ความสัมพันธ์ระหว่างระยะเวลาการรักษาในโรงพยาบาลและอัตราการกลับมารักษาซ้ำของผู้ป่วยจิตเภท โรงพยาบาลจิตเวชนครพนมราชนครินทร์ ประเทศไทย

นายกิตต์กวี โพธิ์โน

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต
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ปีการศึกษา 2552

ASSOCIATION OF LENGTH OF STAY AND READMISSION RATE AMONG SCHIZOPHRENIC PATIENTS IN NAKHON PHANOM PSYCHIATRIC HOSPITAL, THAILAND

Mr.Kitkawee Pono

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Public Health Program in Health Systems Development
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กิตต์กวี โพธิ์โน: ความสัมพันธ์ระหว่างระยะเวลาการรักษาในโรงพยาบาลและอัตราการกลับมารักษาซ้ำของผู้ป่วยจิตเภท โรงพยาบาลจิตเวชนครพนมราชนครินทร์ ประเทศไทย. (ASSOCIATION OF LEANGTH OF STAY AND READMISSION RATE AMONG SCHIZOPHRENIC PATIENTS IN NAKHON PHANOM PSYCHIATRIC HOSPITAL, THAILAND) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: รศ.ดร.สถิรกร พงศ์พานิช, 46 หน้า.

วัตถุประสงค์ของการศึกษาครั้งนี้ เพื่อศึกษาความสัมพันธ์ระหว่างระยะเวลาการรักษาในโรงพยาบาลกับการกลับมารักษาซ้ำในโรงพยาบาลของผู้ป่วยจิตเภท และปัจจัยที่เกี่ยวข้องกับการกลับมารักษาซ้ำ การศึกษานี้ เป็นการศึกษาแบบควบคุม (case control study) โดยมีกลุ่มอิสระ (cases)ได้จากจำนวนผู้ป่วยจิตเภทที่กลับเข้ารับการรักษาซ้ำในโรงพยาบาลภายใน 90 วันจำนวนทั้งสิ้น 91 ราย และกลุ่มควบคุม(control) จำนวนทั้งสิ้น 100 ราย เก็บข้อมูลจากเวชระเบียนระยะเวลาย้อนหลัง 1 ปี ตั้งแต่ 1 มกราคม 2552 ถึง 31 ธันวาคม 2552 การวิเคราะห์ข้อมูลใช้สถิติเชิงบรรยาย ใช้สถิติ logistic regression analysis ในการวิเคราะห์ความสัมพันธ์ของตัวแปรอิสระและตัวแปรตาม

พบว่า ข้อมูลประชากรส่วนใหญ่เป็นเพศชาย (ร้อยละ 89.01) กลุ่มอายุที่พบมากที่สุด คือ 30-39 ปี (ร้อยละ 41.36) สถานภาพโสด (ร้อยละ 77.48) ระดับการศึกษาชั้น ประถมศึกษา (ร้อยละ 53.40) ส่วนใหญ่ไม่ได้ประกอบอาชีพ (ร้อยละ 48.32) ภูมิลำเนา จังหวัดนครพนม (ร้อยละ48.16) และวินิจฉัยเป็นโรคจิตเภท ชนิดหวาดระแวง (ร้อยละ 92.14) ระยะเวลานอนเฉลี่ยของกลุ่มที่กลับมารักษาซ้ำ (16.27 วัน) น้อยกว่า กลุ่มที่ไม่กลับมารักษาซ้ำ (21.10 วัน) มีความแตกต่างกันอย่างมีนัยสำคัญทางสถิติ ($p<.001$) และปัจจัยที่เกี่ยวข้องกับการกลับมารักษาซ้ำในโรงพยาบาล ได้แก่ เพศ อายุ อาชีพ ระยะเวลาการรักษาในโรงพยาบาล และจำนวนครั้งของการกลับมารักษาในโรงพยาบาล ($p<.05$)

ระยะเวลาการรักษาในโรงพยาบาล มีผลกระทบต่อกลับมารักษาซ้ำ ของผู้ป่วยจิตเภท การเตรียมความพร้อมทั้งในโรงพยาบาลและในชุมชนก่อนจำหน่ายนั้น จึงเป็นสิ่งที่ควรให้ความสำคัญอย่างมากเพื่อให้ผู้ป่วยอยู่ในชุมชนได้นานและลดโอกาสการกลับมารักษาซ้ำ

สาขาวิชา การพัฒนาระบบสาธารณสุข ลายมือชื่อนิสิต .....

ปีการศึกษา 2552 ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก .....

5179133453: MAJOR HEALTH SYSTEMS DEVELOPMENT
KEYWORDS: LENGTH OF STAY/ READMISSION/SCHIZOPHRENIA

KITKAWEE PONO : ASSOCIATION OF LENGTH OF STAY AND READMISSION RATE AMONG SCHIZOPHRENIC PATIENTS IN NAKHON PHANOM PSYCHIATRIC HOSPITAL, THAILAND.
THESIS ADVISOR: ASSOC. PROF. SATHIRAKORN PONGPANICH, Ph.D., 46 Pages.

The objective is to study the relationship between length of stay and re-admission in Nakhon Phanom Psychiatric Hospital, and study factors associated with readmission. This study is a case control study, by a case group of 91 cases from schizophrenic patients who return to admission in hospital within 90 days, and a control group is a total of 100 cases, reviewed from medical records in a past 1-year from Jan 1, 2009 to Dec 31, 2009. This study was analyzed by descriptive statistics; used logistic regression analysis for analyzing factors associated with readmission.

This study found that gender characteristic: consisted of male more than female (89.01%, 10.99%), the most common age range was 30-39 years (41.36%), single status was accounted for 77.48%, 53.40% was primary school education with non-occupation of 48.32%, most of birthplaces is Nakhon Phanom Province (48.16%), and diagnosed with schizophrenia paranoid type of 92.14%. The average length of stay of readmission group was 16.27 days which was less than those non-readmission group (21.10 days) with different statistical significant ($p < .001$), and factors associated with readmission included gender, age, occupation, length of stay, and the number of readmissions ($p < .05$)

Length of stay in hospitals affected readmission and return to treatment of patients with schizophrenia. Preparedness in hospitals and in communities before discharges is very important to increase community stay and to reduce the chance of return to treatment or readmission of schizophrenic patients.

Field of Study : Health Systems Development Student's Signature .....

Academic Year : 2009 Advisor's Signature .....

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I would like to express my sincere gratitude to my thesis committee: Dr.Khemika Yamarat, and Dr.Pitakpol Boonyamalik for their guidance, invaluable advice which has enabled me to develop this thesis.

Finally, if there are any mistakes found in any steps of the research, the researcher would like to express apologies for this matter.

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CHAPTER I

INTRODUCTION

1.1 Background and significance of the problem

Schizophrenia is the most severe form of mental illness affecting approximately 24 million people worldwide. This represents a serious public health problem (WHO, 2001) The incident and prevalence rate vary from country to country, and culture to culture. Some studies show the incident rate was 15.2 per 100,000 people and the central area estimates varied over a fivefold range 7.7–43.0/100,000 people. (John McGrath et al, 2008). The prevalence rate for schizophrenia is approximately 1.1 percent of population over the age of 18. In the United States the lifetime prevalence is about 1 percent, and some people will develop to schizophrenia during their lifetime.(Kaplan and Sadock's, 2003) Estimate prevalence from least developed countries was significantly lower than those emerging and developed site, and found high prevalence rate in migration people. (Saha S. et al, 2005). Epidemiology of this illness which found a proportion of disorder male and female is 1.4:1 .(McGrath JJ and Susser ES., 2009), and genetic vulnerability is most supported evidence of biological cause of schizophrenic disorder that share in part with bipolar disorder and autism. (Vas OS J. and Kaper S., 2009)

The burden of schizophrenia is one of the most important public health problems in the modern world. In 1990 schizophrenia was estimated to be the 10^{th} leading cause of disease. According to the World Health Organization, 2000, it rank 9^{th}, and in 2001, schizophrenia is 7^{th} leading cause of Year Life Disabilities (YLDs) at global level accounting for 2.8 percent of total global YLDs, and this illness among all medical illnesses in term of the Global Burden of Disease above cancer, AIDs, heart disease diabetes, and other important illnesses (Marianne C. et al, 2007)

The impact of schizophrenia has many aspects affecting patients and care givers, and their families; include economic, social, and disability problems, and impose a substantial economic burden on society (Serritti A. et al, 2009). The cost of disease is high because it is severe and chronic. The cost of schizophrenia treatment in Taiwan present is estimated to be 112.4 million dollars Taiwan which constituted 1.2 percent of national health care expenditures. (Hui-Chu Lang and Tung Pine Su, 2004). The high cost of disease is a result of re-hospitalization; For example, an obvious issue in the maintenance (outpatient) treatment of schizophrenia is the risk of relapse and its associated costs, which have two major contributors during maintenance treatment after discharge from the hospital: medication noncompliance is first, and loss of medication efficacy is second.

Currently, trends of psychiatric inpatient services or hospitalization have changed and the number of psychiatric beds has declined (Lay B. et al, 2007). It shows the impact of mental policy affects hospitalization. In Thailand, mental health and psychiatric disorders are the responsibility of the Department of Mental Health, Ministry of Public Health and general hospitals. When policy changed it had an impact on inpatient care. Some studies showed the affect of health care reform resulting from political policy, especially the universal coverage scheme (30 Baht), was that many psychiatric hospitals decreased the number of patients and decreased of the length of stay (Bupawarn P. and Supasit P., 2003)

Therefore, managed care has reduced the number of hospital beds and reduced the length of stay of psychiatric hospitalizations, which has resulted in decreased costs and has raised concerns about the quality of care (Heeren O. et al, 2002).There are no commonly accepted length-of-stay or appropriate hospitalization time guidelines for inpatient care and treatment of psychiatric conditions, as there are for some medical conditions, and the length of inpatient psychiatric treatment could be subject to substantial variation. (Pottick KJ., 2000)

Although currently psychiatric hospitals have to change to realize cost saving of treatment by decreasing the length of hospitalization, short duration of stay has negative impacts on treatment because psychiatric illness such as schizophrenia needs to have intensive medical treatment and psychosocial rehabilitation which require long term care. The effects of hospital care and the length of stay is important for

mental health policy. Some data show outcomes suggesting that ‘a planned short stay policy does not encourage a revolving door pattern of admission and disjointed care for people with serious mental illnesses.’(Alwan NA. et al, 2008), some cases of chronic schizophrenia emphasize the need for intensive treatment such as Electro-Convulsive Therapy (ECT) which requires long stay hospitalization for adequate treatment (Pamolo A. et al, 2005)

However, some data shows the impact of short stay hospitalization on the readmission rate of schizophrenia, ‘then the readmission rate was increased ’(Lin HC. et al, 2006). ‘Length of stay was significantly related to each time there was a relapse after the effects of number of previous admissions and ages were partial out’. (L. Appleby, 1993) The retrospective study found a temporal association between decreasing length of stay and rate of readmission to a university hospital psychogeriatric inpatient unit between 1993 and 1997. This ‘temporal association reflected a causal relationship between decreasing length of stay and readmission rate.’(Oscar Heeren et al, 2002)

The Nakon Phanom Psychiatric Hospital, the Thai Department of Mental Health is responsible for mental health and psychiatric disorder services and has about the readmission rate of schizophrenic patients about (10-20 cases per month), and average length of stay on 10-20 days in hospitalization. Therefore the researcher is interested in this topic since there is some association between length of stay and readmission rate in Thailand

1.2 Research Questions

1. What length of stay is related with readmission rate in schizophrenic patients in Nakhon Phanom Psychiatric Hospital?
2. How is length of stay related with readmission rate in schizophrenic patients in Nakhon Phanom Psychiatric Hospital?
3. What is the average length of stay in Nakhon Phanom Psychiatric Hospital?

1.3 Objectives

1. To study the association between length of stay and readmission rate in Nakhon Phanom Psychiatric Hospital
2. To explain demographic characteristics associated with readmission rate in Nakhon Phanom Psychiatric Hospital
3. To study average length of stay in Nakhon Phanom Psychiatric Hospital
4. To analyze factors influencing readmission in Nakhon Phanom Psychiatric Hospital.

1.4 Hypothesis

"A decrease in length of stay in hospitalization is associated with an increase the readmission rate among schizophrenic patients."

1.5 Conceptual Framework of Research

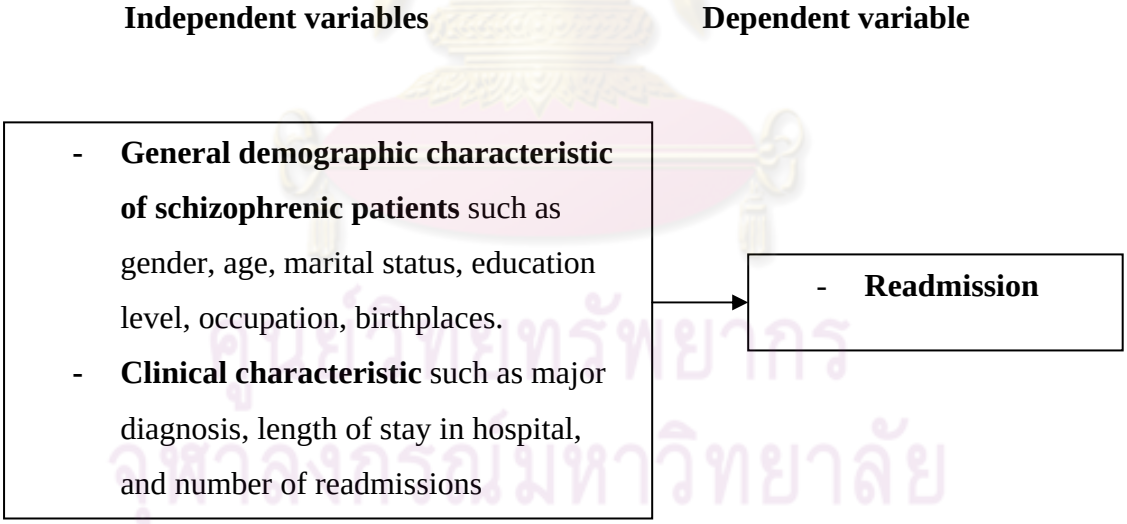

Figure 1 Conceptual Framework

Variables in the Research

Independent variables are – gender, age, marital status, education level, occupation, birthplaces, and clinical characteristics such as major diagnosis, length of stay in hospital, and number of readmissions.

Dependent variable – is occurred in relation to the incidence of independent variables in this research that is readmission.

1.6 Research Delimitation

Sample populations of the research are schizophrenic patients who are registered in Nakhon Phanom Psychiatric Hospital, Nakhon Phanom, Thailand.

1.7 Operational Definitions

1. Schizophrenic patients; Patients who were diagnosed by psychiatrists under a criterion ICD-10 (WHO) or DSM-IV (TR) (American Psychiatric Association) include all subtypes of schizophrenia.
2. Length of stay; Duration of treatment of in-patient in psychiatric hospital.
3. Admission; Receiving treatment in the hospital.
4. Readmission; The return of patients to the hospital in 90 days for additional treatment.

1.8 Expected Benefits from Research

1. To present provided information about influence the length of stay in admission time and readmission rate of schizophrenic patients in Nakhon Phanom Psychiatric Hospital.

2. To re-evaluate the mental health policy of hospital care including treatment and rehabilitation for schizophrenia.

3. To provide data base, baseline information, for further research.

CHAPTER II
LITERATURE REVIEW

Literature reviews are as follows;

(1) Schizophrenia, nature of disorder.

(2) Schizophrenia, cost, the economic impacts.

(3) Schizophrenia, readmission in hospital, factor affecting readmission.

(4) Schizophrenia, association of length of stay and readmission.

2.1 Schizophrenia, nature of disorder

2.1.1 Definition

The definition of schizophrenia from the Medical Dictionary is ‘Any of a group of psychotic disorders usually characterized by withdrawal from reality, illogical patterns of thinking, delusions, and hallucinations, and accompanied in varying degrees by other emotional, behavioral, or intellectual disturbances. Schizophrenia is often associated with dopamine imbalances in the brain and defects of the frontal lobe and may have an underlying genetic cause’ (The American Heritage, 2002)

Other dictionaries define schizophrenia as ‘a psychotic disorder characterized by loss of contact with the environment, by noticeable deterioration in the level of functioning in everyday life, and by disintegration of personality expressed as disorder of feeling, thought (as in hallucinations and delusions), and conduct called also dementia praecox’ (Merriam-Webster's, 2002)

Schizophrenia is severe mental disorder which some define as ‘Schizophrenia is a severe mental disorder characterized by two kinds of symptoms; positive psychotic symptoms - thought disorder, hallucinations, delusions, and paranoia - and negative symptoms-impairment in emotional range, energy, and enjoyment of activities. For a formal diagnosis, these symptoms must persist for at least one month

and usually result in severe impairment in job and/or social functioning.' (Christos Ballast, 2005)

Schizophrenia is one of the psychotic disorders recognized in the Diagnostic and Statistical Manual of Mental Disorders (DSM) Psychotic disorders involve major impairments in reality, including symptoms such as hallucinations (i.e., perceiving things that are not there) and delusions (i.e., holding strong beliefs that are not based in reality) (American Psychiatric Association, 2000)

2.1.2 Epidemiology

Epidemiology of schizophrenia from the Synopsis of Psychiatry is presented as 'In the United States, the lifetime prevalence of schizophrenia is about 1 percent, which means that about 1 person in 100 will develop schizophrenia during their lifetime. (Benjamin J Sadock and Virginia A Sadock., 2003; p. 472)

The incidence of schizophrenia from study estimates 'was 15.2/100,000 persons, and the central 80% of estimates varied over a fivefold range (7.7-43.0/100,000). The rate ratio for males: females were 1.4:1, and compared with U.S.A. native-born individuals, migrants have an increased incidence and prevalence of schizophrenia. (John McGrath et al, 2008)

Gender and age of schizophrenia is equally proportion among men and women. 'Onset is earlier in men than women. The peak of age onset is 10 to 25 years for men and 25 to 35 years for women.' (Benjamin J Sadock and Virginia A Sadock., 2003; p. 475)

2.1.3 Types of Schizophrenia

Beng-Choon Ho. describes types of schizophrenia in the Essential Clinical Psychiatry Textbook, (Beng-Choon Ho; Robert E. Hales, Stuart C. Yudofsky, 2004; p. 199-200) as follows;

(1) Paranoid type is characterized by a preoccupation with one or more delusions and the presence of auditory hallucinations. The patient's delusions usually involve persecution, grandiosity, or both.

(2) Disorganized type is characterized by disorganized speech and disorganized behavior, and flat or inappropriate affect. The person may lose the ability to perform most activities of daily living, and may also make faces or display other oddities of behavior. Some time it's called hebephrenic (derived from the Greek word for puberty), because some of the patients' behaviors resemble adolescent silliness.

(3) Catatonic type is defined as a type of schizophrenia dominated by to disturbances of movement, whether remaining motionless for long periods of time or excessive and purposeless movement following; catalepsy, stupor, agitation, extreme negative or mutism. or negativism, a form of postural rigidity in which the patient resists being moved by others. A catatonic patient may assume bizarre postures or imitate the movements of other people.

(4) Undifferentiated type. Patients in this subtype have some of the characteristic symptoms of schizophrenia but do not meet the full criteria for the paranoid, disorganized, or catatonic subtype.

(5) Residual type. Patients in this category have had at least one psychotic episode, continue to have some negative symptoms of schizophrenia, but do not have current psychotic symptoms.

2.1.4 Diagnosis

Diagnosis of schizophrenia used of the diagnosis is based on a constellation or group of related symptoms that are, according to Diagnostic and Statistics Manual-IV (DSM-IV-TR), (American Psychiatric Association, 2000) associated with impaired occupational or social functioning. To be diagnosed with schizophrenia, a person must meet the following criteria;

(A) Two (or more) of the following, each present for a significant portion of the time during a 1-month period:

(1) Delusions,

(2) Hallucinations,

(3) Disorganized speech,

(4) Grossly disorganized or catatonic behavior,

(5) Symptoms such as flat affect (i.e. showing no emotion), or inability to engage in goal-directed behavior.

(B) Social/occupational dysfunction: one or more major areas of functioning (e.g., work, relationships, and self-care) are markedly lower than before the symptoms began.

(C) Duration: Continuous signs of the disturbance for at least 6 months, including at least 1 month of active symptoms.

(D) Symptoms are not due to another disorder (e.g., major depressive disorder, autism), and are not due to substance use or medical conditions.

2.2 Schizophrenia, cost, the economic impacts

The cost of schizophrenia is high because it is a chronic and severe disorder. The study of cost of schizophrenia in England 'estimated that total societal cost of schizophrenia was 6.7 billion pounds in 2004. The direct cost of treatment and care that falls on the public purse was about 2 billion pounds; the burden of indirect costs to the society was huge, amounting to nearly 4.7 billion pounds. It is estimated that about 570 million pounds will be paid out in benefit payments and the cost of administration associated with this is about 14 million pounds.' (Roshni Mangalore, and Martin Knapp, 2007) A study from Taiwan reports 'total schizophrenia-related health care expenditure was estimated at 112.4 million dollars Taiwan, which constituted 1.2 percent of national health care expenditures that year. The cost per outpatient visit was 57 dollars, the cost per admission was 1,123 dollars Taiwan, and the annual average direct cost of treating a person with schizophrenia was 2,144 dollars Taiwan.'(Lang HC and Su TP, 2004) The cost of schizophrenia treatment in United States and Canada was 1,122 million dollars and 2,306 million dollars in 2006.(Blomqvist AG. et al, 2006)

However, the most important of high cost of schizophrenia is hospitalization which includes direct and indirect cost. Therefore, any strategy of mental health

policy aimed at reducing the costs of care for schizophrenia must decrease admission and continue treatment in communities.

2.3 Schizophrenia, readmission in hospital, factor affecting readmission

Readmission or re-hospitalization is the most common characteristic in schizophrenia, given the impact of cost containment. The report from Taiwan shows patients failing to attend any outpatient appointments within 2 months after discharge had a significantly higher re-hospitalization rate than those attending at least 1 appointment.(Lin HC and Lee HC, 2008)

Partial compliance is the most important factors affecting readmission of schizophrenic patients. (Liorca PM., 2008; Rummel Kluge C. et al, 2008, Weiden PJ. et al, 2004) Factors most consistently associated with no adherence or compliance include poor insight, negative attitude or subjective response toward medication, previous no adherence, substance abuse, shorter illness duration, inadequate discharge planning, after care environment, and poorer therapeutic alliance. (Lacre JP. et al, 2002)

The results from many studies suggest that treatment compliance and early pre-morbid adjustment level seem to be important predictors of relapse rate in first episode schizophrenia (Ucok A. et al, 2006). Many factors influence compliance, including those that affect patents' beliefs about their illness and the benefits of treatment (e.g., insight to illness, belief that medication can ameliorate symptoms), previous cost of treatment and barrier to treatment (Perkins DO., 2002)

2.4 Schizophrenia, length of stay and readmission

Length of stay in hospitalization time for psychiatric illnesses as well as schizophrenia is 16.1 days for entry groups (Saiatovic M. et al, 200) Some studies present 'the length of stay correlated with the increase in percentage of schizophrenia diagnosis.' (Hallak JE. et al, 2003)

The Canadian Institute for Health Information (CIHI, 2007) reported data showing 'relatively high rates of readmission and declining lengths of stay (LOS)

among individuals hospitalized for mental illness. The data was analyzed to determine the relationship between hospital readmissions and LOS for individuals aged 15 to 65 years old who were diagnosed with schizophrenia in an initial episode of hospitalization. The result of this study 'revealed that shorter initial hospital stays were related to higher rates of readmission' A study from Taiwan reports the association between the readmission rate and length of stay for schizophrenia over 3 years had resulted is 'after discharge from the hospitalization patients with schizophrenia were readmitted within 30 days at a rate of 42.5 percent' (Lin HC., et al, 2006)

Roberto, et al (2003) shows relation between LOS and readmission among patients with psychiatric disorders, 'the length of stay below ten days led to an increase in the readmission rate during the 30 days after discharge. Decreasing the length of stay from seven to six days increased the expected readmission rate from .04 to .047 (17.5 percent), whereas decreasing length of stay from four to three days increased the readmission rate from .09 to .136 (51.1 percent). Decreasing length of stay for inpatient psychiatric treatment increased the readmission rate'

Summarized from previous studies, which find an association between length of stay and the readmission rate, short duration of stay in hospitalization increases the readmission rate among schizophrenic patients.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research design

This research was a review medical record design; unmatched case-control study, looking at the length of stay among schizophrenic patients with non-readmission and schizophrenic patients with readmission group in Nakhon Phanom Psychiatric Hospital.

3.2 Study population

Target population was patients who were diagnosed as schizophrenia in Thailand. Population sampled was patients who were diagnosed as schizophrenia in Nakhon Phanom Psychiatric Hospital that is similar to the target population.

The example of this study was divided into 2 groups; A case group from patients who were diagnosed as schizophrenia with readmission within 90 days last 1 year; A control group from patients who were diagnosed as schizophrenia had history of admitted in a hospital in 1 year ago.

3.3 Study period

1 Jan 2009-31 Dec 2009.

3.4 Sample size estimation

The estimate of sample size took the unmatched case-control design into account. The sample size was calculated (Schlesselman JJ., 1974) on the following formula;

$$n_1 = \frac{[Z_\alpha + Z_\beta]^2 \times \sigma^2 \times [r + 1]}{[\mu_1 - \mu_0]^2 \times r} \quad ; \quad r = \frac{n_o}{n_1}$$

n_1 = the number of cases

n_0 = the number of control

r = the ratio of case per control = 1

Z_{α} = standard value of Z score at type I error at $\alpha = 1.96$

Z_{β} = standard value of Z score at type I error at $\beta = 0.84$

σ = standard deviation of population = 5

μ_1 = mean exposure in case (expected) = 17

μ_0 = mean exposure in control (expected) = 20

$$n_1 = \frac{[2.58 + 2.33]^2 \times [5]^2 \times [1 + 1]}{[17 - 20]^2 \times 1} = 43.3$$

Therefore, the study cases and controls require at least 44 cases each.

However, data of patients with schizophrenia who are readmission in 90 days to a total of 91, therefore the researcher selected all of readmission cases.

The case group: All of schizophrenic cases (about 91 cases) with a history of readmission in 90 days. The control group: 100 cases of schizophrenic patients with out a history of readmission in 90 days and treated in the hospital in the same year.

3.5 Sampling Method

The case group: All cases of admission or hospitalization treatment at Nakon Phanom Psychiatric Hospital who were diagnosed schizophrenia with readmission in 90 days admitted in the year in 1 Jan 2009 to 31 Dec 2009.

The control group: Patients diagnosed schizophrenia treated in the subject year with no record of admission to the hospital within 90 days.

If these patients are readmitted within 1 to year but did not return within 90 days, collected of the data from the first time of treatment received in same year.

A systematic sampling method was used, by selecting from the patients each month, vice versa every 5 cases and a full 100 cases. Available from patients discharged from hospital.

3.6 Inclusion criteria

Includes the following criteria;

(1). Patients were diagnosed as having schizophrenia according to criteria of the 10th International Classification of Diseases (ICD-10) of the World Health Organization.

(2). Patients with history of treatment in the Nakhon Phanom Psychiatric Hospital within 1 year.

(3). Patients with history of readmission or repeated treatment within 90 days of initial admission to the Nakhon Phanom Psychiatric Hospital.

3.7 Exclusion criteria

(1). Patients were diagnosed as schizophrenia that were discharged from hospital where treatments are not complete, such as refer to general hospitals with physical complications, the family get back to treatment themselves at home or other hospitals.

(2) For control group;Patients not to follow the treatment after leaving hospital within 90 days after discharged.

3.8 Variables

Independent variables are – gender, age, marital status, education level, occupation, birthplaces, and clinical characteristics such as major diagnosis, length of stay in hospital, and number of readmissions.

Dependent variable – is occurred in relation to the incidence of independent variables in this research that is readmission.

3.9 Measurement Tools

Measurement tools used by the researcher which include all variables; general demographic characteristic of patients such as gender, age, marital status, education level, occupation, birthplaces, and clinical characteristics such as major diagnosis, length of stay in hospital, readmission, and number of readmission.

Reliability of diagnosis of schizophrenia was recorded diagnosis using by the record at discharged day from the hospital, diagnosed by psychiatrists.

Reliability of recording basic information of patients with schizophrenia admitted in hospitals including readmission group and non-readmission recorded by attending nurses, data can be searched from records of admission center and record from inpatient wards.

3.10 Method of data collection

The process of data collection was follows:

(1) The researcher was allowed to study in Nakhon Phanom Psychiatric Hospital after approval from advisor and the Dean of the College of Public Health Sciences, Chulalongkorn University.

(2) The researcher conducted data collection by reviewing treatment history of patient's clinical records from out-patients cards (OPD cards) and in-patient charts (IPD charts)

3.11 Data Analysis

The research analyzed by computerized statistical software, therefore; the following types of data were analyzed by different types of methods

(1) The demographic characteristics data of the sample group by distributing frequency and percentage.

(2) The comparison demographic characteristics between case and control groups by using Chi Square test.

(3) The comparison of length of stay with number of readmissions between the case and control groups by using *t*-test.

(4) The factors associated between independent variables and dependent variables (readmission) by using Logistic regression analysis.

3.12 Ethical Considerations

The proposal was submitted to the Ethical in Research Committee, Chulalongkorn University. Permission for using this data set is from the director of Nakom Phanom Psychiatric Hospital, Department of Mental Health, Ministry of Public Health, and patients' information will confidentially not to be disclosed to public.

CHAPTER IV
RESULTS

4.1 Demographic data and length of stay of non-readmission group.

4.1.1 Demographic data of non-readmission group.

The total number of schizophrenic patients in the non-readmission group is 100 cases. Demographic data of schizophrenic patients in the non-readmission group are shown in the table1.

Table 1: Demographic data of schizophrenic patients in the non-readmission group

Demographic characteristics (N=100)	Number	Percent
Gender		
Male	95	95.0
Female	5	5.0
Age (year)		
< 20	7	7.0
20-29	40	40.0
30-39	38	38.0
40-49	14	14.0
50-59	1	1.0
Marital status		
Single	77	77.0
Married	16	16.0
Divorced	7	7.0

Table 1: Demographic data of schizophrenic patients in the non-readmission group (cont.)

Demographic characteristics (N=100)	Number	Percent
Education		
No education	1	1.0
Primary school	43	43.0
Secondary school	55	55.0
Bachelor degree and above	1	1.0
Occupation		
No occupation	66	66.0
Agriculture	22	22.0
Employee	6	6.0
Commercial	3	3.0
Other	3	3.0
Birthplaces (Provinces)		
Nakhon Phanom	54	54.0
Sakhon Nakhon	19	19.0
Mukdahan	17	17.0
Other	10	10.0
Diagnosis (types)		
F 20.0 (paranoid type)	86	86.0
F 20.2 (hebephrenic type)	1	1.0
F 20.3 (undifferentiated type)	2	2.0
F 20.5 (residual type)	4	4.0
F 20.9 (unspecified type)	7	7.0

From table 1; the most common of gender characteristic of schizophrenic patients in the non-readmission group is male gender totaling 95 cases (95.0%), and female gender totaling 5 cases (5.0%).

The most common age group characteristic is 20-29 years with total of 40 cases (40.0%), then 30-39 years totaling 38 cases (38.0%) and 40-49 years as 14 cases (14.0%).

Single status is the most common status characteristic with 77 cases (77.0%), then married with 16 cases (16.0%), and divorced with 7 cases (7.0%).

The most common education degree is secondary school totaling 55 cases (55.0%), and then primary school with 43 cases (43.0%)

The most of schizophrenic patients in the non-readmission group are represented in the no occupation group with 66 cases (66.0%), and then the agriculture group totaling 22 cases (22.0%) and then the employee group with 6 cases (6.0%).

Birthplaces show Nakhorn Phanom province with 54 cases (54.0%), Sakon Nakorn with 19 cases (19.0%), Mukadahan with 17 cases (17%), and other provinces totaling 10 cases (10%)

The most common type of schizophrenia in the non-readmission groups diagnosed by ICD-10 classification is F20.0 (schizophrenia paranoid type) 86 cases (86.0%), then F20.9 (schizophrenia unspecified type) 7 cases (7.0%), and then F20.5 (schizophrenia residual type) 4 cases (4.0%)

4.1.2 Length of stay of non-readmission group.

Length of stay and number of readmissions in the schizophrenic patients with the non- readmission group are described in the table 2.

Table 2: Length of stay and number of readmissions for the schizophrenic patients with the non- readmission group.

Data (N=100)	Mean ($\bar{x}$)	Min-Max	SD
Length of stay (days)	21.10	6-64	13.99
Number of readmission	4.63	2-13	3.11

From table 2; the mean of length of stay for schizophrenic patients with the non-readmission group is 21.10 days (minimum is 6 days and maximum is 64 days; SD 13.99). The mean of number of readmissions is 4.63.

4.2 Demographic data and length of stay for the readmission group.

4.2.1 Demographic data of readmission group.

A total number of schizophrenic patients with the readmission group is 91 cases. Demographic data of schizophrenic patients with readmission group are shown in the table3.

Table 3: Demographic data for readmission group schizophrenic patients.

Demographic characteristics (N=91)	Number	Percent
Gender		
Male	75	82.4
Female	16	17.6
Age (year)		
< 20	3	3.3
20-29	26	28.6
30-39	41	45.1
40-49	15	16.5
50-59	2	2.2
60-69	3	3.3
>70	1	1.1
Marital status		
Single	71	78.0
Married	10	11.0
Divorced	10	11.0

Table 3: Demographic data for readmission group schizophrenic patients (cont.)

Demographic characteristics (N=91)	Number	Percent
Education		
No education	3	3.3
Primary school	59	64.8
Secondary school	26	28.6
Bachelor degree and above	3	3.3
Occupation		
No occupation	84	92.3
Agriculture	0	0
Employee	4	4.4
Commercial	2	2.2
Other	1	1.1
Birthplaces (Provinces)		
Nakhon Phanom	38	41.8
Sakhon Nakhon	31	34.0
Mukdahan	10	11.0
Other	12	13.2
Diagnosis (types)		
F 20.0 (paranoid type)	90	98.9
F 20.2 (hebephrenic type)	1	1.1
F 20.3 (undifferentiated type)	0	0
F 20.5 (residual type)	0	0
F 20.9 (unspecified type)	0	0

From table 3; the most common gender characteristic in schizophrenic patients with the readmission group is male gender totaling 75 cases (82.4%), female with 16 cases (17.6%).

The most common age group characteristic is 30-39 years with 41 cases (45.1%), then 20-29 years with 20 cases (28.6%), and 40-49 years with 15 cases (16.15%).

Single status is the most common status characteristic totaling 71 cases (78.0%), then married with 10 cases (11.0%), and divorced with 10 cases (11.0%)

The most common education degree is primary school with 59 cases (64.8%), and then secondary school with 28 cases (28.6%)

Most of schizophrenic patients with the readmission group are in the no-occupation group totaling 84 cases (92.3%), then the employee group 4 cases (4.4%), and then the commercial group with 2 cases (2.2%)

Birthplace show Nakhorn Phanom province with 38 cases (41.8%), Sakon Nakorn with 31 cases (34.0%), Mukadahan with 10 cases (11.0%), and other provinces totaling 12 cases (13.2%)

The most common type of schizophrenia in the readmission groups diagnosed by ICD-10 classification is F20.0 (schizophrenia paranoid type) as 90 cases (98.9%), and then F20.2 (schizophrenia hebephrenic type) as 1 case (1.1%)

4.2.2 Length of stay of readmission group.

Length of stay and the number of readmissions in schizophrenic patients with the readmission group are described in the table 4.

Table 4: Length of stay and number of readmission in schizophrenic patients with readmission group.

Data (N=91)	Mean ($\bar{x}$)	Min-Max	SD
Length of stay (days)	16.27	4-41	8.39
Number of readmission	3.08	1-12	1.81

From table 4; the mean of length of stay for schizophrenic patients with the readmission group is 16.27 days (minimum days are 4 days and maximum days are 41 days; SD 8.39). The mean of number of readmissions is 3.08.

4.3 Comparison of demographic data

Comparison of demographic data is described in the table 5

Table 5: Comparison of demographic data for schizophrenic patients with the non-readmission group and schizophrenic patients with the readmission group.

Demographic data (N=191)	Number (Percent)			x^2
	Group1 (non-readmission)	Group2 (readmission)	Total	
Gender				
Male	95 (55.88)	75 (44.12)	170 (100)	.005*
Female	5 (23.80)	16 (76.20)	21 (100)	
Age (year)				
<20	7 (70.0)	3 (30.0)	10 (100)	
20-29	40 (60.60)	26 (39.40)	66 (100)	
30-39	38 (48.10)	41 (51.90)	79 (100)	
40-49	14 (48.27)	15 (51.13)	29 (100)	
50-59	1 (33.33)	2 (66.67)	3 (100)	
60-69	0 (0)	3 (100)	3 (100)	
>70	0 (0)	1 (100)	1 (100)	
Marital status				
Single	77 (53.37)	71 (46.63)	148 (100)	
Married	16 (61.53)	10 (38.47)	26 (100)	
Divorced	5 (33.33)	10 (66.67)	15 (100)	

*p=.005

Table 5: Comparison of demographic data for schizophrenic patients in the non-readmission group and schizophrenic patients in the readmission group (cont.)

Demographic data (N=191)	Number (Percent) Group1 (non-readmission)	Group2 (readmission)	Total	x^2
Education				
No education	1 (25.0)	3 (75.0)	4 (100)	
Primary school	43 (42.15)	59 (57.85)	102 (100)	
Secondary school	55 (67.90)	26 (32.10)	81(100)	
Bachelor degree/above	1 (25.0)	3 (75.0)	4 (100)	
Occupation				
No occupation	66 (44.0)	84 (56.0)	150 (100)	
Agriculture	22 (100)	0 (0)	22 (100)	
Employee	6 (60.0)	4 (40.0)	10 (100)	
Commercial	3 (60.0)	2 (40.0)	5 (100)	
Other	3 (75.0)	1 (25.0)	4 (100)	
Birthplaces (Provinces)				
Nakhon Phanom	54 (58.69)	38 (41.31)	92 (100)	
Sakhon Nakhon	19 (38.0)	31 (32.0)	50 (100)	
Mukadahan	17 (62.96)	10 (54.55)	27 (100)	
Other	10 (40.54)	12 (59.46)	22 (100)	
Diagnosis				
F 20.0	86 (48.86)	90 (51.14)	176 (100)	
F 20.2	1 (50.0)	1 (50.0)	2 (100)	
F 20.3	2 (100)	0 (0)	2 (100)	
F 20.5	4 (100)	0 (0)	4 (100)	
F 20.9	7 (100)	0 (0)	7 (100)	

From table 5; The total number of cases 191 cases showing the differential of demographic data between the non-readmission group and the readmission group.

Gender characteristics between these two groups have shown different statistical significantly at level p=.005, male gender number more than female gender (170 cases: 89.01%, 21 cases: 10.99%)

The most common age characteristic is 30-39 years old and then the 20-29 years old group (79 cases (41.36%), 66 cases (34.55%)).

For the marital status of both groups. Single status (77 and 71 cases) is the most common of status characteristic with 148 cases (77.48%), then married with 26 cases (13.61%), and divorced with 15 cases (7.85%)

For the education degree, primary school is found most of this study with 102 cases (53.40%), and then secondary school with 81 cases (42.40%)

For occupation, most of the schizophrenic patients with the readmission group are in to non-occupation group with 84 cases (48.32%), then the employee group with 4 cases (2.30%), and then the commercial group with 2 cases.

Birthplaces show Nakhorn Phanom province with 92 cases (48.16%), Sakon Nakorn with 50 cases (26.17%), Mukadahan with 27 cases (14.23%), and other provinces totaling 22 cases (11.51%).

The type of schizophrenia most diagnosed by ICD-10 classification of both group is F20.0 (schizophrenia paranoid type) 176 cases (92.14%), and then F20.9 (schizophrenia unspecified type) 7 cases (3.66 %), and then F20.5 (schizophrenia residual type) 4 cases (2.09%)

4.4 Comparison length of stay

Comparing mean of length of stay of readmitted schizophrenic patients and with non-readmission group schizophrenic patients which described in the table 6.

Table 6 Comparing mean of length of stay and mean of number of readmissions

Data (N=191)	**Mean (x)**			***t*-test**
	Group1 (non-readmission)	**Group2 (readmission)**	**Total (SD)**	
Length of stay (days)	21.10	16.27	18.79 (SD 11.88)	.00*
Number of readmission	4.63	3.08	1.81 (SD 2.68)	.00*

*p=.00

From table 4.6; found that the both group have different statistical significant at level p=.00, by the average length of stay of readmission group (Gruop.2) less than non-readmission group (Group 1)

For the number of readmissions (times for treatment in the hospital) found that the number of readmissions of readmission group (Group.2) is less than the non-readmission group (Group.1) with a different statistical significant at level p=.00

4.5 Factors associated with readmission

Demographic characteristics associated with readmission are shown in table 7.

Table 7 Factors associated with readmission

Factors	Adjust OR	95% CI	p-value
Gender	9.101	2.218 - 37.346	.002*
Age	1.678	1.06 - 2.645	.026*
Status	.669	.372 - 1.204	.180
Education	.373	.440 - 1.233	.245
Occupation	.662	.467 - .939	.021*
Birthplaces	1.119	.787 - 1.591	.532
Diagnosis	.409	.148 - 1.248	.409
Length of stay	.955	.924 - .988	.008*
Number of readmissions	.750	.638 - .882	.001*

*p<.05, pseudo R^2 = .386

Form table 7; factors related in a statistically significant with readmission by using Logistic Regression Analysis showed variables that have relevance to gender, age, occupation, length of stay and number of readmissions correlated at level p<.05., Adjust Pseudo R^2 (Nagelkerke) = .386.

Specific factors that are associated with readmission are shown in table 8

Table 8 Specific factors associated with readmission

Factors	Adjust OR	95% CI	p-value
Gender	6.312	1.905 - 20.914	.003*
Age	1.487	1.016 - 2.478	.041*
Occupation	.649	.465 - .907	.011*
Length of stay	.962	.932 - .992	.014*
Number of readmissions	.739	.631 - .866	.00*

*p<.05, pseudo R^2=.301

Factors related in a statistically significant with readmission by using Logistic Regression Analysis showed variables that have relevance to gender, age, occupation, length of stay and number of readmissions; gender correlated at level .003, age correlated at level .041, occupation correlated at level .011, length of stay correlated at level .014, and number of readmissions correlated with readmission at level .00. Adjust Pseudo R^2 (Nagelkerke) = .301.

CHAPTER V
SUMMARY, DISCUSSION, AND RECOMMENDATIONS

5.1 Summary of the study

The study is a case control study. This study used data from clinical records, reviewed demographic data and factors associated with length of stay for schizophrenic patients in Nakhorn Phanom Psychiatric Hospital.

5.1.1 Demographic characteristic data

The study found that the total cases are 191. The total number of cases 191 cases showing the differential of demographic data between the non-readmission group and the readmission group.

Gender characteristics between these two groups have shown different statistical significantly at level p=0.005, male gender number more than female gender (170 cases: 89.01%, 21 cases: 10.99%)

The most common age characteristic is 30-39 years old and then the 20-29 years old group (79 cases [41.36%], 66 cases [34.55%]).

For the marital status of both groups. Single status (77 and 71 cases) is the most common of status characteristic with 148 cases (77.48%), then married with 26 cases (13.61%), and divorced with 15 cases (7.85%)

For the education degree, primary school is found most of this study with 102 cases (53.40%), and then secondary school with 81 cases (42.40%)

For occupation, most of the schizophrenic patients with the readmission group are in to non-occupation group with 84 cases (48.32%), then the employee group with 4 cases (2.30%), and then the commercial group with 2 cases.

Birthplaces show Nakhorn Phanom province with 92 cases (48.16%), Sakon Nakorn with 50 cases (26.17%), Mukadahan with 27 cases (14.23%), and other provinces totaling 22 cases (11.51%).

The type of schizophrenia most diagnosed by ICD-10 classification of both group is F20.0 (schizophrenia paranoid type) 176 cases (92.14%), and then F20.9 (schizophrenia unspecified type) 7 cases (3.66 %), and then F20.5 (schizophrenia residual type) 4 cases (2.09%)

5.1.2 Length of stay and number of readmissions

The mean length of stay of the non- readmission group is 21.10 days; the mean length of stay of the readmission group is 16.27 days. The average mean length of stay of the schizophrenic patients is 18.79 days (SD 11.88). The different mean of length of stay between the non-readmission group and the readmission group is significantly different (p=.00).

5.1.3 Association of demographic data and readmission

Factors related in a statistically significant with readmission include gender, age, and occupation. Logistic Regression Analysis showed variables that have relevance to gender, age, occupation, length of stay and number of readmissions; gender correlated at level .003, age correlated at level .041, occupation correlated at level .011, length of stay correlated at level .014, and number of readmissions correlated with readmission at level .00.

5.2 Discussion

5.2.1 Demographic characteristic data

General demographic characteristics of both groups from this study showed that patients diagnosed with schizophrenia who receive treatment at Nakhon Phanom Psychiatric Hospital, generally do not differ from population in other places. It found that patients were youth though early adulthood, but peak of age onset in general is 10 to 25 years for men and 25 to 35 years for women.(Benjamin J Sadock and Virginia A Sadock., 2003; p. 474)

This study found more male patients with hospitalization treatment (admission) than female patients which may be due to severity of symptoms resulting in male patients needing to receive treatment in the hospital more than female patients. This is different than the incidence of schizophrenia in general, which shows

that male and female patients are equally likely to need hospital treatment is 1:1(Benjamin J Sadock and Virginia A Sadock., 2003; p. 475) or 1.4:1(John McGrath et al, 2008; McGrath JJ. and Susser ES., 2009)

In the context of marital status, education, and occupation this study found that most are single, lower level of education, and no career. That is because the natural characteristic of schizophrenia patients is impaired ability to achieve high education degrees and successful careers; this is consistent with the study of Chritos Ballast, which found that most patients have impairment of functions. (Christos Ballast, 2005) In addition, schizophrenia also affects the financial status of patients, care givers, and their families, (Serritti A. et al, 2009)

Schizophrenia examined in this study showed the most common type to be paranoid (176 cases: %), consistent with the education of this type of disorder. (American Psychiatric Association, 2000)

In summary, demographic and some epidemiological characteristics of schizophrenia in this study were consistent with past studies such as the Synopsis of Psychiatry 2003 by Benjamin J Sadock and Virginia A Sadock.(Benjamin J Sadock and Virginia A Sadock., 2003) and the study of incidence and epidemiology of schizophrenia of John McGrath and et al, 2008**. (**John McGrath. et al, 2008)

This study showed that the non-readmission group and the readmission group have different statistical significance for gender only. Other population characteristic of both groups such as age, education, and occupation show no difference significance.

5.2.2 Factors associated with readmission

Several other studies regarding factors associated with readmission such as; studies of Liorca PM. in 2008, Rummel Kluge C. et al in 2008, and Weiden PJ. et al in 2004 which focus on treatment especially partial compliance including; poor insight, negative attitude or subjective response toward medication, no previous adherence, substance abuse, shorter illness duration, inadequate discharge planning, after care environment, and poorer therapeutic alliance are the most important factors affecting of readmission of schizophrenia (Liorca PM., 2008; Rummel Kluge C. et al, 2008; Weiden PJ. et al, 2004)

However, although recent study does not focus and demonstrate factors in demographic data, this study shows that demographic factors were associated statistically significance with readmission including gender, age, and occupation the confidence level value less than .05

5.2.3 Association of length of stay and readmission

The study demonstrated the association between length of stay and readmission in schizophrenic patients, and found that shorter length of stay is associated with high rates of readmission; the average mean length of initial stay (admission in hospital) of the readmission group is less than the non-readmission group (16.27 and 21.10 days) with different significance and value statistical confidence at level .00. The average mean length of stay in Nakhon Phanom Psychiatric Hospital is 18.79 days (SD $\pm$11.88)

The review of literature did not find for research studies for Thailand, but found studies in other countries such as Canada, Taiwan ,and U.S.A.; The Canadian Institute for Health Information (CIHI) reported data showing ‘relatively high rates of readmission and declining lengths of stay among individuals hospitalized for mental illness especially schizophrenia. The result reported ‘revealed that shorter initial hospital stays were related to higher rates of readmission’ (CIHI, 2007) that is consistent with findings in this study.

The study from Taiwan showed the association between readmission rate and length of stay for schizophrenia as over 3 years, consistent with this study’s findings, as of found ‘after discharge from hospital, patients with schizophrenia were readmitted within 30 days, readmission rates increased for shorter length of initial stay (Lin HC. et al, 2006) This is consistent with the result of the study of Roberto, et al, in U.S.A. that showed relation between initial length of stay and readmissions among patients with psychiatric disorders, ‘the length of stay below ten days led to an increase in the readmission rate during the 30 days after discharge, decreasing length of stay from 6-7 days increased the expected readmission rate from .004 to .047, whereas decreasing length of stay from 3-4 days increased the expected readmission rate from .09 to .136 (Roberto et al, 2003)

However, there are also studies that do not show support of this study such as study in Australia by Browne G., et al which found that the length of stay in the hospital is not significantly different with readmission rater among schizophrenic patients. (Browne G., et al, 2004)

Shorter length of stay is shorter is with health policy and mental health policy. In Thailand, Bupawan P. and Supasit P. studied the impact of universal health insurance policy (30 Baht policy) on the psychiatric service system in general hospital and psychiatric hospitals at Northern Thailand. The study found that primary and secondary hospital or general hospital with psychiatric service trends of increase in the number of patients, the number of length of stay and fees charged to revenue increase, while psychiatric hospital in the Department of Mental Health likely reduced the number of patients, reduce the number of length of stay, and cost per revenue decline (Bupawan P. and Supasit P., 2003) Show that the majority of general hospitals were not affected by this policy as much compared to psychiatric hospitals have been affected by the policy 30 Baht. This study may be used to describe the impact of adjustment policy 30 Baht with Nakon Phanom psychiatric hospital policy (it is the same hospital psychiatry) to reduce of the number of length of stay. By a study of psychiatric hospital in Thailand, found that the average length of stay is 92.31 days, on average the least number of length of stay in Nakon Sawan psychiatric hospital is 16.90 days (Bunchai N. et al, 2003)

Therefore it could be said that policy to reduce the number of hospital beds and reduce time for treatment or length of stay may be beneficial in terms of cost saving, burden of care, including focus on community care. Nevertheless, several studies are including the result of this study about length of stay and readmission rate, show the impact on the high rate of readmission associated with decrease initial length of stay. The research shows repeated treatment, the cost of treatment further increased, and higher indirect costs to patients and relatives to come to the hospital.

Length of stay affects the results of treatment. If treatment time or length of stay is too small, may cause patients to improve slightly, but the longer stay treatment reduces readmissions. Therefore, patients and communities must be prepared to make longer stay a major priority to reduce the chances of returning or readmission to hospital.

5.3 Limitations and Recommendations

5.3.1 Limitations

For limitation in this study are as follows

(1) This study is a case control study; therefore that data may have a degree of credibility, because of the prejudice that occurred, recorded by staff from medical records, nursing recording acts, including doctors (psychiatrist) were caused by personal bias that may have data error, and includes the data were collected by the researcher. However, the data is still reliable enough to collect to study.

(2) Limitation on information about patients with schizophrenia, data of patients that have limited the control group such as if patients go to received treatment in other hospitals that will unknown information about patients when after discharged from the hospital.

(3) There are many factors involved that have not been to analyze the limitations in this study. The factors that are affecting the treatment were returned admission such as ‘partial compliance including; poor insight, negative attitude or subjective response toward medication, previous no adherence, substance abuse, shorter illness duration, inadequate discharge planning, after care environment, and poorer therapeutic alliance are the most important factors affecting of readmission of schizophrenia (Liorca PM., 2008; Rummel Kluge C. et al, 2008, Weiden PJ. et al, 2004)

5.3.2 Recommendations for future study

(1) This study is a case control study; study from secondary data, enabling results to be a discrepancy may be the result of the record, the integrity of clinical records, should be studied further using data from the records of those by the researcher, and should make the prospective or cohort study which will visualize the relationship of this study.

(2) Results from this study not only show that length of stay in hospitals is associated with readmission only, but also found that several factors and uncertainties, demographic characteristics, clinical characteristics, include other factors, particularly about the treatment that is not continues with the associated with the return repeated

treatment and readmission. Therefore, the interpretation of this study is essential to consider other factors or variables that affect the readmission in hospital.

(3) The further study should control or make the difference between these two groups of variables that are similar to most studies, including several in the hospital to see the results of a study overview of Thailand.

5.3.3 Policy implications

Local hospital level

(1) Extending the hospital stay for schizophrenic patients by adjusting proper treatment including rehabilitation for all patients before sending them back to the community will reduce the hospital re-admission rate.

(2) Improve the efficiency of treatment process within restricted budget will reduce the expense burden psychiatric hospital.

(3) Participation from both public and private organize has on comprehensive system of treatment and rehabilitation will reduce the re-admission rate of hospital.

National level

(1) Increasing the payment for schizophrenic patients on longer hospital stay, therefore the Public Health Insurance.

(2) For the future, in order to reduce all expense (health direct and indirect expense) on madder cases of on schizophrenic patients, the especially of the local and general hospitals should be improve on treatment process and health watch in collaboration with the community.

(3) Special funding from the government for the poor and elderly who have psychiatric symptoms will assist all patients to get good and proper treatments as well as reduce the expenditure (both direct and indirect). At the same time, patients will lives in the community without hospitalization.

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APPENDICES

APPENDIX A

Data Collection form; No……

Part I; General characteristics

1. Hospital number ……..

2. Admission number ……..

3. Sex Male Female

4. Age ……

<20 20-29 30-39

40-49 50-59 60-69

>70

5. Status Single Married Divorced

6. Education No education Primary Secondary

Bachelor degree / Above Bachelor degree

7. Occupation No occupation Agriculture Government

Employee Commercial

8. Medical claim Universal (30 baht) Government

Social insurance Self payment

9. Provinces Nakhon Phanom Sakon Nakhon

Mukdahan Other

Part II; Psychiatric chart reports; clinical signs and symptoms

10. Major psychiatric diagnosis (ICD-10; classification)

F20.0	F20.1	F20.2
F20.3	F20.4	F20.5
F20.6	F20.7	F20.8
F20.9		

11. Minor psychiatric diagnosis (co-morbidity)

……. …… ……..

12. Length of stay in hospitalization (days) …….

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13. Length of stay in community …….

Part III; Readmission

14. Number of readmissions …….

15. Readmission in 90 days …….

Yes (gr.2) No (gr,1)

in 30 day in 60 day in 90 day

APPENDIX B
Budget

Type	No. of Unit	Unit	Amount	Remarks
<u>Personnel</u>				
Assistant 1	1	Times	1,000B	Data collection
Assistant 2	1	Times	1,000B	Data collection
Assistant 3	1	Times	1,000B	Review data base
Assistant 4	1	Times	1,000B	Review data base
<u>Materials</u>				
Supplies and equipment	191	Set	3,000B	Data collection
<u>Transportation</u>				
Nakhon Phanom Psychiatric Hospital			3,000B	
Total			10,000B	

APPENDIX C
Time Schedule

Activity	Month 2009-2010								
	Aug 2009	Sep 2009	Oct 2009	Nov 2009	Dec 2009	Jan 2010	Feb 2010	Mar 2010	Apr 2010
1. Review of literature									
2. Development of questionnaire, writing thesis proposal, submission for proposal exam.									
3. Review of ethical research involving human.									
4. Collection of data									
5. Analyze and interpret data									
6. Thesis exam, submission of article publication and submission of thesis									

BIOGRAPHY

Name	Mr. Kitkawee Pono
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