FACTORS RELATED TO VISIT ADHERENCE AMONG SCHIZOPHRENIA PATIENTS IN YASOTHON PROVINCE

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FACTORS RELATED TO VISIT ADHERENCE AMONG SCHIZOPHRENIA PATIENTS IN YASOTHON PROVINCE

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ABSTRACT

This study aims to describe the level of visit adherence in schizophrenia patients in the previous 12 months immediately prior to this study, and identifies factors associated with adherence to outpatient visits among schizophrenia patients at hospitals in Yasothon province. A cross-sectional study was used to collect data from patients with schizophrenia in three community hospitals in Yasothon Province, Thailand from February to April, 2015. Two-stage cluster sampling was employed to select 280 subjects. The structured questionnaire consisted of four parts which was filled in by trained research assistants. Medical record forms were used to obtain the information on adherence in the last 12 months, then the form was checked by nurses at the psychiatric clinic of selected hospitals. The Chi-square test and multiple logistic regression were used to determine associations between the independent variables and visit adherence at the psychiatric outpatient department. This study revealed that 69.6% of schizophrenia patients adhered to their psychiatric appointments. The reasons for missed appointments included time management problems (53.6%), forgetting the appointments (17.5%), thought that they already recovered (8.2%), no one to accompany them to the hospital (7.9%), and refusal to take psychiatric medications (3.9%). Adherence to outpatient visits was found to be significantly associated with a high level of education, being a farmer, low income, short time of illness, low perceived barriers to care, family support, sharing of experience among patients, being reminded by friends of outpatient visits, other expense, owning a vehicle, and high self-efficacy. Multiple logistic regression showed that sufficient education (AOR=1.944; 95%CI=1.042-3.628), sharing experience among patients (AOR=2.423; 95%CI=1.259-4.660), and family support (AOR=1.944; 95%CI=1.100-3.433) were the strong predictors of visit adherence to psychiatric outpatient visits among schizophrenia patients when adjusted for other factors.

In conclusion, to improve the visit adherence to the psychiatric outpatient department, health providers and family care teams should support the strengthening of family relationships, while hospitals could set up the medical appointment reminder messages or calls. In addition, initiation of the opportunity for a group of schizophrenia patients to share their experiences will improve the understanding of disease management.

KEY WORDS : VISIT ADHERENCE/SCHIZOPHRENIA/THAILAND

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ปัจจัยที่สัมพันธ์กับการมาตามนัดของผู้ป่วยจิตเภทในจังหวัดยโสธร
FACTORS RELATED TO VISIT ADHERENCE AMONG SCHIZOPHRENIA PATIENTS IN YASOTHON PROVINCE

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่ออธิบายการมาตามนัดของผู้ป่วยจิตเภทในระยะเวลา 12 เดือนก่อนการวิจัยและค้นหาปัจจัยที่สัมพันธ์กับการมาตามนัดของผู้ป่วยจิตเภทในโรงพยาบาลที่จังหวัดยโสธร ใช้วิธีการศึกษาแบบตัดขวางเพื่อเก็บข้อมูลจากผู้ป่วยในโรงพยาบาลชุมชน 3 แห่งในจังหวัดยโสธร ระหว่างเดือนกุมภาพันธ์ถึงเดือนเมษายน พ.ศ.2558 สุ่มตัวอย่างแบบเป็นขั้นตอนเพื่อเลือกผู้ป่วยจิตเภทจำนวน 280 คน ใช้แบบสอบถามที่ประกอบด้วย 4 ส่วน เพื่อเก็บข้อมูลการมาตามนัดในระยะเวลา 12 เดือนที่ผ่านมาและปัจจัยที่เกี่ยวข้อง วิเคราะห์ข้อมูลโดยใช้สถิติพรรณาและสถิติถดถอยพหุคูณเพื่อหาความสัมพันธ์ระหว่างตัวแปรต่างๆกับการมาตามนัดในคลินิกจิตเวช

ผลการวิจัยพบว่าผู้ป่วยจิตเภทร้อยล่ะ 69.6 สามารถมาตามนัด เหตุผลของการผิดนัดเกิดจากติดธุระ 53.6% ลืม 17.5% คิดว่าตนเองรักษาหายแล้ว 8.2% ไม่มีคนพามาโรงพยาบาล 7.9% ไม่ต้องการทานยาต่อ 3.9% ปัจจัยที่พบว่ามีความสัมพันธ์กับการมาตามนัดได้แก่ การมีระดับการศึกษาสูง ประกอบอาชีพชาวนา มีรายได้น้อย ระยะเวลาเจ็บป่วยเป็นมาไม่นาน การรับรู้อุปสรรคในการรักษาน้อย ได้รับการสนับสนุนจากครอบครัว มีการพูดคุยปรึกษากับผู้ป่วยคนอื่นๆ ผู้ป่วยรายอื่นๆได้แนะนำให้มาตามนัด มีค่าใช้จ่ายอื่นๆ มีพาหนะเดินทางส่วนตัว และมีการรับรู้ความสามารถในการดูแลตนเองสูง การวิจัยพบว่าปัจจัยที่มีความสัมพันธ์กับการมาตามนัดอย่างมีนัยยะสำคัญ ได้แก่ กลุ่มผู้ป่วยที่มีระดับการศึกษาสูงมีความเป็นไปได้ในการมาตามนัดเป็น 1.9 เท่า เมื่อเปรียบเทียบกับกลุ่มที่ระดับการศึกษาต่ำ (AOR=1.944; 95%CI=1.042-3.628), กลุ่มผู้ป่วยที่ได้พูดคุยปรึกษากับผู้ป่วยคนอื่นๆมีความเป็นไปได้ในการมาตามนัดเป็น 2.4 เท่าเมื่อเปรียบเทียบกับกลุ่มที่ไม่ได้พูดคุย (AOR=2.423; 95%CI=1.259-4.660) กลุ่มผู้ป่วยที่ได้รับการสนับสนุนจากครอบครัวมีความเป็นไปได้ในการมาตามนัดเป็น 1.9 เท่าเมื่อเปรียบเทียบกับกลุ่มที่ไม่ได้รับการสนับสนุนจากครอบครัว (AOR=1.944; 95%CI=1.100-3.433)

ดังนั้นเพื่อสนับสนุนให้ผู้ป่วยจิตเภทมาตามนัด ผู้ให้บริการและทีมหมอครอบครัวควรสนับสนุนความเข้มแข็งของความสัมพันธ์ของครอบครัว ในขณะที่โรงพยาบาลควรมีระบบการเตือนให้ผู้ป่วยมาตามนัดโดยการโทรศัพท์เตือนหรือการส่งข้อความเตือนทางโทรศัพท์ นอกเหนือจากนั้นการสนับสนุนให้ผู้ป่วยจัดตั้งกลุ่มเพื่อแลกเปลี่ยนประสบการณ์จะสามารถทำให้ผู้ป่วยสามารถจัดการกับโรคที่เป็นอยู่ได้ดีขึ้น

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WHO	World Health Organization
SRS	Simple random sampling
SAO	Subdistrict Administrative Organization
EMS	Emergency Medical Services
TD	Tardive dyskinesia
CBT	Cognitive behavioral therapy
UC	Universal coverage

CHAPTER I
INTRODUCTION

1.1 Rationale and Justification

Schizophrenia is a psychiatric disorder involving chronic or recurrent psychosis. It is commonly associated with impairments in social and occupational functioning (1). It is among the most disabling and economically catastrophic medical disorders, ranked by the World Health Organization (WHO) as one of the top ten illnesses contributing to the global burden of disease (2).

WHO has estimate that in 2015 there were 21 million schizophrenia patients worldwide (3). The prevalence in adults ranges between 1 and 17 per 1000 population and lifetime prevalence between 1 and 18 per 1000. Though the incidence is low (3-10,000), the prevalence is high due to chronicity (4). In Southeast Asia population the study of prevalence in schizophrenia patient by WHO 2004 was 3.69 per 1,000 (5). A study of prevalence in Thailand identify by Phanthunane et all was 8.8 per 1,000 (95% CI: 7.2, 10.6) with a male-to-female ratio of 1.1-to-1.0 (6). For men, the peak incidence of onset of schizophrenia has been determined to be between ages 15-25 years; for women, between ages 25-35 years and second peak of onset after age 40–45 years. The WHO's determinants of outcome study found a mean gender difference in age at onset of 3.4 years (7).

The causation of schizophrenia are unknown, however research suggested that a combination of physical, genetic, psychological and environmental factors can make people more likely to develop the condition. Currently, people may be prone to schizophrenia because of a stressful or emotional life events might trigger a psychotic episode (8). The symptoms of schizophrenia are preceded by a 'prodromal' period. This is often characterized by some deterioration in personal functioning. Difficulties may include memory and concentration problems, social withdrawal, unusual and uncharacteristic behavior, disturbed communication and affect, bizarre ideas and perceptual experiences, poor personal hygiene, and reduced interest in and motivation for day-to-day activities.

These changes may well affect the person's ability to hold down a job, study, or relate to family and friends. The prodromal period is typically followed by an acute phase marked by characteristic positive symptoms of hallucinations, delusions, and behavioral disturbances, such as agitation and distress. After received some treatment, positive symptoms diminish or disappear for many people. Sometimes leaving a number of negative symptoms. After an initial episode, between 14 and 20% of individuals will recover fully. Others will improve but often interrupted by acute exacerbations or 'relapses', of symptoms such as hallucinations and delusions and disturbed behavior. Relapse can be affected by stress, social adversity and isolation. 80% of persons with schizophrenia will relapse within 5 years of a treated first episode which is partly explained by discontinuation of medication (9).

Especially for patients with chronic diseases, adherence is an important factor that interferes with the success of treatment (10). Outpatient non-attendance is a serious problem in clinical and economic terms. Empirical studies indicated a wide range of base rates of missed appointments in psychiatry from 12 to 60% (11). Similar percentages have also been reported in studies on schizophrenia (12). In Thailand the study of outpatient non-attendance in Galya Rajanagarindra Institute found that 365 patients whose medical records were reviewed, 21.4% missed their appointments (13).

Non-attendance as a predictor of missed medication, dropout, relapse, readmission, homicides and suicides. In the psychiatric population, it has been reported that 30%-60% of patients who did not participate in their appointments stopped taking their drugs (14). For schizophrenia patients, the percentage of patients who have stopped taking their medication has been reported to be as high as 88% (15). Killaspe et al showed that follow-up patients who missed an appointment were at a high risk of dropout and admission within 12 month period (16).

Killaspy *et al* (2000) found that follow-up patients who missed an appointment were more unwell and more functionally impaired than those who attended (17). A failure of follow up with outpatient care after leaving the hospital greatly increases the risk of relapse and rehospitalization (18). In a comprehensive study, Nelson *et al* (2000) collected data on 3113 psychiatric admissions in eight south-eastern US states and calculated rehospitalisation rates after discharge. On the basis of the 365-day rehospitalisation rate, patients who kept a follow-up appointment had a 1 in 10 chance of being rehospitalised; for patients who did not keep (or were not offered) an appointment, the chances were 1 in 4 (17). Killaspy *et al* (2000)

interviewed 57 new patients and 167 follow-up patients who did and did not attend general adult psychiatric out-patient clinic appointments over 12 months. Follow-up patients who did not attend had a 33% chance of being admitted in the next 12 months, compared with a 20% chance for the group that did attend (17). Rehospitalization leads to occupational and family problems and subsequently decreases the patient's quality of life (19).

People with the condition have a 50 times higher risk of attempting suicide than the general population; the risk of suicide is very serious in people with schizophrenia (20). Suicide is the number one cause of premature death among people with schizophrenia, with an estimated 10 percent to 13 percent killing themselves and approximately 40% attempting suicide at least once (and as much as 60% of males attempting suicide). The extreme depression and psychoses that can result due to lack of treatment are the usual causes. These suicides rates can be compared to the general population, which is somewhere around 0.01% (20). Apart from the significant health consequences, the health care costs of schizophrenia are also high and frequently underestimated. The World Health Organization (WHO) estimates the direct health care costs of schizophrenia in Western countries range between 1.6% and 2.6% of total health care expenditures. This means £396 million in the United Kingdom and $18 billion in the United States (National Advisory Mental Health Council, 1993; Davies and Drummond, 1994) (21).

The data from the study area showed that the non-adherence of person with schizophrenia to in psychiatric clinic is about 20-30%. Some schizophrenia patients who did not participate in their appointments have relapse symptom. Their family cannot take them to the hospital because they will aggressive and not cooperate. Every times the policeman must help by taking them to the hospital and refer to Phrasimahabhodi psychiatric hospital.

Medication non-adherence is particularly closely linked with non-attendance (10). Patients who discontinue medication of their own accord may be reluctant to disclose this to the medical staff, and indeed cannot disclose it if they did not attend again. Conversely, patients who missed appointments will not receive the full benefit of medical advice and hence were less likely to make an informed choice about their care and are more likely to act autonomously in a self-directed manner (17).

Few research studies addressed the social support in persons with psychiatric in Thailand. The Ministry of Health of Thailand has emphasized the district health strengthening and support a group of village health volunteers to facilitate promoting health activities at the local level in many activities. Therefor this study aimed to identify factors related to visit adherence to psychiatric outpatient visits in persons with Schizophrenia which grouped in to four risk factors; demographic factors, clinical factors, perception to medical care, supportive factors. The supporting by community and health volunteer group were part of the variables in this study.

The result of the study could be used to improve the health services and cooperate the relevant departments for increase the attendance of persons with schizophrenia, reduce for missed medication, reduce relapse and exacerbation of disease. In addition, the finding could be used to facilitate and support patients to attend the doctor appointment regularly.

1.2 Research Questions

What is the level of adherence to outpatient visits in schizophrenia patients?

What factors associated with visit adherence in schizophrenia patients?

1.3 Research Objectives

1.3.1 General objective

To determine an association between adherence to outpatient visits and demographic factors, clinical factors, perception to medical care, supportive factors in schizophrenia patients.

1.3.2 Specific objectives

-To describe the level of visit adherence in schizophrenia patients in the previous 12 months prior to this study.

-To identify factors associated with adherence to outpatient visits among schizophrenia patients in Yasothon province.

1.4 Conceptual Framework

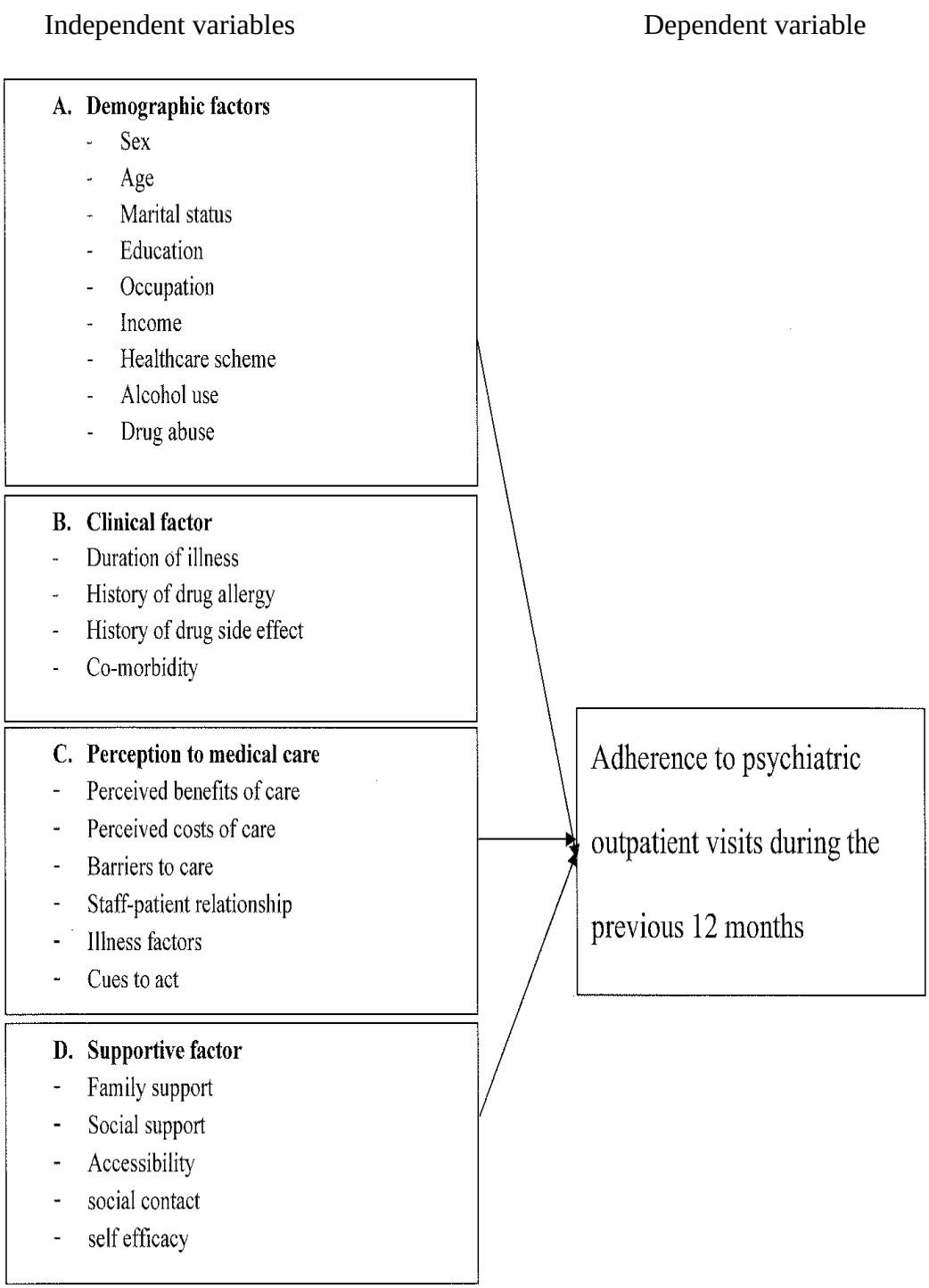

Figure 1.1 : Conceptual framework for adherence to psychiatric outpatient visits

1.5 Operational definitions

1.5.1 Dependent variable

Based on the conceptual framework, the operational definitions of the variables are as follows: schizophrenia patients: person who was diagnosis schizophrenia by physician and has been treated at community hospitals and visit outpatient during the data collecting period.

Adherence to psychiatric outpatient visits in this study referred to the number of visits by total number of appointments by doctor.

$$\% \text{ adherence} = \frac{\text{number of visit}}{\text{Total number of appointment by doctor}} \times 100$$

It will be classified into 2 categories; adherence if percentage of adherence more than or equal to 80% (10), non-adherence if percentage of adherence less than 80%. The number of visits and total number of appointments by doctor were recorded from medical record 12 months prior the study by register nurses.

1.5.2 Independent Variables

1.5.2.1 Demographic characteristics

Demographic characteristics include age, gender, marital status, education, occupation, income, healthcare scheme, alcohol, drug abuse

Age: refers to the ages in complete years of respondents.

Gender: refers to the respondents' gender; female or male.

Marital status: refers whether the respondents were single, married, divorced, widowed or separated.

Education: refers to the highest of education level. It will be categorized into no school, primary school, secondary school, bachelor 's degree and higher than bachelor's degree.

Occupation: refers to the main type of work to get income. It will be categorized into farmer, government official, state enterprise employee, employee, own business, other.

Income: refers to amount of money received per month by working or support by family including financial aids for elderly or disabled.

Healthcare scheme: refers to a health insurance program set up by the national government. It will be categorized into universal coverage scheme, civil servant medical benefit scheme, social security scheme, disability rights, other.

Alcohol use: refers to any type of beverage containing alcohol, the alcohol consumption in last 3 months prior the study survey.

Drug abuse: refers to use of psychoactive substances in last 3 months prior the study survey, including cannabis, amphetamine-type stimulant, cocaine, sedative, sleeping medication not as prescribed. Psychoactive substance use can lead to dependence syndrome. A cluster of behavioral, cognitive, and physiological phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, increased tolerance, and sometimes a physical withdrawal state.

1.5.2.2 Clinical factors

Clinical factor include duration of illness, history of drug allergy, history of side effect and comorbidity

Duration of illness: refers to the duration that physician diagnosed schizophrenia to the date of interview.

History of drug allergy: refers to adverse events that occur in schizophrenia patients by schizophrenia drug. Symptoms of drug allergy can include itching, rash, facial swelling, shortness of breath.

History of drug side effect: refer to undesired harmful effect resulting from a medication. For example drowsiness, acute dystonia, parkinsonism, dizziness when changing positions, dry lip/dry mucosa, tardive dyskinesia, weight gain.

Co-morbidity: refers to two or more coexisting medical conditions or disease that is additional to an initial diagnosis.

1.5.2.3 Perception to medical care

Perception to medical care included perceived benefits of care, perceived costs of care, barriers to care, staff-patient relationship, illness factors, cues to act.

Perceived benefits of care: refer to the perception of the respondents that medicine could reduce symptoms and prevent of complications.

Perceived costs of care: refer to the perception of the respondents that the previous treatment lead to negative experience and the respondents fear the adverse event, high cost of care and inconvenient of care.

Barriers to care: refer to the obstacles that cause patients come according to the appointments.

Staff-patient relationship: refer to perception of patients regarding to helpfulness, adequacy of explanation by health providers.

Illness factors: refer to insight into current symptoms, perceived risk of future decline, previous responsiveness to treatment, likelihood of treatment benefits.

Cues to act: refer to reminder or supportive factor to encouraged schizophrenia patients visiting as scheduled.

1.5.2.4 Supportive factors

Supportive factors consisted of family support, social support, accessibility, social contact and self-efficacy.

Family support: refer to the respondent ’s living condition (living alone or living with family member) and a set of activity (for example controlling of drug taking, bringing to meet the doctor by appointment, support the travel expense, support the medicine expense) that reinforce to enhance the respondent adherence to medication.

Social support: refer to a set of activity (for example controlling of drug taking, bringing to meet the doctor by appointment) by neighbor, health volunteer, health staff, other community people that reinforce to enhance the respondent adherence to medication.

Accessibility: refer to the distance, vehicles, time spent for travelling, cost of travelling and care taker who accompany the respondent from home to hospital.

Social contact: refer to a level of community activities (for example new year philanthropy/songkran festival, been to the temple for making merit on each buddhist holy day, religious ceremony of the neighbors (house-warming ceremony, wedding ceremony, ordination ceremony, funeral ceremony), talking with the neighbors) that respondent had participated.

Self-efficacy: refer to the confidence of patients to take medication and visit the doctor regularly (for example you can take medicine by the doctor order every time, you can come to meet the doctor by appointment every time).

1.6 Expected outcomes

1.6.1 The findings of study could describe the problems and factors related to adherence to psychiatric outpatient visits in schizophrenia patients.

1.6.2 The findings could be used for design the health services, that related on demand of schizophrenia patients.

1.6.3 The findings also could be used for design the intervention that can improve adherence to psychiatric outpatient visits in schizophrenia patients.

CHAPTER II
LITERATURE REVIEW

In this chapter will explain the definition and epidemiology of schizophrenia, type of schizophrenia, cause of schizophrenia, triggers that can cause schizophrenia, symptom, diagnosis and treatment, adherence to treatment, conceptual model and related literatures, related research studies and summary

2.1 Definition and epidemiology of schizophrenia

According to a systematic review of the prevalence of schizophrenia, schizophrenia is a severe and persistent mental illness that crosses all racial, ethnic, cultural, and demographic lines. Schizophrenia is characterized by symptoms such as hallucinations, delusions, disorganized communication, poor planning, reduced motivation, and blunted affect. While the incidence of the disorder is relatively low, the condition is one of the major contributors to the global burden of disease. The substantial burden of disease is a reflection of two features of schizophrenia: (a) the disorder usually has its onset in early adulthood, and (b) despite optimal treatment, approximately two-thirds of affected individuals have persisting or fluctuating symptoms (22).

Incidence studies of relatively rare disorders, such as schizophrenia, are difficult to carry out. The study by (Jablensky et al., 1992) in WHO 10-country the incidence rates per year of schizophrenia in adults within a quite narrow range between 0.1 and 0.4 per 1000 population (21).

In the Thai population the study of prevalence in person with schizophrenia aged between 15-59 years in 2003 was 8.8 per 1,000 (95% CI: 7.2, 10.6) with a male-to- female ratio of 1.1-to-1 (6). In Southeast Asia population the study of prevalence in person with schizophrenia by WHO in 2004 was 3.69 per 1,000. In world population the study of WHO in 2015, schizophrenia affects about 21

million people worldwide. Point prevalence on adults ranges between 1 and 17 per 1000 population, one-year prevalence between 1 and 7.5 per 1000, and lifetime prevalence between 1 and 18 per 1000 (Warner and de Girolamo, 1995). Much wider variation has been observed for prevalence, which has been more extensively studied. Variations in prevalence can be related to several factors, including differences in recovery, death and migration rates among the affected individuals (21).

About 20%–40% of patients experience their first psychotic symptoms before age 20 years. For men, the peak incidence of onset of schizophrenia has been determined to be between ages 15 and 25 years; for women, between ages 25 and 35 years. The WHO's determinants of outcome study found a mean gender difference in age at onset of 3.4 years.

A study has demonstrated this earlier mean age of onset in men across cultures. However, this finding may not be evident in familial schizophrenia. Women display a second peak of onset after age 40–45 years, just before menopause (7).

2.2 Type of schizophrenia

According to DSM-IV-TR, subtypes of schizophrenia are defined by the predominant symptoms at the time of the most recent evaluation and therefore may change over time (23).

These subtypes include

1. paranoid type, in which preoccupation with delusions or auditory hallucinations is prominent.

2. disorganized type, in which disorganized speech and behavior and flat or inappropriate affect are prominent.

3. catatonic type, in which characteristic motor symptoms are prominent.

4. undifferentiated type, which is a nonspecific category used when none of the other subtype features are predominant.

5. residual type, in which there is an absence of prominent positive symptoms but continuing evidence of disturbance (e.g., negative symptoms or positive symptoms in an attenuated form).

Although the prognostic and treatment implications of these subtypes vary, the disorganized type tends to be the most severe and the paranoid type to be the least severe (23).

2.3 Cause of schizophrenia

The exact causes of schizophrenia are unknown, but research suggests that a combination of physical, genetic, psychological and environmental factors can make people more likely to develop the condition. Current thinking is that some people may be prone to schizophrenia, and a stressful or emotional life event might trigger a psychotic episode (8).

2.3.1 Genetics

Scientists have long known that schizophrenia runs in families. The illness occurs in 1 percent of the general population, but it occurs in 10 percent of people who have a first-degree relative with the disorder, such as a parent, brother, or sister. People who have second-degree relatives (aunts, uncles, grandparents, or cousins) with the disease also develop schizophrenia more often than the general population. The risk is highest for an identical twin of a person with schizophrenia. He or she has a 40 to 65 percent chance of developing the disorder (24).

2.3.2 Environment

Environmental factors, such as exposure to viruses or malnutrition before birth and potentially psychosocial and socioeconomic factors all interact with epigenetic gene development. One potential cause that has gained traction in recent years is the effect of early childhood trauma. The epigenetic development of a gene, the way a gene changes over a lifetime, varies depending on environmental pressures. Epigenetic development can be thought of as a switch, turning on or off genes at certain points in life. Environmental factors can sometimes interfere with the natural process (25).

2.3.3 Brain chemistry and structure.

Different brain chemistry and structure**.** Scientists think that an imbalance in the complex, interrelated chemical reactions of the brain involving the neurotransmitters dopamine and glutamate, and possibly others, plays a role in schizophrenia. Neurotransmitters are substances that allow brain cells to communicate with each other. Scientists are learning more about brain chemistry and its link to schizophrenia (24).

Also, in small ways the brains of people with schizophrenia look different than those of healthy people. For example, fluid-filled cavities at the center of the brain, called ventricles, are larger in some people with schizophrenia. The brains of people with the illness also tend to have less gray matter, and some areas of the brain may have less or more activity. Studies of brain tissue after death also have revealed differences in the brains of people with schizophrenia. Scientists found small changes in the distribution or characteristics of brain cells that likely occurred before birth. Some experts think problems during brain development before birth may lead to faulty connections. The problem may not show up in a person until puberty. The brain undergoes major changes during puberty, and these changes could trigger psychotic symptoms. Scientists have learned a lot about schizophrenia, but more research is needed to help explain how it develops (24).

2.4 Triggers that can cause schizophrenia

Triggers are things that can cause schizophrenia to develop in people who are at risk. These include:

2.4.1 Stress

The main psychological triggers of schizophrenia are stressful life events, such as a bereavement, losing your job or home, a divorce or the end of a relationship, or physical, sexual, emotional or racial abuse. These kinds of experiences, though stressful, do not cause schizophrenia, but can trigger its development in someone already vulnerable to it (8).

2.4.2 Drug abuse

Drugs do not directly cause schizophrenia, but studies have shown drug misuse increases the risk of developing schizophrenia or a similar illness. Certain drugs, particularly cannabis, cocaine, LSD or amphetamines, may trigger some symptoms of schizophrenia, especially in people who are susceptible. Using amphetamines or cocaine can lead to psychosis and can cause a relapse in people recovering from an earlier episode. Three major studies have shown teenagers under 15 who use cannabis regularly, especially ‘skunk’ and other more potent forms of the drug, are up to four times more likely to develop schizophrenia by the age of 26 (8).

2.5 Symptom

The symptoms of schizophrenia fall into three broad categories: positive symptoms, negative symptoms, and cognitive symptoms.

2.5.1 Positive symptoms

Positive symptoms are psychotic behaviors not seen in healthy people. People with positive symptoms often "lose touch" with reality. These symptoms can come and go. Sometimes they are severe and at other times hardly noticeable, depending on whether the individual is receiving treatment (24). They include the following:

Hallucinations are things a person sees, hears, smells, or feels that no one else can see, hear, smell, or feel. "voices" are the most common type of hallucination in schizophrenia. Many people with the disorder hear voices. The voices may talk to the person about his or her behavior, order the person to do things, or warn the person of danger. Sometimes the voices talk to each other. People with schizophrenia may hear voices for a long time before family and friends notice the problem. Other types of hallucinations include seeing people or objects that are not there, smelling odors that no one else detects, and feeling things like invisible fingers touching their bodies when no one is near.

Delusions are false beliefs that are not part of the person's culture and do not change. The person believes delusions even after other people prove that the

beliefs are not true or logical. People with schizophrenia can have delusions that seem bizarre, such as believing that neighbors can control their behavior with magnetic waves. They may also believe that people on television are directing special messages to them, or that radio stations are broadcasting their thoughts aloud to others. Sometimes they believe they are someone else, such as a famous historical figure. They may have paranoid delusions and believe that others are trying to harm them, such as by cheating, harassing, poisoning, spying on, or plotting against them or the people they care about. These beliefs are called "delusions of persecution."

Thought disorders are unusual or dysfunctional ways of thinking. One form of thought disorder is called "disorganized thinking." This is when a person has trouble organizing his or her thoughts or connecting them logically. They may talk in a garbled way that is hard to understand. Another form is called "thought blocking." This is when a person stops speaking abruptly in the middle of a thought. When asked why he or she stopped talking, the person may say that it felt as if the thought had been taken out of his or her head. Finally, a person with a thought disorder might make up meaningless words, or "neologisms."

Movement disorders may appear as agitated body movements. A person with a movement disorder may repeat certain motions over and over. In the other extreme, a person may become catatonic. Catatonia is a state in which a person does not move and does not respond to others. Catatonia is rare today, but it was more common when treatment for schizophrenia was not available.

2.5.2 Negative symptoms

Negative symptoms are associated with disruptions to normal emotions and behaviors. These symptoms are harder to recognize as part of the disorder and can be mistaken for depression or other conditions. These symptoms include the following:

- Flat affect (a person's face does not move or he or she talks in a dull or monotonous voice)
- Lack of pleasure in everyday life
- Lack of ability to begin and sustain planned activities
- Speaking little, even when forced to interact.

People with negative symptoms need help with everyday tasks. They often neglect basic personal hygiene. This may make them seem lazy or unwilling to help themselves, but the problems are symptoms caused by the schizophrenia.

2.5.3 Cognitive symptoms

Cognitive symptoms are subtle. Like negative symptoms, cognitive symptoms may be difficult to recognize as part of the disorder. Often, they are detected only when other tests are performed. Cognitive symptoms include the following:

- Poor "executive functioning" (the ability to understand information and use it to make decisions)
- Trouble focusing or paying attention
- Problems with "working memory" (the ability to use information immediately after learning it).

Cognitive symptoms often make it hard to lead a normal life and earn a living. They can cause great emotional distress(8).

2.6 Diagnosis and Treatment

2.6.1 Diagnosis

In the absence of a biological marker, diagnosis of schizophrenia relies on examination of mental state, usually through a clinical interview, and observation of the patient’s behavior.

Table 2.1 shows the diagnostic guidelines according to the two major current classification systems (21).

ICD-10	DSM-IV
A minimum of one very clear symptom belonging to any one of the groups listed below as (a) to (d) or symptoms from at least two of the groups referred to as (e) to (i) should have been clearly present for most of the time during a period of 1 month or more. a) Thought echo, thought insertion or withdrawal and thought broadcasting b) delusions of control, influence or passivity, clearly referred to body or limb movements or specific thoughts, actions or sensations; delusional perception c) hallucinatory voices giving a running commentary on the patient's behaviour or discussing the patient among themselves, or other types of hallucinatory voices coming from some part of the body d) persistent delusions of other kinds that are culturally inappropriate and completely impossible, such as religious or political identity, or superhuman powers and abilities (e.g. being able to control the weather or being in communication with aliens from another world)	A. **Characteristic symptoms**: Two or more of the following, each present for a significant portion of time during a 1 month period, or less if successfully treated: 1) delusions, 2) hallucinations, 3) disorganized speech, e.g. frequent derailment or incoherence, 4) grossly disorganized or catatonic behavior, 5) negative symptoms, i.e. affective flattening, alogia or avolition. *Note*: Only one criterion A symptom is required if delusions are bizarre or hallucinations consist of a voice keeping up a running commentary on the person's behaviour or thoughts, or two or more voices conversing with each other. B. **Social/Occupational dysfunction**. For a significant portion of the time since the onset of the disturbance, one or more major areas of functioning such as work, interpersonal relations, or self-care are markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, failure to achieve expected level of interpersonal, academic or occupational achievement).

Table 2.1 shows the diagnostic guidelines according to the two major current classification systems (21). (cont.)

ICD-10	DSM-IV
e) persistent hallucinations in any modality, when accompanied either by fleeting or halfformed delusions without clear affective content or by persistent over-valued ideas, or when occurring every day for weeks or months on end f) breaks or interpolations in the train of thought, resulting in incoherence or irrelevant speech, or neologisms g) catatonic behavior, such as excitement, posturing. or waxy flexibility, negativism, mutism and stupor h) 'negative' symptoms such as marked apathy, paucity of speech and blunting or incongruity of emotional responses, usually resulting in social withdrawal and lowering of social performance; it must be clear that these are not due to depression or neuroleptic medication i) a significant and consistent change in the overall quality of some aspects of personal behavior, manifest as loss of interest, aimlessness, idleness, a self-absorbed attitude and social withdrawal.	C. **Duration**. Continuous signs of the disturbance persist for at least 6 months. This 6-month period must include at least 1 month of symptoms (or less if successfully treated) that meet criterion A, i.e. active-phase symptoms, and may include periods of prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or two or more symptoms listed in criterion A present in an attenuated form (e.g. odd beliefs, unusual perceptual experiences). D. **Schizoaffective and mood disorder exclusion**. Schizoaffective and mood disorders have been ruled out because either (1) no major depressive, manic or mixed episodes have occurred concurrently with the active-phase symptoms or (2) if mood episodes have occurred during active-phase symptoms, their total duration has been brief relative to the duration of the active and residual periods.

Table 2.1 shows the diagnostic guidelines according to the two major current classification systems (21). (cont.)

ICD-10	DSM-IV
	E. **Substance/general medical condition exclusion**. The disturbance is not related to the direct physiological effect of a substance (e.g. a drug of abuse, a medication) or a general medical condition. F. **Relationship to a pervasive developmental disorder**. If there is a history of autistic disorder or another pervasive developmental disorder, the additional diagnosis of schizophrenia is made only if prominent delusions or hallucinations are also present for at least a month (or less if successfully treated).

Source : Barbato A. Schizophrenia and public health 1998.

As can easily be seen, the two systems overlap to a considerable extent, while retaining some differences. The ICD-10 represents a compromise between research findings and various diagnostic practices in different countries and is probably better suited for worldwide utilization.

No single sign or symptom is specific of schizophrenia. Symptoms suggestive of schizophrenia can be found in a number of neurological and psychiatric disorders. Therefore, differential diagnosis should consider the following conditions (21):

- epilepsy (particularly temporal lobe epilepsy);
- central nervous system neoplasms (particularly frontal or limbic);
- central nervous system traumas;

- central nervous system infections (particularly malaria and other parasitic diseases, neurosyphilis, herpes encephalitis);
- cerebrovascular accidents;
- other central nervous system diseases (leukodystrophy, Huntington's disease, Wilson's disease, systemic lupus erythematosus etc.);
- drug-induced psychosis (especially related to use of amphetamines, LSD and phencyclidine);
- acute transient psychosis;
- affective disorder;
- delusional disorder.

Most neurological disorders can usually be ruled out by the presence of typical physical signs or by the findings of laboratory tests. However, the possibility of a neurological or medical disease should be suspected and carefully investigated at the first onset of psychosis, especially if this occurs in childhood or old age, in the presence of unusual features or when there is a marked change in quality of symptoms during the course of the disorder. Differentiation between schizophrenia and other mental disorders requires consideration of the patient's history and clustering of symptoms, sometimes supplemented by longitudinal observation of the course of the illness (21).

2.6.2 Treatment

Because the causes of schizophrenia are still unknown, treatments focus on eliminating the symptoms of the disease. Treatments include antipsychotic medications and various psychosocial treatments.

A. Antipsychotic medications

Antipsychotic medications have been available since the mid-1950's. The older types are called conventional or "typical" antipsychotics. Some of the more commonly used typical medications include:

- Chlorpromazine (Thorazine)
- Haloperidol (Haldol)
- Perphenazine (Etrafon, Trilafon)
- Fluphenazine (Prolixin).

In the 1990's, new antipsychotic medications were developed. These new medications are called second generation, or "atypical" antipsychotics.

One of these medications, clozapine (Clozaril) is an effective medication that treats psychotic symptoms, hallucinations, and breaks with reality. But clozapine can sometimes cause a serious problem called agranulocytosis, which is a loss of the white blood cells that help a person fight infection. People who take clozapine must get their white blood cell counts checked every week or two. This problem and the cost of blood tests make treatment with clozapine difficult for many people. But clozapine is potentially helpful for people who do not respond to other antipsychotic medications.

Other atypical antipsychotics were also developed. None cause agranulocytosis. Examples include : Risperidone (Risperdal), Olanzapine (Zyprexa), Quetiapine (Seroquel), Ziprasidone (Geodon), Aripiprazole (Abilify), Paliperidone (Invega).

Side effects of antipsychotic drug

Some people have side effects when they start taking these medications. Most side effects go away after a few days and often can be managed successfully. People who are taking antipsychotics should not drive until they adjust to their new medication. Side effects of many antipsychotics include:

- Drowsiness
- Dizziness when changing positions
- Blurred vision
- Rapid heartbeat
- Sensitivity to the sun
- Skin rashes
- Menstrual problems for women

Atypical antipsychotic medications can cause major weight gain and changes in a person's metabolism. This may increase a person's risk of getting diabetes and high cholesterol. A person's weight, glucose levels, and lipid levels should be monitored regularly by a doctor while taking an atypical antipsychotic medication.

Typical antipsychotic medications can cause side effects related to physical movement, such as:

- Rigidity
- Persistent muscle spasms
- Tremors
- Restlessness

Long-term use of typical antipsychotic medications may lead to a condition called tardive dyskinesia (TD). TD causes muscle movements a person can't control. The movements commonly happen around the mouth. TD can range from mild to severe, and in some people the problem cannot be cured. Sometimes people with TD recover partially or fully after they stop taking the medication.

TD happens to fewer people who take the atypical antipsychotics, but some people may still get TD. People who think that they might have TD should check with their doctor before stopping their medication (26).

B. Psychosocial treatments

Psychosocial treatments can help people with schizophrenia who are already stabilized on antipsychotic medication. Psychosocial treatments help these patients deal with the everyday challenges of the illness, such as difficulty with communication, self-care, work, and forming and keeping relationships. Learning and using coping mechanisms to address these problems allow people with schizophrenia to socialize and attend school and work.

Patients who receive regular psychosocial treatment also are more likely to keep taking their medication, and they are less likely to have relapses or be hospitalized. A therapist can help patients better understand and adjust to living with schizophrenia. The therapist can provide education about the disorder, common symptoms or problems patients may experience, and the importance of staying on medications (26).

- **Illness management skills**. People with schizophrenia can take an active role in managing their own illness. Once patients learn basic facts about schizophrenia and its treatment, they can make informed decisions about their care. If they know how to watch for the early warning signs of relapse and make a plan to respond, patients can learn to prevent relapses. Patients can also use coping skills to deal with persistent symptoms (26).

- **Integrated treatment for co-occurring substance abuse**. Substance abuse is the most common co-occurring disorder in people with schizophrenia. But ordinary substance abuse treatment programs usually do not address this population's special needs. When schizophrenia treatment programs and drug treatment programs are used together, patients get better results (26).

- **Rehabilitation**. Rehabilitation emphasizes social and vocational training to help people with schizophrenia function better in their communities. Because schizophrenia usually develops in people during the critical career-forming years of life (ages 18 to 35), and because the disease makes normal thinking and functioning difficult, most patients do not receive training in the skills needed for a job (26). Rehabilitation programs can include job counseling and training, money management counseling, help in learning to use public transportation, and opportunities to practice communication skills. Rehabilitation programs work well when they include both job training and specific therapy designed to improve cognitive or thinking skills. Programs like this help patients hold jobs, remember important details, and improve their functioning (26).

- **Family education**. People with schizophrenia are often discharged from the hospital into the care of their families. So it is important that family members know as much as possible about the disease. With the help of a therapist, family members can learn coping strategies and problem-solving skills. In this way the family can help make sure their loved one sticks with treatment and stays on his or her medication. Families should learn where to find outpatient and family services (26).

- **Cognitive behavioral therapy**. Cognitive behavioral therapy (CBT) is a type of psychotherapy that focuses on thinking and behavior. CBT helps patients with symptoms that do not go away even when they take medication. The therapist teaches people with schizophrenia how to test the reality of their thoughts and

perceptions, how to "not listen" to their voices, and how to manage their symptoms overall. CBT can help reduce the severity of symptoms and reduce the risk of relapse (26).

- **Self-help groups**. Self-help groups for people with schizophrenia and their families are becoming more common. Professional therapists usually are not involved, but group members support and comfort each other. People in self-help groups know that others are facing the same problems, which can help everyone feel less isolated. The networking that takes place in self-help groups can also prompt families to work together to advocate for research and more hospital and community treatment programs. Also, groups may be able to draw public attention to the discrimination many people with mental illnesses face (26).

2.7 Adherence to treatment

Most research has focused on adherence to medication but adherence also encompasses numerous health-related behaviors that extend beyond taking prescribed pharmaceuticals.

The participants at the WHO Adherence meeting in June 2001 concluded that defining adherence as “the extent to which the patient follows medical instructions” was a helpful starting point. However, the term “medical” was felt to be insufficient in describing the range of interventions used to treat chronic diseases. Furthermore, the term “instructions” implies that the patient is a passive, acquiescent recipient of expert advice as opposed to an active collaborator in the treatment process (27). Adherence is an essential condition for successful outpatient treatment. Outpatient non-attendance is a serious problem in clinical and economic terms. Especially at psychiatric clinics the rate of non-attendance is twice that of most other specialties. Empirical studies indicate a wide range of base rates of missed appointments in psychiatry from 12 to 60%. Similar percentages have also been reported in studies on schizophrenia. As many as one-third to one-half of hospitalized patients with schizophrenia and related disorders miss their scheduled outpatient appointments after hospital discharge (10). Pang et al identified that at least 50% of patients who did not attend regular appointments did not use their drugs. A failure of

follow up with outpatient care increase rehospitalization, morbidity and mortality rates. Rehospitalization leads to occupational and family problems and subsequently decreases the patient's quality of life. Maintenance treatment arranged after psychotic episodes, decreases the risk of relapse (28). Then missed appointments are also one of the important indicators of medication non-adherence (17).

About the procedure of caring psychiatric patients in community hospital, there were similar procedures of giving services in each community hospital, which weren't different from the general patients care, but had more important procedure which was the meeting of patient with psychiatric nurse. Since it was a procedure that patient would have the preliminary assessment of symptoms, which could be told if the patients got disorder or not, or delivered them to the doctor for having the suitable treatment, including it was a procedure that patients and relatives could have the recommendation about caring of their diseases.

Routine care of psychiatric service at community hospital

Medical record unit : register the patient and send the medical history to psychiatric clinic

↓ 2 min.

Psychiatric nurse : mental status examination and psychosocial assessment

↓ 10 min

General doctor : physical examination, treatment and advice

↓ 5 min

Nurse : make the next appointment

↓ 5 min

Pharmacist : dispense the medication, advice the information of medication

↓ 20 min

Discharged

2.8 Conceptual model and related literatures

The study uses the concept of the precede proceed model (Green และkreuter 1991), concept of factors causing patient to miss an appointment from the study of Alex. J. Mitchell and Thomas Selmes (2007) which classified the Independent variables into 4 groups demographic factor, clinical factor, perception to medical care factor and supportive factor.

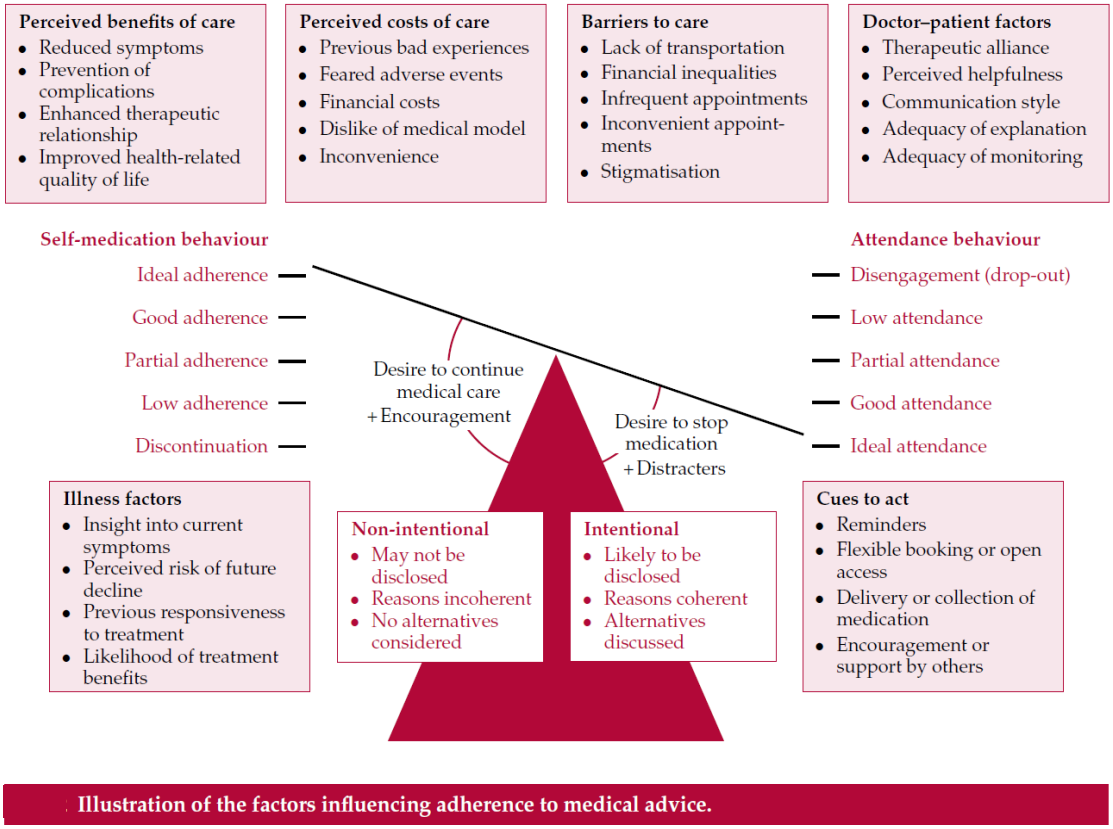

Figure 2.1 : Illustration of the factors influencing adherence to medical advice

Source: Why don't patients attend their appointments? Maintaining engagement with psychiatric services. Advances in Psychiatric Treatment. 2007 (17)

This figure from the researcher is based on health belief model theory.

2.9 Related research studies

2.9.1 Dependent variables

Adherence to psychiatric outpatient visits; A study about **a**dherence with outpatient appointments in Galaya Rajanagarindra Institute Thailand show that 365 patients whose medical records were reviewed, 21.4% missed their appointment. Of these, 54.2% visited the clinic earlier than appointed dates, while 45.8% came later. Psychiatric symptom exacerbation, adverse drug reactions, and inadequate amount of medicine were the reasons for coming earlier in 43.6%, 15.4% and 13.1% of the patients, respectively. While the reasons of visiting later than the appointments were psychiatric symptom exacerbation, problems in business, communication system, or economic status, and remained amount of medicine in 23.0%, 13.4% and 10.4% respectively (13).

2.9.2 Independent variables

A. Demographic factor

Sex; Several studies have found that male sex associated with non-adherence in psychiatric out-patient clinic (29,30).

Age; Several studies have found that younger patient associated with non-adherence in psychiatric out-patient clinic. A study found that the average age at first appointment was approximately 3 years lower for patients who missed 20% or more of their appointments (12).

Marital status; A study about factor influencing the continuity of receiving treatment service of schizophrenia patients in Srithunya hospital show that single was associated with adherence to treatment than married, divorced, widowed and separated (31).

Education; A study about **a**dherence with outpatient appointments and medication show that non-attendance was related to education level. Attenders have mean education level 11.7±2.8 years when non-attenders have mean education level 9.8±3.3 years (10). Another study about factor associated with noncompliance with psychiatric outpatient visits show that patient ‘s education less than 12 years have high non-attenders than 12 years or more than 12 years (32).

Alcohol and drug abuse; A study about patient factors associated with missed appointments in persons with schizophrenia show that patients with a greater proportion of missed appointments were rated as having more serious problems with drugs abuse or alcohol (12).

B. Clinical factor

Duration of illness; A study about factor associated with noncompliance with psychiatric outpatient visits show that visit compliance was not found to be associated with the number of years a patient had been receiving treatment (32).

History of drug side effect; A study by Van Putten (1974) has found a strong relationship between extrapyramidal side effects and incomplete compliance (33).

Co-morbidity; A study about adherence to medications for type 2 diabetes between individuals with and without schizophrenia show that adherence was associated with comorbid disease (poor adherence was less prevalent among diabetes patients with than without schizophrenia) (34). A study about effectiveness of reminders in reducing non-attendance among out-patients show that diagnosis of psychoactive substance use or dementia were risk factors for non-attendance (29).

C. Perception to medical care

Perceived benefits of care; Several studies have found that perceived benefit of care is associated with adherence in psychiatric out-patient clinic. A study in children mental health treatment show that perceived benefit was strongly related to continued use of treatment (35). Another study about prevalence and reasons for non-adherence to hyperlipidemia treatment show that effective doctor-patient communication and perceived benefit of care is an important role in adherence to treatment (36).

Illness factors; A study about factor influencing the continuity of receiving treatment service of schizophrenia patients in Srithunya hospital show that the amount of schizophrenia information being told by doctors, level of patients' knowledge about the disease were associated with adherence to treatment (31).

D. Supportive factor

Family support; About family support, the study in kidney transplant patients' perceptions, beliefs, and barriers related to regular nephrology outpatient visits show that one factor that motivated patients to keep their regular nephrology visits is peer-support relationships and talking to other patients on the dialysis therapy (37). A study about adherence with outpatient appointments and medication show that non-attendance was related to living alone (10).

Social support; A study about compliance to follow-up and treatment after discharge among chronic psychotic patients show that the lack of social and environmental support seems to be related to disease duration. The patient's social and environmental support decreases in cases where the caregivers are parents; parents grow older and less physically able to care for the patient or less interested in caring for the patient and, eventually, they die. Regular follow ups, part of compliance, might be interrupted due decreasing social and environmental support, thus increasing the severity of the disease (28).

Accessibility; A study about factor associated with noncompliance with psychiatric outpatient visits show that visit compliance was not found to be associated with the distance from residence to the clinic (32).

Social contact; A study about prospective controlled study of psychiatric outpatient nonattendance show that non-attender had low social functioning than who attended (16).

2.10 Summary

Schizophrenia is a psychiatric disorder involving chronic or recurrent psychosis. In study of world population by World health organization (WHO) in 2004 schizophrenia affects about 26 million people worldwide. Point prevalence on adults ranges between 1 and 17 per 1000 population and lifetime prevalence between 1 and 18 per 1000. Though the incidence is low (3-10,000), the prevalence is high due to chronicity. In southeast Asia population the study of prevalence in person with schizophrenia by WHO 2004 was 3.69 per 1,000. In Thai population the study of

prevalence in person with schizophrenia by Phanthunane et all was 8.8 per 1,000 (95% CI: 7.2, 10.6) with a male-to-female ratio of 1.1-to-1.0.

The exact causes of schizophrenia are unknown, but research suggests that a combination of physical, genetic, psychological and environmental factors can make people more likely to develop the condition. Current thinking is that some people may be prone to schizophrenia, and a stressful or emotional life event might trigger a psychotic episode.

Especially for patients with chronic diseases, adherence is an important factor that interferes with the success of treatment. Killaspe et al. shown that follow-up patients who miss an appointment were at a high risk of dropout and admission within 12 month period. A failure of follow up with outpatient care after leaving the hospital greatly increases the risk of relapse and rehospitalization. On the basis of the 365-day rehospitalization rate, patients who kept a follow-up appointment had a 1 in 10 chance of being rehospitalized; for patients who did not keep (or were not offered) an appointment, the chances were one in four. This study aims to identify factor related to adherence to psychiatric outpatient visits for improve adherence to persons with schizophrenia in Yasothon province.

CHAPTER III
METHODOLOGY

3.1 Study design

This research employed hospital-based cross sectional study.

3.2 Study area and study population

Yasothon province is located in the northeastern part of Thailand, it consisted of nine districts; Loengnoktha, Thaichareon, Kutchum, Saimun, Muangyasothon, Patui, Khamkhuenkaew, Mahachanachai and Khowang district. Total population is approximately 540,000. Majority of the population works in agriculture.

Study populations were schizophrenia patients who visited outpatient psychiatric unit in the community hospitals in Yasothon province.

3.3 Sample size determination

The sample size was calculated using 95% confidence interval with acceptance error or degree of accuracy of 0.05. The sample size formula (38) for estimating percentage of adherence was used as shown below.

$$n = \frac{z^2 p(1-p)}{d^2}$$

$$n = \frac{(1.96)^2(0.21)(1-0.21)}{(0.05)^2}$$

n = 255

n = sample size

z = standard normal score at 95% of confidence interval = 1.96

P = the proportion of miss appointments =0.21 (13)

d = degree of accuracy = 0.05

The sample size was added by 10% to allow for any missing or incomplete data occurring during data collection. Consequently, the required sample size was at least 280.

3.4 Sampling technique

Two stage cluster sampling was used to draw a sample of 280 subjects. Three community hospitals (Khowang, Khamkhueankaeo, Kutchum hospital) were randomly selected from eight community hospitals.

Estimated number of schizophrenia patients was 93 persons in Khowang district, 260 persons in Khamkhueankaeo district and 357 persons in Kutchum district in 2013.

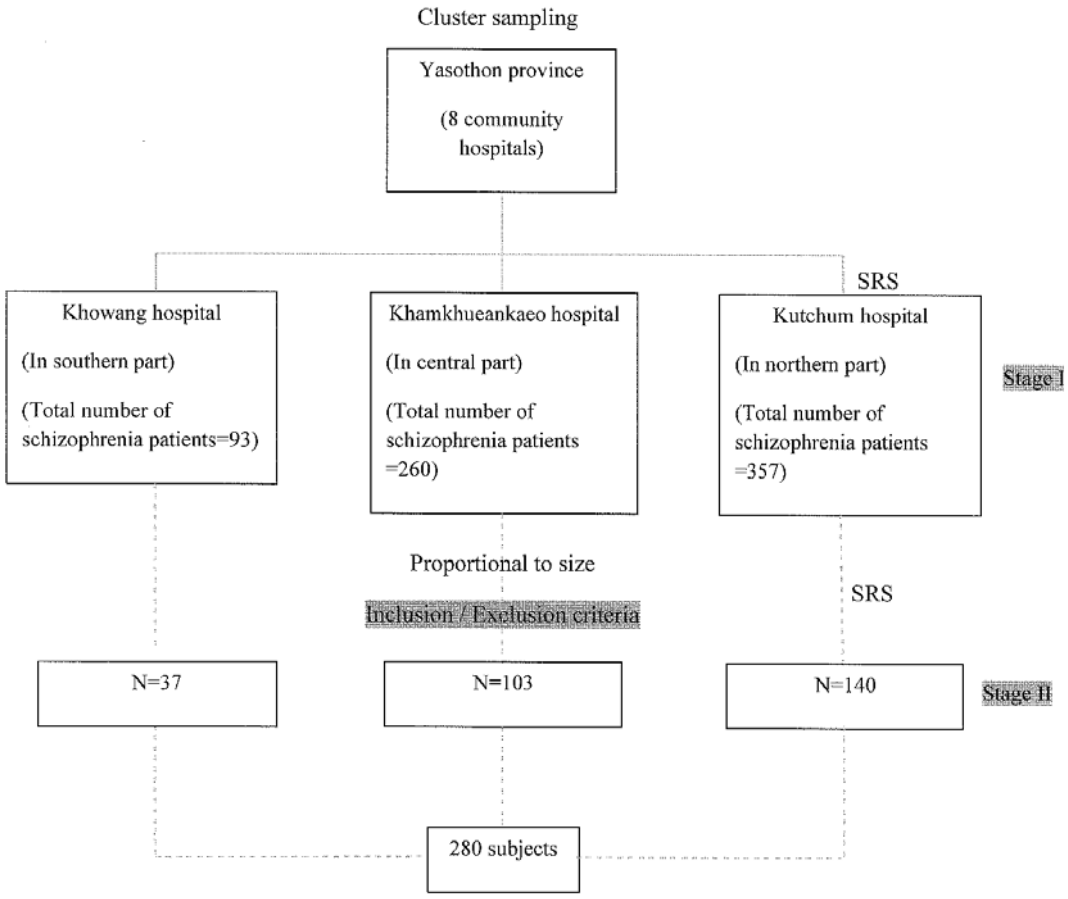

Figure 3.1 : Sampling technic

Proportional to size was used to include patients with schizophrenia from three hospitals. Subjects who met the inclusion and consent were invited to participate the study.

3.4.1 Inclusion criteria

1) Patients who have been treated schizophrenia more than 12 months.

2) Be able to communicate and understand the questions.

3) Willing to participate in the study.

3.4.2 Exclusion criteria

Patients had severe symptoms. (The severe symptoms consisted of hallucination, delusion, thought disorder, behavioral disorganization and catatonia.)

3.5 Research instruments

There are two research instruments in this study; (1) questionnaire and (2) medical record form. The questionnaire aimed to record the adherence factors of schizophrenia person during the previous 12 months. It consisted of four parts as follow;

Part I: Demographic factors

This part contained eight questions about demographic factors. These factors were sex, age, marital status, education, occupation, income per month, healthcare scheme, alcohol and drug abuse.

Sex of respondents was described by two options; male and female

Age was divided into 4 groups: ≤25 years old, 26 – 40 years old, 41- 55 years old and ≥56 years old. The variable was categorized into two groups based on the median as cut off point. These two groups were lower than forty three years and equal or more than forty three years.

Marital status was initially categorized into five groups: single, married, widowed, divorced and separated. In data analysis, these groups were re-arranged into two groups of married and others.

Education was initially categorized into five groups: no school, primary school, junior high school, senior high school and bachelor's degree. In data analysis, these groups were re-arranged into two groups of low education (no school and primary school) and high education (junior high school, senior high school and bachelor's degree).

Occupation was initially categorized into five groups: farmer, employee, government official/state enterprise employee, own business and other. In data analysis, these groups were re-arranged into two groups of farmer and other.

Income was collected average income per month in Thai currency. The variable was categorized into two groups based on the median as cut off point. These two groups were low income whose income was equal or lower than median whereas high income whose income was greater than median.

Healthcare scheme was categorized into four groups: universal coverage, civil servant medical benefit, social security and disability rights.

Alcohol drinking in past three months had two categories of yes and no.

Amphetamine used in past three months had two categories of yes and no.

Part II: Clinical factors

This part contained four questions about clinical factors. These factors were duration of illness, history of drug allergy, history of drug side effect and co-morbidity

Duration of illness was collected the number of years a patient had been recieiving treatment. Duration of illness was initially categorized into three groups: less than or equal to ten years, eleven to twenty years and more than twenty years. In data analysis, these groups were re-arranged into two groups: less than or equal to ten years and more than ten years.

History of drug allergy had two categories of yes and no.

History of drug side effect had two categories of yes and no.

Co-morbidity had two categories of yes and no.

Part III: Perceptions to medical care

This part contained sixteen questions about perceptions to medical care. These factors were perceived benefits of care, perceived costs of care, barriers to care, staff-patient factors, illness factors and cues to act.

Perceived benefits of care was measured by two questions. These two questions had five options of answers namely definitely disagreed (score1), disagreed (score2), don't know (score3), agreed (score4), definitely agreed (score5).

The range of scores was from two to ten and has been categorized into two groups;

- High perceived benefits of care: if score more than eight.
- Low perceived benefits of care: if score less than or equal to eight.

Perceived costs of care was measured by three questions. The first question had two options of answers namely no (score0), yes (score1). The second question had five options of answers namely strongly disagreed (score1), disagreed (score2), neutral (score3), agreed (score4), strongly agreed (score5). The third question had five options of answers namely definitely enough (score1), enough (score2), not sure (score3), not enough (score4), definitely not enough (score5).

The range of scores was from two to eleven and has been categorized into two groups;

- High cost of care: if score more than five.
- Low cost of care: if score less than or equal to five.

Barriers to care was measured by three questions. The first question had five options of answers namely strongly disagreed (score1), disagreed (score2), not sure (score3), agreed (score4), strongly agreed (score5). The second question had five options of answers namely definitely convenience (score1), convenience (score2), not sure (score3), inconvenience (score4), definitely inconvenience (score5). The third question had five options of answers namely most suitable time (score1), suitable time (score2), not sure (score3), long period (score4), longest period (score5).

The range of scores was from three to fifteen and has been categorized into two groups;

- High barriers: if score more than six.
- Low barriers: if score less than or equal to six.

Staff-patient factors was measured by two questions. The first question had five options of answers namely strongly disagreed (score1), disagreed (score2), not sure (score3), agreed (score4), strongly agreed (score5). The second question had

five options of answers namely definitely not enough (score1), not enough (score2), not sure (score3), enough (score4), definitely enough (score5).

The range of scores was from two to ten and has been categorized into two groups;

- High barriers: if score more than eight.
- Low barriers: if score less than or equal to eight.

Illness factors was measured by four questions. The first and second question had five options of answers namely didn't understand at all (score1), didn't understand (score2), not sure (score3), understood (score4), understood very well (score5). The third question had five options of answers namely not improve (score1), not good (score2), not sure (score3), better (score4), definitely recover (score5). The fourth question had five options of answers namely strongly disagreed (score1), disagreed (score2), not sure (score3), agreed (score4), strongly agreed (score5).

The range of scores was from four to twenty and has been categorized into two groups;

- High illness factors: if score more than sixteen.
- Low illness factors: if score less than or equal to sixteen.

Cues to act was measured by two questions. The first question had two options of answers namely no (score0), yes (score1). The second question had five options of answers namely no one (score1), few (score2), some (score3), have (score4), many people (score5).

The range of scores was from one to six and has been categorized into two groups;

- High cues to act: if score more than five.
- Low cues to act: if score less than or equal to five.

Part IV: Supportive factors

In this part, the questionnaire had four variables and fifteen questions. These variables were family support, social support, accessibility, social contact and self efficacy.

Family support was initially categorized into four groups. These were no family support, family support by parents, family support by spouse, family support by

son/daughter. However, during data analysis the groups were further combined to two groups of family support by parents and family support by other.

Social support was measured by three questions. The first question had four options of answers namely relatives, neighbor, public health volunteer, public health official. However, during data analysis the groups were further combined to two groups of relatives with others and not-relatives with others. The second and third question had two categories of no and yes.

Accessibility was measured by nine questions. The first question had five options of answers namely no one, family, relatives, health volunteer, others. However, during data analysis the groups were further combined to two groups of yes and no. The second question had five options of answers namely bicycle/motorcycle, private car, rental car, public transportation, other. However, during data analysis the groups were further combined to two groups of bicycle/motorcycle/private car and rental car/public transportation/other. The third question had two categories of less than or equal to ten km and more than ten km. The fourth question had two categories of near and far. The fifth question had two categories of less than or equal twenty minutes and more than twenty minutes. The sixth question had two categories of short time and long time. The seventh question had two categories of less than or equal to fifty baht/visit and more than fifty baht/visit. The eighth question had two categories of low cost and high cost. The ninth question had three options of answers namely no, food, medicine.

Social contact was measured by four questions. The question had two options of answers namely no (score0), yes (score1). The range of scores was from zero to four and has been categorized into two groups;

- Low social contact: if score less than four.
- High social contact: if score more or equal to four.

Self-efficacy was measured by ten questions. The question had two options of answers namely no (score0), yes (score1). The range of scores was from zero to ten and has been categorized into two groups;

- Low self-efficacy: if score less than or equal to nine.
- High self-efficacy: if score more than nine.

The questionnaire in part I was filled the data by patients. The questionnaire in part II, III, IV was filled the data by research assistants.

Medical record form was used to obtain the information of adherence in the last 12 months the form was checked by nurses who were responsible at the psychiatric clinic in each selected hospitals. All of the date would be calculated for adherence which would be divided into 2 groups as follows, low adherence and high adherence, calculated by the time of the meeting with doctor by appointment. Patients who came to meet the doctor divided by total number of appointments less than <80% would be organized in a group of low adherence which was the referent group, and the patients who came to meet the doctor by appointments more than ≥80% would be organized in a group of high adherence.

3.6 Validity and reliability of the instruments

For content validity, three experts from ASEAN Institute for Health Development, Mahidol University examined the questionnaire. The experts are lecturer in Mahidol University and had experiences in conducted public health research. Researcher revised and improved the weakness area regarding to comments and inputs from experts. After revised according to experts' inputs, the pre-test of every scale in questionnaire was conducted to 30 schizophrenia persons in Mahachanachai hospital Yasothon province and the instrument was written in Thai. For reliability, cronbach's alpha coefficient test was performed to test reliability of the perception about benefits of care, costs of care, barriers to care, doctor-patient factors, illness factors and cues to act. The reliability of the perception was 0.80.

3.7 Data collection procedures

After getting the permission from the Mahidol University Institutional Review Board (MU-SSIRB), the data collection was undertaken as follows;

1. A formal letter was sent to the director of each hospital to seek permission to collect data for this research.

2. The research assistants were trained one day about the objectives and methodology of the study, included the questionnaires and ethics matters of the study, the coordinator are the nurses who are responsible for the psychiatric clinic at the target hospitals.

3. Before starting collecting data, the research assistants were explained the purpose of the research and the important of data, and asked permission to see the medical history from the subjects. The information sheet was distributed and verbal consent was obtained from each respondent.

4. The research assistants collected the data from respondents and the medical records.

5. The researcher monitored the quality of data with the research assistants weekly.

3.8 Data management and analysis

The questionnaire was labeled and coded by the researcher. Univariate analysis was performed to describe the data using median, quartile deviation (QD), mean, standard deviation (SD), maximum and minimum, number and percentage for each independent and dependent variable as appropriate. For Bivariate analysis, Chi-square tests were used to identify the association between each independent variable and adherence to psychiatric outpatient visits during previous 12 months prior to this study. Multiple logistic regressions were used to determine an association between the independent variables and adherence to psychiatric outpatient visits. In this study, prediction of the odds of adherence to psychiatric outpatient visits was measured based on the combination of independent variables as predictors. For multiple logistic regressions adherence categories were coded “1”and non adherence was coded “0” which was the referent group.

3.9 Ethical consideration

Before conducting the research, the ethics approval was sought from Mahidol University Institutional Review Board (MU-SSIRB) (COA No.

2015/0.17.2001). A verbal consent obtained from each respondent before administration of the study instrument. All information of the study subjects were kept confidential and anonymous in order to protect their rights and privacy.

CHAPTER IV
RESULTS

The purpose of this study is to determine factors related to visit adherence among schizophrenia patients in Yasothon province. An interviewed questionnaire was used. The data were collected from March 1 to May 30, 2015. Three from nine district hospitals have been participated the study. The nurses at psychiatric clinic of three hospitals approached the subjects at clinic and ask subject's permission before recruitment. There were 295 Subjects approached and a total of 280 (94.9%) questionnaires were completed for analysis. The results summarized in frequency, percentage, mean, median, QD, SD, minimum, and maximum. Chi-square tests were performed to examine an association between each independent variable and visit adherence. Further, multivariate logistic regressions were presented to determine the significant predictor factors of visit adherence. The research results are presented as follows.

4.1 Demographic factors of the respondents

Table 4.1 shows the demographic characteristics of the respondents. The majority of respondents are male (62.5%). Respondents age ranged between 18-77 years with the median age of 43 years (QD=7.5). Nearly two-third (61.8%) are single. Nearly one-third (29.3%) are married. Approximately two-third (63.9%) completed the primary school. Nearly two-third (63.2%) are farmers. Respondents incomes were between 0-10,964 Baht/month (median = 1000 Baht, QD=600). Respondents (90%) have no debt however 86.8% have no saving. 49.6% of the health care scheme was disability, while 47.1% are UC (universal coverage) scheme. 22.1% of respondents drank alcohol and 1.4% used amphetamine in the last 3 months.

Table 4.1 Percentages of the schizophrenia patients by demographic factors (n=280)

Characteristics	Frequency	Percentage
Gender		
Male	175	62.5
Female	105	37.5
Age		
≤ 25	14	5.0
26-40	102	36.4
41-55	127	45.4
≥56	37	13.2
(Median= 43; QD= 7.5; Min= 18; Max=77)		
Marital status		
Single	173	61.8
Married	82	29.3
Widowed	11	3.9
Divorced	8	2.9
Separated	6	2.1
Education		
No school	2	0.7
Primary school	179	63.9
Junior high school	85	30.4
Senior high school	11	3.9
Bachelor's degree	3	1.1
Occupation		
Farmer	177	63.2
Employee	53	18.9
Government official/ State enterprise employee	2	0.8
Own business	4	1.4
Other	44	15.7

Table 4.1 Percentages of the schizophrenia patients by demographic factors (n=280) (cont.)

Characteristics	Frequency	Percentage
Income (Baht/month)		
≤ 1,000	164	58.6
> 1,000	116	41.4
(Median = 1,000 Baht; QD=600; Min=0; Max=10,964)		
Debt		
No	252	90.0
Yes	28	10.0
Saving		
No	243	86.8
Yes	37	13.2
Health care scheme		
Universal coverage	132	47.1
Civil servant medical benefit	4	1.4
Social security	5	1.8
Disability Rights	139	49.6

4.2 Clinical factors

Table 4.2 shows the clinical factors of the respondents. In terms of schizophrenia onset, it was indicated wide range of duration (1 to 55 years). Similar percentages were found among patients who had diagnosed with schizophrenia less than 10 and 11-20 years (38.2% and 40.4%). Respondents who was sick during a period of 1-55 years. Only one case reported has history of medical allergy. However, two-third, 34.6 of respondents ever had side effects from medication. 7.5% of respondents had co-morbidity for example DM, HT, depression, epilepsy, HIV.

Table 4.2 Percentages of the schizophrenia patients by the clinical factors (n=280)

Characteristics	Frequency	Percentage
Duration of illness (years)		
≤ 10	107	38.2
11-20	113	40.4
> 20	60	21.4
(Median = 14; QD=6; Min=1; Max=55)		
History of medicine allergy		
No	279	99.6
Yes	1	0.4
History of medicine side effects		
No	183	65.4
Yes	97	34.6
Co-morbidity (refer to DM, HT, depression, epilepsy, HIV)		
No	259	92.5
Yes	21	7.5

4.3 Perception to medical care

Table 4.3 shows the perceived benefits of the respondents. 94.3% of respondents agreed and definitely agree with the matter “You feel that various symptom were improved by the doctor who has been treated you” which 5.7% remaining of respondents are not sure. 98.2% of respondents agreed and definitely agree with the matter “You feel that the doctor can help you from getting worst of the illness” which 1.8% remaining of respondents are not sure.

Table 4.3 Percentages of the schizophrenia patients by the perceived benefits (n=280)

Perceived benefits of care	Definitely Agreed (%)	Agreed (%)	Don't know (%)	Disagreed (%)	Definitely Disagreed (%)
Symptoms were improved after taking medicine prescribed by the doctor.	50 (17.9)	214 (76.4)	16 (5.7)	0 (0)	0 (0)
Doctor can help you from getting worst of the illness.	49 (17.5)	226 (80.7)	5 (1.8)	0 (0)	0 (0)

Table 4.4 shows the perceived costs of the respondents. 3.9% of respondents found out the unsatisfactory events during the treatment. 46.8% were afraid of the side effects of the treatment very much, 22.9% remaining and 30.4% had no fear of side effects. 3.9% of respondents had not enough money for treatment. 82.2% were able to pay for treatment and always come for diagnose by appointments.

Table 4.4 Percentages of the schizophrenia patients by the perceived costs (n=280)

Perceived costs of care	Frequency	Percentage
Unsatisfactory events during the treatment		
No	269	96.1
Yes	11	3.9
Fear of side effects		
Strongly agree	36	12.9
Agree	95	33.9
Neutral	64	22.9
Disagree	21	7.5
Strongly disagree	64	22.9

Table 4.4 Percentages of the schizophrenia patients by the perceived costs (n=280) (cont.)

Perceived costs of care	Frequency	Percentage
Able to pay for treatment/ Meet doctor by appointment		
Definitely enough	59	21.1
Enough	171	61.1
Not sure	39	13.9
Not enough	11	3.9

Table 4.5 shows the perceived barriers of the respondents. 33.5% of respondents felt that it was difficult procedures when come to meet the doctor. 3.6% of respondents felt that it was not convenience for the next appointment. 3.3% thought that the duration of the next appointment was not suitable.

Table 4.5 Percentages of the schizophrenia patients by the perceived barriers (n=280)

Barriers to care	Frequency	Percentage
Difficult procedures when comes to meet the doctor		
Strongly agreed	16	5.7
Agreed	61	27.8
Not sure	22	7.9
Disagreed	130	46.4
Strongly disagreed	51	18.2
Convenience of next appointment for meeting the doctor		
Definitely convenience	47	16.8
Convenience	193	68.9
Not sure	30	10.7
Inconvenience	9	3.2
Definitely inconvenience	1	0.4

Table 4.5 Percentages of the schizophrenia patients by the perceived barriers (n=280) (cont.)

Barriers to care	Frequency	Percentage
Suitability of duration for the next appointment		
Longest period	1	0.4
Long period	8	2.9
Not sure	33	11.8
Suitable time	221	78.9
Most suitable time	17	6.1

Table 4.6 shows the relationship between staffs and the respondents. 83.6% of respondents felt that doctors/nurses accepted and understood the problem of patients. 95.7% of respondents felt that doctors/nurses described and provided sufficient information of take care the patients.

Table 4.6 Percentages of the schizophrenia patients by the staff-patients relationship. (n=280)

Staffs-patients relationship	Frequency	Percentage
Doctors/nurses accepted and understood the patients problem		
Strongly agree	17	6.1
Agree	217	77.5
Not sure	19	6.8
Disagree	27	9.6
Doctors/nurse gave sufficient information of self care		
Definitely enough	24	8.6
Enough	244	87.1
Not sure	11	3.9
Not enough	1	0.4

Table 4.7 shows the illness factors of the respondents. 94.6% of respondents understood the illness situation after talked with doctors/nurses. 92.9% of respondents understood about the exacerbation symptom that may happen in the future and stimulating factors that induce the exacerbation symptom. 95.8% of respondents have found out that the treatment which has been done improved the illness. 97.9% of respondents assure that doctors will be able to treat the disease

Table 4.7 Percentages of the schizophrenia patients by Illness factors (n=280)

Illness factors	Frequency	Percentage
Understood the illness situation after talked with doctors/nurses		
Understood very well	21	7.5
Understood	244	87.1
Not sure	14	5
Didn't understand	1	0.4
Understand the exacerbate symptom and exacerbating factors		
Understood very well	28	10.0
Understood	232	82.9
Not sure	17	6.0
Didn't understand	3	1.1
Treatment improved the illness		
Definitely recover	43	15.4
Better	225	80.4
Not sure	11	3.9
Not good	1	0.3
Doctor can treat your illness		
Strongly agreed	55	19.6
Agreed	219	78.2
Not sure	6	2.2

Table 4.8 shows the cues to act of the respondents. 79.3% of respondents keep something as reminder for the next appointment with the doctor; meanwhile 20.7 % did not. 98.6% of respondents have relatives or acquaintance encouraged and stimulated them to come by appointment schedule, 60.4% have only one person, 33.9% have many people, 4.3% have sometime)

Table 4.8 Percentages of the schizophrenia patients by cues to act (n=280)

Cues to act	Frequency	Percentage
Have reminder for next appointment		
Yes	222	79.3
No	58	20.7
Have relatives or acquaintance to encourage adherence to psychiatric outpatient visits		
Many people	95	33.9
Have more than one	169	60.4
Some	12	4.3
Few	2	0.7
No one	2	0.7

4.4 Supportive factors

Table 4.9 shows the family support of the respondents. 81.1% of respondents were living with families, 13.9% were living with relatives, and only 5% were living alone. Patient who is living with family almost half 48.9% have parents to take care of taking medicines and doctor appointment as well, 25% were cared by husbands or wives, 18.6% were looked after by descendants, meanwhile 7.5% did not.

Table 4.9 Percentages of the schizophrenia patients by family support (n=280)

Family support	Frequency	Percentage
Living/family condition		
Living alone	14	5.0
Living with family	227	81.1
Living with relative	39	13.9
Family got involved with taking medicine and meets the doctor by appointment.		
No	21	7.5
Parents	139	48.9
Spouse	70	25.0
Son/Daughter	52	18.6

Table 4.10 shows the social support of the respondents.Regarding taking care of medicine for patients and meeting the doctor by appointments 87.5% were relatives involved of taking care the patients while 12.5% were looked after by neighbors, health volunteers and staffs. Nearly two-thirds of respondents (62.5%) have talked or discussed with other patients about the problem and symptoms of disease. 61.8% talked with other patients and they recommended friends to come to see the doctor by appointments.

Table 4.10 Percentages of the schizophrenia patients by social support (n=280)

Social support	Frequency	Percentage
Care and support of taking medicine and come for doctor appointments by others		
Group of relatives supportive	245	87.5
Group of no relatives supportive	35	12.5
Ever talked with other patients about the problems and symptoms of disease		
No	105	37.5
Yes	175	62.5
Ever told friends to come for doctor appointments		
No	107	38.2
Yes	173	61.8

Table 4.11 shows the accessibility of the respondents. 59.6% come to the hospital by themselves; remaining come along with others, 33.2% comes with family, 6.1% comes with relative, 0.7% comes with other people, and 0.4% comes with health volunteer. Regarding to vehicles, 78.6% travels by private car, motorbike and bicycle, 18.3% travels by public transportation and rental car, 3.2% travels by other. For distance of travelling from home to hospital, 54.3% the distance ≤10 km, meanwhile 45.7% the distance >10 (Median= 10; QD= 4.5). 72.5% feel that it's not a long distance and 27.5% thought that it's too far. Respondents travel from home to hospital about 5-60 minutes. More than half 56.4% took ≤ 20 minutes to reach the hospital, meanwhile 43.6% took >20 minutes (Median= 20; QD= 7.5). 77.9% feel that it's not long time to reach the hospital and remaining 22.1% feel that it took long time to come. Travelling expenses of respondents are around 0-300 Baht. Each time of travelling, 79.3% paid ≤ 50 Baht; meanwhile 20.7% paid ≤ 50 Baht (Median=50; QD= 10). 81.1% thought that it's cheap and the remaining 18.9% feel that it's expensive. Other expenses of respondents each time when coming to the hospital, 20.7% food expenses, 1.4% medicines expense, and 77.9% have no other expenses.

Table 4.11 Percentages of the schizophrenia patients by accessibility (n=280)

Accessibility	Frequency	Percentage
Person accompany to hospital		
No one	167	59.6
Family	93	33.2
Relatives	17	6.1
Health volunteer	1	0.4
Others	2	0.7
Vehicles		
Bicycle/Motorcycle	190	67.9
Private car	30	10.7
Rental car	8	2.9
Public transportation	43	15.4
Other	9	3.2
Distance from home to hospital (km)		
≤10	152	54.3
>10	128	45.7
(Median= 10; QD= 4.5; Min=1; Max=30)		
Perceived of the distance from home to hospital		
Near	203	72.5
Far	77	27.5
Time of travelling to the hospital (Minutes)		
≤ 20	158	56.4
>20	122	43.6
(Median= 20; QD= 7.5; Min=5; Max=60)		
Opinion of time for travelling to the hospital		
Short time	218	77.9
Long time	62	22.1
Travelling expenses (Baht/visit)		
0-50	222	79.3
>50	58	20.7
(Median=50; QD= 10; Min=0; Max=300)		

Table 4.11 Percentages of the schizophrenia patients by accessibility (n=280) (cont.)

Accessibility	Frequency	Percentage
Opinion of time for travelling to the hospital		
Short time	218	77.9
Long time	62	22.1
Travelling expenses (Baht/visit)		
0-50	222	79.3
>50	58	20.7
(Median=50; QD= 10; Min=0; Max=300)		
Perceived of travelling cost		
Low cost	227	81.1
High cost	53	18.9
Other expenses		
No	218	77.9
Food	58	20.7
Medicine	4	1.4

Table 4.12 shows the social contact of the respondents. In the last 12 month 92.1% of respondents have participated the community activities such as New Year and Songkran Festival, 91.4% have been to the temples for making merits on holy days, and 91.1% have joined the ceremony of the neighbors. Regarding to communication between patients and neighbors, 91.8% communicate with neighbors every week.

Table 4.12 Percentages of the schizophrenia patients by social contact (n=280)

Social contact	No (%)	Yes (%)
Community activities involved in last 12 months		
- Making merit on New Year/ Songkran Festival	22 (7.9)	258 (92.1)
- Have been to the temple on the holy days	24 (8.6)	256 (91.4)
- Neighbors ceremonies(wedding, funeral etc.)	25 (8.9)	255 (91.1)
- Communication with neighbors in every week	23 (8.2)	257 (91.8)

Table 4.13 shows the self-efficacy of the respondents. In the last 12 months 83.2% of respondents are able to take medicines as prescribed by the doctor every time, 81.4% can come to meet the doctor by appointment every time. 78.6% have friends who has the similar symptoms to be as an example for medicines taking, 79.3% have friends who has similar symptoms to be as example for coming to meet the doctor by appointment. 77.9% of respondents were admired when they came by appointment; meanwhile 51.4% were dispraised when they missed the appointment. 95% of respondents believe that the disease won't be getting worst if they continue taking medicines and 95.7% thought that they will be accepted by other people if they get better. 88.6% of respondents are happy that they can take medicines by the doctor ordered and 92.9% are happy that they can come to meet doctor by appointment.

Table 4.13 Percentages of the schizophrenia patients by self-efficacy (n=280)

Self-efficacy	Yes (%)	No (%)
- Taking medicine prescribed by doctor regularly in last one year	233(83.2)	47(16.8)
- Visit doctor as scheduled in the last one year	228(81.4)	52(18.6)
- Have friends with similar symptoms who taking similar medicine	220 (78.6)	60(21.4)
- Have friend who has similar symptoms to be as an example for coming to meet the doctor by appointment	222 (79.3)	58 (20.7)
- Ever admired by doctor	218 (77.9)	62 (22.1)
- Ever dispraised by the doctor	144 (51.4)	136 (48.6)
- Have confidence of the effective of medicine	266 (95.0)	14 (5.0)
- Believe that if you get better from illness you will be more accepted by other people	268 (95.7)	12 (4.3)
- You are happy that you can take medicines by the doctor's prescribe	248 (88.6)	32 (11.4)
- You are happy that you can come to meet the doctor by appointment	260 (92.9)	20 (7.1)

4.5 Adherence to psychiatric outpatient visits

In this study, the results showed that 69.6% of schizophrenia patients in Yasothon province had adherence to psychiatric outpatient visits. 96.4% of the respondent come to meet the doctor by appointment for the reasons; want to be cured, wanted to get better, didn't want to get the exacerbation. The causes that made patients got low adherence were as follows: the first cause and was number one was being busy engaged (53.6%), the second one was having forgotten (17.5%), others (8.9%), cured by self thought (8.2%), no accompany (7.9%), Didn't want to taking medicine/treatment and Thought they was cured (3.9%). The suggestion for the hospital to improve adherence; the first (47.5%) was warning from the hospital before

appointment , the second (35%) was cooperate with subdistrict administrative organization to have a shuttle car service from home to hospital, other (17.5%).

Table 4.14 Percentages of the schizophrenia patients by adherence (n=280)

Adherence	Frequency	Percentage
Adherence to psychiatric outpatient visits		
Yes	85	30.4
No	195	69.6
Reasons that made you follow up the doctor's appointment		
Wanted to be cured/ wanted to get better/ didn't want to get the exacerbation	270	96.4
Other	10	3.6
Problems and barriers that made you missed the doctor's appointment		
Forgotten	49	17.5
Busily engaged	150	53.6
No accompany	22	7.9
Didn't want to taking medicine/treatment	11	3.9
Thought they was cured	23	8.2
Other	25	8.9
Suggestion to the hospital		
Got a warning before the appointment	134	47.9
Cooperation with SAO to take patients to the hospital	98	35.0
Other	48	17.1

4.6 Association between independent variables and adherence to psychiatric outpatient visits during the previous 12 months.

4.6.1 Association between demographic factors and adherence to psychiatric outpatient visits during the previous 12 months.

Table 4.15 describes the relationship between the demographic factors and adherence to psychiatric outpatient visits during previous 12 months. There were significant association between education (OR: 2.032; 95%CI: 1.149-3.593),

occupation (OR: 1.862; 95%CI: 1.106-3.136), income (OR: 1.711; 95%CI: 1.023-2.863) and adherence to psychiatric outpatient visits.

High education were 2.032 times (OR: 2.032; 95%CI: 1.149-3.593) more likely that adherence to psychiatric outpatient visits is low education. Farmer were 1.862 times (OR: 1.862; 95%CI: 1.106-3.136) more likely to adherence to psychiatric outpatient visits is other (employee, Government official/State enterprise employee, Own business). Low income (≤1,000 baht) were1.711 times (OR: 1.711; 95%CI: 1.023-2.863) more likely to adherence to psychiatric outpatient visits is high income (>1,000 baht).

Table 4.15 Association between demographic factors and visit adherence of psychiatric outpatient during the previous 12 months (n=280)

		Adherence to psychiatric outpatient visits			
Demographic factors	**n**	**Yes** %	**No** %	**Crude OR** (95%CI)	**P-value**
Gender	280				
Male	175	73.1	26.9	1.545 (0.919-2.598)	0.101
Female	105	63.8	36.2	1	
Age	280				
<43	138	73.9	26.1	1.493(0.893-2.496)	0.126
≥43	142	65.5	34.5	1	
Saving	280				
Yes	37	56.8	43.2	0.520 (0.256-1.056)	0.071
No	243	71.6	28.4	1	
Alcohol drinking	280				
No	218	68.3	31.7	0.751 (0.397-1.419)	0.378
Yes	62	74.2	25.8	1	

4.6.2 Association between clinical factors and adherence to psychiatric outpatient visits during previous 12 months**.**

Table 4.16 shows there were statistical significant association between clinical factors and adherence to psychiatric outpatient visits during previous 12 months. Schizophrenia patients who had duration of illness ≤10 years were 1.8 times more likely to adherence to psychiatric outpatient visits than those who had duration of illness >10 years (OR: 1.884; 95%CI: 1.086-3.268). However, the result showed history of drug side effect and co-morbidity were not associated with adherence to psychiatric outpatient visits (OR: 1.521; 95%CI: 0.874-2.647), (OR: 1.934; 95%CI: 0.631-5.930).

Table 4.16 Association between clinical factor and adherence to psychiatric outpatient visit during previous 12 months

Clinical factors	**n**	**Adherence to psychiatric outpatient visits**			
		Yes %	**No** %	**Crude OR** (95%CI)	**P-value**
Duration of illness	**280**				
≤10 years	107	77.6	22.4	1.884 (1.086-3.268)	0.024
>10 years	173	64.7	35.3	1	
History of drug side effect	**280**				
Yes	97	75.3	24.7	1.521 (0.874-2.647)	0.138
No	183	66.7	33.3	1	
Co-morbidity	280				
Yes	21	81.0	19.0	1.934 (0.631-5.930)	0.249
No	259	68.7	31.3	1	

4.6.3 Association between the perception to medical care and adherence to psychiatric outpatient visits during previous 12 months

Table 4.17 shows there was a statistical significant association between barriers of caring and adherence to psychiatric outpatient visits (OR: 2.922; 95%CI: 1.726-4.946). Schizophrenia patients who had low level barriers to care were 2.92 times more likely to adherence to psychiatric outpatient visits than those with high barriers.

Table 4.17 Association between perception to medical care and adherence to psychiatric outpatient visits during previous 12 months

Perception to medical care	Adherence to psychiatric outpatient visits				
	n	**Yes** %	**No** %	**Crude OR** (95%CI)	**P-value**
Perceived benefits of care	**280**				
High (>8)	59	66.1	33.9	0.813 (0.441-1.498)	0.506
Low (≤8)	221	70.6	29.4	1	
Perceived costs of care	**280**				
Low cost	230	69.1	30.9	0.871 (0.442-1.715)	0.689
High cost	50	72.0	28.0	1	
Barriers to care	**280**				
Low barriers (≤6)	175	78.3	21.7	2.922 (1.726-4.946)	0.001**
High barriers (>6)	105	55.2	44.8	1	
Staff-patient relationship	**280**				
High (>8)	29	75.9	24.1	1.417 (0.581-3.456)	0.444
Low (≤8)	251	68.9	31.3	1	
Illness factor	**280**				
High (>16)	63	63.5	36.5	0.696 (0.385-1.257)	0.229
Low (≤16)	217	71.4	28.6	1	
Cues to act	**280**				
High (>5)	79	67.1	32.9	0.847 (0.484-1.481)	0.560
Low (≤5)	201	70.6	29.4	1	

4.6.4 Association between supportive factors and adherence to psychiatric outpatient visits during the previous 12 months

Table 4.18 shows the association between supportive factors (family support, sharing experience among patients, told friend to come for appointment, vehicle, other expense and self-efficacy) and adherence to psychiatric outpatient visits during previous 12 months.

There was a statistical significant association between family supportive and adherence to psychiatric outpatient visits. Schizophrenia patients who are supported by parents are 2.07 times more likely to adherence to psychiatric outpatient visits than those who had supports by other people (OR: 2.075; 95%CI: 1.229-3.503)

While sharing experience among patients, there was a statistical significant association between patients who have sharing experience among patients and adherence to psychiatric outpatient visits. Psychiatric patients who were sharing experience among patients were 3.215 times more likely to adherence to psychiatric outpatient visits than those who had never consulted (OR: 3.215; 95%CI: 1.895-5.454).

About, told friend to come for appointment, there was a statistical significant association between patients who had told friend to come for appointment and adherence to psychiatric outpatient visits. Psychiatric patients who had told friend to come for appointment were 3.215 times more likely to adherence to psychiatric outpatient visits than those who had never consulted (OR: 3.215; 95%CI: 1.895-5.454).

However, with regard to self-efficacy, the association also was a statistical significance to adherence of psychiatric outpatient visiting. Psychiatric patients who have high self-efficacy are 2 times more likely to adherence of psychiatric outpatient visiting than those with low self-efficacy (OR: 2.000; 95%CI: 1.088-3.678).

Similarly, in terms of other expense, the table shows there was a statistical significant association between patients who had no other expense and adherence to psychiatric outpatient visits. Psychiatric patients who had no other expense were 0.47 times more likely to adherence to psychiatric outpatient visits than those who had never consulted (OR: 0.477; 95%CI: 0.239-0.950).

Lastly, about vehicle (vehicles that patients have travelled by). It was revealed a statistical significant association between private car/motorcycle with adherence to psychiatric outpatient visits. Psychiatric patients who have private car or motorbike were 2.5 times more likely to adherence to psychiatric outpatient visits than those who had travelled by other vehicles (OR: 2.502; 95%CI: 1.387-4.514).

Table 4.18 Association between supportive factor and adherence to psychiatric outpatient visits during previous 12 months

Supportive factors	Adherence to psychiatric outpatient visits				
	n	**Yes**	**No**	**Crude OR**	**P-value**
	%	%		(95%CI)	
Family support	**280**				
Parents	137	77.4	22.6	2.075 (1.229-3.503)	0.006
Others	143	62.2	37.8	1	
Social support					
Care of medicines taking	**280**				
Relatives+others	245	71.4	28.6	1.875 (0.909-3.870)	0.089
Not relatives+others	35	57.1	42.9	1	
Sharing experience among patients	**280**				
Yes	175	79.4	20.6	3.378 (1.988-5.742)	<0.001**
No	105	53.3	46.7	1	
Told friends to come for appointment	**280**				
Yes	173	79.2	20.8	3.215 (1.895-5.454)	<0.001**
No	107	54.2	45.8	1	
Accessibility					
Person accompany to hospital	280				
Yes	113	70.8	29.2	1.096 (0.651-1.846)	0.730
No	167	68.9	31.1	1	

Table 4.18 Association between supportive factor and adherence to psychiatric outpatient visits during previous 12 months (cont.)

Supportive factors	n	Adherence to psychiatric outpatient visits: Yes %	No %	Crude OR (95%CI)	P-value
Vehicle	280				
Private car/motorbike	220	74.1	25.9	2.502 (1.387-4.514)	0.002
Other	60	53.3	46.7	1	
Distance	280				
Short (≤10 km)	152	67.8	32.2	0.823 (0.492-1.375)	0.456
Long (>10 km)	128	71.9	28.1	1	
Perceive of the distance	280				
Near	203	69.0	31.0	0.889 (0.499-1.583)	0.689
Far	77	71.4	28.6	1	
Travelling time to hospital	280				
Short (≤20 min)	158	72.2	27.8	1.311 (0.786-2.188)	0.299
Long (>20 min)	122	66.4	33.6	1	
Opinion of time for travelling to the hospital	280				
Short time	218	68.8	31.2	0.833 (0.445-1.560)	0.569
Long time	62	72.6	27.4	1	
Travelling expenses	280				
Low (≤50)	222	69.8	30.2	1.041 (0.557-1.946)	0.900
High (>50)	58	69.0	31.0	1	

Table 4.18 Association between supportive factor and adherence to psychiatric outpatient visits during previous 12 months (cont.)

Supportive factors	n	Adherence to psychiatric outpatient visits			
		Yes %	No %	Crude OR (95%CI)	P-value
Perceived of travelling cost	280				
Low cost	227	68.7	31.3	0.789 (0.403-1.544)	0.489
High cost	53	73.6	26.4	1	
Other expense	280				
No	218	66.5	33.5	0.477 (0.239-0.950)	0.035
Yes	62	80.6	19.4	1	
Social contact	280				
High (4)	236	71.6	28.4	1.746 (0.899-3.393)	**0.100**
Low (<4)	44	59.1	40.9	1	
Self-efficacy	280				
High (>9)	82	79.3	20.7	2.000(1.088-3.678)	0.026
Low (≤9)	198	65.7	34.3	1	

4.7 Predicting factors for adherence to psychiatric outpatient visits

Multiple logistic regression was performed including, all significant independent variables with P-value less than 0.05 in the Chi-square tests and also reviewed in the theory were considered included in the full model. Having family support (AOR=2.011; 95%CI=1.126-3.594) was found to be significant predictor of adherence to psychiatric outpatient visits among schizophrenia patients (Table 4.19).

Table 4.19 Full model of multiple logistic regressions

Variables	Adj. OR	95% C.I. of OR		P-value
		Lower	Upper	
Education				
Low education	1			
High education	1.930	.991	3.759	.053
Occupation				
Other	1			
Farmer	0.795	.422	1.497	.477
Income (baht/month)				
>1,000	1			
≤1,000	1.024	.519	2.020	.946
Duration of illness				
>10	1			
≤ 10	0.746	.403	1.382	.352
Barriers to care				
High (>6)	1			
Low (≤6)	0.640	.301	1.357	.244
Family supportive				
Other	1			
Parents	2.011	1.126	3.594	.018
Social supportive				
Sharing experience among patients				
No	1			
Yes	1.921	.488	7.562	.350
Told friends to come for appointment				
No	1			
Yes	0.891	.219	3.627	.873
Vehicles				
Other	1			
Private car/motorcycle	0.867	.421	1.788	.699

Table 4.19 Full model of multiple logistic regressions (cont.)

Variables	Adj. OR	95% C.I. of OR		P-value
		Lower	Upper	
Self-efficacy				
Low (≤9)	1			
High (>9)	0.926	.436	1.966	.842
Other expense				
No	1			
Yes	1.798	.839	3.852	.132

Multiple logistic regression was performed including, all significant independent variables with P-value less than 0.05 in the Chi-square tests and also reviewed in the theory were considered included in the final model. After adjusted for occupation, income, duration of illness, told friends to come for appointment, vehicles, self-efficacy, there were three variables found to be the predictors. Education (AOR=1.944; 95%CI=1.042-3.628), sharing experience among patients (AOR=2.423; 95%CI=1.259-4.660), had family support (AOR=1.944; 95%CI=1.100-3.433) were found to be significant predictors of adherence to psychiatric outpatient visits among schizophrenia patients (Table 4.20).

Table 4.20 Final model of multiple logistic regressions

Variables	Adj. OR	95% C.I. of OR		P-value
		Lower	Upper	
Education				
Low education	1			
High education	1.944	1.042	3.628	.037
Family supportive				
Other	1			
Parents	1.944	1.100	3.433	.022
Barriers to care				
High (>6)	1			
Low (≤6)	0.559	.289	1.083	.085
Sharing experience among patients				
No	1			
Yes	2.423	1.259	4.660	.008
Other expense				
No	1			
Yes	1.969	.947	4.095	.070

CHAPTER V
DISCUSSION

In this chapter, interpretation and discussion of adherence and factors related to psychiatric outpatient visits were shown. The implications of those findings were also suggested for further action. In addition, the useful of the findings which could be used to improve health care system were recommended to enhance visit adherence.

5.1 Adherence rate in schizophrenia patients

In this study, the results showed that 69.6% of schizophrenia patients had adherence to psychiatric outpatient visits. The adherence from this study was lower than the study of GalyaRajanagarindra Institute which found the adherence rate was 78.6% (13). Comparing the adherence in this study with other studies from overseas, which found the adherence rate was between 40-88%. The study showed the adherence to psychiatric outpatient visits was in the normal levels.

The adherence to psychiatric outpatient visits were different in each area. This could be due to the type of area such as GalyaRajanagarindra Institute was located in Bangkok that was more convenience of travelling, while this study has been done in the area of Yasothon province that was more inconvenience of travelling to meet the doctor without private vehicles. In this study, the causes that made patients got low adherence were: the firstly, being busy engaged (53.6%), secondly having forgotten (17.5%), others (8.9%), thought they was cured (8.2%), no accompany (7.9%), didn't want to taking medicine/treatment (3.9%). Regarding studying about missed appointments at outpatient psychiatric clinics in Geneva (39), the results showed the most frequent being that they forgotten about the appointment. Other reasons are for example, having a travel problem, being unhappy with treatment or losing appointment card. When comparing the causes of missed appointment between

this study and the study in Geneva has found the most reason of the study in Geneva was forgetting appointments, which was the second cause of this study (39). The cause was probably the patients in the study of Geneva could postpone the appointment when they were not available. Whereas most of patients in this study who missed appointment did not have advance notice and postpone the appointment so it was the cause of higher missed appointment.

5.2 Association between independent variables and adherence to psychiatric outpatient visits during previous 12 months

5.2.1 Demographic factors

In the study of demographic factors has found that education, occupation and income were factors that significant relationship with adherence to psychiatric outpatient visits, whereas gender, age, marital status, debt, saving and alcohol drinking didn't associated with adherence to psychiatric outpatient visits.

Male patients were better in adherence than female patients (73.1% vs 63.8%) that was different from the previous study (29) which found that female patients were better in adherence. Male patients got higher comorbid alcohol abuse/dependence that was the cause of missing appointment. On the other hand, this study didn't find the association between drinking alcohol and adherence to psychiatric outpatient visits but might be the cause of vehicle factor for travelling which was the main factor of coming to meet the doctor each time. It's found out that male patients have more private cars or motorcycle more than female patients (81.1 vs 74.3), and male patients were better of driving vehicles than female patients that made them got higher adherence. Respondents in this study were in age range 18-77 years and average was 43. To compare older and younger age, they had no different in adherence (49.3% vs 50.7%) which was differ from previous study (12). In this study both younger and older patients were taken care by their families (81.1%) that helped for taking them to meet the doctor by appointment. This was the reason why they were in the same level of adherence. 29.3% of patients have spouse and 70.7% have no spouse (single, divorce, widowed, and separated). When comparing the group of

patients between who have spouse and no spouse it found patients who have spouse were better in adherence (35.4% vs 28.3%). The study showed 25% of patients were taken care and brought to the doctor by husband or wife that associated with the previous study (32). That found patients who lived with family were better in adherence than the patients who lived alone. Most of patients 63.9% graduated from primary school which was compulsory education in the past. The result of the study found that patients who graduated from high school and bachelor‘s degree were have better adherence 2 times than patients who graduated from primary school and uneducated. These was similar to previous studies (10, 32) which found that a person who educated less than 12 years and those who have been less studied were effected in having adherence because of higher education made people have more knowledge in taking care of themselves. Therefore, it reflected the importance of education and getting more knowledge from other media such as, internet, books, magazines, and journals which could help patients to obtain knowledge or disease information and had good adherence (40).

63.2% of patients were farmer and 36.8% were employees or contractors. From the study found farmers have good adherence to psychiatric outpatient visits than other occupations 1.8 times. As a self-employed was better to handle with the working time by oneself, no obstacle of coming to meet the doctor associated with the previous study (41) which found busy work life associated with miss appointment. The average incomes of patients were about 1000 Baht/month. In the study, researcher found that patients with low income (≤1,000 Baht/month) had higher adherence than patients with high income (>1,000 Baht/month). These associated with the previous study (42) which compared between patients with incomes <23,000 Baht, ≥23,000 Baht and coming by appointment found that incomes didn’t relate to coming by appointment. It was suggested that income didn’t affect the coming of getting treatment. At present, patients can access to health services with low cost because the government has been supporting the medical fee. It will help the patients with low incomes to access the health care services. It was indicative of the success of the health system in our country.

5.2.2 Clinical factors

In the study of clinical factors has found that the duration of illness was the factor which significant association with adherence of patients, while history of drug side effect, co-morbidity didn't associated with the adherence of patients.

Patients with duration of illness less than or equal to ten years had higher adherence than patients with duration of illness more than ten years (77.6% vs 64.7%). This was patients with duration of illness less than 10 years were treated shortly and they wanted to be cured as soon as possible so this was the cause of getting high adherence. Whereas patients with duration of illness more than 10 years thought they have been cured and did not want to treatment anymore. This was the cause of low adherence similar to the previous study (43) which had studied about taking calcium channel blocking medicine in chronic disease patients. It's found that compliance of patients would decrease when having long term treatment. In this study, patients were average duration of illness at 15 years which was in the high risk of having low adherence so care giver needed to help patients to understand about the disease and take care themselves correctly.

Patients who had suffered a side effect from taking medicine before (36.4%) have higher adherence than those who had never (75.3% vs 66.7%). Due to the side effects of the medicine so it was necessary for patients to receive care closer to cure side effects of drugs. It was the reason why the doctors make more frequent appointment. The previous study (44) found that the long period time of making appointment was the cause of missing the appointment. If patients got more frequent appointment it would help them to get better adherence as they needed to meet the doctor because of the side effect of drugs. In addition, selecting the right drug for patients would help to reduce the side effects, including provide the advice could help patients to understand and were able to meet the doctor to treat side effects from the initial stage.

Patients with comorbidity have higher adherence than those were not (81% vs 68.7%). The most common comorbid diseases included hypertension (66.7%), diabetes (14.3%), other diseases (14.3%), asthma (4.8%). Some patients had been treated comorbid disease before getting schizophrenia. So they had the experience about continue medication and come to see the doctor by appointment. It was the

reason that patients got high adherence which similar to the previous study (34). That study between diabetes patient with schizophrenia and diabetes patient without schizophrenia. The study found that diabetes patient with schizophrenia have greater contact with the health-care system, having had significantly more hospitalizations and a greater number of outpatient visits which made prevalence of adherence was significantly higher than diabetes patients without schizophrenia.

5.2.3 Perception to medical care

In the study of perception to medical care had found that barrier to care was the important factor that significant associated with adherence of patients. However, the study couldn't find the association between adherence to psychiatric outpatient visits with perceived benefits of care, perceived costs of care, staff-patient relationship, illness factor and cues to act.

Perceived benefits of care, the study showed that more than 90% of patients agreed with the doctor could improve various symptoms and prevent more serious disease but did not found that the perceived benefits of care could improve the adherence. The data from the study found the patients who perceived low benefits have high adherence compared to high group (70.6%, 66.1%). Apart from perceived benefits of care, hospitals may also need to educate and create awareness of patient for taking care themselves correctly. This could allow patients to control the symptoms and have more adherences. Unless perceived benefits of care for patients, perceived benefits of care for care givers was very important. The previous study (35) about perceived benefits of care for parents who got the sick children, found that perceived benefits of care for parents since the beginning the disease was the important predictor for maintain the treatment of the mental health children. The perceived benefits of care would happen when children's functioning is higher and when the symptoms were decreased. So the perceived benefit of care for caregiver was necessary if we could show them about the important of the treatment. Caregivers could take care of patients for good outcome of treatment.

People who perceived low cost of care had high adherence than who perceived high cost of care (72% vs 69.1%). The highest cost of care 46.8% was side effects of drug (in high level to the highest level), the other were finding the

unsatisfied situations during treatment and didn't have enough money for treatment/came to meet doctor by appointment (3.9%, 3.9%). To reduce the cost of care, it would be an opportunity to improve the adherences such as, surveillance side effects from medication, preventing incidents that would cause dissatisfaction during treatment, reducing the costs of travel and treatment.

Patients who perceived low barriers to care have higher adherence in 3 times than those who with high barriers to care. It's found that the most barriers to care was the complicate procedures when came to meet the doctor (33.5%), the secondly was inconvenience of meeting the doctor in the next appointment (3.6%), and the lastly, time period of next appointment was inapplicable (3.3%). The study of Sritanya Hospital (31) found that the barriers to care and getting information of schizophrenia patients was significantly associated with the adherence to treatment. The study in Songklanagarind hospital (45) indicated that perceived barriers to care of hypertensive patients was associated with adherence to treatment. Patients with high levels of perceived barriers had 6.16 time risk of non-adherence to treatment than patients with low levels.

Therefore, it's the opportunity for the hospital to develop the service system to decrease the barriers to care. This could help to increase the adherence of patients. From the study, the common barrier to care was the complicated procedures to see the doctor by appointment. By analysis of the problem, it found that there were several steps of getting treatment in one visit. Elderly who has limited ability of walking might not convenience getting treatment. It had the long distance between the interviewing patient's history location and the doctor diagnosis location which was inconvenience for the elderly patients. Based on this finding, hospital should reconsider to develop the service by gathering all points of services into the same area (one stop service) to decrease the barriers.

Regarding to the relationship between doctor and patient, it found that 95.7% of patients satisfied of information related to disease given by doctor or nurse, and 83.6% of respondents satisfied that doctor and nurse received and understood of their illness. The study found that patient who have good relationship with doctor have higher adherence in 1.4 times than those who didn't, which similar to the previous study (46). It's found that the good relationship between doctor/nurse and patients was

the important factor which could help patients to confide and willing to treatment. Thus creating a good relationship between service providers and patients (good service mind, perceiving the problems from patients with compassion, supporting the patients to have treatment) was support the good result of treatment.

More than 90% of the patients perceive the illness factors. 94.6% of patients understood the illness after talked to doctor/nurse. 92.9% of patients understood the exacerbate symptoms that may occur and the factors that could stimulate the exacerbation. 95.8% of patients recognized that the previous treatment helped them to get better. 97.9% of patients were confident in the doctor could heal them. In the study has found that the perception of illness factors didn't relate to the adherence to treatment. Patients with high perception of illness factors had low adherence than those who with low perception of illness factors (63.5% vs 71.4%). The result was different from the previous study (36), which found that there was an association between perception of illness factors and adherence to treatment such as, getting information from doctor about the purpose of therapy, understanding the purpose of therapy, reading the patient information leaflet, positive opinion about the effectiveness of the treatment. The same as the patients who had low perception of recommendation factors (Cues to act) which found that have more adherence than the patients who had high perception (70.6% vs 67.1%). 79.3% of patients recommended on reminder to meet the doctor by next visit. 98.6% of patients suggested for having relatives or acquaintances who encouraged and motivated them to meet the doctor by appointment. As schizophrenia patient was a person with wrong perception, it has effected to the awareness of illness factors and recommendations factors (Cues to act) which was different from other patients (47).

5.2.4 Supportive factor

The study reported significant association between adherence to psychiatric outpatient visits and family support, sharing experience among patients, told friends to come for appointment, vehicle, other expense and self-efficacy. While care of medicine taking, person accompany to the hospital, distance, perceive of the distance, travelling time to hospital, opinion of time for travelling to the hospital,

travelling expense, perceived of travelling cost, and social contact didn't associated with adherence.

Schizophrenia patient who had supported by parent were 2.07 times more adherence to psychiatric outpatient visits than who had supported by other people. Since parents were the most contiguous people who gave caring for schizophrenia patient. 48.9% of patients had parents who took care about taking medicine and brought patients to meet doctor by appointment. These associated with the previous study (48) which found that family supported financial and motivated the patients to have treatment. Other study (49) found that the effect of unsuccessful treatment from patients who didn't have caring from family, thus reflected to the important of family supportive which could help patients to get caring and come to treatment by doctor appointment.

Schizophrenia patient who shared experience among patients were 3.38 times more adherence to psychiatric outpatient visits than who didn't share. And schizophrenia patient who told friends to come for appointment were 3.22 times more adherence to psychiatric outpatient visits than who didn't told. In the previous study (37), that studied in patient who made kidney transplant. It's found out that patients who didn't come to meet the doctor by appointment would have higher risk to get transplant failure. If patient had shared experience from other patients who have been done a kidney replacement, it could help patient to presume and willing to handle with the change of body. This could help to decrease the risk of transplant failure. The other study (50) about couple-focused support in low adherence HIV patients found patients with couple-focused support had higher mean medication adherence at post intervention when compared with controls. From other studies (51) has found significant relationship between social support and self care of unknown type hypertension patients. Whenever the social support increased, self care would be increasing too. Social support may come from primary sources such as, family and relatives which were mostly finance support and appliances. The secondary sources were doctor, nurse, health care staff, and other people such as, teacher, monk, community leader, and health care volunteer which were the sources of information and health knowledge. It could help a person to get stress reduction if they were supported in emotional, spiritual, information, finance, labor or appliances from closer

people or social. These would help them to be accepted from people in society which could help them to adjust correctly and suitably. So it has reflected to the important of shared experience among patients and told friends to come for appointment which could help patients to understand the disease and taking care of themselves correctly that would increase adherence to psychiatric outpatient visits.

The study found sixty two patients (22.1%) had other expense. Fifty eight patients (20.7%) had food expense and four patients (1.4%) had drug expense. The study show adherence to psychiatric outpatient visits was significant association with other expense. In the previous study (52) about cost sharing, adherence, and health outcomes in patients with diabetes found $10 increase in the patient cost-sharing index resulted in a 5.4% reduction in adherence to antidiabetic medications for patients on oral antidiabetic medication only and a 6.2% reduction in adherence for patients on oral antidiabetic medication with or without insulin. Adherence was associated with lower rates of complications (eg, amputation/ulcers, retinopathy) and also was associated with fewer emergency department visits and short-term disability days. These may be couldn't compared with expenses in this study because the medication expense in this study quite low (30 baht) and food expense was usual expense.

Patients who had accompanied person are more likely to had high adherence (68.9% vs 70.8%). While the distance of travelling whether near or far didn't significantly association with adherence to psychiatric outpatient visits. The most expenses of the patients were travelling expenses. Most of patients have the health care scheme for health care services that covered most expenses for treatment. 80% of patients have travelling expense on less than 50 Baht, while the remaining have travelling expense more than 50 Baht, which both groups were close in adherence to psychiatric outpatient visits (69.8% vs 69%). The cost of treatment wasn't the important factor that made patients didn't have adherence to psychiatric outpatient visits. The study found patients who had owned private cars and motorcycle have 2.5 times adherence to psychiatric outpatient visits than those who didn't have private vehicles (74.1% vs 53.3%). Due to the study area was inconvenience of travelling due to less public transportation, made some patient who has no vehicle could not access. In addition, travelling time to the hospital was effected to adherence to psychiatric outpatient visits. Patients who spent time less than or equal to twenty

minutes had more adherence than patients who spent more time than twenty minutes (72.2% vs 66.4%). Previous study (31), patients who got the problem of travelling to treatment such as difficulty of travelling to treatment and took a lot of travelling time which would be effect to increase the missed appointment. So if it could help the patients to have more convenience in travelling factors, the adherence to psychiatric outpatient visits would be increasing.

This study found patients who with high self-efficacy have good adherence by coming in appointment than those who with low self-efficacy (79.3% vs 65.7%). Previous study (53) about knowledge, perceived of self-efficacy, behavior of diabetic patients and health status of diabetic patients found that knowledge, perceived of self-efficacy and behavior have significant association. The patients with high self-efficacy could take drug as doctor prescribed and have good adherences to follow up the treatment. Therefore, to develop the changing behavior of patients in better coming by appointment, it was necessary to have more development in perceived of self-efficacy. It could make by arranging the management training skills for schizophrenia patients once a year. The knowledge will help the patients pulled out their existing potential for taking care themselves.

CHAPTER VI
CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study was carried out to describe level of adherence in schizophrenia patients and to examine the association between demographic factors, clinical factors, perception to medical care, supportive factors and adherence to outpatient visits. It was hospital-based cross sectional study with sample size 280 schizophrenia patients from three community hospitals. The data collection took place from March to May, 2015 by a trained research assistant. The data was analyzed by descriptive statistic, chi-square test and multiple logistic regressions. The study was approved by the Office of the Committee for Research Ethics (Social Sciences), Faculty of Social Sciences and Humanities, Mahidol University Institutional Review Board (MU-SSIRB).

The study has found that schizophrenic patients in Yasothon Province, 69.6% had adherence in coming by appointment, while the rest 30.4% had no adherence. Be busily engaged was the main reason that patients had no adherence (53.6%). The other reasons included forgotten 17.5% and others 8.9%, considered themselves are recovered 8.2%, didn't have accompany 7.9%, didn't want to keep taking medicine and curing 3.9%.

In terms of demographic factor, about two-third (62.5%) were female .The average age of patients was 43 years. About 60% of patients were single. Nearly two-third (63.9%) graduated from primary school. The study had found that those who got higher education than primary school had higher adherence by two times. About 63.2% were farmers as it was a self-employed so they got 1.8 times of adherence to psychiatric outpatient visits compared to other occupations. Patients had an average income of 1,000 baht / month. Lower income (<1,000 Baht/month) was associated with adherence due to every patients had health care scheme by Thai public health policy.

The study result revealed duration of illness less than or equal to 10 years have a high association with adherence to psychiatric outpatient visits during previous 12 months. Schizophrenia patients who have duration of illness less than or equal to 10 years were 1.8 times more likely to adherence to psychiatric outpatient visits than who have duration of illness more than 10 years. In terms of history of drug side effect and co-morbidity, the study did not find statistically significant association with adherence to psychiatric outpatient visits

About Perception to medical care, the study revealed high association between barriers to care and adherence to psychiatric outpatient visits. Schizophrenia patients who have low barriers to care were 2.92 times more likely to adherence to psychiatric outpatient visits than those with high barriers to care. It was found that the most obstructive factor was the difficult procedures when coming to meet the doctor 27.5%, the second one was inconvenience of the next appointment 3.6%, and the next meeting was inappropriate 3.3%.

About supportive factors, the study had found that family support, sharing experience among patients, told friend to come for appointment, vehicle, other expense and self efficacy were significant associated with adherence of psychiatric outpatient visits. It was found that schizophrenia patient who have support by parent were 2.07 times more likely to adherence to psychiatric outpatient visits than who have support by others. Patients with schizophrenia who had sharing experience among patients were 3.37 times more likely to adherence to psychiatric outpatient visits than those who have never sharing. Patients who had told friend to come for appointment were 3.21 times more likely to adherence to psychiatric outpatient visits than those who have never told. Patient who got the private car and motorcycle were 2.5 times more likely to adherence to psychiatric outpatient visits than those with other vehicles. Patients who had other expense were 2.09 times more likely to adherence to psychiatric outpatient visits than those with low self-efficacy. Patients who had high self-efficacy were 2 times more likely to adherence to psychiatric outpatient visits than those with low self-efficacy.

The final model of multiple logistic regressions identified three variables; education, family support and sharing experience among patients were significantly

associated with adherence to psychiatric outpatient visits among schizophrenia patients ($p<0.05$).

6.2 Recommendations

6.2.1 Recommendation for district hospital

From the study, the opportunity of services system developing was found for getting higher adherence of patients such as, opening clinic overtime for all patients who were inconvenience to get services in regular hours. Systematization of appointment that the group of patients who were living close in the same area should be made in the same time to facilitate the patients who didn't have private vehicle could come along with ones who got the private vehicles. Services system improvement should be made for reducing the procedures of services such as setting one stop service for caring psychiatric patients. Setting up the group to help friends that the members were patients for help each other. The group was established by support of the hospital to advise the knowledge, helping patients who got the problem, and followed up patients who missed appointment. The telephone reminder service should be done for reminded the patients for their appointment. It could help to increase the adherence.

For opportunity to improve patient care was empowerment to encourage patients for good adherence and increase the efficacy of self-care. The recommendation was hospital should training schizophrenia patients 1 time a year to help patients had knowledge and pull out the existing potentialities for take care their health properly.

Finally, the opportunity to collaborate local partners such as, subdistrict administrative organization (SAO) to support shuttle car services for patients who hadn't vehicle to come to the hospital. It was an opportunity for patients to assess the health care service. In addition emergency medical services (EMS) car by SAO could provide and first aid for patients who were in emergency cases.

6.2.2 Recommendation for ministry of health

The study found that patients who had low incomes could access to health services very well. Since most patients had the right to healthcare service which made medical expenses wasn't a problem for them. The policy for healthcare services was necessary to continue. It helped patients who got low incomes could access to healthcare services. The ministry of health should improve healthcare services for all patients could get better services and more qualities.

In addition, as schizophrenia patients were person who abnormal in many ways of perceptions so they must have person who can take care them. The development of caregivers were very important. In order to make caregivers to understand the diseases of patients very well so they should know about; how to take care of patients, taking medicines controlling, exacerbation surveillance, accompany to see the doctor by appointment. The person who could take care closely to patient was a person in family. So caregivers should come from people in patients' family. Ministry of Public Health should support all hospitals to have the training for schizophrenia caregivers for 1 time a year. It was helpful for caregivers to understand the diseases of patients and was able to take care of them efficiently which would help to increase adherence.

6.2.3 Recommendation for further research

For the further research, the researcher suggested to study about the family support by random sampling from the patients whom were supported by their families and had good adherence. Because the results from research have shown that family support was the important factor which made better adherence. The study focused on the quality of family support, in order to know the factors that family would support patients to make them get better adherence. After that hospital and partnership would work together to help the patients.

6.3 Limitation of study

This study was conducted in three community hospitals of Yasothon Province. It may not be able to be the representative of national patients comparing.

Since each area was different in context such as, occupation, transportation, income, and distance of travelling. Most information was collected from research assistance interviewed so it might guide the respondents who got bias could give only better information. To keep some data in partially abstract that each patient got the different standard of feeling made the research results were different in each patient. The study was recalling respondent memories in order to measure some variables such as history of alcohol drinking, taking medicine, come to meet the doctor by appointment so there might be a recall bias in this study.

Adherence to psychiatric outpatient visits might not reflect the patients taking psychiatric medicine regularly. Further study should address the adherence of medicine by counting prescribed drug or focusing on the role of caregivers who can observe drug taking in the people under psychiatric treatment.

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APPENDICES

APPENDIX A
QUESTIONNAIRES

Research Questionnaire

Hospital……..

Number of questionnaire…….

For patient to fill in (Part1)

Please select an answer which close to or match the reality by mark√ into □ in each section.

Part 1 General Information

1. Gender □Male □Female
2. Age .....…… Years old
3. Marital Status □Single □Married □Widowed □Divorced □Separated
4. Education □ No school □ Primary school □ Junior high school
   □ Senior high school □Diploma
   □Bachelor's Degree □Postgraduate
5. Occupation □ Farmer □ Government official
   □State enterprise employee □Employee
   □ Owned business □Others
6. Income .....…….. Baht/month**,**
   Debt □ Have □ Don't have
   Savings □ Have □ Don't have
7. Health care scheme □ Universal coverage □ Civil servant medical benefit
   □Social Security
   □ Disability Rights □Others (Specify).....

Family and travelling to get treatment

8. Care and family support

8.1 Who do you live with? □ living alone □ living with family
□ living with relative

8.2 Have your family been involved in controlling of drug taking and bringing to meet the doctor by appointment? □ No □ Yes (Parents)
□ Yes (Husband/Wife)
□ Yes (Child/Grandchild)

9. Care of drug taking and bringing to meet the doctor by others. (It can be chosen more than one)

□ Relatives □ Neighbour

□ Village health volunteer □ Public health officer

10. Have you ever talked or consulted with patients who got the same disease about problems and symptoms of disease? □ No □ Yes

In case of having friends, did you tell them to come to meet the doctor by appointment? □ No □ Yes

11. Travelling to get the treatment.

11.1 Who accompanied you? □ Travelling alone
□ Accompanied by family member
□ Accompanied by relative
□ Accompanied by health volunteer
□ Accompanied by others

11.2 Vehicle for travelling □Private vehicle □Rental car
□Public transportation □Others (Specify).....

11.3 Distance from home to hospital……. Kilometres, in your opinion
□ near □ far

11.4 Time of travelling to the hospital ……..minutes/hours,
in your opinion □ short time □ long time

11.5 Cost of travelling to the hospital ……..Baht/each time,
in your opinion □ not expensive □ expensive

11.6 Other expenses □ food expense □ medicine expense
□ other expenses (Specify).....

12. History of smoking, drinking / Alcoholic beverages, Substance abuse (Only in 3 months period)

12.1 Have you taken tobacco products (cigarette, tobacco, cigar, etc.)	□ Yes □ No	*If not, skip to no.12.2*
12.1a Do you always smoke more than 10 rolls each day?	□ Yes □ No	
12.1b Do you like to smoke within 30 minutes after wake up?	□ Yes □ No	
12.2 Do you drink alcohol beverages (spirits, beer, wine, etc.)	□ Yes □ No	*If not, skip to no.12.3*
12.2a Do you occasionally drink alcohol more than 4 times of standard drinking such as, more than 4 small glasses of wine, more than 4 cans of beer, or spirits more than 4 shots?	□ Yes □ No	
12.2b Have you ever tried to stop or drinking less alcohol but not success?	□ Yes □ No	
12.3c Have you ever been concerned about drinking alcohol by others?	□ Yes □ No	
12.3 Do you use marijuana?	□ Yes □ No	*If not, skip to no.12.4*
12.3a Have you ever seriously felt wanting to use marijuana at least one time per week or more?	□ Yes □ No	
12.3b Is there anyone concerned or warned you about using marijuana?	□ Yes □ No	

12.4 Do you use any of nerve stimulant medicines such as, Amphetamine, Cocaine, other Stimulants besides the doctors directed (Speed, Pills, Ecstasy, Amphetamine, Methamphetamine, etc.)?	□ Yes □ No	*If not, skip to no.12.5*
12.4a Do you use Stimulant at least one time per week or more?	□ Yes □ No	
12.4b Is there anyone concerned or warned you about using Stimulant?	□ Yes □ No	
12.5 Do you use tranquillizer or sleeping pills without the doctor directed?	□ Yes □ No	*If not, skip to no.12.6*
12.5a Have you ever seriously wanted to us tranquillizer or sleeping pills at least one time per week or more?	□ Yes □ No	
12.5b Is there anyone concerned or warned you about using tranquillizer or sleeping pills?	□ Yes □ No	
12.6 Do you use opium, heroine, or other medicines which have ingredient of opium without the doctor directed?	□ Yes □ No	
12.6a Have you ever tried to stop or less using in the group of opium substance but unsuccessful?	□ Yes □ No	
12.6b Is there anyone concerned or warned you about using the group of opium substance?	□ Yes □ No	

For nurses (interviewed) Part 2 -5

Part 2 Patient History

1. Illness period since….....…month.....year
2. History of drug allergy □ never □ ever ……..
   Symptoms of intolerance □ itchy □ rashes
   □ swollen face □ shortness of breath
3. History of drug side effects □never □ ever……
   Symptoms of side effects of the drug
   □ sleepy □ muscle cramps
   □ stiff and hand shakes □ weight gain
   □ dizzy □ dry mouth □ the shifting of the muscle which cannot be controlled
4. Do you have other coexisting medical disease
   □ No
   □ Have coexisting medical disease as following
   □ diabetes □ hypertension □ depress □ others (specify)……..

Part 3 Perceived of benefits and barriers to treatment.

1. Feel that the doctor who has treated could help to relieve the symptoms.
   □ definitely agree □ agree □ uncertain □ disagree □ definitely disagree
2. Feel that the doctor could prevent more severe disease.
   □ definitely agree □ agree □ uncertain □ disagree □ definitely disagree
3. Have you ever had a bad experience of previous treatment?
   □ never □ ever
4. Do you fear of the side effects of the treatment drug?
   □ strongly agree □ agree □ neutral □ disagree □ strongly disagree
5. Do you have enough money for treatment/follow-up doctor's appointment?
   □ definitely enough □ enough □ not sure □ not enough
   □ definitely not enough
6. Do you think that it was difficult procedure when coming to meet the doctor?
   □ strongly agree □ agree □ not sure □ disagree □ strongly disagree

7. Is the next doctor's appointment convenience?

□ definitely convenience □ convenience □ not sure

□ inconvenience □ definitely inconvenience

8. Is the next doctor's appointment too far apart?

□ longest period □ long period □ not sure □ suitable time

□ most suitable time

9. Feel that the doctor accepted and understood about your uneasiness.

□ strongly agree □ agree □ not sure □ disagree □ strongly disagree

10. Do you think the doctor gave you enough information of self care?

□ definitely enough □ enough □ not sure □ not enough

□ definitely not enough

11. Do you think you have understood the illness situation after talked with the doctor?

□ understood very well □ understood □ not sure

□ didn't understand □ didn't understand at all

12. Do you understand and know about the risk of worse symptom in the future?

□ understood very well □ understood □ not sure □ didn't understand

□ didn't understand at all

13. Do you think previous treatments could help you get better?

□ definitely recover □ better □ not sure □ not good

□ not improved

14. Do you feel that the doctor can treat your disease?

□ strongly agree □ agree □ not sure □ disagree □ strongly disagree

15. Do you have the reminder to follow up the next doctor's appointment?

□ Yes □ No

16. Do you have relatives or acquaintances to encourage or support you to come to follow up the doctor's appointment?

□ many people □ have □ sometime □ few □ no one

Part 4 Factors of self efficacy

1. Can you take medicine by the doctor directed everytime and everyday during the period of a previous year?	□ Yes	□ No	□ Not sure
2. Can you come to meet the doctor by appointment everytime during the period of a previous year?	□ Yes	□ No	□ Not sure
3. Do you have any friends who have similar problem to be as a model of incessantly medicine taking?	□ Yes	□ No	□ Not sure
4. Do you have any friends who have similar problem to be as a model by come to meet the doctor by appointment?	□ Yes	□ No	□ Not sure
5. Have you ever appreciated when you came to meet the doctor by appointment?	□ ever	□ never	□ uncertain
6. Have you ever get any reproaches when you missed the doctor's appointment?	□ ever	□ never	□ uncertain
7. Do you believe that if you continuous taking medicine it could help not to get more exacerbation?	□ believe	□ disbelieve	□ uncertain
8. Do you believe that after your symptoms haven't been recurring then you would be more accepted from the society?	□ believe	□ disbelieve	□ uncertain
9. Do you satisfy that you can take medicine by the doctor directed?	□ satisfy	□ nsatisfied	□uncertain
10. Do you satisfy that you can come to meet the doctor by appointment?	□ satisfy	unsatisfied	uncertain

Part 5 Participation in community activities/village where you have been living

Have you ever joined these following activities during the time of a previous year?	didn't join	joined
1. New Year philanthropy/Songkran Festival(Thai's New Year)	□	□
2. Been to the temple for making merit on each Buddhist holy day.	□	□
3. Religious ceremony of the neighbours (house-warming ceremony, wedding ceremony, ordination ceremony, funeral ceremony)	□	□
4. Talking with the neighbours.	□	□

Part 6 Other reasons that made you come to meet the doctor by appointment/ not come by appointment

What are the reasons that made you follow up the doctor's appointment?

□ wanted to be cured/ wanted to get better/ didn't want to get the exacerbation

□ Others……..

What are the problems and barriers that made you missed the doctor's appointment?

□ forgotten □ be busily engaged □ no accompany

□ didn't want to taking medicine/treatment □ thought they was cured

□ others……

What is the suggestion that you would like to give to the hospital for development which can help you to come to meet the doctor by appointment and continue taking medicine?

□ Got a warning from the hospital before the appointment

□ Cooperation with the Local Government to take patients to the hospital

□ Others……

APPENDIX B
LIST OF HOSPITAL

Name of Hospital	Address	Type of Hospital	Number of respondents
Khowang Hospital	Khowang district	Community hospital	37
Kutchum Hospital	Kutchum district	Community hospital	140
Khamkheunkaeo Hospital	Khamkheunkaeo district	Community hospital	103

APPENDIX C
ETHICAL DOCUMENT

Certificate of MU-SSIRB Approval

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Certificate of Approval No.:	2015/017.2001
MU-SSIRB No.:	2015/021 (B1)
Title of Project:	FACTOR RELATED TO VISIT ADHERENCE AMONG SCHIZOPHRENIA PATIENTS IN YASOTHON PROVINCE
Principal Investigator:	Dr.Panupan Thanapathomsinchai
Name of Institution:	ASEAN Institute for Health Development, Mahidol University
Approval includes:	1) MU-SSIRB Submission form version received date 11 December 2014
	2) Participant Information sheet for Questionnaire version date 19 January 2015
	3) Informed consent form version 19 January 2015
	4) Questionnaire Guideline version received date 19 January 2015

The Committee for Research Ethics (Social Sciences) is in full compliance with International Guidelines of 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 Approval: January 20, 2015

Date of Expiration: January 19, 2016

Chairman

(Emeritus Professor Dr.Santhat Sermsri)

Head of the Institute

(Assoc.Prof.Dr.Wariya Chinwanno)
Dean of Faculty of Social Sciences and Humanities

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