (1.3%)	46 (20.4%)
29	ไม่สนใจดูแลตนเอง (Loss of interest in my personal care)	59 (26.2%)	9 (4%)	41 (18.2%)
30	หมกมุ่นอยู่กับตนเอง (Being self-absorbed)	76 (33.8%)	7 (3.1%)	38 (16.9%)
31	นอนหลับยาก (Difficulty sleeping)	86 (38.2%)	18 (8%)	47 (20.9%)
32	ไม่ได้ช่วยเหลืออะไรในบ้านเลย (Not helping around the house)	41 (18.2%)	11 (4.9%)	46 (20.4%)
33	เบื่อง่าย (Becoming bored easily)	60	7	60

Item	Identity	Mental Health Identity	Side-effect Identity	Others Identity
		(26.7%)	(3.1%)	(26.7%)
34	มีความยากลำบากในการทำงานแต่ละวัน (Difficulty doing everyday tasks)	46 (20.4%)	16 (7.1%)	44 (19.6%)
35	มีปัญหาการสื่อสารกับผู้อื่น (Problems communicating with other people)	45 (20%)	11 (4.9%)	42 (18.7%)
36	เป็นคนก้าวร้าว (Being aggressive)	46 (20.4%)	-	33 (14.7%)
37	มีความกลัวตื่นตระหนกสุดขีด (Panic attacks)	58 (25.8%)	2 (0.9%)	43 (19.1%)
38	รู้สึกสูญเสียความมั่นใจในตนเอง (Loss of self confidence)	101 (44.9%)	9 (4%)	53 (23.6%)
39	รู้สึกตัวเองไร้ค่า (Feeling worthless)	76 (33.8%)	5 (2.2%)	45 (20%)
40	มองเห็นสิ่งต่าง ๆ ที่ไม่มีอยู่จริง (Seeing things that are not really there)	57 (25.3%)	7 (3.1%)	31 (13.8%)
41	รู้สึกได้กลิ่นแปลก ๆ (Experience strange smells)	34 (15.1%)	5 (2.2%)	36 (16%)
42	รู้สึกตื้อ คิดไม่ออก (Clouded thoughts)	76 (33.8%)	39 (17.3%)	53 (23.6%)
43	รู้สึกจิตใจห่อเหี่ยว อ่อนล้า (Feeling low)	87 (38.7%)	12 (5.3%)	55 (24.4%)
44	พูดคนเดียว หัวเราะคนเดียว (Talking or laughing to myself)	64 (28.4%)	2 (0.9%)	22 (9.8%)

Item	Identity	Mental Health Identity	Side-effect Identity	Others Identity
45	สูญเสียการรับรู้ความเป็นจริง (Losing touch with reality)	73 (32.4%)	9 (4%)	26 (11.6%)
46	เชื่อว่าฉันเป็นคนสำคัญพิเศษ (Believing I am special)	55 (24.4%)	1 (0.4%)	27 (12%)
47	วิตกกังวล (Anxiety)	96 (42.7%)	7 (3.1%)	69 (30.7%)
48	รู้สึกอยากทำสิ่งต่าง ๆ อยู่ตลอดเวลา (Hyperactive)	37 (16.4%)	9 (4%)	56 (24.9%)
49	มีความคิดแปลกไม่เหมือนใคร (Having bizarre thoughts)	54 (24%)	6 (2.7%)	45 (20%)
50	รู้สึกไม่เข้าใจผู้อื่น (Not being able to understand other people)	52 (23.1%)	3 (1.3%)	60 (26.7%)
51	ใช้จ่ายเงินมาก ฟุ่มเฟือย (Frittering money away)	30 (13.3%)	3 (1.3%)	85 (37.8%)
52	สูบบุหรี่มาก (Excessive smoking)	22 (9.8%)	1 (0.4%)	53 (23.6%)
53	หงุดหงิด ตึงเครียด (Feeling nervous)	88 (39.1%)	11 (4.9%)	61 (27.1%)

Table J.6 Illness Representation: Cause Subscale

Item	Cause	n (%)
1	Stress or worry	189 (84%)
2	Hereditary; it runs in my family	84 (37.3%)
3	A germ or virus	27 (12.0%)
4	Diet or eating habits	42 (18.7%)
5	Chance or bad luck	112 (49.8%)
6	Poor medical care in my past	20 (8.9%)
7	Pollution in the environment	66 (29.3%)
8	My own behaviour	136 (60.4%)
9	My family's behaviour	85 (37.8%)
10	My mental attitude e.g.; thinking about life negatively	121 (53.8%)
11	Family problems	91 (40.4%)
12	Overwork	72 (32.0%)
13	Alcohol	55 (24.4%)
14	Taking illicit drugs	41 (18.2%)
15	My personality	91 (40.4%)
16	Brain damage or abnormality	119 (52.9%)
17	Lack of friends or people who cared about me	57 (25.3%)
18	Chemical imbalance in the brain	124 (55.1%)
19	A trauma; something disturbing or shocking that happened in my life	83 (36.9%)
20	Death of a loved one	64 (28.4%)
21	Money worries	84 (37.3%)
22	Someone spiked my drink with illicit drugs	12 (5.3%)
23	Lack of sleep	103 (45.8%)
24	Thinking about things too much	162 (72.0%)
25	My upbringing	65 (28.9%)
26	Being bullied at school	26 (11.6%)

Table J.7 Comparing Mean Score per Item of Subscales in Illness Representations of Present and Previous Study

Subscales	Present Study	Lobban et al. (2004)		Lobban et al. (2005)
		Time 1	Time 2	
Mental Health Identity	0.30	0.63	0.64	0.38
Timeline Acute/ Chronic	2.78	3.53	3.49	3.53
Timeline Cyclical	3.56	3.77	3.79	3.78
Consequences	3.18	3.43	3.44	3.43
Mental Health Problems Coherence	2.44	2.70	2.65	2.70
Emotional Representations	3.11	-	-	3.40
Personal Help Control	4.04	3.48	3.48	3.48
Personal Blame	3.92	-	-	-
Treatment Control	3.79	3.53	3.55	3.53

Table J.8 Participants' Way of Using Their Medicines

Way of Using Medicines	Always	Often	Sometimes	Rarely	Never
1. I forget to take them.	-	0.40 %	3.10 %	16.90 %	79.60 %
2. I alter the dose.	4.40 %	0.40 %	3.60 %	5.80 %	85.80 %
3. I stop taking them for a while.	1.30 %	2.70 %	1.30 %	3.10 %	91.60 %
4. I decide to miss out a dose.	1.80 %	0.90 %	1.30 %	4.90 %	91.10 %
5. I take less than instructed.	6.20 %	3.60 %	3.60 %	8.90 %	77.70 %

Table J.9 Identify person who prepare medication for patients

Prepare Medication for Taking	n (%)
Patient	193 (85.8%)
Others	20 (8.9%)
Patient and Others	12 (5.3%)

Table J.10 Type of Reported Nonadherence Experience in Participants

Type of Nonadherence	n (%)
Forgot	29 (12.9%)
Add number	8 (3.6%)
Decrease amount	7 (3.1%)
Medication not enough	2 (0.9%)
Skip dose	7 (3.1%)
Forgot and Skip dose	8 (3.6%)
Not see the prescription	1 (0.4%)
Forgot and Add number	6 (2.7%)
Forgot and Decrease amount	2 (0.9%)
Decrease amount and Skip dose	2 (0.9%)
Collect the wrong medication to travel	1 (0.4%)
Stop sometimes or for a while	13 (5.8%)
Add number and Skip dose	2 (0.9%)
Add number and Decrease amount	2 (0.9%)
Skip dose and Stop sometimes or for a while	1 (0.4%)
Select to take	1 (0.4%)
Select to take and Stop some times or for a while	2 (0.9%)
Forgot, Add number, and Medication not enough	1 (0.4%)

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adherence model 16 observes
DA NI=16 NO=225 NG=1 MA=CM
LA
TMH AC_CH CYC CONSEQ ILLCO EMO REC AMB TAK MARS
TS AS PS ES PHA SEF
KM
1.000
0.186  1.000
0.389  0.218  1.000
0.441  0.220  0.454  1.000
0.004  0.177  0.061  0.219  1.000
0.407  0.209  0.474  0.736  0.244  1.000
0.145  0.045  0.182  0.306  0.165  0.417  1.000
0.132 -0.116  0.226  0.137  0.085  0.226  0.375  1.000
0.205 -0.072  0.006  0.042 -0.091  0.155  0.189  0.184  1.000
-0.047 -0.057 -0.120 -0.104 -0.120 -0.165 -0.336 -0.134  0.051  1.000
0.068 -0.106 -0.067 -0.061 -0.085  0.003  0.046  0.018  0.010 -0.003  1.000
0.095 -0.072 -0.033 -0.123 -0.217 -0.076  0.054 -0.149 -0.030  0.052  0.358  1.000
0.062 -0.068 -0.108 -0.172 -0.048 -0.116  0.032  0.028 -0.069  0.008  0.480  0.450  1.000
0.088 -0.125 -0.084 -0.107 -0.163 -0.103  0.034  0.012  0.030  0.050  0.512  0.475  0.638  1.000
0.039 -0.070 -0.036 -0.143 -0.247 -0.176 -0.071 -0.088  0.124  0.051  0.102  0.225  0.162  0.271  1.000
0.195  0.061  0.320  0.232  0.104  0.294  0.130  0.280  0.085 -0.051  0.011 -0.122  0.025  0.043 -0.075
1.000
SD
11.951  3.149  2.028  5.597 1.816 5.563  3.724 2.086  5.179  2.542  4.024  1.960  3.088  6.161  0.384
19.505
MO NX=6 NY=10 NK=3 NE=3 LY=FU,FI LX=FU,FI BE=FU,FI GA=FU,FI PH=SY,FR PS=DI,FR
TE=SY TD=SY
LE
ILL_RE INTEND MED_AD
LK
SUPPORT ALL EX_S
FI TE(10,10) TD(5,5) TD(6,6)
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FR LY(2,1) LY(3,1) LY(4,1) LY(5,1) LY(6,1) LY(8,2) LY(9,2) LX(1,1) LX(2,1)
FR LX(3,1) BE(2,1) BE(3,1) BE(3,2) GA(1,3) GA(3,1) GA(3,3)
VA 1.00 LY(1,1) LY(7,2)
VA 0.86 LY(10,3)
VA 1.00 LX(4,1)
VA 0.86 LX(5,2)
VA 0.91 LX(6,3)
VA 0.19 TE(10,10)
VA 0.01 TD(5,5) TD (6,6)
FI GA(1,1)
ST .12 GA(1,1)
FI GA(1,2)
ST 2.73 GA(1,2)
FR TE(6,1) TE(9,1) TE(8,2) TE(8,3) TE(5,1) TE(9,5) TE(6,3) TE(5,3)
FR TE(5,2) TE(7,1) TE(6,4) TE(7,3) TE(9,6) TE(3,1) TD(6,2)
FR TE(7,2) TD(5,4) TE(10,9) TE(9,3) TE(8,1) TE(9,2)
FR TE(10,1) TE(4,2) TD(5,2)
FR TH(5,5) TH(2,5)
FI GA(3,2)
ST .21 GA(3,2)
PD
OU ME=ML SE TV RS EF FS SS SC MI
```

adherence model 16 observes

Number of Input Variables 16
Number of Y - Variables 10
Number of X - Variables 6
Number of ETA - Variables 3
Number of KSI - Variables 3
Number of Observations 225

adherence model 16 observes

Covariance Matrix

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TMH	142.83					
AC_CH	7.00	9.92				
CYC	9.43	1.39	4.11			
CONSEQ	29.50	3.88	5.15	31.33		
ILLCO	0.09	1.01	0.22	2.23	3.30	
EMO	27.06	3.66	5.35	22.92	2.46	30.95
REC	6.45	0.53	1.37	6.38	1.12	8.64
AMB	3.29	-0.76	0.96	1.60	0.32	2.62
TAK	12.69	-1.17	0.06	1.22	-0.86	4.47
MARS	-1.43	-0.46	-0.62	-1.48	-0.55	-2.33
TS	3.27	-1.34	-0.55	-1.37	-0.62	0.07
AS	2.23	-0.44	-0.13	-1.35	-0.77	-0.83
PS	2.29	-0.66	-0.68	-2.97	-0.27	-1.99
ES	6.48	-2.43	-1.05	-3.69	-1.82	-3.53
PHA	0.18	-0.08	-0.03	-0.31	-0.17	-0.38
SEF	45.46	3.75	12.66	25.33	3.68	31.90

Covariance Matrix

	REC	AMB	TAK	MARS	TS	AS
REC	13.87					
AMB	2.91	4.35				
TAK	3.65	1.99	26.82			
MARS	-3.18	-0.71	0.67	6.46		
TS	0.69	0.15	0.21	-0.03	16.19	
AS	0.39	-0.61	-0.30	0.26	2.82	3.84
PS	0.37	0.18	-1.10	0.06	5.96	2.72
ES	0.78	0.15	0.96	0.78	12.69	5.74
PHA	-0.10	-0.07	0.25	0.05	0.16	0.17
SEF	9.44	11.39	8.59	-2.53	0.86	-4.66

Covariance Matrix

	PS	ES	PHA	SEF
PS	9.54			
ES	12.14	37.96		
PHA	0.19	0.64	0.15	
SEF	1.51	5.17	-0.56	380.45

adherence model 16 observes

Parameter Specifications

LAMBDA-Y

	ILL_RE	INTEND	MED_AD
TMH	0	0	0
AC_CH	1	0	0
CYC	2	0	0
CONSEQ	3	0	0
ILLCO	4	0	0
EMO	5	0	0
REC	0	0	0
AMB	0	6	0
TAK	0	7	0
MARS	0	0	0

LAMBDA-X

	SUPPORT	ALL	EX_S
TS	8	0	0
AS	9	0	0
PS	10	0	0
ES	0	0	0
PHA	0	0	0
SEF	0	0	0

BETA

	ILL_RE	INTEND	MED_AD

ILL_RE	0	0	0
INTEND	11	0	0
MED_AD	12	13	0

GAMMA

	SUPPORT	ALL	EX_S
ILL_RE	0	0	14
INTEND	0	0	0
MED_AD	15	0	16

PHI

	SUPPORT	ALL	EX_S
SUPPORT	17		
ALL	18	19	
EX_S	20	21	22

PSI

ILL_RE	INTEND	MED_AD
23	24	25

THETA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TMH	26					
AC_CH	0	27				
CYC	28	0	29			
CONSEQ	0	30	0	31		
ILLCO	32	33	34	0	35	
EMO	36	0	37	38	0	39
REC	40	41	42	0	0	0
AMB	44	45	46	0	0	0
TAK	48	49	50	0	51	52
MARS	54	0	0	0	0	0

THETA-EPS

	REC	AMB	TAK	MARS
REC	43			
AMB	0	47		
TAK	0	0	53	
MARS	0	0	55	0

THETA-DELTA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TS	0	0	0	0	0	0
AS	0	0	0	0	57	0
PS	0	0	0	0	0	0

ES	0	0	0	0	0	0
PHA	0	0	0	0	61	0
SEF	0	0	0	0	0	0

THETA-DELTA-EPS

	REC	AMB	TAK	MARS
TS	0	0	0	0
AS	0	0	0	0
PS	0	0	0	0
ES	0	0	0	0
PHA	0	0	0	0
SEF	0	0	0	0

THETA-DELTA

	TS	AS	PS	ES	PHA	SEF
TS	56					
AS	0	58				
PS	0	0	59			
ES	0	0	0	60		
PHA	0	62	0	63	0	
SEF	0	64	0	0	0	0

adherence model 16 observes

Number of Iterations = 18

LISREL Estimates (Maximum Likelihood)

LAMBDA-Y

	ILL_RE	INTEND	MED_AD
TMH	1.00	- -	- -
AC_CH	0.08	- -	- -
	(0.02)		
	3.35		
CYC	0.17	- -	- -
	(0.02)		
	7.45		
CONSEQ	0.31	- -	- -
	(0.07)		
	4.69		
ILLCO	0.05	- -	- -
	(0.02)		
	3.09		

EMO	0.42	- -	- -
	(0.07)		
	5.68		
REC	- -	1.00	- -
AMB	- -	0.32	- -
		(0.07)	
		4.79	
TAK	- -	0.43	- -
		(0.15)	
		2.93	
MARS	- -	- -	0.86

LAMBDA-X

	SUPPORT	ALL	EX_S
TS	0.50	- -	- -
	(0.06)		
	8.63		
AS	0.22	- -	- -
	(0.03)		
	8.01		
PS	0.48	- -	- -
	(0.05)		
	10.27		
ES	1.00	- -	- -
PHA	- -	0.86	- -
SEF	- -	- -	0.91

BETA

	ILL_RE	INTEND	MED_AD
ILL_RE	- -	- -	- -
INTEND	0.20	- -	- -
	(0.04)		
	5.09		
MED_AD	0.04	-0.46	- -
	(0.05)	(0.18)	
	0.78	-2.54	

GAMMA

	SUPPORT	ALL	EX_S
ILL_RE	0.12	2.73	0.15
		(0.03)	
		5.12	
INTEND	- -	- -	- -
MED_AD	0.02	0.21	0.00
	(0.04)	(0.01)	
	0.60	0.23	

Covariance Matrix of ETA and KSI

	ILL_RE	INTEND	MED_AD	SUPPORT	ALL	EX_S
ILL_RE	103.62					
INTEND	20.36	9.14				
MED_AD	-5.38	-3.43	8.48			
SUPPORT	4.76	0.94	0.45	25.14		
ALL	0.44	0.09	0.02	0.39	0.18	
EX_S	66.81	13.13	-2.78	4.65	-0.74	463.61

PHI

	SUPPORT	ALL	EX_S
SUPPORT	25.14		
	(3.84)		
	6.54		
ALL	0.39	0.18	
	(0.18)	(0.02)	
	2.13	9.88	
EX_S	4.65	-0.74	463.61
	(8.04)	(0.63)	(43.64)
	0.58	-1.18	10.62

PSI

Note: This matrix is diagonal.

ILL_RE	INTEND	MED_AD
92.02	5.14	7.08
(25.09)	(1.91)	(0.83)
3.67	2.69	8.52

Squared Multiple Correlations for Structural Equations

ILL_RE	INTEND	MED_AD

0.11	0.44	0.17

Squared Multiple Correlations for Reduced Form

ILL_RE	INTEND	MED_AD
0.11	0.05	0.00

Reduced Form

	SUPPORT	ALL	EX_S
ILL_RE	0.12	2.73	0.15
		(0.03)	
		5.12	
INTEND	0.02	0.54	0.03
	(0.00)	(0.11)	(0.01)
	5.09	5.09	4.09
MED_AD	0.02	0.06	-0.01
	(0.04)	(0.06)	(0.01)
	0.44	0.93	-0.70

THETA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TMH	47.31					
	(23.08)					
	2.05					
AC_CH	- -	9.23				
		(0.87)				
		10.57				
CYC	-7.25	- -	1.24			
	(3.32)		(0.62)			
	-2.18		2.00			
CONSEQ	- -	1.06	- -	21.65		
		(0.79)		(2.53)		
		1.33		8.55		
ILLCO	-4.85	0.47	-0.65	- -	2.97	
	(1.61)	(0.36)	(0.26)		(0.29)	
	-3.00	1.29	-2.54		10.17	
EMO	-13.95	- -	-1.80	9.77	- -	13.07
	(5.40)		(0.87)	(2.32)		(3.30)
	-2.59		-2.06	4.21		3.96
REC	-12.70	-1.10	-1.93	- -	- -	- -
	(4.12)	(0.70)	(0.63)			

-3.08 -1.57 -3.04

AMB -3.54 -1.22 -0.12 - - - - - -
(1.92) (0.42) (0.31)
-1.85 -2.93 -0.38

TAK 4.60 -1.52 -1.42 - - -1.04 1.61
(4.38) (1.03) (0.70) (0.58) (1.25)
1.05 -1.48 -2.02 -1.79 1.29

MARS 2.65 - - - - - - - - - -
(2.01)
1.32

THETA-EPS

	REC	AMB	TAK	MARS
REC	4.73			
	(1.71)			
	2.76			
AMB	- -	3.42		
		(0.37)		
		9.32		
TAK	- -	- -	25.11	
			(2.45)	
			10.26	
MARS	- -	- -	1.94	0.19
			(0.84)	
			2.32	

Squared Multiple Correlations for Y - Variables

TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
0.69	0.07	0.70	0.32	0.07	0.59

Squared Multiple Correlations for Y - Variables

REC	AMB	TAK	MARS
0.66	0.22	0.06	0.97

THETA-DELTA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TS	- -	- -	- -	- -	- -	- -
AS	- -	- -	- -	- -	-0.48	- -
					(0.19)	

-2.54

PS - - - - - - - - - - - -

ES - - - - - - - - - - - -

PHA - - - - - - - - -0.10 - -
(0.04)
-2.46

SEF - - - - - - - - - - - -

THETA-DELTA-EPS

	REC	AMB	TAK	MARS
TS	- -	- -	- -	- -
AS	- -	- -	- -	- -
PS	- -	- -	- -	- -
ES	- -	- -	- -	- -
PHA	- -	- -	- -	- -
SEF	- -	- -	- -	- -

THETA-DELTA

	TS	AS	PS	ES	PHA	SEF
TS	9.94 (1.09) 9.11					
AS	- -	2.56 (0.27) 9.46				
PS	- -	- -	3.77 (0.56) 6.67			
ES	- -	- -	- -	12.58 (2.23) 5.65		
PHA	- -	0.09 (0.04) 1.97	- -	0.25 (0.12) 2.06	0.01	

SEF	- -	-6.26	- -	- -	- -	0.01
		(2.10)				
		-2.98				

Squared Multiple Correlations for X - Variables

TS	AS	PS	ES	PHA	SEF
0.39	0.33	0.61	0.67	0.93	1.00

Goodness of Fit Statistics

Degrees of Freedom = 72
Minimum Fit Function Chi-Square = 96.26 (P = 0.030)
Normal Theory Weighted Least Squares Chi-Square = 91.17 (P = 0.063)
Estimated Non-centrality Parameter (NCP) = 19.17
90 Percent Confidence Interval for NCP = (0.0 ; 47.75)

Minimum Fit Function Value = 0.43
Population Discrepancy Function Value (F0) = 0.086
90 Percent Confidence Interval for F0 = (0.0 ; 0.21)
Root Mean Square Error of Approximation (RMSEA) = 0.034
90 Percent Confidence Interval for RMSEA = (0.0 ; 0.054)
P-Value for Test of Close Fit (RMSEA < 0.05) = 0.89

Expected Cross-Validation Index (ECVI) = 0.98
90 Percent Confidence Interval for ECVI = (0.89 ; 1.11)
ECVI for Saturated Model = 1.21
ECVI for Independence Model = 5.44

Chi-Square for Independence Model with 120 Degrees of Freedom = 1187.34
Independence AIC = 1219.34
Model AIC = 219.17
Saturated AIC = 272.00
Independence CAIC = 1289.99
Model CAIC = 501.80
Saturated CAIC = 872.59

Normed Fit Index (NFI) = 0.92
Non-Normed Fit Index (NNFI) = 0.96
Parsimony Normed Fit Index (PNFI) = 0.55
Comparative Fit Index (CFI) = 0.98
Incremental Fit Index (IFI) = 0.98
Relative Fit Index (RFI) = 0.86

Critical N (CN) = 240.26

Root Mean Square Residual (RMR) = 2.14
Standardized RMR = 0.070
Goodness of Fit Index (GFI) = 0.95
Adjusted Goodness of Fit Index (AGFI) = 0.91
Parsimony Goodness of Fit Index (PGFI) = 0.50

adherence model 16 observes

Fitted Covariance Matrix

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TMH	150.93					
AC_CH	8.32	9.90				
CYC	10.26	1.41	4.19			
CONSEQ	32.43	3.66	5.48	31.79		
ILLCO	0.07	0.86	0.18	1.54	3.21	
EMO	29.84	3.52	5.60	23.48	2.08	31.57
REC	7.66	0.54	1.51	6.37	0.97	8.60
AMB	2.99	-0.69	0.99	2.04	0.31	2.76
TAK	13.45	-0.81	0.07	2.77	-0.62	5.35
MARS	-1.98	-0.37	-0.78	-1.45	-0.22	-1.95
TS	2.38	0.19	0.40	0.74	0.11	1.00
AS	1.06	0.08	0.18	0.33	-0.43	0.45
PS	2.28	0.18	0.39	0.71	0.11	0.96
ES	4.76	0.38	0.80	1.49	0.23	2.01
PHA	0.38	0.03	0.06	0.12	-0.09	0.16
SEF	60.80	4.88	10.27	19.03	2.89	25.69

Fitted Covariance Matrix

	REC	AMB	TAK	MARS	TS	AS
REC	13.87					
AMB	2.93	4.36				
TAK	3.98	1.28	26.84			
MARS	-2.95	-0.95	0.66	6.46		
TS	0.47	0.15	0.20	0.19	16.19	
AS	0.21	0.07	0.09	0.09	2.78	3.80
PS	0.45	0.14	0.20	0.18	6.00	2.67
ES	0.94	0.30	0.41	0.38	12.53	5.58
PHA	0.07	0.02	0.03	0.02	0.17	0.16
SEF	11.95	3.83	5.20	-2.18	2.11	-5.32

Fitted Covariance Matrix

	PS	ES	PHA	SEF
PS	9.54			
ES	12.04	37.72		
PHA	0.16	0.59	0.15	
SEF	2.03	4.23	-0.58	383.92

Fitted Residuals

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TMH	-8.10					
AC_CH	-1.32	0.02				
CYC	-0.83	-0.01	-0.08			
CONSEQ	-2.93	0.22	-0.32	-0.47		
ILLCO	0.01	0.15	0.04	0.69	0.09	
EMO	-2.78	0.14	-0.25	-0.56	0.39	-0.62

REC	-1.21	-0.01	-0.13	0.01	0.15	0.04
AMB	0.30	-0.07	-0.03	-0.44	0.01	-0.14
TAK	-0.76	-0.36	-0.01	-1.55	-0.24	-0.88
MARS	0.55	-0.08	0.16	-0.03	-0.33	-0.38
TS	0.89	-1.53	-0.95	-2.12	-0.73	-0.94
AS	1.17	-0.53	-0.31	-1.68	-0.34	-1.28
PS	0.01	-0.84	-1.06	-3.69	-0.38	-2.96
ES	1.72	-2.81	-1.85	-5.18	-2.05	-5.54
PHA	-0.20	-0.11	-0.09	-0.42	-0.09	-0.53
SEF	-15.34	-1.14	2.39	6.30	0.80	6.21

Fitted Residuals

	REC	AMB	TAK	MARS	TS	AS
REC	0.00					
AMB	-0.02	-0.01				
TAK	-0.33	0.71	-0.01			
MARS	-0.23	0.24	0.01	0.00		
TS	0.22	0.00	0.01	-0.22	0.00	
AS	0.19	-0.68	-0.39	0.17	0.04	0.04
PS	-0.08	0.04	-1.30	-0.12	-0.04	0.05
ES	-0.16	-0.15	0.55	0.40	0.16	0.16
PHA	-0.18	-0.09	0.21	0.03	-0.01	0.01
SEF	-2.50	7.56	3.39	-0.35	-1.25	0.65

Fitted Residuals

	PS	ES	PHA	SEF
PS	0.00			
ES	0.09	0.24		
PHA	0.03	0.06	0.00	
SEF	-0.52	0.93	0.02	-3.48

Summary Statistics for Fitted Residuals

Smallest Fitted Residual = -15.34
Median Fitted Residual = -0.07
Largest Fitted Residual = 7.56

Stemleaf Plot

-15|3
-14|
-13|
-12|
-11|
-10|
- 9|
- 8|1
- 7|
- 6|
- 5|52
- 4|
- 3|750
- 2|988510

```
- 1|97653332211
- 0|99988877665555444444433333322222211111111111000000000000000000000000000+05
  0|11111112222222222234456777899
  1|27
  2|4
  3|4
  4|
  5|
  6|23
  7|6
```

Standardized Residuals

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TMH	-2.58					
AC_CH	-0.94	0.40				
CYC	-2.31	-0.06	-1.71			
CONSEQ	-1.64	0.52	-1.31	-2.38		
ILLCO	0.03	1.23	0.54	1.47	3.18	
EMO	-2.17	0.22	-1.74	-2.21	1.58	-2.32
REC	-1.71	-0.04	-1.31	0.01	0.49	0.09
AMB	0.49	-0.65	-0.31	-0.76	0.05	-0.32
TAK	-0.43	-1.03	-0.03	-0.94	-1.43	-0.83
MARS	0.89	-0.17	1.02	-0.04	-1.18	-0.71
TS	0.28	-1.82	-1.77	-1.42	-1.53	-0.64
AS	0.74	-1.30	-1.19	-2.32	-2.48	-1.78
PS	0.00	-1.31	-2.62	-3.24	-1.03	-2.65
ES	0.35	-2.19	-2.31	-2.30	-2.81	-2.52
PHA	-0.65	-1.45	-1.87	-3.07	-4.81	-3.97
SEF	-1.57	-0.30	1.51	1.21	0.38	1.58

Standardized Residuals

	REC	AMB	TAK	MARS	TS	AS
REC	0.00					
AMB	-0.31	-0.51				
TAK	-1.03	1.27	-0.12			
MARS	-1.29	0.98	0.05	0.10		
TS	0.23	0.00	0.00	-0.42	- -	
AS	0.39	-2.50	-0.59	0.65	0.15	1.10
PS	-0.11	0.09	-1.22	-0.39	-0.17	0.36
ES	-0.10	-0.17	0.26	0.71	0.42	0.66
PHA	-1.91	-1.79	1.64	0.53	-0.14	1.14
SEF	-0.66	3.07	0.53	-0.34	-0.33	0.88

Standardized Residuals

	PS	ES	PHA	SEF
PS	- -			
ES	0.66	1.49		
PHA	1.08	2.06	2.39	
SEF	-0.26	0.28	0.19	-1.08

Summary Statistics for Standardized Residuals

Smallest Standardized Residual = -4.81
Median Standardized Residual = -0.22
Largest Standardized Residual = 3.18

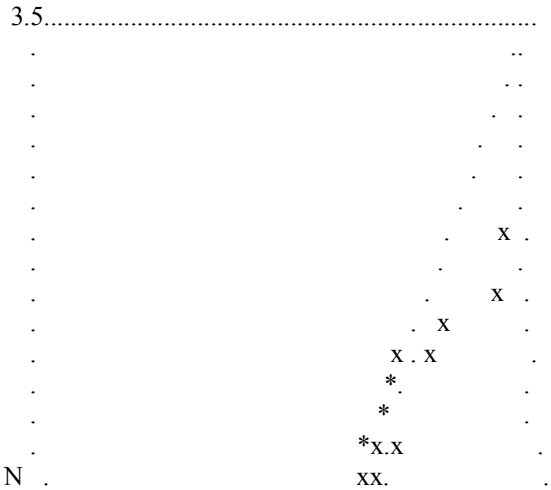
Stemleaf Plot

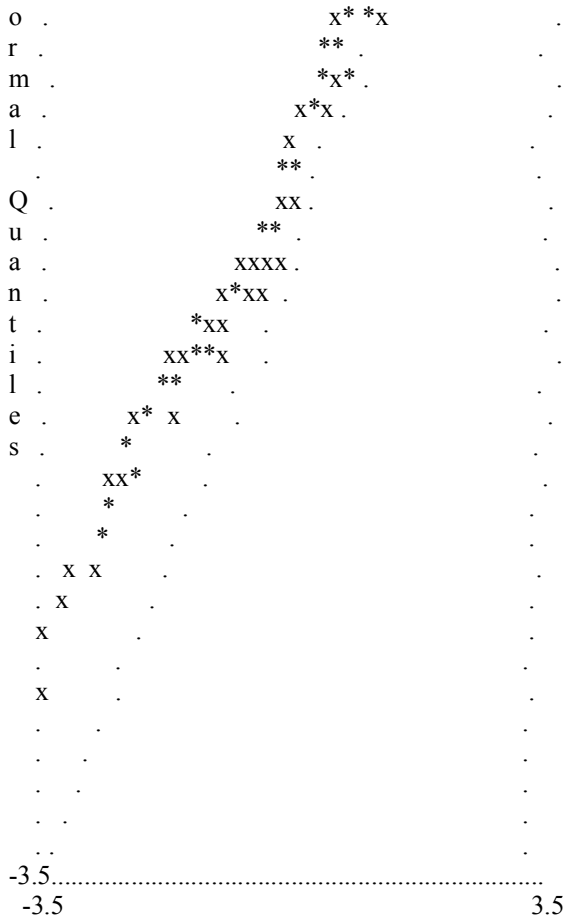
- 4|8
- 4|0
- 3|
- 3|21
- 2|8766555
- 2|433333222
- 1|998888777665
- 1|444333332221000
- 0|99887776665
- 0|4443333333222111100000000000
0|111111222333444444
0|5555557777799
1|00111223
1|555666
2|14
2|
3|12

Largest Negative Standardized Residuals
Residual for TMH and TMH -2.58
Residual for PS and CYC -2.62
Residual for PS and CONSEQ -3.24
Residual for PS and EMO -2.65
Residual for ES and ILLCO -2.81
Residual for PHA and CONSEQ -3.07
Residual for PHA and ILLCO -4.81
Residual for PHA and EMO -3.97
Largest Positive Standardized Residuals
Residual for ILLCO and ILLCO 3.18
Residual for SEF and AMB 3.07

adherence model 16 observes

Qplot of Standardized Residuals





adherence model 16 observes

Modification Indices and Expected Change

Modification Indices for LAMBDA-Y

	ILL_RE	INTEND	MED_AD
TMH	7.77	7.77	11.75
AC_CH	- -	0.02	0.00
CYC	- -	0.44	0.34
CONSEQ	- -	0.19	0.13
ILLCO	- -	0.04	0.82
EMO	- -	0.63	0.41
REC	0.05	- -	0.71
AMB	0.08	- -	0.76
TAK	0.02	- -	0.10
MARS	- -	- -	0.66

Expected Change for LAMBDA-Y

	ILL_RE	INTEND	MED_AD
TMH	-1.25	-6.36	17.21
AC_CH	- -	-0.03	0.00

CYC	- -	-0.12	0.03
CONSEQ	- -	-0.09	0.03
ILLCO	- -	0.02	-0.04
EMO	- -	0.21	-0.06
REC	-0.02	- -	-0.15
AMB	0.01	- -	0.05
TAK	-0.01	- -	0.46
MARS	- -	- -	-1.49

Standardized Expected Change for LAMBDA-Y

	ILL_RE	INTEND	MED_AD
TMH	-12.72	-19.22	50.12
AC_CH	- -	-0.10	0.01
CYC	- -	-0.36	0.09
CONSEQ	- -	-0.28	0.09
ILLCO	- -	0.05	-0.11
EMO	- -	0.65	-0.18
REC	-0.22	- -	-0.44
AMB	0.09	- -	0.15
TAK	-0.14	- -	1.35
MARS	- -	- -	-4.33

Completely Standardized Expected Change for LAMBDA-Y

	ILL_RE	INTEND	MED_AD
TMH	-1.04	-1.56	4.08
AC_CH	- -	-0.03	0.00
CYC	- -	-0.18	0.04
CONSEQ	- -	-0.05	0.02
ILLCO	- -	0.03	-0.06
EMO	- -	0.12	-0.03
REC	-0.06	- -	-0.12
AMB	0.04	- -	0.07
TAK	-0.03	- -	0.26
MARS	- -	- -	-1.70

Modification Indices for LAMBDA-X

	SUPPORT	ALL	EX_S
TS	- -	0.25	0.13
AS	- -	1.43	1.17
PS	- -	0.69	0.05
ES	1.85	0.31	0.06
PHA	1.85	7.18	- -
SEF	1.85	6.86	- -

Expected Change for LAMBDA-X

	SUPPORT	ALL	EX_S
TS	- -	-0.30	0.00
AS	- -	3.23	0.02
PS	- -	0.47	0.00

ES	1.47	-2.48	0.00
PHA	0.06	1.16	- -
SEF	1.09	23.00	- -

Standardized Expected Change for LAMBDA-X

	SUPPORT	ALL	EX_S
TS	- -	-0.13	-0.08
AS	- -	1.38	0.37
PS	- -	0.20	-0.04
ES	7.35	-1.06	0.08
PHA	0.28	0.49	- -
SEF	5.45	9.83	- -

Completely Standardized Expected Change for LAMBDA-X

	SUPPORT	ALL	EX_S
TS	- -	-0.03	-0.02
AS	- -	0.71	0.19
PS	- -	0.06	-0.01
ES	1.20	-0.17	0.01
PHA	0.73	1.30	- -
SEF	0.28	0.50	- -

Modification Indices for BETA

	ILL_RE	INTEND	MED_AD
ILL_RE	7.77	2.13	0.01
INTEND	- -	- -	0.30
MED_AD	- -	- -	0.66

Expected Change for BETA

	ILL_RE	INTEND	MED_AD
ILL_RE	-1.25	-1.82	0.15
INTEND	- -	- -	0.80
MED_AD	- -	- -	-1.73

Standardized Expected Change for BETA

	ILL_RE	INTEND	MED_AD
ILL_RE	-0.01	-0.06	0.01
INTEND	- -	- -	0.09
MED_AD	- -	- -	-0.20

Modification Indices for GAMMA

	SUPPORT	ALL	EX_S
ILL_RE	1.85	6.71	- -
INTEND	0.92	0.04	0.03
MED_AD	- -	0.66	- -

Expected Change for GAMMA

	SUPPORT	ALL	EX_S
ILL_RE	-0.18	-3.69	- -
INTEND	0.05	-0.10	0.00
MED_AD	- -	-0.36	- -

Standardized Expected Change for GAMMA

	SUPPORT	ALL	EX_S
ILL_RE	-0.09	-0.16	- -
INTEND	0.08	-0.01	-0.02
MED_AD	- -	-0.05	- -

No Non-Zero Modification Indices for PHI

Modification Indices for PSI

	ILL_RE	INTEND	MED_AD
ILL_RE	- -		
INTEND	0.01	- -	
MED_AD	0.66	- -	- -

Expected Change for PSI

	ILL_RE	INTEND	MED_AD
ILL_RE	- -		
INTEND	0.54	- -	
MED_AD	12.23	- -	- -

Standardized Expected Change for PSI

	ILL_RE	INTEND	MED_AD
ILL_RE	- -		
INTEND	0.02	- -	
MED_AD	0.41	- -	- -

Modification Indices for THETA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TMH	- -					
AC_CH	0.16	- -				
CYC	- -	0.05	- -			
CONSEQ	- -	- -	0.09	- -		
ILLCO	- -	- -	- -	0.59	- -	
EMO	- -	0.17	- -	- -	0.31	- -
REC	- -	- -	- -	0.18	0.00	0.09
AMB	- -	- -	- -	0.32	0.37	0.00
TAK	- -	- -	- -	0.86	- -	- -
MARS	- -	0.02	0.44	0.14	0.75	0.22

Modification Indices for THETA-EPS

	REC	AMB	TAK	MARS
REC	- -			
AMB	0.02	- -		
TAK	0.66	1.20	- -	
MARS	0.82	0.82	- -	- -

Expected Change for THETA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TMH	- -					
AC_CH	-1.01	- -				
CYC	- -	0.09	- -			
CONSEQ	- -	- -	-0.32	- -		
ILLCO	- -	- -	- -	0.35	- -	
EMO	- -	0.45	- -	- -	-0.29	- -
REC	- -	- -	- -	0.40	0.02	0.35
AMB	- -	- -	- -	-0.28	-0.14	0.01
TAK	- -	- -	- -	-1.69	- -	- -
MARS	- -	0.07	0.25	0.22	-0.24	-0.30

Expected Change for THETA-EPS

	REC	AMB	TAK	MARS
REC	- -			
AMB	-0.26	- -		
TAK	-1.46	0.75	- -	
MARS	-1.06	0.34	- -	- -

Completely Standardized Expected Change for THETA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TMH	- -					
AC_CH	-0.03	- -				
CYC	- -	0.01	- -			
CONSEQ	- -	- -	-0.03	- -		
ILLCO	- -	- -	- -	0.03	- -	
EMO	- -	0.03	- -	- -	-0.03	- -
REC	- -	- -	- -	0.02	0.00	0.02
AMB	- -	- -	- -	-0.02	-0.04	0.00
TAK	- -	- -	- -	-0.06	- -	- -
MARS	- -	0.01	0.05	0.02	-0.05	-0.02

Completely Standardized Expected Change for THETA-EPS

	REC	AMB	TAK	MARS
REC	- -			
AMB	-0.03	- -		
TAK	-0.08	0.07	- -	
MARS	-0.11	0.06	- -	- -

Modification Indices for THETA-DELTA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TS	0.02	0.66	0.66	0.22	0.34	2.23
AS	1.01	0.70	1.15	1.15	- -	0.06
PS	1.13	0.42	1.14	2.71	1.45	0.01
ES	0.09	0.44	0.34	1.13	4.16	0.85
PHA	0.02	0.10	0.20	0.03	- -	5.13
SEF	4.11	- -	0.91	0.42	0.04	0.05

Modification Indices for THETA-DELTA-EPS

	REC	AMB	TAK	MARS
TS	0.08	0.00	0.00	0.29
AS	3.13	8.01	0.66	0.41
PS	0.00	1.29	2.32	0.28
ES	0.12	0.29	0.29	0.35
PHA	1.32	0.38	6.41	0.66
SEF	4.19	5.98	1.09	0.66

Expected Change for THETA-DELTA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TS	0.30	-0.53	-0.30	-0.38	-0.22	1.14
AS	1.13	-0.27	0.20	-0.42	- -	0.09
PS	1.62	0.29	-0.27	-0.90	0.31	-0.05
ES	0.86	-0.56	-0.28	1.11	-1.05	-0.91
PHA	-0.03	-0.02	0.02	0.01	- -	-0.19
SEF	-31.82	- -	2.40	3.21	0.46	1.18

Expected Change for THETA-DELTA-EPS

	REC	AMB	TAK	MARS
TS	-0.19	0.03	0.01	-0.29
AS	0.59	-0.57	-0.43	0.17
PS	0.01	0.32	-1.11	-0.20
ES	0.31	0.29	0.75	0.43
PHA	-0.09	-0.03	0.30	-0.05
SEF	-8.82	5.77	6.43	-19.70

Completely Standardized Expected Change for THETA-DELTA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TS	0.01	-0.04	-0.04	-0.02	-0.03	0.05
AS	0.05	-0.04	0.05	-0.04	- -	0.01
PS	0.04	0.03	-0.04	-0.05	0.06	0.00
ES	0.01	-0.03	-0.02	0.03	-0.10	-0.03
PHA	-0.01	-0.02	0.02	0.01	- -	-0.09
SEF	-0.13	- -	0.06	0.03	0.01	0.01

Completely Standardized Expected Change for THETA-DELTA-EPS

	REC	AMB	TAK	MARS
TS	-0.01	0.00	0.00	-0.03
AS	0.08	-0.14	-0.04	0.03
PS	0.00	0.05	-0.07	-0.03
ES	0.01	0.02	0.02	0.03
PHA	-0.06	-0.03	0.15	-0.05
SEF	-0.12	0.14	0.06	-0.40

Modification Indices for THETA-DELTA

	TS	AS	PS	ES	PHA	SEF
TS	- -					
AS	0.03	- -				
PS	0.03	0.04	- -			
ES	0.21	0.04	0.00	- -		
PHA	0.31	- -	0.97	- -	6.10	
SEF	0.21	- -	0.01	0.24	5.69	- -

Expected Change for THETA-DELTA

	TS	AS	PS	ES	PHA	SEF
TS	- -					
AS	-0.07	- -				
PS	-0.12	0.06	- -			
ES	0.68	-0.14	-0.08	- -		
PHA	-0.05	- -	0.08	- -	0.16	
SEF	-1.87	- -	0.32	2.89	3.07	- -

Completely Standardized Expected Change for THETA-DELTA

	TS	AS	PS	ES	PHA	SEF
TS	- -					
AS	-0.01	- -				
PS	-0.01	0.01	- -			
ES	0.03	-0.01	0.00	- -		
PHA	-0.03	- -	0.07	- -	1.11	
SEF	-0.02	- -	0.01	0.02	0.41	- -

Maximum Modification Index is 11.75 for Element (1, 3) of LAMBDA-Y

adherence model 16 observes

Factor Scores Regressions

ETA

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
ILL_RE	0.49	-0.10	2.71	-0.61	1.06	0.68
INTEND	0.09	0.03	0.50	-0.11	0.14	0.01
MED_AD	-0.02	0.00	0.00	0.01	-0.04	0.02

ETA

	REC	AMB	TAK	MARS	TS	AS
ILL_RE	0.82	-0.14	-0.09	0.22	-0.01	0.09
INTEND	0.53	0.16	0.03	-0.13	0.00	0.00
MED_AD	0.01	0.01	-0.08	1.15	0.00	0.00

ETA

	PS	ES	PHA	SEF
ILL_RE	-0.04	-0.02	0.06	-0.03
INTEND	-0.01	0.00	-0.10	-0.01
MED_AD	0.00	0.00	0.01	0.00

KSI

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
SUPPORT	0.00	0.00	0.02	0.00	0.06	0.00
ALL	0.00	0.00	0.00	0.00	0.04	0.00
EX_S	-0.01	-0.03	-0.04	0.01	0.37	-0.05

KSI

	REC	AMB	TAK	MARS	TS	AS
SUPPORT	0.01	0.00	0.00	0.02	0.22	0.42
ALL	0.00	0.00	0.00	0.00	0.01	-0.02
EX_S	-0.04	-0.02	0.02	-0.02	-0.15	2.64

KSI

	PS	ES	PHA	SEF
SUPPORT	0.56	0.36	-0.43	0.01
ALL	0.02	-0.01	1.15	0.00
EX_S	-0.37	-0.21	-0.98	1.14

adherence model 16 observes

Standardized Solution

LAMBDA-Y

	ILL_RE	INTEND	MED_AD
TMH	10.18	- -	- -
AC_CH	0.82	- -	- -
CYC	1.72	- -	- -
CONSEQ	3.19	- -	- -
ILLCO	0.48	- -	- -
EMO	4.30	- -	- -
REC	- -	3.02	- -
AMB	- -	0.97	- -
TAK	- -	1.31	- -

MARS - - - - 2.50

LAMBDA-X

	SUPPORT	ALL	EX_S
TS	2.50	- -	- -
AS	1.11	- -	- -
PS	2.40	- -	- -
ES	5.01	- -	- -
PHA	- -	0.37	- -
SEF	- -	- -	19.59

BETA

	ILL_RE	INTEND	MED_AD
ILL_RE	- -	- -	- -
INTEND	0.66	- -	- -
MED_AD	0.12	-0.48	- -

GAMMA

	SUPPORT	ALL	EX_S
ILL_RE	0.06	0.11	0.31
INTEND	- -	- -	- -
MED_AD	0.04	0.03	0.02

Correlation Matrix of ETA and KSI

	ILL_RE	INTEND	MED_AD	SUPPORT	ALL	EX_S
ILL_RE	1.00					
INTEND	0.66	1.00				
MED_AD	-0.18	-0.39	1.00			
SUPPORT	0.09	0.06	0.03	1.00		
ALL	0.10	0.07	0.02	0.18	1.00	
EX_S	0.30	0.20	-0.04	0.04	-0.08	1.00

PSI

Note: This matrix is diagonal.

ILL_RE	INTEND	MED_AD
0.89	0.56	0.83

Regression Matrix ETA on KSI (Standardized)

	SUPPORT	ALL	EX_S
ILL_RE	0.06	0.11	0.31
INTEND	0.04	0.08	0.21
MED_AD	0.03	0.01	-0.04

adherence model 16 observes

Completely Standardized Solution

LAMBDA-Y

	ILL_RE	INTEND	MED_AD
TMH	0.83	- -	- -
AC_CH	0.26	- -	- -
CYC	0.84	- -	- -
CONSEQ	0.56	- -	- -
ILLCO	0.27	- -	- -
EMO	0.77	- -	- -
REC	- -	0.81	- -
AMB	- -	0.46	- -
TAK	- -	0.25	- -
MARS	- -	- -	0.99

LAMBDA-X

	SUPPORT	ALL	EX_S
TS	0.62	- -	- -
AS	0.57	- -	- -
PS	0.78	- -	- -
ES	0.82	- -	- -
PHA	- -	0.96	- -
SEF	- -	- -	1.00

BETA

	ILL_RE	INTEND	MED_AD
ILL_RE	- -	- -	- -
INTEND	0.66	- -	- -
MED_AD	0.12	-0.48	- -

GAMMA

	SUPPORT	ALL	EX_S
ILL_RE	0.06	0.11	0.31
INTEND	- -	- -	- -
MED_AD	0.04	0.03	0.02

Correlation Matrix of ETA and KSI

	ILL_RE	INTEND	MED_AD	SUPPORT	ALL	EX_S
ILL_RE	1.00					
INTEND	0.66	1.00				
MED_AD	-0.18	-0.39	1.00			
SUPPORT	0.09	0.06	0.03	1.00		
ALL	0.10	0.07	0.02	0.18	1.00	
EX_S	0.30	0.20	-0.04	0.04	-0.08	1.00

PSI

Note: This matrix is diagonal.

ILL_RE	INTEND	MED_AD
0.89	0.56	0.83

THETA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TMH	0.31					
AC_CH	- -	0.93				
CYC	-0.29	- -	0.30			
CONSEQ	- -	0.06	- -	0.68		
ILLCO	-0.22	0.08	-0.18	- -	0.93	
EMO	-0.20	- -	-0.16	0.31	- -	0.41
REC	-0.28	-0.09	-0.25	- -	- -	- -
AMB	-0.14	-0.19	-0.03	- -	- -	- -
TAK	0.07	-0.09	-0.13	- -	-0.11	0.06
MARS	0.08	- -	- -	- -	- -	- -

THETA-EPS

	REC	AMB	TAK	MARS
REC	0.34			
AMB	- -	0.78		
TAK	- -	- -	0.94	
MARS	- -	- -	0.15	0.03

THETA-DELTA-EPS

	TMH	AC_CH	CYC	CONSEQ	ILLCO	EMO
TS	- -	- -	- -	- -	- -	- -
AS	- -	- -	- -	- -	-0.14	- -
PS	- -	- -	- -	- -	- -	- -
ES	- -	- -	- -	- -	- -	- -
PHA	- -	- -	- -	- -	-0.15	- -
SEF	- -	- -	- -	- -	- -	- -

THETA-DELTA-EPS

	REC	AMB	TAK	MARS
TS	- -	- -	- -	- -
AS	- -	- -	- -	- -
PS	- -	- -	- -	- -
ES	- -	- -	- -	- -
PHA	- -	- -	- -	- -
SEF	- -	- -	- -	- -

THETA-DELTA

	TS	AS	PS	ES	PHA	SEF
TS	0.61					
AS	- -	0.67				

PS	- -	- -	0.39	
ES	- -	- -	- -	0.33
PHA	- -	0.12	- -	0.11	0.07
SEF	- -	-0.16	- -	- -	- -	0.00

Regression Matrix ETA on KSI (Standardized)

	SUPPORT	ALL	EX_S
ILL_RE	0.06	0.11	0.31
INTEND	0.04	0.08	0.21
MED_AD	0.03	0.01	-0.04

adherence model 16 observes

Total and Indirect Effects

Total Effects of KSI on ETA

	SUPPORT	ALL	EX_S
ILL_RE	0.12	2.73	0.15
		(0.03)	
		5.12	
INTEND	0.02	0.54	0.03
	(0.00)	(0.11)	(0.01)
	5.09	5.09	4.09
MED_AD	0.02	0.06	-0.01
	(0.04)	(0.06)	(0.01)
	0.44	0.93	-0.70

Indirect Effects of KSI on ETA

	SUPPORT	ALL	EX_S
ILL_RE	- -	- -	- -
INTEND	0.02	0.54	0.03
	(0.00)	(0.11)	(0.01)
	5.09	5.09	4.09
MED_AD	-0.01	-0.15	-0.01
	(0.00)	(0.06)	(0.00)
	-2.38	-2.38	-2.24

Total Effects of ETA on ETA

	ILL_RE	INTEND	MED_AD
ILL_RE	- -	- -	- -
INTEND	0.20	- -	- -

	(0.04)		
	5.09		
MED_AD	-0.06	-0.46	- -
	(0.02)	(0.18)	
	-2.38	-2.54	

Largest Eigenvalue of B*B' (Stability Index) is 0.214

Indirect Effects of ETA on ETA

	ILL_RE	INTEND	MED_AD
ILL_RE	- -	- -	- -
INTEND	- -	- -	- -
MED_AD	-0.09	- -	- -
	(0.04)		
	-2.27		

Total Effects of ETA on Y

	ILL_RE	INTEND	MED_AD
TMH	1.00	- -	- -
AC_CH	0.08	- -	- -
	(0.02)		
	3.35		
CYC	0.17	- -	- -
	(0.02)		
	7.45		
CONSEQ	0.31	- -	- -
	(0.07)		
	4.69		
ILLCO	0.05	- -	- -
	(0.02)		
	3.09		
EMO	0.42	- -	- -
	(0.07)		
	5.68		
REC	0.20	1.00	- -
	(0.04)		
	5.09		
AMB	0.06	0.32	- -
	(0.02)	(0.07)	

3.83 4.79

TAK 0.09 0.43 - -
(0.03) (0.15)
2.73 2.93

MARS -0.05 -0.40 0.86
(0.02) (0.16)
-2.38 -2.54

Indirect Effects of ETA on Y

	ILL_RE	INTEND	MED_AD
TMH	- -	- -	- -
AC_CH	- -	- -	- -
CYC	- -	- -	- -
CONSEQ	- -	- -	- -
ILLCO	- -	- -	- -
EMO	- -	- -	- -
REC	0.20	- -	- -
	(0.04)		
	5.09		
AMB	0.06	- -	- -
	(0.02)		
	3.83		
TAK	0.09	- -	- -
	(0.03)		
	2.73		
MARS	-0.05	-0.40	- -
	(0.02)	(0.16)	
	-2.38	-2.54	

Total Effects of KSI on Y

	SUPPORT	ALL	EX_S
TMH	0.12	2.73	0.15
		(0.03)	
		5.12	
AC_CH	0.01	0.22	0.01
	(0.00)	(0.07)	(0.00)
	3.35	3.35	2.97

CYC	0.02	0.46	0.02
	(0.00)	(0.06)	(0.00)
	7.45	7.45	5.08
CONSEQ	0.04	0.85	0.05
	(0.01)	(0.18)	(0.01)
	4.69	4.69	3.80
ILLCO	0.01	0.13	0.01
	(0.00)	(0.04)	(0.00)
	3.09	3.09	2.88
EMO	0.05	1.15	0.06
	(0.01)	(0.20)	(0.01)
	5.68	5.68	4.36
REC	0.02	0.54	0.03
	(0.00)	(0.11)	(0.01)
	5.09	5.09	4.09
AMB	0.01	0.17	0.01
	(0.00)	(0.04)	(0.00)
	3.83	3.83	3.31
TAK	0.01	0.23	0.01
	(0.00)	(0.09)	(0.01)
	2.73	2.73	2.48
MARS	0.02	0.05	-0.01
	(0.04)	(0.05)	(0.01)
	0.44	0.93	-0.70

adherence model 16 observes

Standardized Total and Indirect Effects

Standardized Total Effects of KSI on ETA

	SUPPORT	ALL	EX_S
ILL_RE	0.06	0.11	0.31
INTEND	0.04	0.08	0.21
MED_AD	0.03	0.01	-0.04

Standardized Indirect Effects of KSI on ETA

	SUPPORT	ALL	EX_S
ILL_RE	- -	- -	- -
INTEND	0.04	0.08	0.21
MED_AD	-0.01	-0.02	-0.06

Standardized Total Effects of ETA on ETA

	ILL_RE	INTEND	MED_AD
ILL_RE	- -	- -	- -
INTEND	0.66	- -	- -
MED_AD	-0.19	-0.48	- -

Standardized Indirect Effects of ETA on ETA

	ILL_RE	INTEND	MED_AD
ILL_RE	- -	- -	- -
INTEND	- -	- -	- -
MED_AD	-0.32	- -	- -

Standardized Total Effects of ETA on Y

	ILL_RE	INTEND	MED_AD
TMH	10.18	- -	- -
AC_CH	0.82	- -	- -
CYC	1.72	- -	- -
CONSEQ	3.19	- -	- -
ILLCO	0.48	- -	- -
EMO	4.30	- -	- -
REC	2.00	3.02	- -
AMB	0.64	0.97	- -
TAK	0.87	1.31	- -
MARS	-0.48	-1.20	2.50

Completely Standardized Total Effects of ETA on Y

	ILL_RE	INTEND	MED_AD
TMH	0.83	- -	- -
AC_CH	0.26	- -	- -
CYC	0.84	- -	- -
CONSEQ	0.56	- -	- -
ILLCO	0.27	- -	- -
EMO	0.77	- -	- -
REC	0.54	0.81	- -
AMB	0.31	0.46	- -
TAK	0.17	0.25	- -
MARS	-0.19	-0.47	0.99

Standardized Indirect Effects of ETA on Y

	ILL_RE	INTEND	MED_AD
TMH	- -	- -	- -
AC_CH	- -	- -	- -
CYC	- -	- -	- -
CONSEQ	- -	- -	- -
ILLCO	- -	- -	- -
EMO	- -	- -	- -
REC	2.00	- -	- -
AMB	0.64	- -	- -
TAK	0.87	- -	- -

MARS	-0.48	-1.20	- -

Completely Standardized Indirect Effects of ETA on Y

	ILL_RE	INTEND	MED_AD
TMH	- -	- -	- -
AC_CH	- -	- -	- -
CYC	- -	- -	- -
CONSEQ	- -	- -	- -
ILLCO	- -	- -	- -
EMO	- -	- -	- -
REC	0.54	- -	- -
AMB	0.31	- -	- -
TAK	0.17	- -	- -
MARS	-0.19	-0.47	- -

Standardized Total Effects of KSI on Y

	SUPPORT	ALL	EX_S
TMH	0.60	1.17	3.17
AC_CH	0.05	0.09	0.25
CYC	0.10	0.20	0.54
CONSEQ	0.19	0.37	0.99
ILLCO	0.03	0.06	0.15
EMO	0.25	0.49	1.34
REC	0.12	0.23	0.62
AMB	0.04	0.07	0.20
TAK	0.05	0.10	0.27
MARS	0.08	0.02	-0.11

Completely Standardized Total Effects of KSI on Y

	SUPPORT	ALL	EX_S
TMH	0.05	0.09	0.26
AC_CH	0.02	0.03	0.08
CYC	0.05	0.10	0.26
CONSEQ	0.03	0.06	0.18
ILLCO	0.02	0.03	0.08
EMO	0.05	0.09	0.24
REC	0.03	0.06	0.17
AMB	0.02	0.04	0.10
TAK	0.01	0.02	0.05
MARS	0.03	0.01	-0.04

Time used: 0.180 Seconds

BIOGRAPHY

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