EFFECTS OF COGNITIVE BEHAVIOR MODIFICATION PROGRAM ON STRESS IN DIABETES PATIENTS

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Thesis
Entitled

THE EFFECTS OF SUPPORTIVE NURSING CARE AND UPRIGHT POSITIONING DURING LABOR ON LABOR PAIN, DURATION OF LABOR AND APGAR SCORES OF NEWBORN IN THE FIRST-TIME MOTHERS.

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ABSTRACT

This thesis was a quasi-experimental research aiming to examine the effects of Cognitive Behavior Modification Program on stress in diabetes patients. The study was conducted among diabetes patients at the diabetes clinic in Saingam Hospital, Kamphaengpet with stress levels 3 and 4, mild stress and high stress as defined by the Thai Stress Test. Twenty –two subjects with similar characteristics were selected by simple random sampling, then randomly divided into an experimental group and a control group. The experimental group received the Cognitive Behavior Modification Program twice a week for four weeks for eight sessions, each session about 60 minutes, and they received a follow-up session two weeks after the intervention phase whereas the control group received only the usual routine care from the diabetes clinic. The study was carried out from 19 May until 10 July 2004. The data obtained were analyzed with percentage, Man Whitney U Test and Wilcoxon Sign Ranks Test.

The result immediately after the intervention and after the two weeks follow-up phase demonstrated that the stress levels in the experimental group were lower than the stress levels before the intervention at a statistically significant level of .05. In addition immediately after the intervention and after the two weeks follow-up phase, the stress levels in the experimental group were lower than the control group at a statistically significant level of .05. The stress levels in the experimental group immediately after the intervention and after the two weeks follow-up showed no significant difference.

Considering the result of this study, the application of Cognitive Behavior Modification Program is recommended. Health care providers who work with diabetes patients in the hospital and in the community should apply the Cognitive Behavior Modification Program to reduce stress of diabetes patients as an approach to prevention more severe mental disorders.

KEY WORDS: COGNITIVE BEHAVIOR MODIFICATION / STRESS / STRESS INOCULATION TRAINING / DIABETES MELLITUS.

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ผลของโปรแกรมการปรับพฤติกรรมทางปัญญาต่อความเครียดในผู้ป่วยเบาหวาน
(EFFECTS OF COGNITIVE BEHAVIOR MODIFICATION PROGRAM ON STRESS IN DIABETES PATIENTS)

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บทคัดย่อ

การศึกษาครั้งนี้เป็นการวิจัยกึ่งทดลอง เพื่อศึกษาผลของโปรแกรมการปรับพฤติกรรมทางปัญญาต่อความเครียดในผู้ป่วยเบาหวาน กลุ่มตัวอย่างเป็นผู้ป่วยเบาหวานที่มารับบริการที่คลินิกเบาหวานของโรงพยาบาลไทรงาม จ.กำแพงเพชร ที่มีความเครียด จากการทำแบบวัดความเครียดสำหรับคนไทย ระดับ 3 และ 4 คือ มีความเครียดระดับปานกลาง และเครียดมาก คัดเลือกกลุ่มตัวอย่างโดยจับฉลากกลุ่มตัวอย่างตามคุณสมบัติที่กำหนดจำนวน 22 คน แล้วจับฉลากแบ่งเข้ากลุ่มทดลองและกลุ่มควบคุม กลุ่มทดลองได้รับโปรแกรมการปรับพฤติกรรมทางปัญญา ทุกอาทิตย์ๆ ละ 2 ครั้งจำนวน 8 ครั้งๆ ละ 60 นาที เป็นระยะเวลา 4 สัปดาห์ และติดตามผลหลังการทดลอง 2 สัปดาห์ ส่วนกลุ่มควบคุมได้รับการพยาบาลตามปกติจากคลินิกเบาหวาน ดำเนินการทดลองระหว่าง 19 พฤษภาคม -10 กรกฎาคม 2547 วิเคราะห์ข้อมูลด้วยสถิติร้อยละ, Mann Whitney U Test และ Wilcoxon Sign Ranks Test.

ผลการวิจัยพบว่า ในระยะหลังการทดลองทันที และระยะติดตามผล กลุ่มทดลองมีระดับความเครียดต่ำกว่าก่อนการทดลองอย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และกลุ่มทดลองมีระดับความเครียดต่ำกว่ากลุ่มควบคุมทั้งในระยะหลังการทดลอง และระยะติดตามผล อย่างมีนัยสำคัญทางสถิติที่ระดับ .05 และระดับความเครียดของกลุ่มทดลองในระยะหลังการทดลองทันที และระยะติดตามผล ไม่แตกต่างกันอย่างมีนัยสำคัญทางสถิติที่ระดับ .05

จากการศึกษาครั้งนี้มีข้อเสนอแนะว่า พยาบาลหรือเจ้าหน้าที่ที่เกี่ยวข้องกับผู้ป่วยเบาหวานทั้งในโรงพยาบาล และในชุมชน ควรจะนำโปรแกรมการปรับพฤติกรรมทางปัญญา ไปประยุกต์ใช้ลดความเครียดในผู้ป่วยเบาหวาน ซึ่งจะเป็นการป้องกันอาการผิดปกติทางจิตที่รุนแรงได้อีกทางหนึ่ง

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CONTENTS

CONTENTS (continued)

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1
INTRODUCTION

Background and Significance of the study

Diabetes Mellitus is a chronic non-epidemic disease that is frequently found in the group of endocrinological diseases becoming a global problem. There are approximately 154 million diabetes patients all over the world and 64% of them are in developing countries. By 2025, diabetes patients will increase by 76% in developing countries. The frequency rate of diabetes patients in Thailand showed that aged 30-60 years old is 2.5-6.8% (Sukawatcharin and Preechawat). They were a significantly high-risk group to psychological problems because they have to confront prolonged illness which affects their living. Although diabetes mellitus does not immediately kill the patients it can result in the person feeling stressed (McDowell, J.R.S., and Gordon, D.). Diabetes patients also felt lack of confidence of their lives because of unfortunate complications. They felt no freedom and insecurity in their lives. Those feelings motivated the stress (D'Arrigo, 2000 cited in Suwantri, 2000).

More or less stress in diabetes patients depends on individual evaluation and determination about the stressors that are the threats, losing and endangering their resources. It generates the stress, fear, lack of confidence and insecurity their lives and social status leading to discouragement (Siritharangsri, 1996: 172-173). The study of Korean diabetes patients revealed that their psychological problems were stress, hopelessness, fear and depression (Choe, M.A., et. al., 2001). Furthermore, the study of Paovilai (2000) reported that the emotional effects of diabetes patients were anxiety, fear about complications, self-care behavioral and genetic transfer to their children. The study of Hanucharoen (2001) stated that diabetes patients showed the stress and anxiety of the diabetes control as 18.9%. It is consistent with the research of Sapnut (1999) that diabetes patients mostly gained moderate stress as 63.7%. Inferior ones were low stress as 20% and high stress as 16.7% respectively. Physical stress was indicated the most. The inferior ones were anxiety, sleep disturbance,

social role impairment and severe depression respectively. Even moderate stress over a long period of time could cause serious damage. As the statistic of Mental Health Department showed that diabetes patients have a suicide rate in males of 3% and females of 7% (Mental Health Department, 2002).

The body will respond to stress by having an increased heart rate, palpations and hypertension. The stress also affects plasma glucose levels of diabetes patients by increasing hormone release e.g. epinephrine, glucocorticoid and thyroxin. Epinephrine stimulates the lipid decompression to lipid acid and muscles can use less glucose. Glucocorticoid stimulates the liver that changes amino acid to glucose. Thyroxin stimulates more absorption of glucose into blood circulation and prohibits muscular glucose usage. Hence, when diabetes patients have stress, the plasma glucose levels will increase and be difficult to control, leading to a more severe diabetes condition and more stress (Suwantri, 2000; Lloyd, C.E. et. al., 1999; Nampraditkul, 1993).

The results of previous studies of the causes of stress in diabetes patients are: 1) fear and anxiety from the disease and existing complications; 2) frustration from adaptation and limitations of self-care behavioral with diabetes 3) social role changed; 4) boredom, discouragement of controlling plasma glucose levels and the ongoing treatment; and 5) economic problems. Some patients have to resign from their jobs for self-care at home. Some can work less leading to have less income (Keeratiyuthiwong, 2001; Paowilai, 2000; Samart, 1999; Jaitham, 1998; Borisut, 1997; Sapnut, 1997; Nampraditkul, 1993 and Karnjanabat, 1981). In the working experience in the community hospital of the researcher, the causes of stress are from 1) frustration about the recent illness and ongoing treatment, 2) less interaction with other people, 3) economic problems–as by working less, family income is reduced.

Diabetes patients have to confront stress and employ adaptation. As the study on coping behaviors with stress in diabetes patients shows, the patients ignored it and did nothing to solve their problems or inform anyone else because they did not want other people to be worried about them. They had no outlet of stress release (Borisut, 1997; Pornviriyasap, 1997, Jumnongphol, 1997). In the working experience of the researcher, hospitalized patients normally kept stress with them and did not inform anyone, even family members. Some patients told their neighbors aiming to

temporarily forget the problems. Most diabetes patients ignored their stress and anxiety without any solution and let the problems continuously progress.

There are many coping strategies but the effective one is revision of the thinking process as well as cognitive process. In this research, the researcher employs the Cognitive Behavior Modification Program of Meichenbaum (1985) by using Stress Inoculation Training (SIT). The SIT of Meichenbaum did not emphasize only on eliminating the stress but also emphasizes individual understanding the nature of stress and responses to stress. Meichenbaum believed that the existing stress did not happen because of either one side but it came from interaction between the individual and environment. The belief of the Cognitive Behaviors Modification Program of Meichenbaum (1985) involved individuals who practiced the coping strategies from simple to difficult ones would have skills, endurance and ability to deal with future stressful situations as they might arise, as well as the body having immunity that existing antibodies were able to protect from the infection. The Cognitive Behavior Modification Program has been widely applied to people with emotional and behavioral disorders. For instance, Chatkaew (2003) studied the effects of cognitive therapy on depression of female youths in Welfare Institute. The study revealed that the depression scores of female youths after the intervention period were lower than before the intervention period at a statistically significant level of .05 and after the 2 weeks follow-up period were lower than before the intervention at a statistically significant level of .01. Thapinta (1992) studied the reduction of anxiety of staff nurses working with AIDS patient through cognitive reconstructuring and mindfulness. The study showed that the anxiety scores of the group with the training of cognitive behavior modification and mindfulness after the intervention and follow-up periods lower than before intervention at a statistically significant level of .05. Lertleuchachai (1990) studied the effects of Rational Emotive Behavior on examination anxiety in secretary students of the Thai Chamber of Commerce University. The experimental group received the Rational Emotive Behavior Program twice a week for 5 weeks. The results of this study demonstrate less anxiety in the experimental group after the intervention and follow-up period, compared to the control group. Kennedy (1990) employed the Cognitive Behavior Modification Program for anger training of prisoners who had aggressive behavior. The study of

Kennedy stated that the subjects gained less anger in behavioral rehearsal in clinic and had appropriate verbal reaction. Benet, G.A. (1986) used the Cognitive Behavior Modification Program by self-instruction for treating obesity that addressed the decreased anxiety and depression with the statistically significant. In the behavioral disorders, the study of Suthin (1996) the reduction of adolescent students' aggressive behavior through a Cognitive Behavior Modification Model stated that the students who were trained with the Cognitive Behavior Modification Model demonstrated the aggressive behavior scores after the intervention and follow-up periods lower than before the intervention at a statistically significant level of .05.

The results of previous studies of the Cognitive Behavior Modification Program can be effectively used in the alleviation of emotional and behavioral disorders. The researcher believes it is suitable to apply it with diabetes patients who confront stress because the patients with stress normally evaluate and perceive the existing situations as well as the threatening that can generate some losses. Likewise, they also have high expectations. To adjust the cognitive behavior and new technique of coping strategies would encourage the patients to have appropriate ability of coping with stressful situations. The researcher believes the Cognitive Behavior Modification Program would assist the diabetes patients in having a better understanding of the nature of stress and responses that might enable them to learn and cope with stress including creating appropriate solutions of coping with stress. In the results of previous studies of the Cognitive Behavior Modification, there are few studies associated with the Cognitive Behavior Modification Program that was applied in Thailand. There is no evidence on the study to decrease the stress in diabetes patients. Consequently, the researcher is interested in studying the effects of Cognitive Behavior Modification Program on stress in diabetes patients who had no complications, in order that this might help them effectively cope with stress and have appropriate coping strategies and problem solving, leading to less stress and prevent the future complications and possible serious psychological problems.

Research Question

Does the Cognitive Behavior Modification Program have effects on reduction of stress in diabetes patients?

Purpose of the study

To study the effects of the Cognitive Behavior Modification Program on stress in diabetes patients.

Conceptual Framework

The cause of stress in diabetes patients comes from the interaction between the individual and the environment. The diabetes patients perceived and evaluated the illness and life situations as the life threats that could cause the damage or harm them or endangering their resources, leading to unhappiness, discomfort and lack of confidence about their future, because diabetes mellitus was incurable. They were also worried about the complications and felt bored and discouraged with appropriate behaviors to control plasma glucose levels. They needed to adapt to the new situation to keep the equilibrium, and this can result in diabetes patients feeling stressed. The diabetes patients could have different physical, psychological and behavioral expressions depending on the thinking and determination of situation.

Diabetes patients have to confront stress and adaptation to cope with stress or stressful situations. There are many coping strategies but the appropriate effective coping strategy was the Cognitive Behavior Modification Program by Meichenbaum (1985) this is the cognitive process believing individuals who are trained to cope with stress or stressful situations from simple to difficult ones would have skills, endurance and ability to deal with the problems and deal with future stressful situations as they might arise as well as the perceived immunity in the human body. The SIT was a concept emphasizing better understanding of the nature of stress and responses to it. The alteration depending on self-instruction of the clients emphasized what they thought, how they felt, and what they should do in stressful situations and its effects on emotion and performance. The individual would observe their physical and

psychological matters and sensitivity with what they were thinking and feeling about the situation. They had to immediately self-monitoring or stop negative feelings, offering new alternatives to cope with the situation with appropriate responses. The clients have to plan, and goal setting of appropriate self-care behavioral should be provided that promoted appropriate effective coping strategy of the clients. The clients received behavioral rehearsal in clinic, increasing skills of coping strategies that they can apply for their real lives. Encouraging or rewarding themselves when the goal is achieved should be done. They should evaluate the behaviors that did not achieve the goal and finding for the weak points, including finding the solution to eliminate negative behaviors that make a change. Group therapy assists them having self-learning, creating trust with people, expressing themselves to others, being able to express their feelings and exchanging their experiences that make them feel confident to join the society. They also can take some concepts and useful ideas to develop appropriate effective solutions to cope with problems in their real lives.

Consequently, the study emphasizes the effects of Cognitive Behavior Modification Program regarding the concept of Meichenbaum (1985). The training program used in this study is modified the SIT that was established and modified from the fundamental concept of Stress Inoculation Training (SIT) (1985) as well as an extensive review of relevant research literature about Cognitive Behavior Modification (SIT) with the three phases as follows:

First phase: Conceptualization Phase was the initial phase where the clients gathered information, thought and analyzed the problems or situations leading to better understanding the nature of stress and existing responses, and planning or goal setting to cope with stress.

Second phase: Skills Acquisition and Rehearsal Phase was the phase that the clients realized negative responses, the strategies of coping with stress by using appropriate relaxation techniques e.g. muscle relaxation technique and problem solving by self-instruction. They also practiced to increase skills of coping with stress and how to apply it in their real lives.

Third phase: Application and Follow-through Phase was the phase of behavioral rehearsal in clinic and applying it to use in their real life. The evaluation of

the outcomes and establishment of appropriate solutions of the existing problems and obstacles were provided.

The steps of the SIT program assist the diabetes patients to adapt their thinking and feelings so that they are capable to cope with stress. They offer the confidence of applying various strategies of coping strategies in their real live. The patients will have appropriated effective responses to the stress.

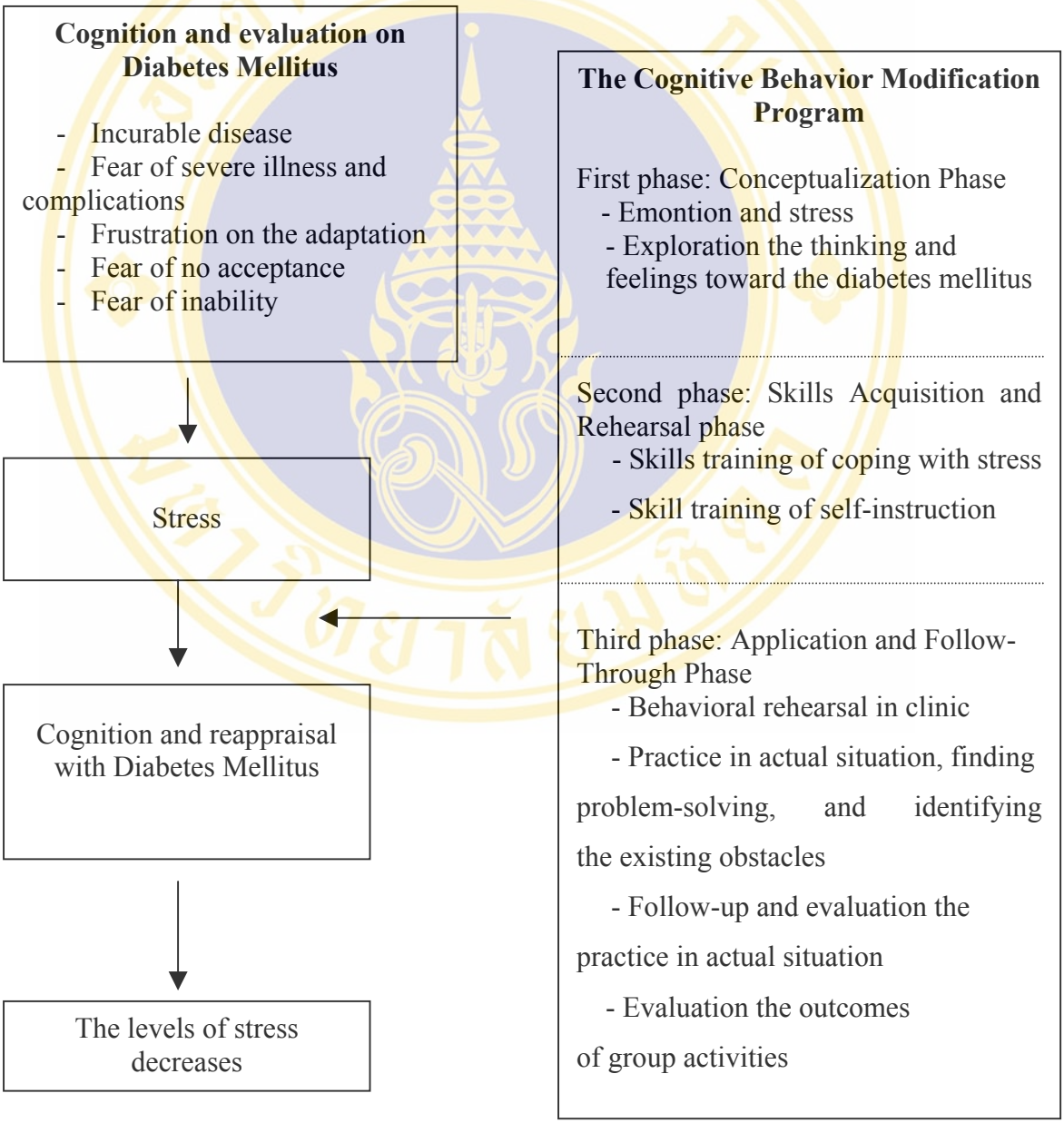

Figure 1: Conceptual Framework of the Study

Hypothesis

1. Immediately after the intervention and after a two week follow-up phase, the stress levels in the experimental group will be lower than the stress levels before the intervention.
2. Immediately after the intervention and after the two week follow-up phase, the stress levels in the experimental group will be lower than the control group.
3. Immediately after the intervention and after the two week folloe-up phase, the stress levels in the experimental group will show no significant difference.

Scope of the Study

This research is conducted to study particularly the effects of Cognitive Behavior Modification Program stress in diabetes type 2 patients who were treated at diabetes clinic of Saingam Hospital, Khamphangphet Province between May 19-July 10 2004.

Definitions

Stress refers to physical and psychological conditions responding to intrinsic and extrinsic threats that generate negative feelings e.g. anxiety, boredom, restless and discouragement; positive feelings e.g. proud of themselves and various levels of satisfaction. It is measured by Thai Stress Test (TST) designed by Phattharayuttawat (2000) with 4 levels of stress as level 1: excellent mental health, level 2: normal mental health, level 3: mild stress and level 4: stressful. In this study, the subjects have the stress level 3 and 4.

Cognitive Behavior Modification Program refers to the process that trains the patients to have better understanding of the nature of stress and its response by applying the Stress Inoculation Training (SIT) of Meichenbaum (1985) as well as an extensive review of relevant research literature about Cognitive Behavior Modification (SIT). It consists of the three phases of the training as first phase: Conceptualization Phase, second phase: Skills Acquisition and Rehearsal Phase and third phase: Application and follow-Through Phase, with total eight sessions as follows:

First phase: Conceptualization Phase

1st session: Emotion and stress

2nd session: Exploration the thinking and feelings toward the diabetes mellitus

Second phase: Skills Acquisition and Rehearsal Phase

3rd session: Skills training of coping with stress

4th session: Skill training of self-instruction

Third phase: Application and Follow-Through Phase

5th session: Behavioral rehearsal in clinic.

6th session: Practice in actual situation, finding problem-solving, and identifying the existing obstacles

7th session: follow-up and evaluation the practice in actual situation

8th session: Evaluation the outcomes of group activities

Expected Outcomes and Benefits

1. Nursing aspect: it should be effective nursing care that offers the effective outcome of reducing the stress in diabetes patients.

2. Education and research: it can be a clue for education and further research in the patients with other chronic diseases who have stress.

CHAPTER 2
LITERATURES REVIEW

The research on the effects of the Cognitive Behavior Modification Program on stress in diabetes patients who are treated at diabetes clinic of Saingam Hospital, Saingam district, Kampangphet province is conducted with the literature review covering the following topics:

1. Diabetes Mellitus
2. Diabetes Mellitus and Stress
3. Concept of Cognitive Behavior Modification
4. Relevant Researches

1. Diabetes Mellitus

Diabetes Mellitus is metabolic disease where the body cannot use glucose from diet because the body has a relative deficiency of insulin or cannot use the existing insulin leading to increased plasma glucose levels, overcoming the renal threshold for glucose with resulting glycosuria.

American Diabetes Association (ADA) (2003) categorized the criteria of diabetes diagnosis as hyperglycemia. The diabetes criteria was the test of fasting plasma glucose levels before no consumption of food or beverage other than water for at least 8 hours ≥ 126 mg/100 ml, at least two times or any random test of fasting plasma glucose levels ≥ 200 mg/100 ml combining with classical symptoms e.g. polyuria, polydipsia, and weight loss.

Consequently, diabetes mellitus is the body cannot use the existing insulin leading to increased plasma glucose levels and the test of fasting plasma glucose levels (FPG) is ≥ 126 mg/100 ml, at least two times if the test.

1.1 Risk factors of diabetes mellitus

1.1.1 Genetics: diabetes mellitus can transfer through genetics.

1.1.2 Health behaviors e.g. consuming high fat, high carbohydrate and lack of physical activity.

1.1.3 Obesity: Obese people require more insulin because of high volume of diet consumed but insulin has less reaction with lipid cells.

1.1.4 Age: in the age of 30-60 years, diabetes mellitus is found as 2.5-6.8% and the rate of diabetes is higher with the ages over 65 years at 11%.

1.1.5 Stress: severe or stress over a long period of time influences the hormones relating to carbohydrate and insulin used.

1.1.6 History of Impaired glucose tolerance (IGT) or impaired fasting glucose (IFG)

1.1.7 History of Gestational Diabetes Mellitus (GDM) or delivery of a baby where the weight is > 4 kilogram

It means the risk factors of diabetes mellitus are from congenital and non-congenital. Most non-congenital diabetes are associated with physical behaviors such as consumption of food and emotional behaviors. Those factors are the causes of diabetes mellitus.

1.2 Types of diabetes mellitus

Diabetes Mellitus are categorized into 4 types (ADA, 2003; Pickup, 2003; Srimada, 2000) as follows:

1.2.1 Diabetes Mellitus Type 1 referred to dependent-insulin diabetes. Beta-cells in pancreas were damaged. The major cause was from autoimmune and minor cause was not clear. However, refer to dysfunction of pancreas about insufficient insulin production. Relevant factors of diabetes were genetics, viral infection verified by the detection of Islet Cell Antibody and Antibodies toward the virus in the initial phase of the disease. It was normally happened with young adults or age < 40 years that showed severe rapid symptoms of diabetes leading to have ketoacidosis.

1.2.2 Diabetes Mellitus Type 2 referred to the diabetes that tolerated with beta cell insulin of pancreas secretion impaired. The symptoms occurred slowly. There is no requiredment for insulin to control plasma glucose levels. They can use managed by dietary or oral diabetes medicines as a choice of treatment. Most patients

are over the age of 30 years when diagnosed, and an associated feature is obesity. The pancreas still works to produce insulin but it was insufficient for the demands of the body. This type of diabetes should have hyperosmolar condition without ketoacidosis except some situations e.g. infection or stress. As many as 90% of diabetes patients claimed to be diabetes mellitus type 2 patients.

1.2.3 Gestational Diabetes Mellitus (GDM) meant diabetes or impaired glucose tolerance was initially diagnosed during the pregnancy because of hormone fluctuation. After delivery, the condition could be normal or remained diabetes or could be the group of impaired glucose tolerance test. Furthermore, the findings showed that most pregnant women could easily be diabetes mellitus.

1.2.4 Other specific type of diabetes e.g. diabetes from abnormal specific genetics, pancreas disease, hormone dysfunction, medicines or chemicals and others.

Diabetes Type 2 is mostly found in 90% of total diabetes patients with the age > 30 years. The diabetes type 2 patients don't normally require insulin. They can be managed by dietary consumption, appropriate self-care behaviors and administrate oral medicines for controlling the diabetes. The diabetes symptoms of diabetes type should occur slowly.

1.3 Sign and symptoms of diabetes mellitus

Diabetes affects all organs. Major signs and symptoms of the diabetes as of high glucose plasma are as follows:

1.3.1 Polyuria.

1.3.2 Polydipsia.

1.3.4 Weight loss.

1.3.5 Polyphagia.

Other found symptoms are as follows:

(1) Ants swarm the urine.

(2) Having rash or fungus infection on the skin.

(3) Having chronic wound along the leg and arm or frequent recurrent abscess and prolonged wounds.

(4) Blurred vision and frequent changing of eye glasses.

(5) Having numb or burning pain at the end of limbs.

(6) Gaining the symptoms of vasoconstriction in some organ such as feet that can have gangrene.

Frequent symptoms are found as polyuria, polydipsia, weight loss and polyphagia and they are easy to notice. Poor diabetes control makes the symptoms worse, and leading to negative impacts of other systems such as the eyes, renal and blood vessels.

1.4 Complications of diabetes mellitus

1.4.1 Acute complications

Acute complications in diabetes type 2 patients are Hyperglycemia Hyperosmolar Non-Ketotic Coma (HHNC) which is the condition of having high plasma glucose levels ≥ 600 mg/dl. The patients should gain a little of acidosis as lactic acidosis from Coma. Free-radical lipoacidosis is typically lower than in DKA diabetes (Ketoacidosis). The patients showed severe dehydration with dried skin, dried mouth, deep eye surrounding, high hematocrit, light shallow breathing, no acetone odor, changes of conscious level, hypotension, depression, confusion and convulsion.

Factors motivate HHNC as follows:

(1) Stress from the illness such as infection.

(2) Treatments e.g. peritonial dialysis.

(3) Some medicines e.g. diuratics, glucocorticoid.

1.4.2 Chronic complications

Prolonged uncontrolled plasma glucose levels cause complications to major organs as followings:

(1) Cardiovascular system

High plasma glucose levels generates the condition of glycosylated hemoglobin that offers less release of oxygen to red blood cells in tissues leading to insufficient oxygen in tissue and vasculoangiopathy. Both macroanginopathy and microanginopathy can happen with occlusion, aneurysm or weak vessels that generate diabetes retinopathy and nephropathy. Furthermore, diabetes makes abnormal lipid as high free-radical lippoacid and high triglycerlin and low high-density lippoprotein

(HDL) and high low-density lippoprotein (LDL). Cholesterol level is perhaps normal or high, which causes hypertension, ischemic heart disease and paralysis from cerebral infarct.

(2) Neurological system

Prolonged plasma glucose levels generates impaired peripheral nervous system leading to slow neurotransmission. The patients may lose sensory feeling, feel numb or ache at peripheral limbs. Burning pain and piercing pain are found at the end of upper and lower limbs and those symptoms should be severe at night. Weight bearing through the bone line while having numb limbs can wound the limbs. Damaged motor nerves generate muscular atrophy, imbalance of flexion and retraction of sole muscles. Abnormal weight bearing leading to deformity of feet. Some patients have impaired autonomic nervous system causing poor digestion, constipation or frequent elimination. Impairment of neurogenic bladder make bladder control difficult and loss of sexual ability.

(3) Retinopathy

Diabetes type 2 patients presented Retinopathy as 3-4 % of 2-3-year diabetes and 15-20 % of 15-year diabetes as of the alteration of vessels in retina, finally causing blindness. Diabetes patient contract Cataract and Glaucoma faster than individuals who don't have chronic illness as 2-4 times and 1.4 times respectively.

(4) Nephropathy

As the macroanginopathy and micronaginopathy, diabetes nephropathy with resulting microalbuminuria, macroalbumiuria and less filtration rate. The patients should have edema, waste congestion and low protein in bloodstream leading to renal failure. Prolonged diabetes patients normally have arteriosclerosis in both afferent and efferent glomerular arteries. Risk factors of renal failure in diabetes patients are hyperglycemia, hypertension, high protein diet, genetics factor, race and duration of the illness.

(5) Hematology

Diabetes patients typically have low immunity because white blood cells-Polymorphonuclear had impairement of fighting the germs, impairment of consuming germs. Lymphocytes that eliminated foreign bodies in bloodstream are impairement. Hence, the patients were infected easily. Frequenty found infections in diabetes patients are urinary tract infection, vaginal infection, skin infection at

genitalia area, diaphragm particularly fungal infection, and septicemia including tuberculosis infection. Red blood cells in diabetes patients gained the shape alteration that made less oxygenation to tissues and easy coagulation of platelets causing occlusion of peripheral vessels and arteries.

Controlling plasma glucose levels is significant because poor plasma glucose levels control led to various complications, either acute or chronic complications affecting to cardiovascular system, hematological system, neurological system, retinopathy and nephropathy. Uncontrolled plasma glucose levels offer not only severe physical symptoms but also affect to psychological matter of the patients.

1.5 Impacts of Diabetes Mellitus

As of diabetes, a chronic disease with prolonged confrontation of the treatment, it affected the patients in various ways e.g. physical, psychological and social. Keeratiyutwong (2001) stated the impacts of diabetes patients as follows:

1.5.1 Life and health: the patients perceived that diabetes mellitus made their health worse, weaker, unhealthy, easier tiredness. They also felt the harm of ongoing acute and chronic complications.

1.5.2 Life-style: the patients had to adjust their behaviors of diet consumption, drug administration, injection, coping with stress, and time management for the follow-up their conditions illness leading to their life-style is changed to be suitable with recent situational illness. If the adjustment is failure, they would have high stress and uncontrolled plasma glucose levels.

1.5.3 Self-esteem and self-image: the patients would have low self-esteem as of increasing plasma glucose levels that made them feel weak, exhausted, and inability to work.

1.5.4 Working: the patients needed to have consistent treatment along with sometimes high plasma glucose levels that offered physical weakness, no energy. In severe diabetes, they had to be hospitalized that in turn cause to be the obstacle of working and working progression. Some patients had to change their jobs or take the role of housewife.

1.5.5 Economic: the patients had to spend more money for self-care depending on their age of diabetes occurrence. If diabetes is found in young ages,

the expenses seem to be more than diabetes in adults. Diabetes expenses can compute with 3 components as follows:

(1) The direct costs were the expense of medical treatment and supplies such as medications, laboratory fees, treatment fees, medical equipment fees for self-test e.g. self-urinalysis or self-blood test.

(2) Indirect costs were the expense of lost opportunities such as travelling expense and working absence.

(3) Intangible cost was the expense from the effects of the illness making their lives shorter, psychological disturbance and lack of quality of life.

1.5.6 Future living plan: the patients felt that the effects of the illness toward family, the chance of having a baby, fear of having an abnormal baby with disease and deformity, and fear of no respect–some cases had to divorce.

1.5.7 Development: in early - end adult periods, it was a brilliant phase of occupation, emotion and society. They gained more experience and could give advice to others. The illness gave the patients the hard time to adjust in many aspects for instance, eating, loss of image and self-esteem, dependence and conflict with family members about self-care behavior in diabetes patients.

Hence, Diabetes Mellitus affects physical, psychological, social and economic aspects of the patients leading to various alterations such as exhaustion and fatigue. Some patients need to quit their jobs leading to less income. The patients need to adjust with many limitations. These can result in the diabetes patients feeling stress.

2. Diabetes Mellitus and Stress

2.1Definition of stress

Selye (1956) stated that stress was physical and psychological reactions to either intrinsic or extrinsic arousal effecting to structural and chemical alterations in human body aiming to fight the threats. It could make physical and psychological imbalance that could express through physical symptoms.

Lazarus and Folkman (1984) defined the stress as the process from the relationship between individual and environment that the individual used the cognitive or experience of individual to evaluate the existing imbalance as well as the threat. The evaluation came from the activities of both intrinsic conditions e.g. attitude, characters, emotion, previous experience and needs; and extrinsic environment e.g. society, working environment, nature and life events.

Boonthong (1990) expressed that the stress was the condition having physical, psychological, emotional and social effects to individual when having disturbance. The disturbances could come from either extrinsic or intrinsic factors. The stress was harmful that generated physical impairment causing discomfort and physical reactions as the responses to adjust those situations to balance.

Phattharayuttatwat (2000) addressed that the stress was the feeling of individual to that situation identify the positive or negative impacts occurred. Positive effects made good psychological health but negative effects made poor one.

In summary, stress is physical and psychological reactions toward either intrinsic or extrinsic arousal and any situation or environment leading to have physical and psychological alterations in either positive or negation aspects depending on individual evaluation and perception. Negative feelings are anxiety, boredom, restless, and discouragement. Positive feelings are pride and satisfaction. Different feelings depend on individual perception, evaluation and situational definition.

2.2 Causes of Stress

The causes of stress were defined in 2 patterns as follows (Feldman, 1993; Panpreecha, 1994):

2.2.1 Intrinsic causes were the stress from individual factors being categorized into 2 types as:

(1) Physical causes were any kind of physical condition offering stress such as:

- Physical exhaustion as of unhealthy or prolonged heavy working duration.

- Insufficient poor diet consumption leading to low plasma glucose levels and lack of vitamin that caused fatigue.

- Physical illness e.g. previous illness or re-operation.

(2) Psychological causes e.g. some mental status could create stress as follows:

- Emotion e.g. fear, anxiety, anger and depression causing unhappiness and worry.

- Some characters generated stress e.g. perfectionists needed all things to be perfected and was straight, inflexible with high standard of living, high ability to work than the other and have to work alone, it can result the stress.

2.2.2 Extrinsic causes were other factors except individual factors causing stress as follows:

(1) Loss of loved ones or thing e.g. loss of lover, assets, job, title or job transfer or business failure.

(2) Living alterations e.g. at the turning point of life, all normally had psychological imbalance causing stress, for instance; joining a new school, newly married, menopausal and retirement.

(3) Various harms to life and assets e.g. flood, fire.

(4) Job causing stress e.g. insecure job, high risk job and dissatisfied employment.

(5) Economic recession, being in debt or living in slum without secure in life.

In summary, the causes of stress came from either intrinsic or extrinsic factors. Extrinsic factors are characters of surroundings and weather. Intrinsic factors are loss of loves ones, frustration, and illness. The disease and physical alteration make the patients adjust and develop appropriate behaviors that are suitable for the disease that causes the stress in diabetes patients.

2.3 Causes of Stress in Diabetes Patients

The causes of stress in diabetes patients were as follows (Keeraiyutwong, 2001; Paovilai, 2000; Samart, 1999; Jaitham, 1998; Borisut, 1997; Sapnut, 1997;

Paovilai, 2000; Samart, 1999; Jaitham, 1998; Borisut, 1997; Sapnut, 1997; Nampraditkul, 1993; and Karjanabat, 1981):

2.3.1 Fear and anxiety from the disease and complications, they feel insecurity about the uncertainty and severity of the disease as the diabetes mellitus was a chronic disease and incurable. They have to confront the disease over a long period of time.

2.3.2 Frustration about adaptation and limits of self-care behavioral in diabetes mellitus, they need to have adjustment for appropriate behaviors.

2.3.3 Role changed: the patients had some fear of social denial. The patients felt weak, could not work the usual manner and could not provide an effective role in the family. Some patients had to change the role to be dependent.

2.3.4 Boredom and discouragement: the patients perhaps felt bored and discouragement to control plasma glucose levels and constant continual treatment including incurable disease.

2.3.5 Economy: some patients had to retire from their jobs. Some had to work less because of their weakness that caused less family income.

2.3.6 Handling physical discomfort: as of pathology of the disease, the patients typically faced with physical discomfort such as fatigue, numb and painful limbs. They had to find for palliative treatment to create more comfort and accept the existing discomfort.

2.3.7 Confronting the inevitabilty of one's own death: the patients had to encounter with the feeling of less living time than others and they often thought about death.

2.3.8 Dealing with social stigma: some patients kept their illness secret as there is no need someone else to know they had incurable disease and slow dying. They also did not want to be blamed by the health care providers for their high plasma glucose levels about their inappropriate self-care behavioral to follow the treatment plan.

In summary, the causes of stress in diabetes patients are from the cognition, evaluation and decision for the illness as well as the threat generating the loss and endangering their resources.

2.4 Effects of Stress in Diabetes Patients

In stressful situations, people have to have physical and psychological adaptation for coping with the stress that affects to the following aspects (Pickup, 2003; Dissayawanitch, 2002; Keeratiyutwong, 2001;Williams, 1999; McDonell and Gordon,1996):

2.4.1 Physical aspect: Sympathetic nervous system creates fast and short physical responses. The aroused sympathetic nervous system released the epinephrine and norepinephrine hormones increasing the functions of major organs such as increasing heart rates, vasoconstriction, hypertension, decrease blood circulation of abdominal through brain, heart and muscles leading to increased plasma glucose levels. The physical functions are as follows:

(1) Sympathetic nervous system and adrenal cortex: in the initial stress period, sympathetic nervous system stimulates adrenal cortex to release epinephrine and norepinephrine through blood circulation**.** Both hormones provide the decompression of glycogen to glucose and lipid to lipid acid including less glucose usage in muscles. Those make increased plasma glucose levels.

(2) Hypothalamus and Pituitary: if continued stress remain, hypothalamus will produce corticotrophin-releasing factor to stimulate pituitary gland that releases adrenocorticotropic hormone. This hormone arouses adrenal cortex to release glucocorticoids and cortisol affecting increased gluconeogenesis from other elements. For instance, liver turns amino acid to glucose for assisting metabolism while facing the stress that increases the plasma glucose levels. Furthermore, glucocorticoids also affect the immune system. More glucocorticoids prolong wound healing, offer damage of lymphocytes, and decreasing ability of antibody that offer easy infection. The stress causes poor efficiency and functions of phagocytes, T-Cells and B-Cells leading to easy infection in diabetes patients, particularly urinary tract infection and unhealed wound.

2.4.2 Psychological aspect: stress causes psychological effects as follows:

(1) Behavioral and personal changes e.g. depressive, isolation, inert, uncooperative behaviors and inappropriate behaviors such as diet control, physical examination, observation of abnormal symptoms, omission of some kinds of

food and some limitations because the patients frustrated, bored and ignored about self-care behavioral (Siritharangsri, 1996).

(2) Inappropriate emotional expression e.g. anger, crying without the reason, frustration, no endurance and complaints about the illness.

(3) Levels of consciousness, memory and attention or loss of concentration leading to less responsive to arousal.

(4) Cognitive disturbance causes confusion, hesitation, no decisions, fear and doubt without reasons.

(5) Sensory disturbance e.g. hallucination and sensory disorders.

(6) Loss of interest, no intention to speak, transferring the interest to environment and sensitive to stressors.

(7) Using automatic self-defensive mechanism e.g. finding the supportive reasons, denying and blaming others or having daydreams.

(8) Expressing the changed self-image e.g. isolation, inappropriate decision making, low self-esteem and insecure feeling.

(9) Suicide because of the weak physical matter and stress over a long period of time could cause depression and suicide.

2.4.3 Social and economic aspects: diabetes mellitus acknowledges the patients realize their difference from individual who don't have chronic illness. Hence, they feel a lack of confidence to participate in social events leading to poor social relationship. Some patients easily lose their temper causing stress, conflicts and fights with family members and caregivers leading to rare peaceful moments in the family. Some patients are introverted and anti-social. Some have to change the role with their spouse and family member. They become dependent and lack of control of their lives. Fatigue causes the diabetes patients to have less activity than normal people. They gain some disadvantages of working and losing their jobs leading to have less income affecting to their families.

Stress over a long period of time generates physical, psychological, social and economic effects to diabetes patients. Particularly, physical effect is some hormonal release elevating plasma glucose levels. The psychological effect is individual frustration and boredom leading to become more stressed. Furthermore, social and economic effects cause some patients lack of confidence in joint social events causing

poor social relationship. Quitting jobs cause lesser income of the patients. The severity of stress will decrease if diabetes patients know how to relax or have good coping strategies that might offer happy living.

2.5 Coping Strategies

Confronting stress refers to individual cognition and behavior toward constant alteration for preventing, palliating, avoiding or controlling whatever the causes of stress are. There are several coping strategies such as problem-solving focus strategy and emotional focus strategy. Auerbach and Gramling (1998) gathered both kinds of coping strategies such as Progressive Muscular Relaxation, Meditation, Problem-Solving Model of D'Zurilla, Social Skills, Assertiveness Training, Meichenbaum's Stress Inoculation Training (SIT), Ellis's Rational-Emotive Therapy (RET), and Beck's Cognitive Therapy. Individuals employ only one or more coping strategies depending on individual experience and situation (Lazarus and Folkman, 1984).

There are many coping strategies but an appropriate effective one is the cognitive behavior modification because it attempts to adjust cognitive process by adjusting the evaluation, perception of the circumstances and the responses to new illness that would be appropriate for the patients with emotional and behavioral problems.

3. Concept of Cognitive Behavior Modification

Concept of cognitive behavior modification is the mixed concept between cognitive and behavioral concepts. Hence, this concept emphasizes surroundings, leading conditions, behavioral effects, cognitive process, feelings and individual experience. Preliminary assumptions are as follows:

(1) Cognitive process influences behavior.

(2) Cognitive process can be controlled and changed.

(3) Behavioral modification may come from the change of cognitive process.

3.1 Definition of cognitive process.

Cognitive process is very significant because it is the media among stressors to emotion and behaviors. It refers to idea, meaning, images, beliefs, expectations and attributions (Dryden and Golden, 1987).

Meichenbaum (1986) categorized the cognitive process into 3 groups as follows:

3.1.1 Cognitive processes in the meaning of "Cognitive events" gained the character of thinking and imagine of individual. Those could be retrieved when needed. Beck (1976) called it automatic thinking. Meichenbaum (1977) stated that it was the self-dialogue or intrinsic things that could be an agent of reason, expectation and any activities relating to those thinking. Consequently, automatic thinking should involve intrinsic gathered images, symbols and feelings that influenced the individual when they are faced with new situations, new decisions or expectations.

3.1.2 Cognitive process in the meaning of "Cognitive process" was the process of arranging much information that came to the individual. Individual selected to pay attention to what story, what time and what kind of evaluation including how to understand all interesting information should be. This process was automatic and individual may not know about their own cognitive process.

3.1.3 Cognitive process in the meaning of "Cognitive structure" consisted of individual characters, realization of all things in routine life, hidden desires, beliefs, definition of all things, promise, and personal goals that influenced to information procession and self-behavioral management. It also affected the evaluating process in any circumstance, emphasizing filter and information selection.

In summary, cognitive process means individual thinking and feeling toward situations. Individual select to realize and gather information for situational evaluation by planning or what need to do. Decision-making depends on individual beliefs, individual, character, and individual experience that influenced cognition and decision of any event.

3.2 Problems of cognitive process

Hawson (1990) gathered the problems of cognitive process as follows:

3.2.1 Individuals have under control of their cognitive process. They immediately responded to any arousal with an inability of holding it, aiming to have long-term effects such as problems of impetuous and aggressive behaviors including state anxiety.

3.2.2 Individuals have over control of their cognitive process leading to existing problems. They had negative attitude to themselves when having arousal such as blaming themselves, unreasonable thinking causing indecision and expression of appropriate or inappropriate behaviors.

To understand both mentioned problems of cognitive process is very helpful for behavior modification because it would be the clue assisting appropriate alteration and skill improvement. The relationship of cognitive process and emotional behavior is the interaction between intrinsic behavior–cognitive process and extrinsic behavior. That meant individual expressed extrinsic behaviors by the proming from cognitive process. In the meantime, extrinsic behavior also influenced the cognitive process. As this belief, psychological events should be with the cognitive process and physical events should be with extrinsic behavior. To adapt intrinsic behaviors and cognitive processes could be done by several ways depending on the individual. For instance, attribution, self-instruction and so forth. Hence, as this concept, the strategy of modification of intrinsic behavior is extensive that can use either learning theory or any theories to apply because if any theory can motivate alteration of cognitive process, anyway affecting to extrinsic behavior. Meichenbaum, Ellis and Beck believed in that concept.

Relationship of cognitive process, emotional behavior is illustrated in the following figure.

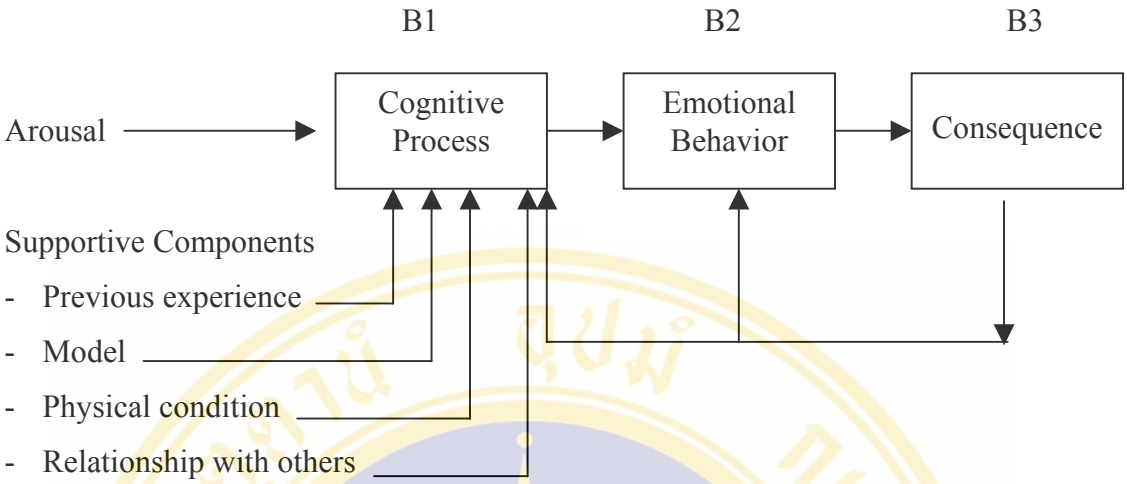

Figure 2: Interaction (Kalish, 1981)

As the concept of the cognitive behavior modification, four dominant characters of the adapting methods to encourage the modification in individual were as follows (Kirk, 1989):

(1) Individual with behavioral problems should apply self-help techniques to adapt their behaviors for exploring information gathering, skill practice and homework assignments including self-evaluation.

(2) The method should assist solving present and future problems.

(3) Paying attention to cognitive alteration for changing extrinsic behaviors.

(4) The strategies should consist of explanation and analysis between the trainer and client.

According to the relationship of cognitive process and dominants of Cognitive Behavioral Modification, the concept of interaction involves with to adjust extrinsic behaviors is initial adjust intrinsic behaviors such as cognitive process or intellectual process. The strategy applied is Self-instruction of Meichenbaum.

3.3 Donald Meichenbaum's Cognitive Behavioral Modification

Meichenbaum's cognitive behavior modification emphasizes on self-instruction because Meichenbaum believed self-instruction influenced individual

behavior modification. Basic behavior modification is occurred by cognitive process throughout self-dialogue. If individuals have a chance to talk about themselves, the client will learn and observe how they feel, what they think and what they should do including what its effects on emotions and performance are. The clients have an opportunity of behavior modification, individuals have to control negative natural behaviors and have self-evaluation in that situation (Meichenbaum, 1985).

3.3.1Techniques of cognitive behavioral modification

Meichenbaum developed 2 techniques of cognitive behavior modification as follows:

(1) Self-instruction Training was focused on the relationship between self-dialogue and behaviors by proposing that the intrinsic behaviors had the same modification process as extrinsic behaviors. The training would apply the strategy and motive by letting the client observe the modeling, role-play in order to practice handing stress and talking to themselves regarding to the steps of self-instruction.

(2) Stress Inoculation Training (SIT) believe of having the SIT would likely be individual having immunity. The SIT should start from simple to difficult one situation that promote skills and endurance toward the problems and stress. Clients may have effective strategy to cope with stress in actual life. The training consists of the three phases as the first phase: Conceptualization Phase, the second phase: Skills Acquisition and Rehearsal Phase and the third phase: Application and Follow-Through Phase.

The SIT of Meichenbaum (1985) was developed with psychological and physical stress inoculation that seemed likely the improvement of human immunity. Clients who have chances to face stress arousal and be successful would be able to endure the stress in the future. The preliminary assumption of this SIT is that clients should have the belief that they could confront with the stress by modifying self-belief, explanation and self-criticism in the pattern of stressful situations. The SIT of Meichenbaum did not focus on the absolute elimination of stress but it emphasized on better understanding the nature of stress and responses to the stress. Meichenbaum believed that the existing stress did not occur as one side but as interaction between an

individual and the environment by individual evaluation and decision about the stressors as well as the threats that could harm or damage them. To practice the SIT, it is accepted to be the good training assisting individual to cope with stress and problems. The SIT consists of information offering through the criticism, learning of new cognitive structure, problem solving, other relaxation training, practice of new behaviors, self-monitoring, self-instruction, and self-reinforcement. This part was designed to have various skill training of coping with stress that can be used with present and future problems.

3.3.2 Stress Inoculation Training (SIT)

Meichenbaum developed skills for coping with problems and stress that should consider as follows:

(1) In the skill training, should have high flexibility and be able to apply it with other behavioral modification training.

(2) The training technique should respond to the differentiation between individual, culture and situation.

(3) The training should offer the client to apply prior information the cognitive planning for coping with the existing stress.

(4) It would be very useful if the training should allowed the client to encounter the actual situation but causing little stress.

Meichenbaum (1985) designed the SIT into the three phases as the first phase: Conceptualization Phase, the second phase: Skills Acquisition and Rehearsal Phase and the third phase: Application and Follow-Through Phase.

The first Phase: Conceptualization Phase obtained a major goal as to train client to understand the nature of stress and responses. The strategy for establishing holistic thinking of the client, this phase required the coordination between trainer and client in analysis, and gathering relevant information. The important of this phase were:

(1) Relationship: good relationship between trainers and client created a relaxing and friendly atmosphere of training. The trainers paid attention to whatever the clients said and expressed. They also understood the clients and take time to listen. They can result the clients feeling accept the training, and feel comfortable to self-disclose their thoughts and feeling that made the effective training.

(2) Evaluating the expectation of the training program and letting the clients participate in the training planning, goal setting (short-term, intermediate-term and long-term goals), and implementation until achieving the goals.

(3) Gathering information and analyzing stressful situations including the responses to stress that were the preparation with simple conceptual framework. It would assist the clients understanding themselves in the causes of the stress, the stress responses and the consequence, the strategies of gathering the existing information would help the clients analyzed the existing problems. There were many strategies of gathering information as follows:

(3.1) Self-monitoring was the process of self-observation with self-record of target behaviors. This self-monitoring helped clients notice extrinsic behaviors, thinking and feeling at that moment because some clients could not detect what their feelings and thinking were toward those situations. The advantages of self-monitoring were to realize self-behaviors and effects to themselves and others. This realization could motivate behavioral changes. If the clients practiced until it turned to become habit, they could use it in daily life and help inappropriate behaviors control. The record was simple aiming to motivate the clients to provide it. They had to observe and record whatever stressful situations, what responses were, what effects toward them and others were and when it would happen.

(3.2) Imagery-based recall was to let the clients recall their experience about what stressful situations and what kinds of responses they had. It allowed the clients evaluating their thinking, feelings toward the situation and self-responses.

(4) Educating the clients about the nature of stress and stress coping including considering the cognitive roles and emotional expression.

(5) Prohibiting and considering the possibility of training resistance and reasons of resistance. The resistance might come from the clients not feeling they had trust from trainers or they did not trust the trainers that created the obstacles.

The second Phase: Skills Acquisition and Rehearsal Phase emphasized on the modification of various coping strategies toward stressful situations. Coping strategies in this training were 1) problem-solving focus and 2) emotional-

2) emotional- focus. Direct activities were the information gathering about the clients' feelings, stressful situations, trend of coping with stress, learning of physical and psychological relaxation techniques. The training included the cognitive confrontation by encouraging appropriate thinking and discussing inappropriate behaviors. The clients had to talk to themselves regarding their thinking and feelings that helped them learn and practice self-instruction and self-rewards when they did. Meichenbaum (1985) gave the examples of confronting with the problems in this phase of the SIT as follows:

- "What do I have to do", "I can develop planning to handle it"
- "Stop worrying because it can't help anything"
- "What ways could I manage the existing stress?"
- "What can I do now?" "How do I know when I feel fear?"
- "How can I allow self-trust?"
- "I can do it well"
- "The next time I will do it better"

In the part of stress management program, the clients had direct behavioral treatment including skills training of relaxation, social skills, time management, problem solving and self-learning. The clients would be successful in lifestyle modification with assistance. For instance, evaluating new coming things, developing assisting system and confronting with stressful situations. The clients would receive the training in relaxation and implementation techniques. They also learned relaxing skills training such as meditation, yoga, muscle relaxation techniques, breathing exercises and relaxing activities e.g. walking, gardening or physical and psychological relaxing activities. Cognitive skills helped the clients appropriately respond to stress. The training could be by instruction and demonstration. Implementations and techniques may assist the clients in confronting the stress successfully. No exact best strategy of coping with stress depended on individual, timing and situations. Hence, the combination of any coping strategies depends on the difference of implementation.

The third Phase: Application and Follow-Through Phase emphasized on the implementation in actual situations. Obvious instruction of coping-problem skill was complex and needed various implementing programs requiring skill practice, self-discussion and actual implementation in real life. It should begin with simple to

difficult situations. The training consists of imagery-based recall, modeling and role-play. After having the expertise on both cognitive coping strategies and behaviors, the patients would have homework to write down their intention to achieve the goal and the evaluation would be provided in the next meeting. If the clients failed, the trainers and clients would attempt to find out why the failure happened and what causes of the failure were. In the evaluation, there was no evidence of the most effective duration of the training that could deal with the stress the best. Consequently, the recommendation is to have self-monitoring and be able to visit the trainers anytime when having problems or abnormalities.

The step of the SIT assist the clients in having thinking and feeling modification toward new situations that promote self-confidence of the clients to appropriately confront stress. There is both group or individual training for coping with stress.

3.4 Components of cognitive behavioral modification

Cognitive Behavior Modification can be either group or individual palliative training. Group training would help the members understand each other and exchange ideas. They could apply problem-solving strategies of others to use for their problems. The members would have the chance to practice new behavioral expressions with assigned homework to practice expression skills, role-play and behavior rehearsal in clinic that might increase self-confidence and have coping skills to apply in their real life.

3.4.1 Components of the group training

The successful group training gained major components as follows (Dryden and Golden, 1987):

(1) Group leader should earn theoretical and practical knowledge of the group by studying various theories and experiences of group leader and members with the following roles:

(1.1) General roles: group leader or trainers have to establish a relationship with the clients. It must adjust to be suitable for the individual. General information should be offered aiming to help the clients analyze their problems and their motives.

(1.2) Role of evaluation: the process of significant steps of training begin with the evaluation for understanding problems, and giving feedback for the candidate to implement. The evaluation consisted of pre-situation, cognitive process, physical and emotional status, and the cause of behavior remained short-term or long-term by observe during the training and self-monitoring.

(1.3) Role of cognitive modification: the clients evaluated their thinking and perception, including analysis of themselves. They might self-discussion and adjust new self-dialogue or sentences instead of old ones that caused behavior and emotion problems. Frequent practice of new speech with new thinking and new conceptual framework might promote appropriate behavior. The training should teach skills of problem solving to deal with future stressful situations as they might arise.

(2) Goal setting: trainers and the clients should have the same goals. In some case, sub-goals might be set for clarifying the obvious implementation between trainers and clients and the outcomes of participation.

(3) Necessary tasks: components of necessary tasks assisted in the clients understanding the process of problem occurrence and the same goal setting. Major activities or tasks were as follows:

(3.1) Rehearsal was the practice for improving the skills of coping with stressful situations by passing through the training process and expression behavior training, aiming to have the opportunity of trying new technique in situation in the clinic. Practice in real situation would be done after skillful experience.

(3.2) Homework should focus on practicing lessons at home as well as one method of behavioral modification. General details helped the clients notice their own thinking, behavior and emotion as well as their problems when aiming to develop the skills of self-monitoring and developing appropriate thinking instead of the prior thinking that caused the problems. Self-monitoring in any emotional events such as fear and anxiety should be practiced.

(3.3) Self-monitoring was the strategy of finding the client's information and behavior by letting them monitoring themselves and record their behavior, thinking, emotions and stressful situations. The record should

include frequency, severity and outcomes of the occurrence. They can result the clients exploring information to consider for helps. The clients should acknowledge the significance of the self-monitoring so they could be aware of accurate information giving.

(4) Duration and frequency of group meeting: duration of group meeting was 2 times a week, 45-60 minutes a time. The group meetings should be provided 8-10 times.

(5) Group member: to select group members, there were several ways of selection. Some groups might be select in a homogenous group e.g. age, interest or problems with the advantages of no loneliness, good understanding of each other and readiness of sharing experience, including knowing how to use the problem-solving skills. Heterogeneous groups would have members with different experiences. Its advantages were greater experience and idea sharing, leading to development of new behavior.

In this research, the researcher applies the group process and components of Cognitive Behavior Modification in the Cognitive Behavior Modification Program with the purposes of acknowledging the clients and/or members and sharing their experience and idea. This process did not emphasize on emotional expressions but focused on analysis thinking and feeling towards stressful situations or problems by applying group activities that are in the training in this study.

4. Relevant Researches

The Cognitive Behavior Modification Program has been applied with the individuals who had behavior and emotional problems by applying many strategies together.

Relevant researches associating with emotional problems are as follows:

Lason (1992) studied the effects of the Cognitive Behavior Modification Program on anger management in middle adolescents and stated that the anger levels between the experimental group (middle adolescents) and the control group were different in the follow-up period with the statistic level of significance. It is consistent with the study of Kennedy (1990) on the Cognitive Behavior Modification Program on

anger management and aggressive prisoners that the subjects in the experimental group had a decrease anger and had appropriate verbal response with behavioral rehearsal in clinic. McCaffrey (1988) studied aggressive levels in sports game with the experimental group that had practiced anger management. The findings showed that the experimental group demonstrated decrease anger. Wilcox (1986) conducted the study on addicted adolescents, typically experienced uncontrolled emotion by using 4 training programs together as 1) decrease of emotional stimuli, 2) self-monitoring, 3) SIT program and 4) self-reinforcement. The study of Wilcox stated that the experimental group has a decrease in anger and appropriate anger expression after the training of anger management. It is consistent with the study of Kennedy (1990) on the Cognitive Behavior Modification Program on anger management and aggressive prisoners that the subjects in the experimental group had a decrease anger and had appropriate verbal response with behavioral rehearsal in clinic. The research of Kennedy, Duff, Evans and Beedie (2003) studied the cognitive effectiveness training reduces depression and anxiety following traumatic spinal cord injuries. This study used the Coping Effectiveness Training (CET) Program based on Lazarus and Folkman's (1984) cognitive theory of stress and coping and cognitive behavioral therapy techniques. In the results of this study, the intervention group participants showed a significant reduction in depression and anxiety, compared to the control group after intervention and after 6 weeks following the intervention. It is consistent with the study of Ross and Berger (1997) on effects of stress inoculation training on athletes' post surgical pain and rehabilitation orthopedic injury. The study showed that participants in the treatment group demonstrated significantly less post surgical pain and anxiety during the rehabilitation process, compared with the control group. Additionally, treated participants required fewer days to return to criterion physical functioning, compared with the control group. Puder (1988) studied age analysis of cognitive-behavioral group therapy (stress inoculation training) for chronic pain outpatients. The study showed that the treatment group significantly decreased the degree to which pain interfered with activity, increased ability to cope with pain and decreased use of some medication and other physical treatment, the SIT appears to be an effective method of ameliorating the interference of chronic pain with the daily activities of life for adult of all ages. The research of Thapinta (1992) studied

the reduction of anxiety of staff nurses working with AIDS patients through cognitive behavioral reconstructuring and mindfulness training. After intervention, the experimental group that received cognitive modification with mindfulness showed less anxiety after the intervention and follow-up period at a statistically significant level of .05. Foa, Rothbaum, Riggs and Murdock (1991) studied the treatment of posttraumatic stress disorder in rape victims: a comparison between cognitive-behavioral procedures (Stress Inoculation training) and counseling, the measures of PTSD symptoms obtained rape-related distress, general anxiety and depression. The results of this study showed that the SIT produced significantly more improvement on PTSD symptoms than supportive counseling after treatment and follow-up treatment. Jay and Ellicott (1990) studied a stress inoculation program for parents whose children are undergoing painful medical procedures. The results of this study showed that the parents in the stress inoculation program reported lower anxiety scores and higher positive self-statement scores than parents in the control group. Lertleuchachai (1990) studied the effects of Rational Emotive Behavior on examination anxiety in secretarial students of the Thai Chamber of Commerce University. The results of this study demonstrate less anxiety in the experimental group in the intervention and follow-up period, compared to the control group. Benet, G.A. (1986) used the Cognitive Behavior Modification Program with self-instruction for treating obesity that addressed decreased anxiety and depression with the statistically significant. The research of Chatkaew (2003) studied the effects of cognitive therapy on depression in female youths in the Welfare Institute. The study revealed that the depression scores of female youths after the intervention period were lower than before the intervention period at a statistically significant level of .05 and two-weeks after the intervention period were lower than before the intervention at a statistically significant level of .01. Trexler and Karst (1972) conducted the comparative study between the reason-emotional-focus therapy and relaxing training to decrease the stress of public speech. The study demonstrated that the subjects practicing the reason- emotional focus therapy were able to reduce more stress in public speech than the subjects practicing relaxing training. It is consistent with the study of Zust (2000) that compared the effects of cognitive therapy to depression in 9 rural women and 18 assaulted women. The result of Zust showed that

the cognitive therapy could decrease depression in both groups of women with the statistic level of significance. Tomotake, Okura and Okabe (1999) conducted the comparative study effects of the cognitive therapy on depression approaches to patients suffering from depression due to maladjustment in the workplace, 2 case reports. The study reported that after practicing the cognitive therapy on depression, those 2 subjects had a decrease depression and returned to work as usual. In the 2-year follow-up period, there was no evidence of recurrent depression. Zerhusen, Boyle and Wilson (1991) studied the cognitive therapy on depression in elders living in elderly house. It showed after the experiment, the experimental group stated the decrease of depression with the statistic level of significance. Baker and Wilson (1985) monitored depressive patients who had trained the cognitive therapy. It reported the patients showed decreased scores of depression.

The Cognitive Behavior Modification Program that was applied to people who have behavioral problems as follows:

The study of Munsh, S.; Beidert, E. and Keller U. (2003) on the effects of Cognitive Behavior Modification Program on lifestyle changed in obesity, showed that the experimental group less than 5% in weight and after 1-year follow-up period, they could control their diet consumption more than the control group at a statistically significant level of .05. Consistently, the research of Chantrpen (2001) studied a development of activities organization model for developing moral behavior of vocational industrial education students based on Cognitive Behavior Modification demonstrated that the students indicated the different mean scores of moral behavior at experimental and follow-up period with the statistic level of significance. The experimental group showed the mean scores of moral behavior was different from the control group with the statistically significant level of .01. The research of Kaewpoonpakorn (1998) on the effects of anger control training to decrease aggressive behavior of vocational education students, showed that most students in the experimental group had a decrease aggressive behavior after the intervention and had less aggressive behavior than the control group at a statistically significant level of .05. The experimental group stated less average percent of occurring duration of aggressive behavior after intervention and follow-up period than the control group at a statistically significant level of .05. It is consistent with the study of Suthin (1996)

studied the reduction of adolescent students' aggressive behavior through a Cognitive Behavior Modification Model. And showed that the students with training demonstrated the reduced aggressive behavior after the intervention and follow-up period with the statistically significant level of .05. The study of Stack (1991) studied the effects of the self-control on inappropriate behaviors of who had aggressive behavior stated that the experimental group expressed less aggressive behaviors. The research of Etscheidt (1991) on the effects of the Cognitive Behavior Modification Program on the decrease of aggressive behavior stated that the experimental group was less aggressive behavior and more self-control than the control group at a statistically significant level of .05.

Referring to the literature previously mentioned, various stressors promote stress in diabetes patients in physical condition changes from the illness, psychological aspect, emotion, family, social and environmental factors. These affect an increase stress in diabetes patients. However, the significant matter is the cognitive process of the patient to the illness and existing events in daily life that the patients typically determined the illness or stressors as a threat, causing loss or harm to them and endangering their resources. They evaluated and decided the diabetes caused insecure an future. They had a fear of the illness and complications, frustration of appropriate strict diabetic behaviors, and boredom of diabetes drug administration and plasma glucose levels control. They are also afraid of social rejection and an inability to work. All of the above, can result in the diabetes patients feeling stressed. The Cognitive Behavior Modification Program of Meichenbaum emphasizes understand the nature of stress and the responses to the stress. Furthermore, the Cognitive Behavior Modification Program is good for emotional and behavioral problems. It can be applied to adults and adolescents, particularly people who had to encounter routine problems or situations. For instance, diabetes patients constantly gain both emotional and behavioral problems during their entire life. In the results of previous studies of Cognitive Behavior Modification, there is no evidence of applying the Cognitive Behavior Modification Program to diabetes patients. Hence, this concept should be a strategy that can assist the patients effectively confronting stress or stressful situations.

CHAPTER 3
METHODOLOGY

Research Design.

This study was a Quasi-Experimental research with pre-post test control group, aiming to examine the effects of the Cognitive Behavior Modification Program on stress in diabetes patients in Saingam Hospital, Kamphaengphet. The details of the research method are described below.

Population and Sample of the Study

Population: The population of this study was diagnosed by the physician with diabetes type 2 patients who are being treated at the diabetes clinic in Saingam Hospital, Kamphaengphet, aged between 30- to 60-year old, and possess stress levels 3 and 4. In other words, the subjects had mild stress and stressful according to the assessment with Thai Stress Test (TST) designed by Phattharayuttawat S. (2000).

Sample : The sample of this study who was diagnosed by the physician with diabetes type 2 patients who are treated at diabetes clinic in Saingam Hospital, Kamphaengphet whose characteristics met the following criteria.

Inclusion Criteria

1. The diabetes patients did not have severity of illness including fever, infection and any other infection.

2. The diabetes patients volunteered to participate in the research.

3. The diabetes patients were able to write, read and communicate with the other patients and the researcher.

4. The diabetes patients did not have diabetes complications including chronic renal failure, tuberculosis, heart disease, hypertension and no pregnancy.

Exclusion Criteria. During the intervention phase, the diabetes patients were then taken out of this study, and whose characteristics met the following criteria.

1. Infection wound
2. The body temperature > 38° c.
3. The diabetes patients have systemic and specific infections

Sample selection

There were 24 subjects recruited, all of whom were selected by simple random sampling method, based on stress levels 3 and 4. All the subjects were then randomly divided into the experimental group and the control group. The recruitment was based on the conceptual of group process which stated that the group census ranges from 12 - 15 patients will ensures that 5 – 8 patients will be present at any given meeting (Alonso, A., and Swillwer, H.I.; 1993). Division between the 2 groups above were therefore done as follows:

The experimental group was initially composed of 12 subjects who had received the Cognitive Behavior Modification Program.

The control group was initially composed of 12 subjects who received the usual service from Saingam Hospital, Kamphaengphet.

Setting

The experiment was carried out in the meeting room of Saingam Hospital, Kamphaengphet. The total number of the diabetes patients who received service at diabetes clinic in Saingam Hospital was 500 patients. There were one physician and two nurses in the diabetes clinic responsible for giving helps and advices about self-care behavior in diabetes patients. Otherwise the diabetes patients have to test their fasting plasma glucose levels for every 1 - 3 months.

Instrumentation

The instruments used in this research consisted of:

1.Data collection instrumentation. This consists of two items.

1.1 Record of personal data. This record was utilized for collecting data concerning general information of the subjects including gender, age, marital status, education level, family income and fasting plasma glucose levels.

1.2 Thai Stress Test (TST)**.** This instrument was designed by Phattharayuttawat S. (2000). It was developed from criteria based on stress definition. It is a set of questionnaire that consists of 24 questions, which consists of a two-dimension rating scales, termed as negative scales and positive scales. Each scale is consists of 12 questions.

Negative scales : 12 questions (1 – 12)

Positive scales : 12 questions (13 – 24)

Each question consists of three answer choices, described as follows.

Never	=	0	score
Sometimes	=	1	score
Often	=	3	score

The scores ranged from 0 to 36 point for each of the negative and positive scales. The total scores in each negative and positive scale were combined to form the matrix table for the Index of TST. The details of the values of the TST Index are as follows:

Scoring group	Stress levels	Stress indicator
1	1	Excellent mental health
2, 3, 4	2	Normal mental health
5, 6	3	Mild stress
7, 8, 9	4	Stressful

The reliability coefficient of TST by Conbach's Alpha was 0.84 and the same for Split Haft Method was 0.88 (Odd-Even Technique).

2 Experimental instrument. The Cognitive Behavior Modification Program was an experimental instrument in this study. Its results were obtained by applying the conceptual framework of the SIT of Meichenbaum (1985), as well as an extensive review of relevant research literatures about cognitive behavior modification and Stress Inoculation Training (SIT). The SIT consists of the three phases as follow:

the first phase: Conceptualization Phase, the second phase: Skills Acquisition and Rehearsal Phase and the third phase: Application and Follow-Through Phase. There were totally 8 sessions, which about 60 minutes each as follows.

The first phase: Conceptualization Phase

1st session: Emotion and stress

2nd session: Exploration of thoughts and feelings toward the diabetes mellitus

The objectives of the first phase emphasize on the establishment of relationship with the patients for creating trust, the opportunity of releasing their thoughts and feelings. This phase also focuses to assist the patients gathering and analyzing information and problems which give the patients more understanding of the nature of stress and responses to stress.

The second phase: Skills Acquisition and Rehearsal Phase.

3rd session: Skills training of coping with stress.

4th session: Skill training of self-instruction.

The objectives of the second phase are to teach the patients to learn how to inhibit negative responses, know how to cope with stress with appropriate relaxation techniques such as muscle relaxation technique and the problem-solving technique via self-instruction. The patients have actual practice to increase the skill and capability of applying it to their own real life.

The third phase: Application and Follow-Through Phase.

5th session: Behavioral rehearsal in clinic.

6th session: Practicing in actual situation, finding for problem-solving and identifying the existing obstacles.

7th session: Follow-up and evaluate the practice in actual situation.

8th session: Evaluate the outcomes of group activities

The objectives of the third phase are to evaluate the patients employing the technique in actual situation and planning for the best solution to problem-solving or obstacles.

Quality of Instruments.

1. Validity.

The Cognitive Behavior Modification Program was reviewed for the content validity. by a panel of three experts comprising two psychologists and one nurse instructor specialized in group therapy. The program was subsequently revised as suggested by the experts and was practically trialed with a nurse instructor specializing in group therapy in order to ensure the accuracy of language, procedure and duration of the therapeutic session. The researcher then revised the program again before the actual utilization with the sample.

2. Reliability.

The TST was trying out with 30 subjects in Saingam Hospital, Kamphaengphet who had similar characteristics to the population in this research. The obtained data were then calculated for reliability with Conbach's alpha coefficient. The reliability coefficient of this instrument was 0.76.

Data collection

1. Preparation Step.

The researcher of this study collected all data herself. Preparation for the collection of data involves practical experience and knowledge as detailed below.

1.1 Related knowledge

1.1.1 Group process was obtained from both theory and practice lessons in the coursework concerning group and individual counseling in the Master Degree Program of Psychiatric Nursing.

1.1.2 Cognitive behavior modification was obtained from the Master Degree Program of Psychiatric Nursing.

1.1.3 Diabetes Mellitus was obtained from the working experience in community hospital of the researcher and the revision of relevant literatures about diabetes mellitus as well as suggestions and advices from an expert in diabetes mellitus, Asst. Prof. Dr. Chuchuen Cheewapoonphon.

1.2. Related experience

1.2.1 Experience in practice as a leader and a leader assistant in the following subjects:

(1) Mental Health and Psychiatric Nursing 1 and 2.

(2) Nursing Practice in Mental Health and Psychiatric Nursing 1 and 2.

(3) Advanced Practice Nursing, which was the practice of group therapy in the community behind the Multiple Engineers College, Klongsan District, Bangkok; with suggestions and advices from an experts in group therapy from Somdet Chaophraya Institute of Psychiatry and Asst. Prof. Dr. Wanna Kongsuriyanavin.

(4) The researcher also took training on cognitive behavior modification by Prof. Dr. Wanna Kongsuriyanavin.

2. Data collection stage

Data were collected in the following order:

2.1 Pre-intervention phase

2.1.1 The researcher submitted an introduction letter from the Graduate School, Mahidol University to the Director of Saingam Hospital, Kamphaengphet, requesting permission for data collection from diabetes patients.

2.1.2 After the data collection was permitted, the researcher met the relevant officers in order to explain the details, purpose and process of the research, and requested for their cooperation.

2.1.3 The researcher met diabetes patients who received the service at diabetes clinic in Saingam Hospital, Kamphaengphet in order to explain the details, purpose and process of the research, and request for their cooperation.

2.1.4 The population was screened by assessing stress in Thai Stress Test (TST), as the pre-test. The assessment found 24 subjects who had stress levels 3 and 4.

2.1.5 The samples were selected who met the characteristics regarding stress levels 3 and 4. The recruited 24 subjects were then randomly divided into the experimental group and the control group, comprising 12 subjects in each group.

3. Intervention phase.

The research was carried out in each group as detailed below.

3.1 Experimental group.

3.1.1 The researcher met the subject to explain the purpose and benefits of the research. Then, the group signed the protection of human subjects form. The research of the Cognitive Behavior Modification Program was carried out every week at the frequency of twice a week for 8 sessions about 60-minute for 4 weeks, and after intervention the 2 week follow-up phase.

3.1.2 The subjects were assessed for the second time using the TST at the end of session 8 (post-test). In addition, the researcher also asked for suggestions and opinions about the Cognitive Behavior Modification Program.

3.2 Control group

The subjects in the control group received only the usual routine care at the diabetes clinic in Saingam Hospital, Kamphaengphet. The researcher met the control group in order to explain the details of the research and cooperation was requested from the group. Then, the group signed the protection of human subjects form. The researcher made an appointment to meet with the subjects in this group again for the assessment of stress levels, which was set in the next 4^{th} and the 6^{th} weeks.

4. After intervention phase.

The subjects in both the experimental and the control groups were assessed for stress levels again after intervention immediately in 4 weeks, and after intervention the 2 week follow-up phase, and subsequently the follow-up phase to evaluate the effectiveness of the Cognitive Behavior Modification Program.

After the intervention, however, one subject in the experimental group was lost for the final post-test. He was then taken out of the study. Thus the total number of the subjects in this group remained as 11.

And as 11 members now remained in the experimental group, to keep equilibrium of the research, one member in the control group was removed by simple random sampling method, leaving the total of 11 subjects in each group.

Protection of Human Subjects

In this research, the researcher has considered the rights and honor of the sampling group. The Explanation on the research details and the effects of the study were therefore provided, using the following steps:

1. The researcher requested permission from the diabetes patients who participated in the research before the data collection.

2. The subjects volunteered to participate in the Cognitive Behavior Modification Program. They could withdraw from the program any time without having to give reason for their withdrawal. In addition, they were informed that their decision to withdraw from the study would have no negative effects on them and their treatment in this hospital in any way.

3. Should this program prove to be effective, the researcher would later apply the Cognitive Behavior Modification Program with the control group in the same manner as had been applied to the experimental group.

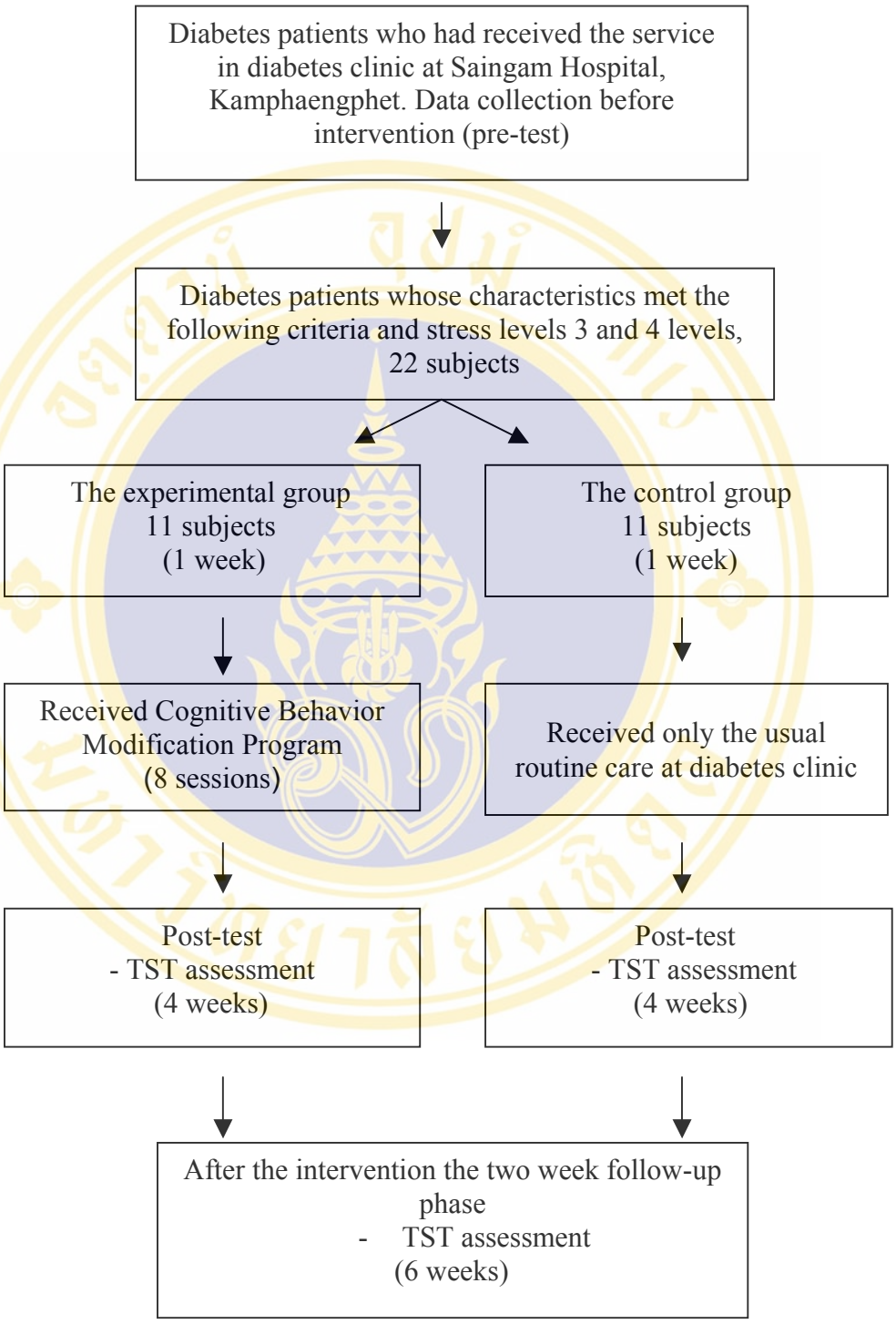

Figure 4 : Process and data collection

Data analysis

The data obtained were analyzed as follows:

1. Analyzing the general data of the sample by using descriptive statistics expressed in percentages.

2. Compare the stress levels between the experimental and the control groups before, immediately after the intervention and after a two weeks follow-up phase by using Mann Whitney U Test.

3. Compare the stress levels before, immediately after the intervention and after the two weeks follow-up phase in the experimental group by using Wilcoxon Sign Ranks Test.

CHAPTER 4
RESULTS

This research was a study of the effects of Cognitive Behavior Modification Program on stress in diabetes patients in Saingam Hospital, Kamphaengphet whose characteristics met the inclusion criteria. The sample, which consisted of patients,was divided into an experimental group and a control group with 11 patients in each group. Patients in the experimental group received the Cognitive Behavior Modification Program twice a week for four weeks for eight sessions, each session about 60 minutes, and they received a follow-up session two weeks after the intervention phase, whereas patients in the control group received only the usual routine care from Saingam Hospital. The study started on 19 May 2004 and finished on 10 July 2004. The results of this study are presented in the 2 parts with tables and relative description in following order.

Part 1 Demographic characteristics of the patients.

Part 2 The comparison the stress levels in the experimental group and the control group.

Part 1 Demographic characteristics of the patients

Table 1. Number and percentage of the samples classified by personal data.(n=22; 11 subjects in each group).

Characteristic	Experimental group		Control group	
	n	%	n	%
Sex				
Male	3	27.27	4	36.36
Female	8	72.27	7	63.63
Age (years)				
40-44	1	9.09	4	36.36
45-49	5	45.45	2	18.18
50-54	3	27.27	2	18.18
55-59	2	18.18	3	27.27
Marital status				
Married	10	90.91	11	100.00
Widowed	1	9.09	-	-
Occupation				
Agriculture	5	45.45	4	36.36
Commerce	1	9.09	-	-
Housewife	1	9.09	-	-
Employment	3	27.27	5	45.45
Unemplyed (supported by their family)	1	9.09	3	27.27
Income (Baht/month)				
< 3,000	4	36.36	6	54.54
3,001-6,000	4	36.36	5	45.45
> 6,001	3	27.27	-	-

(cont.).

Table 1. Number and percentage of the samples classified by personal data.(n=22; 11 subjects in each group) (cont.).

Characteristic	Experimental group		Control group	
	n	%	n	%
Sufficiency of income				
Enough	7	63.63	4	36.36
Not enough	4	36.36	4	36.36
Dept	-	-	3	27.27
Education level				
Primary school	10	90.99	11	100
Secondary school	1	9.11	-	-

Refering to Table 1, the majority of the sample in the experimental group were female (72.27%). Many patients were between 45-49 years (45.45%). The majority of patients were married (90.91%); agriculture was the main occupation (45.45%). About a third of patients' families earned less than 3,000 baht per month (36.36%) and between 3,001-6,000 baht per month (36.36%). More than half reported sufficient income (63.63%). Most patients were educated at primary level (90.90%).

The characteristics of the control group were as follows. The majority were female (63.63%). About a third of patients were between 40-44 years (36.36%). All patients were married (100%), about one third were employed in agriculture (45.45%). Most patients families earned less than 3,000 baht per month (54.54%). A number of patients reported insufficient income (36.36%). All patients were educated at primary level (100%).

Part 2 The comparison the stress levels in the experimental group and the control group.

Table 2 Comparison the stress levels between the experimental group and the control group before the intervention phase (n=11 subjects in each group).

Stress of group	M of Ranks	Sign Ranks Test	Mann-Whitney U	P
The experimental group	11.73	129		
The control group	11.27	124		
Total			58	.898

*P < .05

The data in the Table 2 demonstrated that the stress levels between the experimental group and the control group before the intervention showed no significant difference.

Table 3 Comparison the stress levels in the experimental group before intervention and immediately after the intervention phase (n=11 subjects in each group).

Stress of group	M of Ranks	Sign Ranks Test	Wilcoxon	P
Before the intervention	15.55	171		
Immediately after the intervention	7.45	82		
Total			16.00	.002*

*P < .05

The data in Table 2 demonstrated that the stress levels immediately after the intervention phase were lower than the stress levels before the intervention phase at a statistically significant level of .05

Table 4 Comparison the stress levels in the experimental group before the intervention and after the two weeks follow-up phase (n=11 subjects in each group).

Stress of group	M of Ranks	Sign Ranks Test	Wilcoxon	P
Before the intervention	15.18	167		
After the two weeks follow-up	7.82	86		
Total			86	.007*

*P < .05

The data in Table 4 demonstrated that the stress levels after the two weeks follow-up phase were lower than stress levels before the intervention phase at a statistically significant level of .05.

Table 5 Comparison the stress levels between the experimental group and the control group immediately after the intervention (n=11 subjects in each group).

Stress of group	M of Ranks	Sign Ranks Test	Mann-Whitney U	P
The experimental group	7.64	84		
The control group	15.36	169		
Total			18	.004*

* P < .05

The data in Table 5 demonstrated that the stress levels in the experimental group were lower than the stress levels in the control group immediately after the intervention phase at a statistically significant level of .05.

Table 6 Comparison the stress levels between the experimental group and the control group after the two weeks follow-up phase (n=11 subjects in each group).

Stress of group	M of Ranks	Sign Ranks Test	Mann-Whitney U	P
The experimental group	8.05	88.5		
The control group	14.95	164.5		
Total			22.5	.01*

*P < .05

The data in Table 6 demonstrated that the stress levels in the experimental group were lower than the stress levels in the control group after the two weeks follow-up phase at a statistically significant level of .05.

Table 7 Comparison the stress levels immediately after the intervention and after the two weeks follow-up phase in the experimental group (n=11 subjects in each group).

Stress of group	M of Ranks	Sign Ranks Test	Wilcoxon	P
Immediately after the intervention	11.41	125.50		
After the two weeks follow-up	11.59	127.50		
Total			125.50	.949

*P < .05

The data in Table 7 demonstrated that the stress levels in the experimental group immediately after the intervention and after the two weeks follw-up phase showed no significant difference.

Table 8: Number and percents of opinions and suggestions about the "Cognitive Behavioral Modification Program" of the sample in the experimental group by the open-end questionnaire (n = 11).

Information	n	%
Subjects' opinion*		
1. Knowing relaxing technique and appropriate self-care behavior in diabetes patients	9	81.82
2. Exchanging ideas, opinions and discussion in the group.	9	81.82
3. Were able to apply the knowledge to their dialy life.	5	45.45
4. Knowing more friends and having good relationship	3	27.27
Suggestion		
1. Need to have more group activities	11	100.00
2. Willing to join the group	8	72.73
3. Would like other diabetes patients joining the group activities	6	54.55
4. Would like to have continuous group activities	4	36.36
5. Should decrease the times of group participation	3	27.27
6. Should meet monthly	3	27.27
7. Need more time, from 60 minutes to 2 hours	3	27.27

*Note: The subjects could give opinions more than one answer to question.

Refering to Table 8, the experimental group stated the opinion about the Cognitive Behavior Modification Program in diabetes patients in the experimental group as knowing relaxing techniques and appropriate self-care behavior in diabetes patients and exchanging ideas, opinions and discussion in the group, 81.82% each. They could applied the knowledge to their dialy life, 45.45 % and know more friends and having good relationship, 27.27%. The suggestion from the diabetes patients in the experimental group were to need to have more group activities as 100%; willing to join the group as 72.73%; prefer other diabetes patients joining the group activities as 54.55%; prefer to have continuous group activities as 36.36%; and willing to

decrease the times of group participation, meet monthly and need more time from 60 minutes to 2 hours as 27.27% each.

CHAPTER 5
DISCUSSION

This research aims to study the effects of the Cognitive Behavioral Modification Program on stress in diabetes patients. The research results are interpreted regarding to the following hypotheses:

1. Immediately after the intervention and after a two weeks follow-up phase, the stress levels in the experimental group will be lower than before the intervention.

2. Immediately after the intervention and after the two weeks follow-up phase, the stress levels in the experimental group will be lower than in the control group.

3. Immediately after the intervention and after the two week follow-up phase, the stress levels in the experimental group will show no significant difference.

Hypothesis 1: Immediately after the intervention and after a two weeks follow-up phase, the stress levels in the experimental group will be lower than before the intervention.

The results of this research demonstrateD significant reduction in stress levels immediately after the intervention and after two weeks follow-up phase in diabetes patients who receiving Cognitive Behavior Modification Program at the statistical level of .05, compared with stress levels before intervention (Table3 and 4). The hypothesis 1 is accepted that means the Cognitive Behavior Modification Program had reducing effect on stress in diabetes patients. It can be explained that when diabetes patients having stress and participating the Cognitive Behavior Modification Program, they learned to have appropriate strategies and skills of coping with stress through 3 steps of the program. The program will assist the patients to understand the nature of stress, responses to the stress and physical and psychological effects to the stress. This leads to the patients' re-thinking and reassessment of their own illness

and stressful situations. The patients exploration information and analyzed the stressful situations between trainers and members by using some techniques, e.g. and respond to their belief, culture and lifestyle, such as relaxation techniques, self-instruction and self-monitoring. For self-monitoring, the patients could observe and record their behaviors when they are at home both extrinsic behavior and their feelings on stressful situations. These helps them to realize both the extrinsic behaviors and the intrinsic feelings toward those stressful situations. Likewise, they also have the opportunity to learn the strategies and skills of stress coping strategies, such as emotional-focus strategy, which involves relaxing techniques whereas the patients told they know the relaxation techniques about 81.82 (table 7), and problem-solving focus strategy, which involves self-instruction. Some patient express "this is similar to the meditation approach I had come across". These strategies help them notice what they were thinking, their feelings and responses to stressful situations leading to have appropriate coping strategies. Self-instruction is significant in promoting the cognitive process affect the changes of extrinsic behaviors, emotions and thoughts. From the first and second questionnaires about the feelings of diabetes, fear of the disease was less than before. The members stated that they were not fear or had their fear of complications reduced, as they knew how they happened. This feelings become from the patients had the cognitive process and re-evaluation of the new situation. The patients training skills of relaxation techniques and problem-solving with behavior rehearsal in clinic from simple to difficult situations, it will created the confidence of the patients to deal with future stressful situations as they might arise and be able to apply it for their daily life. They were follow-up to the effects of practice in real situation, as well as the cooperation between the trainer and the patients to find the solution among the group members if the patients failed.

In addition, the patients' participation in the group activity offer the patients to know themselves and good understanding of each other, readiness of sharing idea and experience leading to have good relationship among group members, which started from the moment they met and talked with each about their similar problem. It was observed that the relationships among the group members get improved from 2 sessions of the program to the other, which create their trusts among themselves and

encourage them to express themselves and their problems and share their idea, experience and feelings leading to actual analysis and implementation. This process helps as much as 45.45% of the patients to have confidence and adopt new concepts and ideas that could be applied to their daily living. This enhances the members' recognition of the importance of the program, as well as of the benefits of joining the program. All (100%) the group members prefer to have the program be set up again. As in the group meeting, one member stated that "I could not quit the high glucose diet". Then the researcher let the group analyze and find the solution by self-instruction. They had to observation their new thoughts, feelings and response to stressful situations, stop their negative thinking and behaviors. It also helps developing new ideas and appropriate response and solutions to cope with stress. Goal were set for appropriate behaviors and behavior rehearsal in clinic, which had promoted the patient's confidence to deal with future stressful situations as they might arise and apply in their real life. In the follow-up phase, that member returned to tell the group that "I can decrease more and more glucose diet consumption". He also expressed that "not only the technique of self-instruction was used, but also the statements and encouragement from the group discussion that can help me do it". That confirms the group process and the Cognitive Behavior Modification Program on stress in diabetes patients motivate new idea, concept, guideline and encouragement including confidence to confront stressful situations and problem in their real life in present as well as in the future.

Furthermore, homework assignment had co-assisted the members in their self-observation, recording extrinsic behaviors, thoughts and the resultant feelings toward the circumstance that cause the problems. Home work assignments enabled them realize their behaviors and effects toward themselves and others. This realization motivates to have the behavioral alteration. If the members frequently practice and become skillful, they can apply in their daily life leading to adjusting thoughts and controlling inappropriate behaviors.

Consequently, the results of this study indicate the Cognitive Behavior Modification Program affects to decrease stress in diabetes patients. The stress levels in the experimental group was decreased immediately after the intervention and after the two week follow-up phase. The Cognitive Behavior Modification Program has

been applied with the individuals who had emotional problems by applying many strategies together. The research of Kennedy, Duff, Evans and Beedie (2003) studied the cognitive effectiveness training reduces depression and anxiety following traumatic spinal cord injuries. In this study used Coping Effectiveness Training (CET) Program based on Lazarus and Folkman's (1984) cognitive theory of stress and coping and cognitive behavioral therapy techniques. The results of this study, the intervention group participants showed a significant reduction in depression and anxiety, compared to the control group after intervention and after 6 weeks following the intervention. It is consistent with the study of Ross and Berger (1997) studied the effects of stress inoculation training on athletes' post-surgical pain and rehabilitation orthopedic injury. The results of this study showed that participants in the treatment group demonstrated significantly less post-surgical pain and anxiety during the rehabilitation process, compared with the control group. Additionally, treated participants required fewer days to return to criterion physical functioning, compared with the control group. Puder (1988) studied age analysis of cognitive-behavioral group therapy (stress inoculation training) for chronic pain outpatients. This study showed that the treatment group significantly decreased the degree to which pain interfered with activity, increased ability to cope with pain and decreased use of some medicine and other physical treatment. The finding about the SIT appears to be an effective method of ameliorating the interference of chronic pain with the daily activities of life for adult of all ages. Thapinta (1992) studied the reduction of anxiety of staff nurses working with AIDS patients through cognitive behavioral reconstructuring and mindfulness training, showed that the experimental group received cognitive modification with mindfulness was less anxiety after the intervention and follow-up period at a statistically significant level of .05. Foa, Rothbaum, Riggs and Murdock (1991) studied treatment of posttraumatic stress disorder in rape victims: a comparison between cognitive-behavioral procedures (Stress Inoculation training) and counseling, the measures of PTSD symptoms obtained rape-related distress, general anxiety and depression. The results of this study showed that the SIT produced significantly more improvement on PTSD symptoms than supportive counseling after treatment and follow-up treatment. Jay and Ellicott (1990) studied a stress inoculation program for parents whose children are undergoing painful medical procedures, the results of this

study showed that the parents in the stress inoculation program reported lower anxiety scores and higher positive self-statement scores than parents in the control group. Lertleuchachai (1990) studied the effects of Rational Emotive Behavior on examination anxiety in secretarial students of the Thai Chamber of Commerce University. The results of this study demonstrated that less anxiety in the experimental group after the intervention and follow-up period, compared to the control group. The study of Bennet, GA. (1986) the effects of self-instruction in the treatment of obese patients illustrated that the participants addressed less anxiety and depression with the statistic level of significance. Trexler and Karst (1972) conducted the comparative study between the reason – emotional focus therapy and relaxing training to decrease stress of public speech. The study demonstrated that the subjects practicing the reason- emotional focus therapy were able to reduce more stress in public speech than the subjects practicing relaxing training. Likewise, the study of Chatkaew (2003) the effects of cognitive therapy on depression in female adolescents in the Welfare Service Institute stated that the scores of depression in female adolescents in the Welfare Service Institute was decreased after the intervention at statistically significant level of .05 and after the two week follow-up period at statistically significant level of .01. It is consistent with the study of Zust (2000) that compared the effects of cognitive therapy on depression in 9 rural women and 18 assaulted women. The result of Zust's study showed that the cognitive therapy could decrease depression in both groups of women with the statistic level of significance. Tomotake et. al. (1999) conducted the comparative study the cognitive therapy on the depression in 2 subjects having the working problems. The study reported that after practice the cognitive therapy on depression, those 2 subjects had a decreased depression and returned to work as usual. After the 2-years follow-up period, there was no evidence of recurrent depression. Zerhusen, et. al. (1991) studied the cognitive therapy on depression in elders living in elderly house, showed that the scores of depression in the experimental group was decrease after the intervention period with the statistic level of significance. Baker and Wilson (1985) monitored depressive patients who had trained the cognitive therapy. It reported the patients showed that the scores of depression were decreased.

Hypothesis 2: Immediately after the intervention and after the two weeks follow-up phase, the stress levels in the experimental group will be lower than in the control group.

As the research result, before intervention, the stress levels in the experimental and control groups were not different but immediately after the intervention and after the 2 weeks follow-up phase, the stress levels in the experimental group who received Cognitive Behavior Modification Program was lower than the control group with the statistically significant level of .05 (Table 5 and 6). The second hypothesis is accepted, which explained that the experimental group receiving the Cognitive Behavior Modification Program were acknowledged about strategies and skills of coping with stress and able to deal with stressful situations. They are able to apply in actual situation that promotes appropriate their extrinsic behaviors, thoughts and feelings leading to decrease the stress. The stress levels in the experimental group decrease after intervention immediately and after the 2 weeks follow-up. According to the interview in the control group when the stress existed, the patients typically let the problems continue with no solution. Some could not express problems to someone else and some did tell to their neighbors or family members. This simple cause the patients have accumulate stress, feeling more unhappiness and more unpleasant. The patients in the control group lack of the knowledge and skills to coping with stress, and consequently constantly remaining stress, which may leads to serious psychological problems.

Referring to the results of this study, the Cognitive Behavior Modification Program could reduce stress. The stress levels in the experimental group immediately after intervention and after two weeks follow-up phase was lower than the control group at a statistically significant level of .05.

Hypothesis 3 Immediately after the intervention and after the two week follow-up phase, the stress levels in the experimental group will show no significant difference.

The result of this study demonstrated that immediately after the intervention and after the 2 week follow-up phase, the diabetes patients who received Cognitive Behavior Modification Program showed no significant difference (Table 7).

The hypothesis 3 is accepted that means the patients who received the Cognitive Behavior Modification Program, they have the opportunity to learn the strategies and skills of stress coping and response to stress leading to have appropriate coping strategies whereas described in hypothesis 1. And upon follow-up the result of the homework assignment, it was found that the patients were able to apply the Program to their daily living. Some patients say, “Any stress will drive me to insomnia. But when I applied the stress relaxation techniques and self-instruction, I feel relief and achieved a sounder sleep”. Additionally, the Program also allowed the patients to bring along their information and experiences to discuss and jointly consider the stressful situations, in order to plan for the management of the resultant stress and applied to the actual situations. The selected techniques were adapted in favor of personal differences, as well as their belief, culture and situations so occurred, which comply to the convention set prior to the commencement of the Stress Inoculation Training (SIT), so that the participated patients could apply the techniques in their daily lives. This renders the effectiveness of the Cognitive Behavior Modification Program in the experimental group after the 2-week follow-up phase continues to perform.

CHAPTER 6
CONCLUSION

Summary of the study

This study was a quasi-experimental research aiming to examine effects of Cognitive Behavior Modification Program on stress in diabetes patients. The research was conducted on 22 subjects, aged 30-60 years at Saingam Hospital, Kamphaengphet. All subjects had stress levels 3 and 4, mild stress and high stress according to the assessment with Thai Stress Test (TST) as defined by Phattharayuttawat S. (2000). The sample was divided in to an experimental group and a control group. The research instruments comprised of the data collection instruments consisting of personal data record, and the TST. The experimental instrument, which was the Cognitive Behavior Modification Program on stress in diabetes patients, was also used. The experimental group received the Cognitive Behavior Modification Program twice a week for four weeks, which total eight sessions. Each session took about 60 minutes. The control group received only the routine care from Saingam Hospital, Kamphaengphet. Data regarding the TST were collected before the intervention was started (pre-test), immediately after the intervention was completed (post-test) and after the two weeks follow-up phase both in the experimental group and the control group. The data obtained were then analyzed from personal data of sample by using descriptive statistic expressed in percentage and comparisons the stress levels between the experimental and the control group immediately after the intervention and after the two weeks follow-up phase with Mann Whitney U Test. Comparison the stress levels before the intervention, immediately after the intervention and after the two weeks follow-up in the experimental group with Wilcoxon Sign Ranks Test. The results of this study are summarized below.

1. The stress levels immediately after the intervention and after a two week follow-up phase in the experimental group were lower than the stress levels before the intervention at a statistically significant level of .05.

2. The stress levels immediately after the intervention and after the two week follow-up phase in the experimental group were lower than the stress levels in the control group at a statistically significant level of .05.

3. The stress levels immediately after intervention and after the two week follow-up phase in the experimental group showed no significant difference at level of .05.

Limitations

1. The education level of most of the subjects in the experimental group was just primary school (Grade 4), they mostly were able to read and write. But some of them often misspelled and were lack of confidence to complete the homework due to their prolonged unwritten period. They received permission to get assistance from their relatives in writing or simply speak out in the group, as long as they have some idea and experience to exchange in the group.

2. The researcher of this study collected all data herself throughout the research, which can result in the biased answers of the subjects to the questionnaires.

Implications and Recommendations.

1. Implications from this Research Finding.

This research demonstrated that the Cognitive Behavior Modification Program on stress in diabetes patients was a strategy to reduce the stress. Hence, the implications of this research finding are as follows:

1.1 The Program should be modified to suit the needs of diabetes patients in compliance to their beliefs, culture and lifestyles. And decrease the amount of sessions to be less than 8.

1.2 The Cognitive Behavior Modification Program on stress in diabetes patients should be applied to other service institutes such as the central hospitals and the community hospitals.

1.3 The training of the Cognitive Behavior Modification Program on stress should be extended to diabetes patients, chronic illness patients and the stressed persons in general.

1.4 The Cognitive Behavior Modification Program should be trained to health care providers or any relevant person capable of applying the Program to the patients.

2. Implications for Further Researches

2.1 In this study, the stress levels were measured after the intervention immediately and after the two weeks follow-up phase. In addition, this research was a short-term study. A long-term, continuous study may be conducted to examine the long-term effects of the Cognitive Behavior Modification Program and the stress levels may be periodically measured after different follow-up periods: one month, three months, six months and one year.

2.2 This study may be extended by changing the characteristics of the sample to investigate the effects of Cognitive Behavior Modification Program on the other diabetes patients group, such as diabetes patients aged below 30 years and above 60 years.

2.3 The study should be conducted with other variables, such as $HbA_{1C.}$

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APPENDIX

รายนามผู้ทรงคุณวุฒิ

1. รองศาสตราจารย์ ดร. สมโภช เอี่ยมสุภาษิต
   คณะจิตวิทยา จุฬาลงกรณ์มหาวิทยาลัย
2. ผู้ช่วยศาสตราจารย์ สาระ มุขดี
   ภาควิชาการพยาบาลเด็ก วิทยาลัยพยาบาลเกื้อการุณย์
3. ดร. วัจนินทร์ โรหิตสุข
   ภาควิชาจิตเวชศาสตร์ คณะแพทย์ศาสตร์ ศิริราชพยาบาล มหาวิทยาลัยมหิดล

ใบยินยอมและการพิทักษ์สิทธิ์ของผู้เข้าร่วมวิจัย

เรียน ผู้ตอบแบบสอบถามทุกท่าน

เนื่องด้วยดิฉัน นางสาวพัชนี มากเมือง นักศึกษาหลักสูตรพยาบาลศาสตรมหาบัณฑิต สาขาสุขภาพจิตและการพยาบาลจิตเวชศาสตร์ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล กำลังทำวิทยานิพนธ์ในหัวข้อเรื่อง “ผลของโปรแกรมการปรับพฤติกรรมทางปัญญาต่อความเครียดในผู้ป่วยเบาหวาน” ซึ่งวัตถุประสงค์ของการทำในการวิจัยในครั้งนี้ เพื่อศึกษาผลของโปรแกรมการปรับพฤติกรรมทางปัญญาว่าสามารถลดความเครียดได้หรือไม่ ซึ่งความเครียดหรือความไม่สบายใจนั้นสามารถเกิดขึ้นได้กับทุกคนและทุกเวลาแต่ถ้าเราสามารถที่จะควบคุมหรือจัดการกับความเครียดนั้นได้ก็จะเป็นประโยชน์ต่อตัวเราเอง และสามารถอยู่ร่วมกับคนอื่นได้อย่างมีความสุข ท่านจึงเป็นบุคคลสำคัญอย่างยิ่ง ที่สามารถช่วยให้ข้อมูลที่เป็นประโยชน์ต่อการศึกษา ดังนั้นดิฉันจึงใคร่ขอความร่วมมือจากท่านในการตอบแบบสอบถาม ซึ่งประกอบด้วย 2 ส่วน ได้แก่ ข้อมูลส่วนบุคคล และแบบวัดความเครียด โดยใช้เวลาในการตอบแบบสอบถามทั้งหมดประมาณ 20 นาที ในการตอบในการตอบจะไม่มีคำตอบที่ถูกหรือผิด จึงไม่มีผลกระทบใดๆ จึงใคร่ขอความร่วมมือให้ท่านตอบตรงตามความรู้สึกของท่านมากที่สุด เมื่อแปรผลคะแนนจากแบบวัดความเครียดแล้ว ผู้ที่มีคุณสมบัติตามที่ผู้วิจัยกำหนดคือ มีความเครียดเล็กน้อย และเครียดมาก หลังจากนั้นผู้วิจัยจะคัดเลือกผู้ที่มีคุณสมบัติดังกล่าวโดยการจับฉลากเข้าร่วมการวิจัย จำนวน 24 คน แล้วจับฉลากแบ่งเป็นกลุ่มทดลองและกลุ่มควบคุมกลุ่มละ 12 คน กลุ่มทดลอง คือ กลุ่มที่ได้รับโปรแกรมการปรับพฤติกรรมทางปัญญาต่อความเครียด และกลุ่มควบคุมจะได้รับการพยาบาลตามปกติจากคลินิกเบาหวานของโรงพยาบาล การศึกษาในครั้งนี้จะใช้เวลาทั้งหมด 6 สัปดาห์ โดยกลุ่มทดลองจะได้รับโปรแกรมการปรับพฤติกรรมทางปัญญา เป็นระยะเวลา 4 สัปดาห์ ๆ ละ 2 ครั้งๆ ละ 60 นาที จำนวน 8 ครั้ง หลังร่วมโปรแกรมดังกล่าวครบ 8 ครั้ง แล้วจะนัดมาพบกันอีกครั้งใน 2 สัปดาห์ต่อไป เพื่อติดตามผลของการเข้าร่วมโปรแกรมการปรับพฤติกรรมทางปัญญา ผลของการวิจัยที่ได้จะแปรผลออกมาและเก็บเป็นความลับ โดยไม่มีการเปิดเผยชื่อให้ผู้อื่นทราบ ข้อมูลจะวิเคราะห์เป็นภาพรวมเพื่อใช้ประโยชน์ในการวิจัยและการพยาบาลเท่านั้น

ในการวิจัยในครั้งนี้ผู้วิจัยขอรับรองว่าจะไม่เกิดความเสี่ยงหรือเป็นอันตรายต่อตัวท่านและต่อการรักษาใดๆ ที่ท่านเคยได้รับ และถ้ากรณีที่ท่านได้รับอันตรายหรือเจ็บป่วยที่เกิดจากการวิจัยในครั้งนี้ ท่านสามารถติดต่อผู้วิจัยได้ตลอดเวลาตามที่อยู่ที่แนบมาให้ และผู้วิจัยยินดีรับผิดชอบในเรื่องของค่าใช้จ่ายจากการรักษาพยาบาล และค่าสูญเสียต่างๆ ที่จะเกิดขึ้น โดยไม่มีข้อแม้ใดๆ

การตัดสินใจเข้าร่วมการวิจัยครั้งนี้จะเป็นไปตามความสมัครใจของท่าน และไม่ว่าท่านจะเข้าร่วมในการวิจัยหรือไม่ก็ตาม จะไม่มีผลกระทบใดๆ ต่อตัวท่าน ถึงแม้ว่าท่านจะยินยอมเข้าร่วมในการวิจัยแล้วท่านก็มีสิทธิ์ที่จะยกเลิกการเข้าร่วมการวิจัยได้ตลอดเวลาตามที่ท่านต้องการ โดยไม่มีข้อแม้ใดๆ ผู้วิจัยขอขอบพระคุณท่านที่ได้กรุณาสละเวลาให้ความร่วมมือในการตอบแบบสอบถามครั้งนี้

พัชนี มากเมือง
ผู้วิจัย

ที่อยู่ของผู้วิจัย
22 ม. 2 ต. ธำมรงค์ อ. เมือง
จ.กำแพงเพชร
รหัสไปรษณีย์ 62160

ที่อยู่ที่ทำงาน
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ใบยินยอมเข้าร่วมการวิจัย

การวิจัยเรื่อง ผลของการปรับพฤติกรรมทางปัญญาต่อความเครียดในผู้ป่วยเบาหวาน
วันที่ให้คำยินยอม วันที่.....เดือน.....พ.ศ.....

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยครั้งนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย อันตราย หรืออาการที่จะเกิดขึ้นจากการวิจัยหรือจากยาที่ใช้ รวมทั้งประโยชน์ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียดและมีความเข้าใจดีแล้ว

ผู้วิจัยรับรองว่าจะตอบคำถามต่างๆ ที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบังซ่อนเร้น จนข้าพเจ้าพอใจ

ข้าพเจ้ามีสิทธิที่จะบอกเลิกการเข้าร่วมโครงการวิจัยนี้เมื่อใดก็ได้ และเข้าร่วมโครงการวิจัยนี้ด้วยความสมัครใจ และการบอกเลิกการเข้าร่วมวิจัยนี้ จะไม่มีผลกระทบต่อการรักษาโรคที่ข้าพเจ้าจะพึงได้รับต่อไป

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะที่เกี่ยวกับข้าพเจ้าเป็นความลับ และจะเปิดเผยได้เฉพาะในลักษณะของการสรุปผลการวิจัย การเปิดเผยข้อมูลของข้าพเจ้าต่อหน่วยงานอื่นๆ ที่เกี่ยวข้องจะทำได้เฉพาะด้วยเหตุผลจำเป็นทางวิชาการเท่านั้น

ผู้วิจัยรับรองว่าหากเกิดอันตรายใดๆ จากการวิจัยดังกล่าว ข้าพเจ้านะได้รับการรักษาพยาบาลโดยไม่คิดมูลค่า ตามมาตรฐานวิชาชีพ และจะได้รับการชดเชยรายได้ที่สูญเสียไประหว่างการรักษาพยาบาลดังกล่าว ตลอดจนเงินทดแทนความพิการที่อาจจะเกิดขึ้น

วิจัยับรองว่า หากมีข้อมูลเพิ่มเติมที่ส่งผลกระทบต่อการวิจัย ข้าพเจ้าจะได้รับการแจ้งให้ทราบโดยไม่ปิดบังซ่อนเร้น

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว และมีความสมัครใจดีทุกประการ และได้ลงนามในใบยินยอมนี้ด้วยความสมัครใจ

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

คำชี้แจง

1. แบบสอบถามแบ่งออกเป็น 2 ส่วน ดังนี้

   ส่วนที่ 1 ข้อมูลส่วนบุคคลของผู้ตอบแบบสอบถาม

   ส่วนที่ 2 แบบวัดความเครียด ใช้แบบวัดความเครียดสำหรับคนไทย (TST)

2. โปรดอ่านคำแนะนำก่อนตอบแบบสอบถามในแต่ละส่วนอย่างละเอียด และกรุณาตอบทุกข้อให้ตรงตามความเป็นจริงของท่านมากที่สุด เพื่อจะได้เป็นประโยชน์ในการวิจัย ซึ่งจะไม่มีคำตอบใดถูกหรือผิด

3. คำตอบของท่านจะถือว่าเป็นความลับและจะไม่มีผลกระทบใดๆ ต่อตัวท่าน ซึ่งจะรายงานผลที่ได้โดยรวม

ส่วนที่ 1 ข้อมูลส่วนบุคคลของผู้ตอบแบบสอบถาม

คำชี้แจง กรุณาทำเครื่องหมาย ✓ หรือเติมข้อความลงในช่องว่างให้สมบูรณ์

ชื่อ……นามสกุล……

เพศ ( ) ชาย ( ) หญิง

อายุ……ปี

สถานภาพสมรส ( ) คู่ ( ) โสด ( ) หม้าย

( ) หย่า ( )ร้าง

ระดับการศึกษา……

รายได้ของครอบครัว ……..บาท / เดือน

ความเพียงพอของรายได้ □ เพียงพอ

□ ไม่เพียงพอ มีหนี้สิน

ส่วนที่ 2 แบบวัดความเครียดสำหรับคนไทย (TST)

คำชี้แจง

ขอความร่วมมือให้ท่านทำเครื่องหมาย ✓ ในช่องว่าง ที่เป็นข้อความที่ตรงกับความรู้สึกของท่านของท่านมากที่สุดในขณะนี้

ข้อคำถามต่อไปนี้เป็นข้อคำถามที่ถามความรู้สึกที่ท่านมีในชีวิตประจำวันซึ่งแต่ละท่านจะมีความรู้สึกที่แตกต่างกัน

รู้สึกบ่อยๆ	หมายถึง ท่านมีความคิด หรือรู้สึกแบบนี้บ่อยๆ
รู้สึกเป็นบางครั้ง	หมายถึง ท่านมีความคิด หรือรู้สึกแบบนี้เป็นบางครั้ง
ไม่รู้สึกเลย	หมายถึง ท่านไม่เคยมีความคิด หรือรู้สึกแบบนี้เลย

ชื่อ……..……..……นามสกุล… ……. …

.อายุ……ปี

แบบวัดความเครียดสำหรับคนไทย

ข้อความ	รู้สึกบ่อยๆ	รู้สึกเป็นครั้งคราว	ไม่รู้สึกเลย
1. ท่านรู้สึกเหงาและว้าเหว่			
2. ท่านรู้สึกไม่มีความสุขเลย			
3. ท่านมีความรู้สึกเบื่อหน่าย ท้อแท้ ไม่อยากทำอะไรเลย			
4. ท่านรู้สึกกระวนกระวายเกือบตลอดเวลา			
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.			
24. ท่านรู้สึกว่าจิตใจของท่านเป็นปกติ			

โปรแกรมการปรับพฤติกรรมทางปัญญา

การปรับพฤติกรรมทางปัญญา หมายถึง กระบวนการที่ช่วยฝึกให้ผู้ป่วยมีความเข้าใจในธรรมชาติของความเครียดและการตอบสนองต่อความเครียดโดยใช้วิธีการฝึกการป้องกันความเครียดของ Meichenbaum (Stress Inoculation Training หรือ SIT, 1985) ที่ผู้วิจัยสร้างขึ้นโดยการศึกษาค้นคว้าเอกสารและงานวิจัยที่เกี่ยวข้องกับรูปแบบการฝึกการป้องกันความเครียด โดยมีขั้นตอนของการฝึกการป้องกันความเครียด (Stress Inoculation Training) 3 ระยะ คือ ระยะที่ 1 การสร้างแนวคิดหรือ รวบรวมข้อมูล (Conceptualization Phase) ระยะที่ 2 การลองฝึกและเพิ่มทักษะ (Skills Acquisition and Rehearsal phase) ระยะที่ 3 การนำไปใช้และติดตามผล (Application and Follow-Through Phase) ในการวิจัยครั้งนี้ผู้วิจัยได้นำแนวคิดดังกล่าวมาสร้างเป็นโปรแกรมการฝึกป้องกันความเครียด ทั้งหมด 8 ครั้งๆ ละ 60 นาที โดยมีรายละเอียดดังนี้

ระยะที่ 1 การสร้างความคิดรวบยอด (Conceptualization Phase)

ครั้งที่ 1 อารมณ์และความเครียด

ครั้งที่ 2 สำรวจความคิด ความรู้สึกที่มีต่อโรคเบาหวาน

วัตถุประสงค์ของการทำกลุ่มในระยะที่ 1 จะเน้นการสร้างสัมพันธภาพกับผู้ป่วย เพื่อให้เกิดความไว้วางใจกัน กล้าระบายความคิด ความรู้สึกต่างๆ และมุ่งเน้นให้ผู้ป่วยได้มีการรวบรวมข้อมูลและวิเคราะห์ถึงปัญหาที่เกิดขึ้น ช่วยให้ผู้ป่วยได้เข้าใจในธรรมชาติของความเครียดและการตอบสนองต่อความเครียดของตนเองที่เกิดขึ้น

ระยะที่ 2 การฝึกซ้อมและเกิดทักษะ (Skills Acquisition and Rehearsal Phase)

ครั้งที่ 3 ฝึกทักษะพิชิตความเครียด

ครั้งที่ 4 ฝึกทักษะการพูดกับตนเอง

วัตถุประสงค์ของการทำกลุ่มในระยะที่ 2 เพื่อเน้นให้ผู้ป่วยได้รู้จักยับยั้งการตอบสนองในด้านลบ รู้จักวิธีในการจัดการกับความเครียดที่เกิดขึ้น โดยใช้เทคนิคการผ่อนคลายความเครียดที่เหมาะสม ได้แก่การผ่อนคลายกล้ามเนื้อ และการจัดการกับปัญหา คือ การพูดสอนตนเอง ผู้ป่วยจะได้ทดลองฝึกซ้อมเพื่อให้มีทักษะและสามารถนำไปประยุกต์ใช้ในชีวิตจริงได้

ระยะที่ 3 การนำไปใช้และติดตามผล (Application and Follow-up Through phase)

ครั้งที่ 5 ฝึกในสถานการณ์จำลอง

ครั้งที่ 6 ฝึกทักษะในสถานการณ์จริงและหาแนวทางแก้ไขปัญหาและ
อุปสรรคที่พบ

ครั้งที่ 7 ติดตามและประเมินผลการฝึกทักษะในสถานการณ์จริง

ครั้งที่ 8 ประเมินผลกิจกรรม

วัตถุประสงค์ของการทำกลุ่มในระยะที่ 3 เป็นระยะที่ให้ผู้ป่วยได้ลองปฏิบัติจริงจากสถานการณ์จำลองที่ให้ และได้ลองนำไปปฏิบัติจริง แล้วประเมินผลที่ได้ และร่วมวางแนวทางแก้ไขกับปัญหาหรืออุปสรรคที่เกิดขึ้น

NO. 40/2004

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

.....

Title of Project: Effects of Cognitive Behavior Modification Program on Stress in Diabetes Patients

Principle Investigator: Miss Pudchanee Makmuang

Name of Institution: Faculty of Nursing

Approved by the Committee on Human Rights Related to Human Experimentation

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

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

Date of Approval: 18 MAY 2004

บันทึกข้อความ

ส่วนราชการ คณะแพทยศาสตร์ศิริราชพยาบาล มหาวิทยาลัยมหิดล โทร. 0 2419-7000 ต่อ 6485-6

ที่ ศธ 0517.07/ 4185 **วันที่** 12 มีนาคม 2547

เรื่อง ยินดีให้ความอนุเคราะห์ในการใช้แบบทดสอบเพื่อประกอบการทำวิทยานิพนธ์

เรียน คณบดีคณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล

ตามที่ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล ได้ขอความอนุเคราะห์ให้ นางสาวพัชนี มากเมือง นักศึกษาหลักสูตรพยาบาลศาสตรมหาบัณฑิต สาขาสุขภาพจิตและการพยาบาลจิตเวชศาสตร์ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล ใช้แบบวัดความเครียดสำหรับคนไทย (TST) ที่สร้างโดย รองศาสตราจารย์ ดร.สุชีรา ภัทรายุตวรรตน์ เพื่อเป็นเครื่องมือวิจัยสำหรับการทำวิทยานิพนธ์เรื่อง "ผลของโปรแกรมการปรับพฤติกรรมทางปัญญาต่อความเครียดในผู้ป่วยเบาหวาน" ความละเอียดดังแจ้งแล้วนั้น

คณะแพทยศาสตร์ศิริราชพยาบาล มหาวิทยาลัยมหิดล พิจารณาแล้วยินดีอนุมัติ นางสาวพัชนี มากเมือง ใช้แบบวัดความเครียดสำหรับคนไทย (TST) ที่สร้างโดย รองศาสตราจารย์ ดร.สุชีรา ภัทรายุตวรรตน์ เพื่อเป็นเครื่องมือวิจัยสำหรับการทำวิทยานิพนธ์ ตามที่ขอความอนุเคราะห์มา ทั้งนี้ ขอให้นักศึกษากรอกแบบฟอร์มการขอใช้แบบทดสอบทางจิตวิทยา ที่ได้แนบมา คืนไปยัง รองศาสตราจารย์ ดร.สุชีรา ภัทรายุตวรรตน์ ภาควิชาจิตเวชศาสตร์ อาคารเฉลิมพระเกียรติ ชั้น 8 โรงพยาบาลศิริราช บางกอกน้อย กทม 10700

จึงเรียนมาเพื่อโปรดทราบ

ประธานคณะกรรมการบริหารหลักสูตรบัณฑิตศึกษา

(รองศาสตราจารย์นายแพทย์สรนิต ศิลธรรม)
รองคณบดีฝ่ายบริหาร คณะแพทยศาสตร์ศิริราชพยาบาล
ปฏิบัติราชการแทนคณบดี

เรียน
เพื่อโปรดทราบ
เรื่องส่ง.....
17 มี.ค. 47

สำเนาเรียน รองคณบดีฝ่ายวิจัย, หัวหน้าภาควิชจิตเวชศาสตร์

สำเนา

บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล
คณะแพทยศาสตร์ศิริราชพยาบาล
ตึกจุลชีววิทยา ชั้น 4 2 ถนนพรานนก
เขตบางกอกน้อย กรุงเทพฯ 10700
โทร.0-2411-2002 โทรสาร 0-2419-7060

ที่ ศธ 0517.02 (ศร)/ 0507

24 มีนาคม 2547

เรื่อง ขอความอนุเคราะห์ให้นักศึกษาได้มาเก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์
เรียน ผู้อำนวยการโรงพยาบาลไทรงาม
สิ่งที่ส่งมาด้วย แบบสอบถาม, โปรแกรมการปรับพฤติกรรม จำนวน 1 ชุด

ด้วย นางสาวพัชนี มากเมือง นักศึกษาบัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล หลักสูตรปริญญาโท สาขาวิชาสุขภาพจิตและการพยาบาลจิตเวชศาสตร์ คณะพยาบาลศาสตร์ กำลังเขียนโครงร่างวิทยานิพนธ์ เรื่อง "ผลของการปรับพฤติกรรมทางปัญญาต่อความเครียดในผู้ป่วยเบาหวาน" อยู่ในความควบคุมของ ผศ.ดร.วรรณา คงสุริยะนาวิน ซึ่งในการศึกษาวิจัยครั้งนี้นักศึกษามีความประสงค์จะเก็บข้อมูลจากผู้ป่วยเบาหวานที่มีอายุในช่วง 30 - 60 ปี ที่เข้ารับบริการ ณ คลินิกเบาหวาน โรงพยาบาลไทรงาม อำเภอไทรงาม จังหวัดกำแพงเพชร โดยใช้วิธี 1. ส่งแบบสอบถามด้วยตนเอง โดยใช้แบบวัดความเครียดสำหรับคนไทย 2. คัดเลือกผู้ป่วยเข้ากลุ่มทดลองและกลุ่มควบคุม กลุ่มละ 12 คน โดยให้โปรแกรมการปรับพฤติกรรมในกลุ่มทดลอง 8 ครั้ง ๆ ละ 60 นาที ตั้งแต่วันที่ 1 เมษายน 2547 ถึงวันที่ 30 กันยายน 2547

บัณฑิตวิทยาลัย จึงใคร่ขอความกรุณาจากท่านโปรดอนุเคราะห์ให้นักศึกษาได้เก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์ ตามที่เห็นสมควรด้วย จักเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ศาสตราจารย์ นพ.บรรจง มไหสวริยะ)
รองคณบดีฝ่ายวิจัย ปฏิบัติราชการแทน
คณบดีบัณฑิตวิทยาลัย

ติดต่ออาจารย์ผู้ควบคุมวิทยานิพนธ์ ผศ.ดร.วรรณา คงสุริยะนาวิน
โทรศัพท์ 0-2419-7466-80 ต่อ 1700

BIOGRAPHY

NAME	Miss.Patchanee Makmuang
DATE OF BIRTH	26 September 1973
PLACE OF BIRTH	Kamphaengphet
INSTITUTIONS ATTENDED	Sawanpracharak Nakhonsawan Nursing collage, Nakhonsawan, Province. 1992-1996: Diploma in Nursing Science. Mahidol University, 2001-2004: Master of Nursing Science (Psychiatric-Mental Health Nursing).
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