A STUDY TO ASSESS THE LEVEL OF STRESS AMONG PATIENTS WITH TYPE II DIABETES MELLITUS IN RELATION TO LEVEL OF BLOOD SUGAR AT A SELECTED HOSPITAL IN COIMBATORE.

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"A Study to Assess the Level of Stress among Patients with Type II Diabetes Mellitus in relation to Level of Blood Sugar at a Selected Hospital in Coimbatore.

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ABSTRACT

"A study to assess the Level of Stress Among Patients with Type II Diabetes Mellitus in relation to Level of blood sugar at a Selected Hospital in Coimbatore".

The main aim of the study was to assess the level of stress among patients with type II diabetes mellitus and to determine the relationship between the level of stress and the blood sugar level.

The study was conducted in the outpatient department of a selected private hospital at Coimbatore. A descriptive survey approach was used. The conceptual framework of the study was based on Sister Callista Roy's adaptation theory. A non- probability convenient sample of fifty patients who had type II diabetes mellitus for a duration of five years and above, constituted the sample of the study. The data was collected using a structured self administered questionnaire and a Likert type five point rating scale to measure stress in five areas of demands. (Medication, diet, followup, exercise and disease).The reliability of the tool was established by the test retest method. Data analysis and interpretation was done by using descriptive and inferential statistics.

The level of stress in different areas of stress is present in all the three levels in all the five areas of demands. A little half of the 52-54% of the samples had severe stress with regard to medication, follow up and exercise. 66% patients showed severe stress with regard to diet. The number of patients who showed moderate stress with regard to all these five areas was 18-42%. Severe stress with regard to disease was seen only in 46% of the samples.

The result of the study revealed that there was a significant relationship between the level of stress and patient with a moderately severe and highly severe blood sugar in the area of medications. ($r = 2.19$ at $df = n-2 = 48$, $P < 0.05$).

There was no significant relationship found between the level of stress and moderately severe and highly severe blood sugar in the area of diet, exercise, follow up, disease and over all.

There was a significant association found between the demographic variables (sex, education and family monthly income) and level of stress (chi square = 45.06-50.48 at df =2, P = 0.05).

There was no significant association found between the other demographic variables such as age, exercise done, prescribed diet taken and level of stress.

There was a significant association found between the demographic variables(sex, education and family monthly income, exercise done and on prescribed diet) and level of blood sugar.(chi square = 12.71-21.8 at df =1,P= 0.05)

There was no significant association found between age and the level of blood sugar.

The study concludes that there was no significant relationship between the level of stress and blood sugar level in different areas of stress and over all. But there was a significant relationship between the level of stress and level of blood sugar in the area of medication.

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INTRODUCTION

"Stress is not what happens to us. It's our response to what happens. And RESPONSE is something we can choose."

MAUREEN KILLORAN

BACKGROUND OF THE STUDY:

Stress is a word derived from the latin word 'stringere', meaning to 'draw tight,' and was used in the seventeenth century to describe hardship and affliction. During the late eighteenth century stress denoted "force, pressure, or strong effort", referring primarily to an individual, or to the individual's organs or mental powers.

-Robert.J.samuelson.

Stress is an inevitable part of life. Human beings experience stress early even before they are born. A certain amount of stress is normal and necessary for survival. Stress helps children develop the skill they need to cope with and adopt to new and potentially threatening situations throughout life.

The beneficial aspects of stress diminish when it is severe enough to overwhelm a child's ability to cope effectively. Intensive and prolonged stress can lead to a variety of strong and long term negative health effects. It can distrupt early brain development and compromise functioning of the nervous and immune system. In addition childhood stress can lead to health problems later in life including alcoholism, depression, eating disorders, cancer and other chronic diseases.

Stress in human life is often equated with tension, anxiety, worry and pressure. It is an accepted fact that stress is necessary for life and it can cause either beneficial (or) detrimental effects. These effects can be physical, emotional, intellectual and spiritual (or) social. **(Selye 1992)**

Stress is a reaction people have when excessive pressure or demands are placed upon them and arises when an individual believes he is unable to cope. (**The health and safety executive 2008).**

Stress is a part and parcel of modern day life. Stressors may be internal and external. Our body responds to stress either as fight or flight response. Repeated stress may lead to failing rheostat phenomenon of hypothalamus which in turn leads to less efficient hormonal control through feed backs. This leads to various changes in body functioning at various levels like cellular, organic or systemic and finally leads to various diseases. Diabetes may be an outcome of stress and further sets in a viscious cycle of stress diabetes relationship. Stress coping mechanisms are many and it depends on resources available with a wide range of personal variations. **(Kamala Raj 2008)**

A world wide gathering of Neurologists at Neuro Science **(2000**) discussed on brain damage by stress and described the havoc caused by the release of stress hormones , a phenomenon triggered by modern life. This stress response may be triggered continually over the course of tension filled modern day. Disease including diabetes, high blood pressure and colitis have stress components. Much of the memory loss that people take for granted as part of aging may result from stress induced brain damage.

Two types of stress can change blood sugar levels such as Physical stress, Emotional stress or mental stress. Each type of stress affects blood sugar levels differently. Physical stress generally causes blood sugar levels to increase. Physical stress includes illness, surgery, injury. Mental or emotional stress has mixed effects, depending on the type of diabetes. In the Type I diabetes mental stress can increase or decrease blood sugar level. But in type II diabetes mental stress generally increases blood sugar levels.

Stress comes from many forms and affects people of all ages and walks of life. No external standards can be applied to predict stress levels in individuals. One need not have a traditionally stressful job to experience more parental stress than a parent

of several children.The degree of stress in our lives is highly dependent upon individual factors such as our physical health, the quality of our interpersonal relationships, the number of commitments and responsibilities, we carry, the degree of other's dependence upon us and expectations of us and the amount of support, we receive from others, number of changes or traumatic events that have recently occurred in our lives. Studies have shown that excessive stress during the teen years can have a negative impact upon both physical and mental health later in life. For example, teen stress is a risk factor for the development of depression, a serious condition that carries an increased risk of suicide.

Uncontrollable, unpredictable and constant stress has far reaching consequences on our physical and mental health. Stress can begin in the womb and recur throughout life. Abnormal stress responses may cause various diseases or condition.

Stress and health problems are closely linked. It is well known that stress either quick or constant, can induce risky body mind disorder. It is well accepted fact that certain cardiac problems like hypertension and heart attack are caused due to emotional strain when the person undergoes stress. Such emotional stress caused may be due to frustration, intense anger, fear, depression or shock.

Eating disorders can also occur due to preoccupations with stressful situations. Sleep disorder can also occur due to stress. A person who is said to experience emotions frequently such as intense anger, jealousy, hatred, fear, panic complains about ulcer problems. Infact intense fear or guilt can lead to some sexual problems. The most common stress related health problems are cold, tension and headache.

Stress researchers have identified the positive as well as negative effects of stress on human body which can be observed by the changes it produces. Research has shown that people who have high level of stress are often more prone to illness and have low ability to cope with illness and subsequent stress. It is studied that stress is found to increase the likelihood of illness and behaviour in several ways. It can

alter the health habits, increase wear and tear on the physiological system or interact with pre-existing vulnerabilities to illness, both psychological and physical. Moreover not everyone exposed to the same sources of stress will develop illness. This is because individual or environmental factors can intervene to distrupt the path between stress and illness. Some people may take actions against the stressor early on or before any psychological and physiological damage is done. Some may intervene when they experience early symptoms. Thus stress illness relationship concept is very complex as it is influenced by a number of pre-existing and intervening factors. It follows when stress leads to disease. Methods of modifying the response or removing the stimuli giving raise to stress would be useful in health maintenance.

EFFECTS OF STRESS ON BLOOD GLUCOSE

Generally stress can raise the blood sugar level. Any type of illness, infection, stress (emotional or physical), surgery, dental problem, injury, etc. will cause stress on the body. When this occurs, the body needs more energy to "fight" this stressor, so it releases hormones called **"Counter Regulatory Hormones."** The hormones convey a message to the liver to release extra glucose to provide needed energy. As a result, blood glucose will rise, and typically insulin – requiring person will need more insulin during a stressful event. Likewise, a person taking oral diabetes medication may require a temporary increase in the dose; and a person who is diet-controlled could, in some instances, temporarily require oral medication.

There are number of measures to get relieved from stress. Some of the important measures to keep the blood sugar under control are as follows; meditation, relaxation measures, listening to music, counseling and psychotherapy, yoga, massage, acupuncture, aromatherapy, hypnotherapy, reflexology and bio-feedback.

DIABETES MELLITUS

Type II diabetes mellitus is the commonest form of diabetes constituting 90% of the diabetic population.The global prevalence of diabetes is estimated to increase from 4% in 1995 to 5.4% by 2005.

According to **World Health Organisation (2000)** at least 171 Million people world wide will suffer from diabetes. Its incidence increases rapidly and it is estimated that by the year 2030 this number will almost double. Diabetes Mellitus occurs, throughout the world but it is more common (especially type II) in the more developed countries. The greatest increase is in Asia and Africa where most patients will probably be found in 2030. The increased incidence of diabetes in developing countries follows the trend of urbanization and life style changes, perhaps most importantly a western style diet.

According to **American Diabetes Association, (2009)** 1 in 3 Americans born after 2000 will have diabetes in their life time. Diabetes is the major cause of blindness in adults aged 20-24 years as well as the leading cause of non traumatic lower extremity amputation and end stage renal disease.

Type II diabetes is more prevalent among Hispanics, Native Americans, Africans, and Asians pacific inlanders than in Non-Hispanic whites.

The estimate of actual number of diabetics in India is around 40 million. This means that India actually has the highest number of diabetics of anyone country in the world. Impaired glucose tolerance is also a mounting problem in India. The crude prevalence rate in the urban areas of India is 9% and approximately 3% of the total population in rural areas.

Type II Diabetes Mellitus usually occurs in people over 35 years of age and 80% to 90% are overweight at the age of 50.

Maturity onset diabetes on the young **(MODY)** is a form of type II diabetes mellitus that affects many generations in the same family with an onset in individuals younger than 25 years.

Epidemiological studies among migrant Asian Indians in many countries showed higher prevalence of Type II Diabetes compared with the host populations and other migrant ethnic groups. Studies conducted in India in the last decade have

highlighted that not only is the prevalence of Type II Diabetes high, but also that it is increasing rapidly in the urban population.

Till date there is no cure for diabetes. Consequently the over all goal of care for clients with diabetes is control or regulation of blood sugar rather than cure. When diabetes is successfully regulated the client avoids the complications of hyper and hypoglycemia with minimal disruption to a normal life style. Diabetes control depends on the proper interaction of three factors food, insulin or oral medication to lower blood sugar and exercise. Clients with Non insulin dependent diabetes mellitus may require oral hypoglycemic agents for lowering blood glucose levels. Some clients with non insulin dependent diabetes mellitus may require insulin if diet, exercise, and oral hypoglycemic agents are ineffective.

NEED FOR THE STUDY

Life ’s everyday challenges can be stressful. Stress is one of the common enemies to all. It also affects children. Stress can be the outcome of many things. There always seems to be too much to do in a given day when trying to balance with personal and professional life. It is rare to have everything done or caught up. There is lot of complications arising due to changing life. Illness is also a stressful event. Especially chronic illness is an added stressful event which gives more stress to an individual. Diabetes mellitus has been recognized as a chronic condition that challenges every aspect of a personal, emotional, social, physical, psychological, occupational and spiritual life of an individual.

Diabetes is the chronic disease which gives tremendous stress to the patients, results in poor glycemic control. Many people are not aware about the treatment of diabetes. When people come to the hospital for regular check up nurses advice them about the importance of prescribed diet, taking medication, regular check up and treatment of diabetes mellitus. Eventhough people are much aware about it and consult the doctor repeatedly, it changes the entire mechanism of the human body and fluctuations occur in blood sugar. Literature also suggested that if the blood sugar is not under control patients develop complications. The current scenario is that blood

sugar does not reduce although there are medicines due to the highly increased stress level.

Dr.Tkaehiro Nozaki (2009) reported that men and women feeling greater diabetes related distress, had more complication and less optimal blood sugar control.

Newman Rusik (2001) suggested that stress management improves long term glycemic control in type II diabetes mellitus. It is widely recognized that stress may have negative effects on health and the patients with type II diabetes may be at increased risk.

P.J**. Lustman(1997)** pointed out that depression and stress are common among patients with diabetes mellitus and it results in reduced or poor glycemic control among patients.

Also the investigator on reviewing the literature found that only a few studies have been done regarding the emotional stress response that focused on health related stress in diabetes mellitus and the relationship with blood sugar.The investigator felt that a study would help the nursing practitioner to understand the problem of diabetic patients and provide the necessary information to promote their emotional well being and to keep their blood sugar level under control.

STATEMENT OF THE PROBLEM

A Study to Assess the Level of Stress Among Patients with Type II Diabetes mellitus in relation to Level of Blood Sugar at a Selected Hospital in Coimbatore.

AIM OF THE STUDY

The main aim of the study was to assess the level of stress among patients with type II diabetes mellitus and to determine the association between the level of blood sugar and level of stress.

SPECIFIC OBJECTIVES OF THE STUDY

- To assess the level of stress among diabetic patients in different areas of stress and over all.
- To assess the level of blood sugar among diabetic patients.
- To determine the relationship between the level of stress and blood sugar.
- To determine the association between the level of stress, level of blood sugar and selected demographic variables.

HYPOTHESIS

Ho: There will be no significant relationship between the level of stress and the level of blood sugar.

OPERATIONAL DEFINITION

Stress

It is a pressure or tension experienced by a person in response to a stimuli, event or situations. In this study stress refers to the difficulties, feelings or thoughts expressed by a diabetic person on a five point scale in response to the demands made on the person to make changes in living pattern in order to control blood sugar. The demands or areas where changes required are medication, diet, exercise and follow up.

Blood Sugar

Blood sugar is a constituent of blood like any other component such as Sodium, Potassium, etc. It is present in blood in adequate amount to meet the metabolic needs of the body. Blood sugar readings indicated in the study are as per last clinical visit. The normal amount of glucose present in the blood which is measured by a glucometre

Type II Diabetes Mellitus

Type II Diabetes mellitus formerly known as Adult onset or Non insulin dependent diabetes is the most common form of diabetes.. It usually occurs in people over 35 years of age, and 80 to 90% of patients are overweight at the time of diagnosis. It is the chronic multi systemic disease related to abnormal production or impaired utilization of insulin.

ASSUMPTION

- Diabetes mellitus is a global problem.
- Blood sugar if monitored and controlled can prevent complications
- Regular exercise and dietary changes influence the blood sugar control.
- Level of blood sugar is influenced by factors such as anxiety, tension ,blood pressure etc.

DELIMITATION

- The study includes type II diabetes mellitus patients only above 30 years attending outpatient department at a selected Hospital in Coimbatore.
- Patients with Diabetes Mellitus for less than 5 years were not included.
- The study cannot be generalized as only 50 samples were included for the study.

SCOPE OF THE STUDY

The findings of the study will show the level of stress experienced by the patients with Type II Diabetes Mellitus in the areas of demands such as medications, exercise, diet, disease, follow-up. It will give a clear indication in which area the patients find it difficult to make changes which is very necessary to control the blood sugar also helps to prevent the complications and there by increasing their quality of life. Further this study is intended to determine the role of emotional wellness in keeping the blood sugar under control. The recommendations of this study will also promote the therapeutic compliance of the patient with Type II Diabetes Mellitus.

CONCEPTUAL FRAME WORK

Conceptual frame work refers to the interrelated concepts or abstractions assembled together in some rational scheme by virtue of their relevance to a common theme**. (Polit and hunger- 1999)**

Theoretical model for this study was derived from Sister Callista Roy's adaptation theory(1996). Roy employs a feedback cycle of input, throughput and output. Input is identified as stimuli, which can come from the environment or from with in a person. Stimuli are classified as focal stimuli (immediately confronting the person) contextual (all other stimuli that are present) or residual (non specific such as cultural beliefs or attitudes about illness) Input also includes a person's adaptation level (the range of stimuli to which a person can adapt easily).

In the adaptive system the term 'system' is defined as self parts connected to function as whole for some purpose and it does so by virtue of the interdependence of its part. This has two major internal control processes called " regulator" and " cognator."

Regulator subsystem consists of input, internal processes and output. Input stimuli can come from the environment. Internal processes including chemical, neural and endocrine transmit the stimuli causing output , a physiological response.

Cognator subsystem consists of input, internal processes and output. It regulates self concept, role function, and inter dependence.

Output is the outcome of the system, and refers to the person's behavior. In Roy's system output is categorized as adaptive responses or ineffective response. These responses provide feed back for the system.

This modified model in this study explains the input as the focal stimuli namely medication, diet, follow up, exercise, and diabetes life. The contextual stimuli are age, sex, educational status, occupation, type of family, duration of illness and

medication taken for diabetes. The cognator subsystem is through collected data, maintaining rapport, counseling, clarifying their doubts and improving the level of understanding.

The adaptive responses are improvement in communication, sharing their feelings, anxiety, thoughts and tension towards the disease. The non adaptive response are more complications, poor understanding, negative approach, more conflict and financial problem.

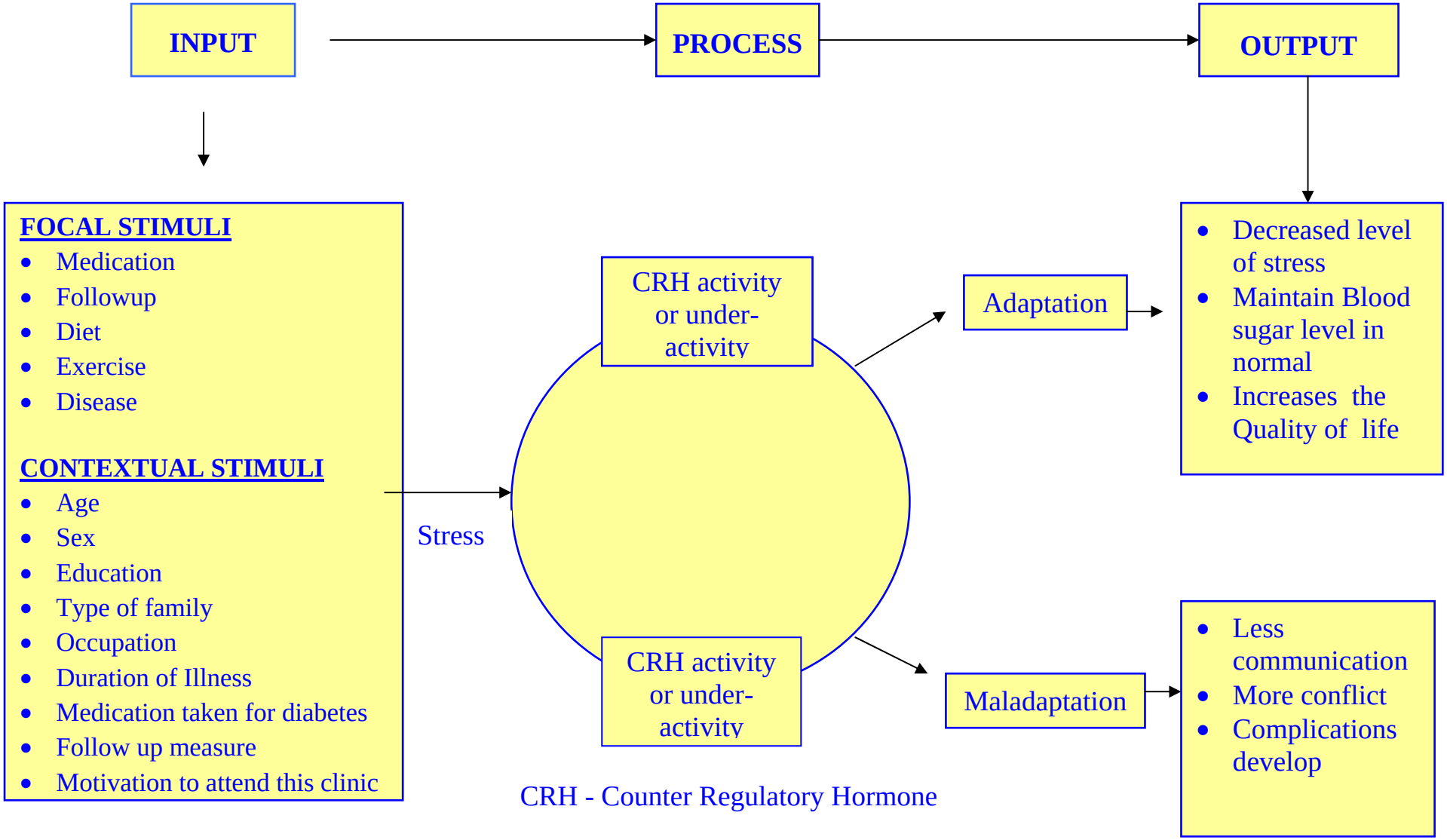


FIGURE -1: CONCEPTUAL FRAMEWORK BASED ON MODIFIED ROY'S ADAPTATION MODEL 1996

CHAPTER II

REVIEW OF LITERATURE

Review of literature is a systematic identification, location, scrutiny and summary of written materials that contain information on research problems. The review of literature in a research report is a summary of current knowledge about a particular problem of practice and includes what is known and not known about the problem. The literature is reviewed to summarize knowledge for use in practice or to provide a basis for conducting a study .**Hulme and Grove's (1994).**

The relevant and useful literature for the present study have been organized and presented under three sections .

1. Stress in Type II Diabetes Mellitus.
2. Relationship between Stress and blood sugar level among Type II diabetes mellitus.
3. Studies related to difficulties experienced in the areas of medication, diet, follow up, economic status by the diabetic patients.

1. Literature related to stress in diabetes mellitus :

Samuvel.Melamed et al (2006) conducted a prospective study to test the extent to which the onset of type II diabetes in apparently healthy individuals was predicted by burnout, a unique affective response to combined exposure to chronic stressors. The study participants included were 677 employed men and women who were followed up three to five years (mean= 3.6 years). Burnout was assessed by the shirom- melamed burnout measure with its three subscales such as emotional exhaustion, physical fatigue, and cognitive weariness. The conclusion of the study showed that burn out symptoms were remarkably consistent over the followup period irrespective of changes in place of work and in employment status. During the followup period 17 workers developed Type II Diabetes mellitus. Logistic regression results indicated that burnout was associated with a 1.84 fold increased risk of diabetes ((95%) confidence interval = 1.19- 2.85) even after adjusting for age, sex,

body mass index, smoking, alcohol use, leisure time physical activity, initial job category, and follow up duration. In a subsample of 507 workers , the relative risk of diabetes was found to be much higher after additional control for blood pressure levels (odds ratio =4.32, 95 % confidence interval = 1.75- 10.67).The finding of the study suggested that chronic burnout might be a risk factor for the onset of Type II diabetes in apparently healthy individuals.

Nelda Mier (2008) did a study on clinical depressive symptoms and diabetes in a binational border population. This exploratory, binational study examined the prevalence and correlates of clinical depressive symptoms in Hispanics of Mexico origin with Type II Diabetes mellitus living on both sides of the Texas Mexico border. Two binational samples, consisting of 172 adult patients of Mexico origin with Type II diabetes mellitus in South Texas and 200 from the North eastern region of Mexico were used to test personal and social correlates to clinical depressive symptoms. The results showed that clinical depressive symptoms was similar in both south Texas and North eastern Mexico patients (39% and 40.5 % respectively). Gender , education, emergency department visits and burden of diabetes symptoms were of clinical depressive symptoms. In the north eastern Mexico sample, the only statistically significant correlate to clinical depressive symptoms was the burden of diabetes symptoms.

Welch G (2007) conducted a study on the emotional distress experienced by Hispanic patients living with Type II Diabetes mellitus.. The purpose of the study was to conduct a psychometric examination of an established measure of emotional distress specific to diabetes and to use this tool to examine the levels and predictors of distress in a comparative study of Hispanic and Non- Hispanic type II diabetes mellitus Patients. The psychometric analysis was conducted,(Skewness, Kurtosis, differential items function, consistency analysis internal consistency reliability) to examine the equivalence of United States English and United States Spanish language versions of a measure of diabetes related distress. Regression tool was used to evaluate the differences in distress, by ethnic group, after adjusting for blood glucose

control, sex, age, education, physical functioning, mental health functioning and spirituality. The result showed that PAID (Problem Areas in Diabetes) had high reliability (α =0.96). Skewness, kurtosis, and differential item function were not present. Confirmed factor analysis identified a large general factor, supporting use of the total PAID score. Univariate analysis found a significantly higher mean PAID score for Hispanic patients compared to non Hispanic (45.9± /- 28.5 Vs 35.9 +/- 26.4). A final regression model based on age, physical functioning and mental functioning accounted for approximately 50% of PAID variance. The conclusion of the study supported the reliability and unidimensionality of the United States Spanish and United States English PAID versions for comparative research compared to non-Hispanic patients, Hispanic patients reported higher distress which was substantially predicted from age and physical and mental functioning.

2. Literature related to stress and blood sugar among diabetes mellitus :

Maysaa et al (2009) did a study on factors associated with poor glycemic control among patients with Type II diabetes mellitus. A systematic random sample of 913 patients was selected from all patients with Type II diabetes mellitus over a period of 6 months in 2008. A pre structured questionnaire sought information on socio demographic, clinical characteristics, self care management behaviors, medication, barriers to adherence and attitude towards diabetes. Height, weight and waist circumference were measured. All available last readings of HbA1c, fast blood sugar measurements and lipids were abstracted from patient records. Poor glycemic control was defined as HbA1c > 75. In the multivariate analysis increased duration of diabetes (> 7 years Vs < 7 years) (OR= 1.99, p < 0.00050 (OR- Odd ratio not allowing eating plan as recommended by dietitians (OR = 2.98, P< 0.005) negative attitude towards diabetes mellitus and increased barriers to adherence scale scores were significantly associated with increased odds of glycemic control. The study concluded that longer duration of diabetes and not adherent to diabetes self care management behaviors were associated with poor glycemic control. An education program on emphasis for life style modification with importance to adherence to treatment regimen would be of great benefit in glycemic control.

Olivia (2009) did a study to determine whether depressive symptoms are associated with poor self care behaviours among patients with Type II diabetes. Study subjects were 168 patients with diabetes aged above 30 years, who had a diabetes history of 1-15 years. Using a self reported questionnaire, a researcher evaluated diabetes self care behaviours and depressive symptoms. Self care behaviors were evaluated in five categories such as taking medication, self monitoring of blood glucose, diet, exercise and participation in patient education programs. Depressive symptoms were evaluated using the centre for epidemiological studies- depression (CES-D) scales. Multiple logistic regression analysis were used to determine the association between self care behaviour and depressive symptoms. The results showed that highly depressive symptoms score were associated with poor self- care behaviors, significantly with poor participation in education programs (odds ratio OR= 1.21, 95% confidence interval =1.06 -1.38) and poor diet (OR =1.14, 95%, confidence interval = 1.00-1.31). Depressive symptoms were not significantly associated with either self monitoring of blood glucose or exercise. The study concluded that the evaluation and control of depressive symptoms, among diabetic patients would improve their adherence to self- care behaviours.

Cox.D.J et al (2008) did a study to find out the relationship between psychological stress and insulin dependant diabetic blood glucose control. Study of this report found a significant positive correlation between the Hasseles scale and HbA1c levels in a group of 59 adult insulin dependent diabetes mellitus. Patients social supports, Type A behavior are reported therapeutic compliance neither correlated with HbA1 relationship. In a separate sample of 123 subjects Study 2 revealed that diabetes patients generally perceive stress as a very potent factor in blood glucose control. A factor analysis of these data revealed that three different dimensions of the perceived stress blood glucose relationship(Fight/flight , Passive/ruminative positive effect).

Winston- Salem. N.C (2007) did a study to determine whether glycemic control in adults with either insulin dependent diabetes mellitus or non insulin dependent diabetes mellitus was related to the perceived family function. The study

design used was cross sectional observational study. The study participants were 407 subjects from a family medicine ambulatory care unit, a tertiary pediatric diabetic unit or public funded community health centre. The tool used for the study were APGAR (Adaptation, Partnership, growth, affection, and resolve). Glycemic control was measured by fasting blood glucose levels and glycosylated hemoglobin A1C levels as well by the patients perception of their control. The result of the study showed that those with non insulin dependent diabetes had scores indicative of more external sources of control than those with insulin dependent diabetes mellitus .The study concludes that knowledge of the family function affect, locus of control, perceived stress, and coping may be useful to the family physician in the care of adults with diabetes mellitus, since these psychosocial parameters are associated with objective and perceived glycemic control.

Sue Penckofer et al (2007) did a study on psychological impact of living with diabetes. The purpose of the study was to understand the feelings of depression, anxiety and anger experienced by women with type II diabetes mellitus and the impact these feelings have on their over-all quality of life. The method of the study were four focus groups (2 white, 2 African) conducted by ethnically matched professional mediators. Sessions were audio tapped, and transcriptions were analyzed using an inductive approach. Forty one women(mean age, 55.6 years, standard deviation = 7.9) who had type II diabetes for an average of 8.7 years (standard deviation = 6.3) participated. Forty two percent of the sample were African American. The result of the study showed that the themes generated directly from the focus group data were (1) struggling with the changing health situations. (2) encountering challenges in relationships with self, family, and others, (3) Worrying about the present and future.(4) bearing multiple responsibilities for self and others and (5) choosing to take a break. Women also expressed feelings of depression, anxiety and anger which were primarily related to having diabetes as well as managing the multiple responsibilities of being a care giver. The conclusion of the study showed women with type II diabetes experience feelings of depression, anxiety and anger which affect their health and over all quality of life. The findings suggested that health care providers should assess the psychological health of women with type II

diabetes mellitus when developing plans of care. By undertaking and addressing the emotional health of women and with type II diabetes mellitus the relationship between the patients, family and health provider may improve allowing for more successful diabetes management.

Elstad. E. et al (2008) did a study on individual, family and environmental stress among patients with type II diabetes mellitus. The purpose of the study was to study perceptions of diabetes among people with type II diabetes in Americans. The study participants were seven focus groups held with 64 participants at a primary health care facility and near by work place in American samoa. These focus groups were conducted in samoa language and explore perception of diabetes including its meaning, etiology and the illness experience. The result showed that American samoas with type II diabetes experienced individual, familial stressors and environmental stress.

University Of Florida (2006) conducted a study to determine relationship between stress depression and glycemic control in low income patients with type – 2 diabetes mellitus. Participants were recruited at 2 community health centres that provide free medical care. The following hypothesis were examined (1) experiencing stressful life events is positively correlated with blood glucose levels. (2) negative stressful events have greater association with glucose level than positive stressful events. (3) Depressions mediates the relationship between negative stressful events and glucose level. (4) The effects experiencing both negative stressful events and depression is predictive of glucose level. (5) The interaction between negative stressful events and depression is predictive of glucose level (interactive model) and (6) Perceptions of control moderates the relationship between stress and depression. The statistical analysis of bivariate correlation used. Stressful events and depression were not related to blood glucose levels. The data did not support any of the 3 models of depression stress, and glycemic control.

James.E et al (2005) conducted a study on daily stress and glycemic control in Type II diabetes. The main aim of the study was to investigate the relationship

between daily stress and glycemic control in 54 people with Type II Diabetes mellitus over 21 days. Measures included daily reports of stress (Hasseles), four times- daily blood glucose measurements, and HbA1c levels. Times series analysis revealed considerable variation between individual in the nature and extent of blood glucose response to stress. In approximately one third of sample, stress was significantly associated with either same or next day blood glucose levels r- ranged= 0.79 to 0.58).The majority of stress reactive individual (20.4%) of this sample demonstrated a positive association between hasseles and same day blood glucose levels. A much less common effect was found in two individuals (3.7%), where hasseles were related to decreased same day blood glucose. Stress reactive individuals tended to have high HbA1c values at baseline (t(52+2.2, P< 0.05), and significant relationship between emotion focused coping and blood glucose levels(r=0.93, P< 0.01). The conclusion of study was although a significant majority of this sample was resistant to the effects of stress, marked individual difference were found in the nature and extent of stress reactivity.

Nancy. S. Thomas.2005 conducted a study to investigate the role of cognitive distortions in the relationship between adherence behaviour, diabetes specific stress, and metabolic control. The tool of study used was questionnaire method. Glucometre readings, and glycosylated hemoglobin (HbgA1c) assays from 143 youth (11-18 years old) with type II diabetes were noted. The data were analysed by using path analysis. The result of the study showed that higher levels of negative cognitive distortions were associated with more stress, higher level of general stress then led to less adherent behaviour and subsequently poorer metabolic control and more diabetic stress also led to poor metabolic control as well as general stress. The conclusion of the study indicated that an indirect role of negative cognitive distortions in metabolic control. The findings suggested that instead of the proposed direct link between cognitive distortions and adherence behaviour indirect relationship may exist through stress.

Department of family and community medicine (2004) conducted a study to examine the association between psychological stress and diabetes in two American reservation communities. The methodology of the study was cross sectional

probability sample survey . The sample of the study used were 3084. The tool of the study were interview of physical health problem checklist. The result of the study showed that psychological stressors were significantly associated with increased odds of self reported diabetes in the southwest.

Luis. H. Perez (2001) did a study on relationship between, diabetes, stress and hypertension.The main aim of the study was to assess the association between the overweight, diabetes, stress and postulated risk factors for a high blood pressure on the risk of hypertension. This matched case control study included 228 cases randomly selected in a rural adult population in Yarumal- Antiquio , Columbio. For every case, one control, individually matched by age (±years), sex and residence was selected from the general population. Conditional logistic regression was used to estimate odds ratio. Obese people (BMI- Body mass index 30 kg/m2) showed an increased risk of hypertension compared to those with a body mass index < 25 kg /m2, OR: 3.83 (95% confidence interval 1.83-8.00). A high level of psychological stress was associated with hypertension (measured on a tension, anxiety scale) OR (odd rartio) 5.02 95% confidence interval : 2.25- 11.19). A positive association was also observed for diabetes although it was of borderline significance OR : 2.58 (95% confidence interval 0.88-7.55).Having a family member with hypertension or myocardial infarction was related to a higher risk of hypertension.(P< 0.05). This study evidenced that body mass index stress (feeling of anxiety or tension) and diabetes are independently associated with an increased risk of hypertension in a rural area of Colombia.

Francois. Pouwer et al (2007) did a study on psychological well being in out patients with diabetes.The main objective of the study was to investigate whether monitoring and discussing psychological wellbeing in outpatients with diabetes improves mood, glycemic control and the patients evaluation of the quality of diabetes care. This study was a randomized controlled trial of 461 outpatients with diabetes who were randomly assigned to standard care condition to monitor the condition. In the latter group, the diabetes nurse specialist assessed and discussed psychological well being with the patient (with an interval of 6 months) in addition to

standard care. The computerized wellbeing questionnaire was used for this purpose. Primary outcomes were mood, HbA1c, and the patients evaluation of the quality of diabetes care at one year follow up. The number of referral to the psychologist analyzed as a secondary outcome. Intention treatment analysis was used. The results showed that the monitoring group reported better mood compared with the standard care group as indicated by significantly higher level of energy, higher general well being, better mental health and a more positive evalution of the quality of the emotional support received from the diabetes nurse. The two groups did not differ for HbA1c or in their over all evalution of quality of diabetes care. In the monitoring condition, significantly more subjects were referred to the psychologist.

Joseph. Konen et al (1993) did a study on family function, stress and locus of control. The main objective of the study was to determine whether glycemic control in adults with either insulin dependent diabetes mellitus or non insulin dependent diabetes is related to perceived family function, stress, coping, affect and locus of control. The study design used were cross sectional, observational study. Four hundred and seven subjects from a family medicine ambulatory care unit, a tertiary pediatric diabetic unit, or a public funded community health centre, all located in Winston, Salem, completed a series of psychometric instruments that included the family APGAR(Adaptation, parternership, growth, Affection, and resolve) FACES III (Family, Adaptability and Cohesiveness, evaluation scales) cohesion subscale, Affect balance scale, multidimensional health focus of control scales and the brief encounter psychosocial instrument. Glycemic control was measured by fasting blood glucose levels and glycosylated HbA1c levels as well as by patients perception of their control. The result showed that those with non insulin dependent diabetes mellitus had scores indicative of more external sources of control than those with insulin dependent diabetes mellitus. A greater proportion of adults with sub types of diabetes perceived their families to be disengaged than subjects from families without diabetes. In a bivariate analysis , family dysfunction correlated with lack of perceived glycemic control while perceived stress and negative affects correlated with fasting glucose levels in those with Non-insulin diabetes mellitus but not with insulin dependent diabetes mellitus. Using a multivariate discriminate analysis adults with non insulin

dependent diabetes mellitus in good glycemic control as measured by glycosylated levels Hb levels had lower family cohesion and negative affect than those in good Control.Conversely those with insulin dependent diabetes mellitus with acceptable glycosylated Hb levels had higher family cohesion less negative effect lower loci of control but higher perception of inadequate coping than those in poor control. The study concluded that knowledge of the family function affect lack of control, perceived stress and coping which may be useful to the family physician in the care of adults with diabetes mellitus since these psychosocial parameters are associated with objectives and perceived glycemic control.

3. Studies related to difficulties experienced by diabetic patients in the areas of taking medication, diet and follow up.

Delahanty, L.M, et al (2007) did a study on association of diabetes related emotional distress with diabetes treatment in primary care patients with Type II diabetes. . The main aim of the study was to characterise the determinants of diabetes related emotional distress by treatment modality. (Diet, oral medication only or insulin).The tool used were PAID(Problem Areas In Diabetes) for the study on a samples of 815. A statistical analysis used for the study were linear regression to assess the associations of treatment with PAID score. The result of the study showed that PAID score were significantly higher among insulin treated (24.6) compared with oral treated (7.8, $P < 0.001$) but not different between oral Vs diet treated patients ($P=0.2$). Group scores remained similar, but the statistical significance of their difference was reduced and ultimately eliminated after sequential adjustment for diabetes, severity, HbA1c, body mass index, regimen adherence, and self monitoring blood glucose. Insulin treated patients reported significantly higher distress than oral or diet treated patients on 16 of 20 PAID items.“ Worrying about the future, and Guilt/ and anxiety when…. Off tract with diabetes” were the top serious problems (PAID > 5) in all the treatment groups. Not accepting diabetes diagnosis was a top concern for oral and diet treated patients and unclear management goals distressed diet treated patients.

Denise Siquire et al (2007) did a study on difficulties of diabetic patients in the illness control, feelings and behaviours. This study aimed to identify difficulties diabetics patients face during treatment in controlling the disease. A total of 24 diabetic patients attended in the nurse educational centre for adults and elders in 2003, participated in the study. The data was collected individually through a written report guided by a question previously elaborated on a pre scheduled data. The content analysis technique was used in the data analysis. The result showed several difficulties related to the treatment followup, rejection and denial of the patients conditions suffering and revolt due to the restrictions imposed by the diet, physical activity and medication. It is possible to infer that the focus of the education approach should not be restricted to the transmission of knowledge: it should also include emotional, social and cultural aspects that also influence in the treatment follow up. The study concluded that diabetes and depression must be addressed as priorities in diabetes initiatives at the United States Mexico border region. Further research is warranted to examine the extent and impact of involving family practice physicians from both sides of the border in depression screenings among patients with type II diabetes mellitus.

Meryl broad et al (2008) did a study on diabetes psychological insulin resistance. The purpose of the study was to define and understand patient psychological insulin resistance and its impact on diabetes management. The population included patients with Type I and Type II diabetes insulin, native and those currently using insulin. The results showed that psychological insulin resistance is impacted by patients beliefs, and knowledge about diabetes and insulin negative self perceptions and attitudinal barriers, the fear of side effects and complications from insulin use , as well as life style adaptations, restrictions required by insulin use and social stigma. These etiological influences both independently and in combination constitute a patients psychological insulin resistance and may result in the reluctance and compromised glucose control.

The result of the study showed that psychological insulin resistance is complex and multifaceted. It plays an important role , although often ignored, in

diabetes management. Assisting health care Professional in better understanding psychological insulin resistance from the patients perspective should result in improved treatment outcomes. By tailoring treatments to patients psychological insulin resistance clinicians may be better able to help their patients to begin insulin treatment sooner and improve compliance thus facilitating target glycemic control.

Denise Siqueira et al (2001) did a study on feeling of women after the diagnosis of type II diabetes mellitus. The study design was descriptive and explorative used with the objective of knowing feelings and emotional reactions of women after the diagnosis of diabetes. Data were collected at primary care unit in brazil through a semi structured interview. The statistical analysis used was thematic content analysis for the study. The results showed that women's behavior after the diagnosis diabetes was associated with the feelings and emotional reactions that interfere with treatment adherence.

Robbins.J.M (2001) did a study to examine the associations of poverty income ratio, education, and occupational status with type II diabetes mellitus prevalence among African American and Non Hispanic white women and men aged 40-74 years. The research design used for the study was cross sectional. The result of the study showed that among African American women there was a strong graded association between poverty income ratio and diabetes. There was no significant association for African American men. The study concludes that socio economic status is associated with type II diabetes mellitus prevalence among women but not consistently among men.

Noema B. et al (2001) did a study on dietary behavior and type II diabetes care. The objective of the study was to explore the risk factor modifications, as well as barriers and facilitators for behavioural change in Mexican type II diabetics and their families. The method of the study were risk assessment and impact evaluation which included measurements on anthropometrics, diet, physical activity, nutrition knowledge, and HbA1c. The intervention included discussion groups and promoted behaviour change on dietary risk, physical exercise, and basic diabetic knowledge of

urban diabetic patients and 38 relatives. The educational method consisted of cognitive reframing and situational problem solving during five meetings over an eight month period. The result of the study showed were older and less educated than their participating relatives(58.8± 11 and 34.7 ± 13.7 years old 4.5 8 ± 3.4 and 7.8 ± 3.7 years of schooling, respectively).Factors such as diet, degree of obesity, physical activity and HbA1c reflected that 92% of diabetic patients and 83% of their relatives were at high health risk. After the intervention, nutritional knowledge and diet health awareness increased (P= .013 and .001 respectively).The study concluded that no significant health risks reduction was observed.

The review of literature gave an in-depth knowledge, which are related to the research problem of stress and the relationship between the stress and blood sugar among diabetes mellitus patients. The review of literature helped the investigator to select the setting to understand the problem, of stress and to design the present study.

CHAPTER – III

METHODOLOGY

This chapter deals with the description of research methodology adopted by the investigator to assess the level of stress among diabetic patients who were attending the out patient department in a selected Hospital. It includes research design, population, sample size, inclusion and exclusion criteria for sample selection, sample technique, research tool, data collection procedure and data analysis.

RESEARCH APPROACH

The research approach is a platform from which the investigator explores new knowledge in an effort to describe better and understand the phenomena, clarify possible explanations and identify different areas of the problem under study.

This study adopted a non-experimental descriptive survey approach as the purpose of the present study was to assess different areas of demand and to determine the relationship between stress and blood sugar level among patients with Type II diabetes mellitus.

SETTING OF THE STUDY

Setting refers to the area where the study is conducted. The study was conducted at the out patient department of a selected private hospital in Coimbatore. It is a 50 bedded hospital with very good referral services from near by villages. Approximately 50 diabetic patients attend the diabetic out patient department per week. The average attendance of diabetic patient was 500 per year. This hospital provides counseling services for diabetic patients especially on dietary modifications and regular health check ups . In addition to diabetes out patient department other specialties like general out patient services, gynaecology, and surgical out patient department are also available.

POPULATION

The population comprised of selected samples who were in the age group of above 30 years with Type II diabetes mellitus attending the outpatient department of a selected private hospital in coimbatore at the time of the study.

SAMPLE SIZE

The sample consisted of 50 Type II diabetic patients who fulfilled the criteria for inclusion in the study.

SAMPLING TECHNIQUE

The investigator adopted a Non probability convenient sampling technique. According to the availability, the samples were selected from the out patient department

SAMPLING CRITERIA

Inclusion Criteria

- Patients who had type II diabetes mellitus for more than 5 years.
- Patients who were willing to participate in the study
- Patients whose blood sugar was more than of 150 mg /dl
- Patients who could understand and read Tamil or English.

Exclusion Criteria

- Patients who were aged below 30 years
- Patients having other associated diseases
- Patients with psychiatric illness
- High risk patients
- Patients with the history of previous surgical conditions.

DESCRIPTION OF THE TOOL:

The tool used for this study was a five point likert rating stress scale (Strongly agree, agree, not applicable, disagree, strongly disagree). The five areas of the rating scale were medication, diet, exercise, follow up, and disease. In each area there were seven statements which included positive and two negative statements.

A questionnaire was used to collect demographic data which included age, educational status, type of family, duration of illness, medication taken for diabetes and regular monitoring of blood sugar level. (Appendix -v)

SCORING PROCEDURE

The stress score ranged from 5-1

5 – Strongly agree

4 – Agree

3 – Not applicable

2 – disagree

1 – strongly disagree

Positive items will be scored in positive direction, and negative items will be reversibly scored. The minimum obtainable score for each area was 7 and the maximum score was 35. For the entire scale the minimum score was 35 and Maximum 175.

SCORING AND SCORE INTERPRETATION

Scoring for each area

Score	Score %	Intrepretation
7- 16.3	20-46.57	Mild stress
16.4-25.7	46.85-73.42	Moderate stress
25.8-35	73.71-100	Severe stress

Scoring for entire scale

Score	Score %	Intrepretation
35- 81.6	20-46.62	Mild stress
81.7-128.3	46.68-73.31	Moderate stress
128.4-175	73.37-100	Severe stress

DEVELOPMENT OF THE TOOL

The tool was developed by using information obtained from literature reviews, books, researcher's own experience with diabetes mellitus and problems encountered in clinical setup. Simplicity of language, organization and clarity of statement were the few factors kept in mind while preparing the tool. The tool was revised several times after consultation with experts and collegues. When it reached the final stage the tool was drafted in English.

VALIDITY OF THE TOOL

The research tool along with the objectives, inclusion criteria and exclusion criteria were submitted to a diabetalogist, one psychologist and three nursing experts. All the three nursing experts hold a Masters degree in Medical Surgical Nursing Speciality and with more than 5 years of experience in teaching. Medical expert was a chief medical consultant (M.B.B.S.,MD,) at a selected private hospital in Coimbatore. Clinical psychologist was an Assistant Professor in a private college in Coimbatore. Based on the suggestions of experts, a correction was done in the five point rating stress scale in the area of diet (family members find it difficult to prepare the prescribed diet it was changed as It is difficult for family members / I find it difficult to prepare the prescribed diet). The tool was refined for the main study and the tool was translated into tamil.

RELIABILITY

The reliability of the rating scale was established by test retest method.. The retest was given after a duration of 7 days. Correlation coefficient was calculated by Karl Pearson Correlation and Coefficient method. The obtained r value respectively in the five areas were (Medication- 0.6, Followup-o.9, Diet- O.7, Exercise-0.7, and Disease- 0.6) which confirmed that there was a positive correlation and stability of the tool.

PILOT STUDY

A pilot study was conducted in the same selected hospital in Coimbatore. A formal permission was obtained from the Chief Medical Officer and Out Patient

Department In-charge. Based on the inclusion criteria type II diabetic patients attending the out patient department were selected for convenient sampling technique. Investigator individually contacted the samples and they were taken into a separate room and explained about the rating scale and purpose of conducting study. A few questions were clarified. The average time taken for completion of questionnaire was 15 minutes. Everyday one to two samples were selected. The total period was three days. After conducting the pilot study the feasibility of the study was confirmed. There was good cooperation from the concerned authority and the samples. The rating scale was found relevant.

DATA COLLECTION PROCEDURE

Before commencement of data collection for the main study, permission was obtained from the Chief Medical Officer and Outpatient Department and also a room was permitted for the research purpose. The investigator familiarized the receptionist and explained the purpose of the study. Everyday the investigator visited the hospital at 10am and selected a sample. Based on inclusion criteria the patient was taken individually. After obtaining their willingness the five point stress scale was given to the patients. In the presence of the investigator the stress scale was filled and collected.

A few clarifications were given to the patients regarding the negative pattern of the statement. The average time taken for the patients individually was 15 minutes and the total data collection period was 30 days. Daily two to three patients were interested to participate in the study. They were very cooperative and showed enthusiasm in participating in the study.

PLAN FOR DATA ANALYSIS

The data obtained were analyzed in terms of objectives of the study using descriptive and inferential statistics.

Descriptive statistics

Frequency and percentage distribution were used to analyze the demographic data and the level of stress in different areas of demand among type II Diabetic patients and the blood sugar level. Mean score percentage, mean and standard deviation were used to asses the three level of stress in different areas of demand.

Inferential statistics

F test (ANNOVA) was used to assess the significant difference of the mean stress score level in different areas of demand.

Karl Pearsons Correlation and coefficient was used to find out the relationship between three levels of stress in different areas of demands and the blood sugar level.

X^2 was used to check association between the level of stress, the blood sugar level and the selected demographic variables.

CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

Analysis is a method of rendering data in quantitative, meaningful and intelligible manner, so that research problem can be studied and tested and the relationship between the variables can be found. **Polit and hungler(1996)**.

This chapter deals with the analysis and interpretation of data collected from 50 Type II diabetes mellitus samples who attended the outpatient department. This study intended to assess the level of stress among patients with type II diabetes mellitus in relation to level of blood sugar. The data have been analysed and presented as follows.

Section : 1. Demographic profile of the samples.

This section deals with the demographic profile of the samples in relation to personal characteristics such as age, sex, educational status, family, socio economic status, and illness and treatment on two tables.

Section : 2. Stress of patients with type II diabetes mellitus.

Stress of patients with type II diabetes has been analyzed in three levels (mild, moderate, severe), in five areas of demands (medication, follow up, diet, exercise, disease) and over all in frequency, percentage, mean score and significance by statistical test.

The items in all the five areas of demands have been analysed under three categories of response in frequency, percentage and weighted score.

Section 3. Comparison of level of stress and level of Blood sugar of patients with type II diabetes.

Blood sugar has been analyzed in two levels (Moderately severe and highly severe) in frequency and percentage.

Over all level of stress has been examined in relation to level of Blood sugar and its significance by statistical test.

Section 4. Association of demographic variables with stress variables.

The demographic variables have been analysed in association with level of stress and level of Blood sugar.

SECTION – 1. DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLES

TABLE – I

FREQUENCY AND PERCENTAGE DISTRIBUTION OF SAMPLES ACCORDING TO THEIR PERSONAL CHARACTERISTICS.

N=50

S.No.	Demographic Characteristics	Frequency	%
1.	Age		
	a) 40-50	13	26.00
	b) 50-60	23	46.00
	c) 60-70	14	28.00
2.	Sex		
	a) Male	30	60.00
	b) Female	20	40.00
3.	Educational Status		
	a) Illiterate	23	46.00
	b) Primary	10	20.00
	c) Secondary	4	8.00
	d) Higher secondary	6	12.00
	e) Graduate	7	14.00
4.	Religion		
	a) Hindu	43	86.00
	b) Muslim	2	4.00
	c) Christian	5	10.00
5.	Marital Status		
	a) Married	48	96.00
	b) Unmarried	2	4.00
6.	Family monthly income		
	a) 1000-2000	3	6.00
	b) 2001-3000	9	18.00
	c) 3001-4000	12	24.00
	d) 4000 and above	26	52.00
7.	Type of family		
	a) Nuclear Family	32	64.00
	b) Joint family	18	36.00

Table-I presents the frequency and percentage distribution of samples.

Age

The age of the patients ranged from 40 to 70 years. 23 patients (46.00%) were in the age group of 50-60 years and 14 patients (28.00%) were in the age group of 60-70 years, and 13 (26.00%) patients were aged 40-50 years.

Sex

Majority (60.00%) of the patients were males and the remaining (40.00%) patients were females.

Educational status

Nearly half of the group , 23 patients (46.00%) were illiterate. The remaining patients had education from primary level (20%) secondary education, (8%) higher secondary (12%) and graduation (14%).

Religion

Majority (86.00%) of patients were Hindus, and the remaining 5 (10.00%) were Christians and Muslims 2 (4.00%)

Marital status

Majority 48 (96.00%) of the patients were married and the rest were unmarried.

Family monthly income

The monthly income of the family ranged from Rs1000 to above 4000.Half of the group (52.00%) had an income above Rs 4000/-. 3 patients had an income of Rs.1000-2000 per month. 21 patients (42%) had an income of either 2001-3000 or (3001 to 4000)

Type of family

Majority of the samples 32 (64.0%) were from nuclear family and the rest 18(36.00%) were from joint family.

TABLE – II

FREQUENCY AND PERCENTAGE DISTRIBUTION OF SAMPLE ACCORDING TO ILLNESS AND TREATMENT.

N=50

S.No.	Characteristics	Frequency	%
1.	Duration of Illness a) 5-7 years b) 7-9 years c) above 9 years	 38 10 2	 76.00 20.00 4.00
2.	Types of medication taken for diabetes a) OHA * b) Insulin c) Both (OHA & Insulin)	 45 0 5	 90.00 0.00 10.00
3.	Medication taken Regularly a) Yes b) No	 48 2	 96.00 4.00
4.	Exercise done a) Yes **b)** No Exercise pattern a) Regular b) Irregular	 29 21 15 14	 58.00 42.00 51.7 48.3
5.	On Prescribed diet for last 6 months a) Yes b) No	 38 12	 76.00 24.00
6.	Following prescribed Diet : a) Regular b) Irregular	 26 12	 68.42 31.57
7.	Regular Monitoring of the Blood sugar a) Yes b) No	 48 2	 96.00 4.00

OHA* – ORAL HYPOGLYCEMIC AGENTS

Table - II presents the frequency and percentage distribution of samples according to illness and treatment

Duration of illness

38 patients (76.00%) had a duration of diabetes for 5 to 7 years, 10 (20.00%) patients had diabetes for 7 to 9 years and only 2 patients (4.00%) had diabetes for a duration of more than 9 years.

Medication taken for diabetes

All patients (100%) took medication for diabetes. 90% of them took oral hypoglycemic agents and only 5 patients (10.00%) took both insulin and oral hypoglycemic agents. Regular intake of medication was seen among 48 (96%) patients.

Exercise pattern

(58%) of patients exercised while the other half (42%) did not do any exercise. Out of the 29 patients who exercised only 15 patients (51.7.%) exercised regularly and 14 patients (48.3%) did irregular exercise.

Dietary pattern

38 patients (76.00%) followed the prescribed diet and the remaining (24.00%) did not follow the prescribed diet. Among the 38 patients, 26 (68.42.%) patients followed the prescribed diet regularly and 12 patients (31.57.%) did not follow the diet regularly.

Monitoring the blood sugar level

Majority of patients (96.00%) monitored the blood sugar regularly and only 2 patients (4.00%) were irregular in monitoring the blood sugar.

SECTION 2 : STRESS OF PATIENTS WITH TYPE II DIABETES MELLITUS IN THREE LEVELS OF STRESS IN DIFFERENT AREAS OF DEMAND.

TABLE – III

FREQUENCY AND PERCENTAGE DISTRIBUTION OF PATIENTS WITH TYPE II DIABETES IN THREE LEVEL OF STRESS IN DIFFERENT AREAS OF DEMAND.

N=50

S.No	Areas of demands	LEVEL OF STRESS					
		Mild		Moderate		Severe	
		F	%	F	%	F	%
1	Medication	9	18.00	13	26.00	28	56.00
2	Followup	5	10.00	17	34.00	28	56.00
3	Exercise	12	24.00	12	24.00	26	52.00
4	Diet	8	16.00	9	18.00	33	66.00
5	Disease	6	12.00	21	42.00	23	46.00

Table-III presents the distribution of samples in three levels of stress in the five areas of demands.

Stress is present in all the three levels in all the five areas of demands. About half 26-28 patients (52-56%) had severe stress with regard to medication, follow up and exercise. 33 patients (66%) showed severe stress with regard to diet. The number of patients who showed moderate stress with regard to all these five areas were 9-21 (18 to 42%) and mild stress by 5 to 12 patients (10-24%). This table concludes that half of the patients experience same stress with regard to medication, follow up, exercise and diet. Severe stress with regard to disease was seen only in 46% of the samples.

Figure 2 highlights the level of stress in different areas of among Type II Diabetes Mellitus.

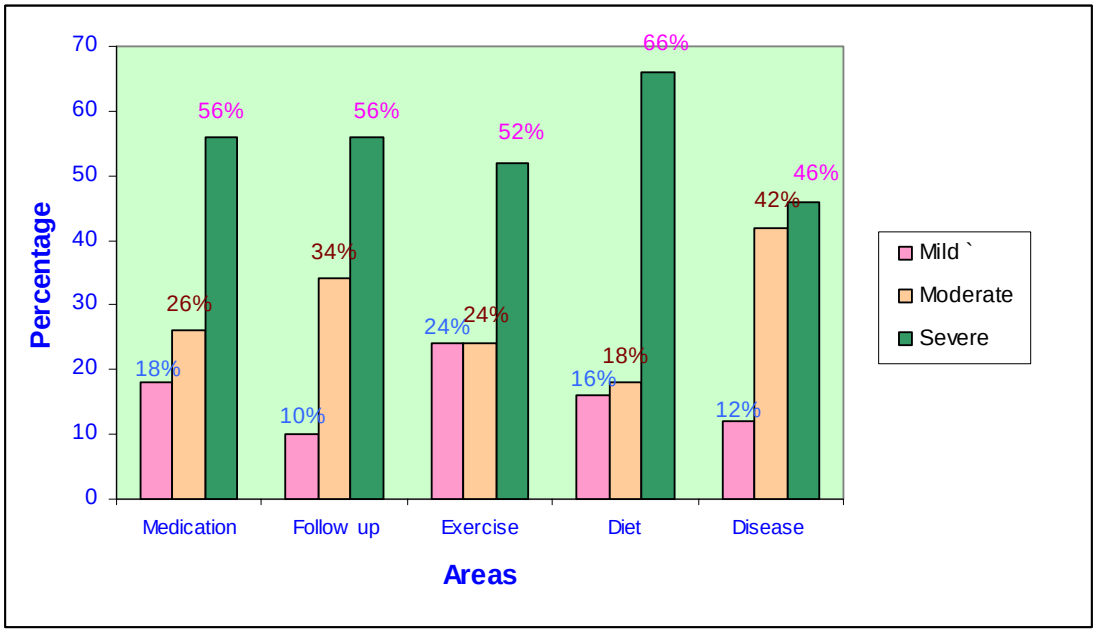


Figure – 2 **Percentages of patients with Type II Diabetes Mellitus in three level of stress in different areas of demand.**

TABLE-IV

FREQUENCY AND PERCENTAGE DISTRIBUTION OF OVER ALL STRESS OF PATIENTS WITH TYPE II DIABETES MELLITUS IN THREE LEVEL OF STRESS

N=50

Level of Stress	Frequency	Percentage
Mild	40	16.00
Moderate	72	28.80
Severe	138	55.20

Table- IV presents the overall stress of patients with type II diabetes mellitus.

The over all stress shows that 55.20% of responses were in severe category, 28.80% in moderate and 16.00% in mild category.

Figure 3 highlights the overall stress of patients with Type II Diabetes Mellitus in three levels.

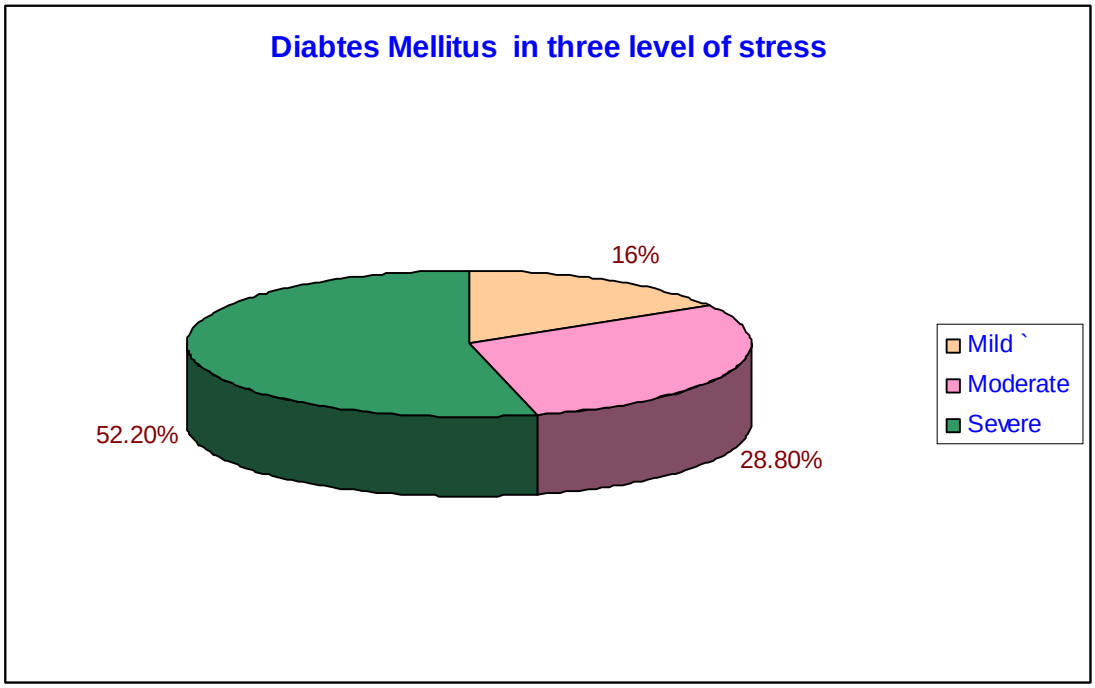


Figure 3 **– Percentage of over all stress of patients with Type II Diabetes Mellitus in three level of stress.**

TABLE – V

MEAN STRESS SCORE AND STANDARD DEVIATION OF PATIENTS WITH TYPE II DIABETES IN DIFFERENT AREAS OF STRESS AND LEVEL OF SIGNIFICANCE

N=50

S.No.	Different areas of stress	Max Score	Mean	SD	Mean Score %	F at df (4,45) P < 0.05
1.	Medication	35	24.56	8.53	70.17	0.1793 NS
2.	Follow up	35	25.16	6.18	71.88	
3.	Exercise	35	26.82	8.25	76.22	
4.	Diet	35	25.46	8.28	72.74	
5.	Disease	35	24.20	7.44	69.44	

Table – V presents the mean stress score of patients with type II diabetes mellitus in different areas of demand.

Highest mean percentage score was seen in the area of exercise (76.2%) and diet with a mean score of 72.74%. The mean score of medication and follow up was 70.17 and 71.88 respectively. Comparatively stress with regard to disease obtained a mean score of 69.44%.

This table concludes that patients experience severe stress on the whole in all the areas of demand in a similar manner. Only very little difference is seen between the mean stress score of all the five areas. Analysis of variance shows no significant difference F= 0.1793, P= 0.05, df (4,45) in stress of patients in the five areas of demands. So the hypothesis Ho (pg-8) "There will be no significant difference in level of stress of patients in five areas of demands" was accepted. ($F = 2.62$, $p < 0.05$, df (4,45).

TABLE – VI

FREQUENCY AND PERCENTAGE OF SAMPLES IN THREE CATEGORIES OF RESPONSE IN THE AREA OF MEDICATIONS.

S. No	Items	StronglyAgree, Agree		Not applicable		Disagree, Strongly Disagree		weighted Score	Rank
		F	%	F	%	F	%		
1	* I like taking medications	32	64.00	3	6.00	15	30.00	108	7
2	I get annoyed to take medicines	41	82.00	5	10.00	4	8.00	219	3.5
3	I am afraid to administer insulin by myself	41	82.00	1	2.00	6	12.00	219	3.5
4	It is unnecessary to take medicines regularly	37	74.00	7	14.00	6	12.00	213	5
5	Regular medication is expensive	48	96.00	1	2.00	1	2.00	236	1
6	I am angry that I have to take medicines	45	90.00	4	8.00	1	2.00	234	2
7	I forget to take medicines	35	70.00	7	14.00	5	10.00	206	6

Table VI- shows the response of samples in three categories and in the area of medications.

The five point rating scale was reduced into three point rating scale by combining agree and strongly agree, disagree and strongly disagree for the convenience of analysis.

To all the seven items on medication, more than 70% of the samples showed agreement. The items with above 90% agreement were "regular medication is expensive" and "I am angry that I have to take medicines". Eighty two percentage of the patients agreed " I get annoyed to take medicines" and "I am afraid of taking insulin by myself ". 70-74% were of the view that It is unnecessary to take medicine regularly "and "I forgot to take medicines".

Only 1-7 (2-14%) patients were not able to give any opinion regarding these seven items of medications. However 1-6 patients(2-12%) disagreed on all the seven items.

From the table it could be concluded that the distribution of response shows the stress factors related to medications and majority of patients seem to undergo stress. The outstanding stress factor in the descending rank order is "Regular medication is expensive", "I am angry that I have to take medicines", "I get annoyed to take medicines" and " I am afraid to administer insulin by myself".

TABLE – VII

FREQUENCY AND PERCENTAGE OF SAMPLES IN THREE CATEGORY OF RESPONSE IN THE AREA OF EXERCISE.

N = 50

S. No	Items	Agree, Strongly agree		Not applicable		Disagree, strongly disagree		Weighted Score	Rank
		F	%	F	%	F	%		
1	I feel tired to do exercise	34	68.00	5	10.00	11	22.00	195	7
2	It is difficult to follow the exercise everyday	35	70.00	9	18.00	6	12.00	203	4.5
3	Exercise will not help me to control my blood sugar level.	37	74.00	7	14.00	6	12.00	214	1
4	Since am always active I feel exercising is unnecessary	39	78.00	3	6.00	8	16.00	211	2
5	I don't think it is necessary to exercise everyday	37	74.00	9	18.00	4	8.00	195	4.5
6	If diet is followed there is no need for exercise	34	68.00	6	12.00	10	20.00	196	6
7	Daily exercising is a waste of time.	38	76.00	9	18.00	3	6.00	210	3

Table VII shows the response of samples in three categories and in the area of exercise.

To all the seven items on exercise more than 70% of samples showed agreement. The item with above 74% agreement were " Exercise will not help me to control my blood sugar level", "Since am always active I feel exercising is unnecessary", "I don't think it is necessary to exercise everyday" and "Daily exercising is a waste of time".68% were of the view that "I feel tired to do exercise" and "If diet is followed there is no need for exercise.

Only 3-9 (6-18%) patients were not able to give any opinion regarding these seven item of medication. However 1-11 patients (2-33%) disagreed on all the seven items

From this table it could be concluded that the distribution of responses shows the stress factors related to exercise and majority of the patients seem to undergo stress. The outstanding stress factors in the descending rank is "Since am always active I feel exercising is necessary". "Daily exercising is a waste of time "and "If diet is followed there is no need for exercise".

TABLE – VIII

FREQUENCY AND PERCENTAGE OF SAMPLES IN THREE CATEGORIES

IN THE AREA OF FOLLOW UP.

N=50

S. No	Items	Agree, strongly Agree		Not applicable		Disagree, strongly disagree		Weighted Score	Rank
		F	%	F	%	Rank	%		
1	I feel unhappy that when I skip my check up because of my busy schedule	38	76.00	7	14.00	5	10.00	210	3
2	I get frustrated with the results after self monitoring	40	80.00	2	4.00	8	16.00	212	2
3	I am afraid getting high blood sugar level reading during self checkup	42	84.00	1	2.00	7	14.00	214	1
4	I feel that frequent checkup will not display a huge difference in blood sugar level.	34	68.00	9	18.00	7	14.00	199	4.5
5	I feel that frequent checkup is not required if the sugar level is not very high	31	62.00	4	8.00	15	30.00	186	6
6	Going for checkup costs time and money	37	74.00	7	14.00	6	12.00	207	4.5
7	I find it too comfortable to self monitor.	36	72.00	5	10.00	9	18.00	97	7

Table VIII shows the response of the samples in three categories and in the area of follow up

To all the seven items on follow up more than 70% of the samples showed agreement. The item with above 80% agreement was “I get frustrated with the results after self monitoring”, and “I am afraid getting high blood sugar level reading during self check up’. 72-76% of the patient were agreed “I feel unhappy that when I skip my check up because of my busy schedule” and “I find it too comfortable to self monitor.

Only 1-9 (2-18%) patients were not able to give any opinion regarding these seven items of followup. However 10-15(20-30%) disagreed on all seven items.

From the table it could be concluded that the distribution of response shows the stress factors related to follow up and the majority of patients have stress.

The outstanding stress factor in the descending rank order is “I get frustrated with the results after self monitoring” and “ I am afraid getting high blood sugar level reading during self check up”.

TABLE – IX

FREQUENCY AND PERCENTAGE OF SAMPLES IN THREE CATEGORIES IN THE AREA OF DIET.

N=50

S. No	Items	Agree, Strongly Agree		Not applicable		Disagree, strongly Disagree		Weighted Score	Rank
		F	%	F	%	F	%		
1	I am not satisfied with the prescribed diet	40	80.00	5	10.00	5	10.00	212	5
2	Family members find difficult to prepare the prescribed diet everyday	36	72.00	8	16.00	6	12.00	206	6.5
3	Not able to take sweets upsets me	41	82.00	5	10.00	4	8.00	218	2
4	It is difficult to follow the prescribed diet during social functions.	39	78.00	3	6.00	8	16.00	206	6.5
5	Family members / I feel bad if I don't eat what they have cooked at home.	38	76.00	7	14.00	5	10.00	214	4
6	It is difficult to follow the prescribed diet.	41	82.00	5	10.00	4	8.00	221	1
7	it is difficult to follow the diet outside the home.	40	80.00	8	16.00	2	4.00	217	3

Table IX shows the response of the samples in three categories and in the area of diet.

To all the seven items on diet more than 70% of the samples showed agreement The item with above 80% agreement were “I am not satisfied with the prescribed diet”, “Not able to take sweets upsets me” and “It is difficult to follow the diet outside the home”.

Only 3-8 (6-16%) patients were not able to give any opinion regarding for these seven items of diet. However 2-8(4-16%) disagreed on all the seven items.

From the table it could be concluded that the distribution of response shows the stress factors related to diet and majority of the patients seems to undergo stress.

The outstanding stress factor in the descending rank order is “It is difficult to follow the prescribed diet” and “Not able to take sweets upsets me”.

TABLE – X

FREQUENCY AND PERCENTAGE OF SAMPLES IN THREE CATEGORIES IN THE AREA OF DISEASE.

N=50

S. No	Items	Agree, strongly Agree		Not applicable		Disagree, strongly disagree		Weighted Score	Rank
		F	%	F	%	F	%		
1	I fear that diabetes will get me into coma during sleep.	32	64.00	4	8.00	14	28.00	186	5
2	When I see amputated persons it worries me that it might happen to me too.	42	84.00	2	4.00	6	12.00	216	1
3	I am very angry about what has happened to me.	37	74.00	9	18.00	4	8.00	180	6
4	I feel sad when I look at other healthy individuals.	27	54.00	15	30.00	11	22.00	192	4
5	I feel lonely with this disease in my family.	27	54.00	16	32.00	7	14.00	195	3
6	*Though I am diabetic I feel perfectly well and in good health.	21	42.00	2	4.00	27	54.00	156	7
7	* I don't really believe I am a diabetic patients.	6	12.00	8	16.00	36	72.00	202	2

Table **X** shows the response of the samples in three categories and in the area of disease.

To all the seven times on disease more than 74% of the samples showed agreement. The item with above 80% agreement were “When I see amputated persons it worries me that it might happen to me too”. 12-64% of the patients agreed “ I fear that diabetes will get me into coma during sleep”, “I feel sad when I look at other healthy individual”, “Though I am diabetic I feel perfectly well and in good health” and “ I don’t really believe I am a diabetic patient”.

Only 2-16 (4-32%) patients were not able to give any opinion regarding these seven items of disease. However 4-36(8-72%) disagreed on all the seven items.

SECTION 3 : COMPARISON OF LEVEL OF STRESS AND LEVEL OF BLOOD SUGAR AMONG PATIENTS WITH DIABETES MELLITUS

TABLE – XI

FREQUENCY AND PERCENTAGE OF THE BLOOD SUGAR.

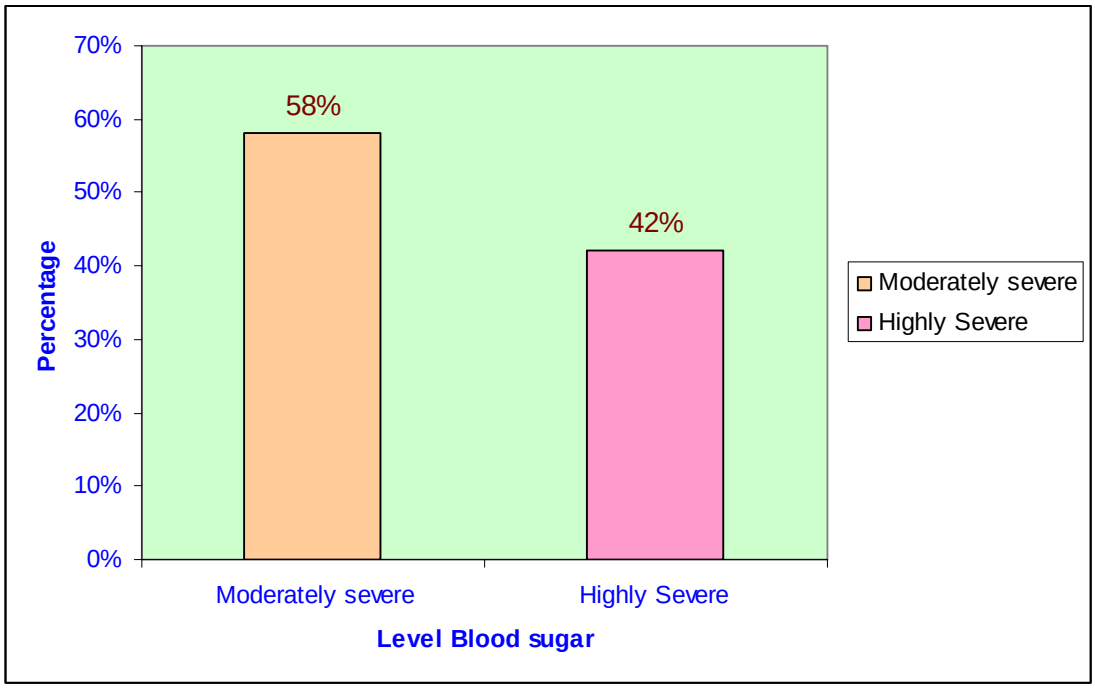
N=50

Level of blood sugar	Frequency	Percentage
Moderately severe(150-170mg/dl)	29	58.00
Highly severe (171-190mg/dl)	21	42.00

Table XI presents the samples of frequency and percentage of blood sugar in two levels.

The blood sugar of 29 patients (58.00%) was at a moderately severe level and for 21 patients (42.00%) the blood sugar was at a highly severe level.

Figure 4 highlights the samples according to blood sugar in two levels.



`Figure 4 **Percentage of samples according to blood sugar in two levels**

TABLE XII

CO- RELATION OF LEVEL OF STRESS IN DIFFERENT AREAS OF DEMAND AND BLOOD SUGAR LEVEL.

N=50

S.No	Areas of demand	Blood Sugar Level				r value	t Value p < 0.05 df= n-2
		Moderately severe (150-170mg/dl)		Highly severe (171-190mg/dl)			
		F	%	F	%		
1	**MEDICATIONS**						
	Mild	7	14.00	2	4.00	0.301	*2.19
	Moderate	8	16.00	5	10.00		
	Severe	14	28.00	14	28.00		
2	**DIET**						
	Mild	5	10.00	3	6.00	0.053	0.368 NS
	Moderate	4	8.00	5	10.00		
	Severe	20	40.00	13	26.00		
3	**FOLLOW UP**						
	Mild	5	10.00	4	8.00	-0.066	-0.458 NS
	Moderate	12	24.00	6	12.00		
	Severe	12	24.00	11	22.00		
4	**DISEASE**						
	Mild	3	6.00	2	4.00	0.073	0.535 NS
	Moderate	12	24.00	5	10.00		
	Severe	14	28.00	14	28.00		
5	**EXERCISE**						
	Mild	5	10.00	2	4.00	0.053	0.507 NS
	Moderate	4	8.00	3	6.00		
	Severe	20	40.00	16	32.00		

P<0.05 Table Value df= n-2=48 Table Value 2.02 NS- not significant

*** significant**

TABLE XII high lights the correlation of level of stress in different areas of demand and level of blood sugar

When statistically tested by Karl Pearsons Co-relation and Co-efficient method there is no relationship between the level of stress and level of level of blood sugar.

There is a significant relationship between the blood sugar and level of stress in the area of medications($r= 0.301, df=n-2, P>0.05$, t value = 2.19).

There is no significant relationship between the blood sugar and level of stress in the areas of diet, exercise, disease, followup.The hypothesis Ho (pg no- 8).There will be no significant difference between the level of stress and level of blood sugar was accepted.

TABLE XIII

CO- RELATION OF OVER ALL SAMPLES IN THREE LEVEL OF OVER ALL STRESS AND BLOOD SUGAR LEVEL.

N=50

S.No	Level of Stress	Blood Sugar Level				R value	t value p < 0.05 df = n -2
		Moderately severe (150-170mg/dl)		Highly severe (171-190mg/dl)			
		F	%	F	%		
1	Mild stress	1	2.00	0	0.00		
2	Moderate stress	11	22.00	13	26.00	0.102	0.702 NS
3	Severe stress	17	34.00	8	16.00		

Table XII shows the frequency and percentage distribution of over all samples in three level of over all stress and the blood sugar level.

Patients with moderately severe blood sugar level and highly severe blood sugar level showed,17 patients (34%) had severe stress, 11 patients (22%) moderate stress with a moderately severe blood sugar level. Only 8 patients (16%) showed severe stress and 13 (26%) moderate stress with a highly severe blood sugar level.

Statistically tested by Karl Pearsons Co-relation and Co-efficient method no co-relation existed between the level of stress and level of blood sugar (r = O.702.df=n-2,p>0.05). So the hypothesis Ho.(pg no-8). “There will be no significant relation between the over all stress and level and blood sugar was accepted”

SECTION : 4 ASSOCIATION OF LEVEL OF BLOOD SUGAR AND LEVEL OF STRESS WITH SELECTED DEMOGRAPHIC VARIABLES

TABLE – XIV

ASSOCIATION BETWEEN THE SELECTED DEMOGRAPHIC VARIABLES AND THE LEVEL OF STRESS.

N=49

S.no	Demographic Variables	Moderate		Severe		χ^2 Value P=0.05
		F	%	F	%	
1	Age 40-50 50-60 60-70	 5 12 7	 10.00 24.00 14.00	 7 11 7	 14.00 22.00 14.00	0.99 NS df:4
2	Sex Male Female	 14 10	 28.00 20.00	 15 10	 30.00 20.00	50.48* df =2
3	Educational Status Illiterate Literate	 10 14	 20.00 28.00	 12 13	 24.00 26.00	45.06* df = 2
4	Family Monthly income More Than 4000 ≤ 4000	 6 18	 12.00 36.00	 20 5	 40.00 10.00	45.11* df = 2
S	Exercise Done Yes No	 12 12	 24.00 24.00	 16 9	 32.00 18.00	0.471 NS df = 2
6	On prescribed diet for last 6 moths yes No	 18 6	 36.00 12.00	 19 6	 38.00 12.00	3.477 NS df =2

***Significant Table value = 3.84, df = 1 NS-Not Significant**

Table Value =5.99, df = 2

Table XIV presents the association of demographic variables and stress

This table shows that there is an association between sex, educational status, family monthly income and level of stress. Mild category had been excluded.

Sex :

There is a significant association between sex and level of stress (chi squre = 50.48, df=2, P= 0.05). Male experience significantly more stress than females.

Education:

There is a significant association between educational status and level of stress (chi square= 45.06, df=1, P= 0.05).Literate experiences more stress than illiterate.

Family monthly income:

There is a significant association between family monthly income and the level of stress.(chi square= 45.11, df=2, P=0.05). Patients with family monthly income more than and equal to Rs.4000 experiences more stress than above Rs.4000.

There was no significant association between age, exercise done, prescribed diet taken and level of stress.

TABLE – XV

ASSOCIATION BETWEEN THE SELECTED DEMOGRAPHIC VARIABLES AND THE LEVEL OF BLOOD SUGAR

N=50

S.No	Demographic Variables	Moderately Severe (150-170mg/dl)		Highly Severe (171-190mg/d1)		$\chi 2$ Value P=0.05
		F	%	F	%	
1	Age					
	40-50	9	18.00	4	8.00	3.58
	50-60	18	36.00	5	10.00	NS
	60-70	2	4.00	12	24.00	df=2
2	Sex					
	Male	21	42.00	9	18.00	21.8*
	Female	8	16.00	12	24.00	df=1
3	Educational Status					
	Illiterate	15	30.00	6	32.00	7.67*
	Literat	14	28.00	15	52.00	df=1
4	Family Monthly income					
	More Than 4000	14	28.00	20	40.00	12.71*
	$\leq$ 4000	15	30.00	1	2.00	df=1
5	Exercise Done					
	Yes	9	18.00	20	40.00	12.71*
	No	20	40.00	1	2.00	df=1
6	On prescribed diet for last 6 moths					
	Yes	12	24.00	17	34.00	12.71*
	No	17	34.00	4	8.00	df=1

*** Significant Table value = 3.84, df = 1NS-Not Significant Table Value=5.99, df = 2**

Table XV presents the association of demographic variables with level of blood sugar.

This table shows that there is no association between sex, educational status, family monthly income, exercise done, and prescribed diet.

Sex:

There is a significant association between sex and level of blood sugar (chi square = 21.8,df=1, P= 0.05). Male had significant moderately severe blood sugar than females.

Educational status:

There is a significant association between educational status and level of blood sugar. ((chi square = 7.67,df=1, P= 0.05). Illiterate significantly had highly severe blood sugar level than literate patients.

Family monthly income:

There is a significant association between family monthly income and level of blood sugar(chi square = 12.71,df=1, P= 0.05).Patients who had the monthly income of less than 4000 rupees significantly had highly severe blood sugar than a patients who had the income of above Rs. 4000

Exercise done :

There is a significant association between exercise pattern and level of blood sugar (chi square = 12.71, df=1, P=0.05). Patients who had done exerecises significantly had highly severe blood sugar level than patients who had not done exercises.

On prescribed diet :

There is significant association between the blood sugar level and patients on prescribed diet.(chi square = 12.71, df=1, P=0.05).Patients who were not in prescribed diet had significantly highly severe blood sugar than a patients who were on prescribed diet.

There is no significant association between age and the level of blood sugar.

CHAPTER V

DISCUSSION

The study was focused on assessing the level of stress among patients with type II diabetes mellitus in relation to level of blood sugar. This chapter presents the main findings and the discussion about them.

1. Demographic characteristics of the samples

Table I and II : The age of the samples ranged from less than 40 years to more than 70 years. 23 samples (46%) were aged between 50-60 years and 30 samples (60%) were males. Nearly half the groups 23 samples (46%) were illiterate and majority (96%) of the patients married. Most of the patients (52%) had an income above Rs.4000 and majority of the samples 64% were from nuclear family.

The duration of the illness ranged from 5 years and above. Majority of 38 patients (76%) had duration of diabetes for 5 to 7 years. All patients (100%) took medication for diabetes. Majority of 38 patients followed a prescribed diet and 96% monitored the blood sugar regularly.

2. Assessment of level of stress

Table III and Table IV explains the frequency and percentage distribution of the patients with type II diabetes mellitus in three level of stress and over all stress in different areas of demand. According to table about half 52-56% patients had severe stress with regard to medication, follow up, and exercise. 66% showed severe stress with regard to diet. The number of patients who showed moderate stress with regard to all these five areas were 18-42%. According to the table IV patients experience severe stress in all three level with regard to medication, followup, exercise and diet.

Table V explains the mean stress score of patients with type II diabetes mellitus in different areas of demand. Highest mean percentage score was seen in the area of exercise 76.2% and diet with a mean score of 72.74% the mean score of medication and follow up was 70.17 and 71.88% respectively. Comparatively stress

with regard to disease obtained mean score of 69.44%. Only very little difference is seen between the mean stress score of all the five areas. Analysis of variance shows no significant difference F = 01793, p= 0.05, df (4,45) in stress of patients in the five areas of demands.

Table VI- shows the response of samples in three categories and in the area of medications.The five point rating scale was reduced into three point rating scale by combining agree and strongly agree, disagree and strongly disagree for the convenience of analysis. To all the seven items on medication, more than 70% of the samples showed agreement. The items with above 90% agreed were "regular medication is expensive" and "I am angry that I have to take medicines". 82% of the patients agreed " I get annoyed to take medicines" and "I am afraid to administer insulin by myself.. 70-74% were of the view that " It is unnecessary to take medicine regularly "and "I forget to take medicines". Only 1-7 (2-14%) patients were not able to give any opinion regularly these seven items of medications. However 1-6 patients (2-12%) disagreed on all the seven items. It could be concluded that the distribution of response shows the stress factors related to medications and majority of patients seem to undergo stress. The outstanding stress factor in the descending rank order is "Regular medication is expensive", "I am angry that I have to take medicines", "I get annoyed to take medicines" and " I am afraid to administer by myself". The present study findings are supported another study done by **Denise Siquire** to identify difficulties diabetic patients face during treatment in controlling the disease. The study findings revealed several difficulties related to treatment followup such as High cost, adverse effects, Adherence to medication therapy and no of medications used by diabetic patients.

Table VIII shows the response of the samples in three categories and in the area of follow up To all the seven items on follow up more than 70% of the samples showed agreement. The item with above 80% agreed were "I get frustrated with the results after self monitoring", and "I am afraid getting high blood sugar level reading during self check up'. 72-76% of the patient agreed "I feel unhappy I skip my check up because of my busy schedule" and "I find it too comfortable to self monitor. Only 1-9 (2-18%) patients were not able to give any opinion regularly these seven items of followup. However 10-15 (20-30%) disagreed on all seven items. From the table it could be concluded that the distribution of response shows the stress factors related to

follow up and the majority of patients seem to undergo stress. The outstanding stress factor in the descending rank order is “I get frustrated with the results after self monitoring” and “ I am afraid getting high blood sugar level reading during self check up”. The presents study results shows 80% of samples were agreed “frustrated with the results after self monitoring of blood glucose ”. But another study done by **Olivia (2009)** to determine whether depressive symptoms (medication, self monitoring of blood glucose, diet, exercise) are associate d with poor self care behaviour among patients with Type II Diabetes mellitus. The study results showed that depressive symptoms were showed that depressive symptoms were associated with diet and medication and not associated with self monitoring blood glucose.So this study findings were not consistent with present study findings.

Table IX shows the response of the samples in three categories and in the area of diet to all the seven items on diet more than 70% of the samples showed agreement The item with above 80% agreement were “I am not satisfied with the prescribed diet”, “Not able to take sweets upsets me” and “It is difficult to follow the diet outside the home”. Only 3-8 (6-16%) patients were not able to give any opinion regularly these seven items of diet. However 2-8 (4-16) disagreed on all the seven items. From the table it could be concluded that the distribution of response shows the stress factors related to diet and majority of the patients seems to undergo stress. The outstanding stress factor in the desending rank order is “It is difficult to follow the prescribed diet” and “Not able to take sweets upsets me”.

Table XI presents the frequency and percentage distribution of samples of blood sugar in two levels. The blood sugar of 29 patients (58.00%) was at a moderately severe level and for 21 patients (42.00%) the blood sugar was at a highly severe level.

3.Correlation of level of stress in different areas of demand and level of blood sugar and over all.

Table XII and XIII high lights the correlation of level of stress in different areas of demand and level of blood sugar and over all. There was significant relationship between the blood sugar and level of stress in the area of medication ($r=0.301$, $df = n-2$, $P > 0.05$, $t = 2.19$). There was no significant relationship between the blood sugar and level of stress in the areas of diet, exercise, disease, followup and over all.

Table XIII shows the Frequency and percentage distribution of over all samples in three level of over all stress and the blood sugar level. Patients with moderately severe blood sugar level and highly severe blood sugar level showed that 17 patients (34%) had severe stress, 11 patients (22%)had moderate stress with a moderately severe blood sugar level. Only 8 patients (16%) showed severe stress and 13 (26%) moderate stress with a highly severe blood sugar level. When Statistically tested by Karl Pearson Co-relation and Co-efficient method shows no Co-relation between the level of stress and level of blood sugar.

4.Association of study variables with Demographic variables.

Table XIV and XV presents the association of demographic variables with two level of stress. This table shows that there is an association between sex, educational status, family monthly income and level of stress. When statistically computed there was a significant association between sex and level of stress (chi sqaure = 50.48,df=2, P= 0.05). Male experience significantly more stress than female. There was no significant association between age, exercise done, prescribed diet taken and level of stress.

Table XV presents the association of demographic variables with level of blood sugar. When statistically analysed there was no association between sex, educational status, family monthly income, exercise done, and prescribed diet. There is no significant association between age and the level of blood sugar.

The researcher concluded that the medical care especially the nursing care should not focus only relieving the symptoms of illness. The patients should receive the holistic nursing care to improve the over all quality of life of the diabetic patients.

CHAPTER-VI

SUMMARY OF FINDINGS ,CONCLUSION, IMPLICATION, AND RECOMMENDATION

This chapter presents the summary, summary of findings, recommendations, suggestions for further study and conclusion

Summary of the study

The main aim of the study was to assess the level of stress among patients Type II diabetes mellitus and to determine the association between level of stress and level of blood sugar. The study was conducted in a selected private hospital in Coimbatore. A descriptive survey approach was used. The conceptual framework of the study was based on Sister Callista Roy's adaptation theory. Non- Probability convenient sampling technique was adapted for the selection of the samples. The total samples of the study consisted of fifty patients who had type II diabetes mellitus with 5 years of duration and above. The data was collected by using a structure self administered questionnaire and stress response of five point rating scale. The reliability of the tool was established by the test- retest method. Data analysis and interpretation was done by using a descriptive and inferential statistics. Karl Pearson's Correlation Coefficient was used to find out the relationship between the level of stress and level of blood sugar. Chi square test was used to find out the association between the selected variables and level of blood sugar and level of stress.

SUMMARY OF FINDINGS

1.Demographic data

In the demographic characteristics of the patients 23 patients (46%) belonged to the age group 50- 60 years. Majority (60%) of the patients were male and nearly half the the group 23 patients (46%) were illiterate. Majority 86% of the patients were Hindus and (96%) of the patients were married. Half of the group (52%) had an income above Rs.4000. Majority of samples (64%) were from nuclear family.

In the demographic characteristics of samples according to illness and treatment, 38 patients (76%) had a duration of diabetes for 5 to 7 years. All the samples (100%) took medication for diabetes, 90% of them took oral hypoglycemic agents and only 5 patients (10%) took insulin and oral hypoglycemic agents

2.Level of stress in different areas of demand:

Level of stress was assessed in all the five areas of demands. A little above half 26-28 patients (52-56%) had severe stress with regard to medication, follow up, and exercise.

33 patients showed severe stress with regard to diet. The number of patients who had moderate stress with regard to all these five areas was 9-21.About 5-12 patients (10-24) had mild stress.

Over all stress of patients with type II diabetes mellitus in three level of stress

Majority of patients 55.2% had severe stress. 28.8% of the patients had moderate stress and the remaining 80% of the samples had mild stress.

3.Comparison of level of stress and level of blood sugar :

The blood sugar of 29 patients (58%) was at a moderately severe level and for 21 patients (42%), the blood sugar was highly severe.

4.Significant findings:

Correlation of level of stress in different areas of demand and blood sugar

1.Medication and blood sugar(0.301)

2.Diet and blood sugar(0.053)

3. Follow up and blood sugar(-0.066)

4.Exercise and blood sugar(0.073)

5. Disease and blood sugar (0.053**)**

Significant findings

There was a significant difference between the level of stress and highly severe and moderately severe blood sugar in the area of medication.

Statistically significant association was found between the level of stress with demographic variables like sex(chi square =50.48, df=2,P=0.05), education (chi square = 45.06,df=1, P=0.05), family monthly income (chi square=45.11,df=2, P=0.05)

There was a significant association found between the level of blood sugar with demographic variables like sex(chi square =21.8, df=2,P=0.05), education (chi square = 7.67,df=1, P=0.05),family monthly income (chi square=12.71,df=2, P=0.05) and on prescribed diet(chi square = 12.71, df=1, P = 0.05).

Only very little difference is seen between the mean stress score of all the five areas. Analysis of variance shows no significant difference F= 0.1793, P= 0.05, df (4,45) in stress of patients in the five areas of demands. So the hypothesis is accepted

CONCLUSION:

The study concludes that there was a relationship between the level of stress and level of blood sugar in the area of medications. Among the three level of stress, majority of the patients had stress in changing their life style modification. Stress management is a challenge for ever and need to be tackled in different ways. Decreased stress level among the patients would control the blood sugar, prevent them from complication, and would improve the quality of life.

IMPLICATIONS

The findings of the study has several implications in nursing practice, nursing education, nursing administration and nursing research.

Nursing practice:

The advantage of assessing level of stress has to be emphasized to the nurses. This will change their attitude and help them in developing a rapport with the Diabetes mellitus patients by helping them to learn on the lacking areas, that make stress free life in the care process. The finding of the study clearly highlights the areas where the diabetes mellitus patients had severe stress. Educational programs have to

be conducted by the nursing personnel both in the hospital and community areas that will help to improve knowledge and decrease anxiety and stress among diabetes mellitus patients. A nurse has to develop adequate skill to explain to the diabetes patients about treatment in outpatient department services, and also develop ability to understand the felt need of patients during treatment.

Community:

The community health nurse has an important role as health educator, health promotor and health protector in the community. During home visits she can identify the high risk patients and provide proper care and prevent undue response. And she can provide necessary information about life style practices and counseling. Nursing personnel working in the community health department should perform periodic health check up, assess the psychological status to prevent complications.

Nursing education:

In the field of nursing education, the educator should provide opportunity for the students to educate the patients and family members in the clinical area. The nurse educator should provide inservice education to the Diabetology department staff nurses regarding the psychological, emotional needs of the patients .Different teaching aids can be utilized as teaching material for nurse and other health care provider regarding the emotional aspects of Diabetes Mellitus. The nurse educator should teach about the stress management techniques among diabetic patients to the students.

Nursing administration:

Nurse administrator should be efficient in organization of teaching program for the diabetic patients. A special nurse health educator can be appointed in the diabetes outpatient department to provide counseling to the diabetic patient to overcome stress, anxiety and other related psychological and social problems. Nurse administrators should plan and organize educational programmes for nursing personnel and other health care members so that they could appreciate the diabetes management programme and update their knowledge on diabetes.

Nursing research:

This study provides scope for future research and utilization of findings and dissemination of knowledge in nursing patient.

Recommendations

1. A replication of present study can be conducted with larger samples.
2. Study can be done on the quality of life in patients with Type II diabetes mellitus.
3. The same study can be conducted as comparative study between patients with associated illness and without associated illness.
4. A similar study can be conducted on hospitalized older patient who are above 60 years.
5. An explorative and descriptive study may be undertaken to assess the coping strategies of hospital patients.
6. An interventional study may be conducted using other types of bio-behavioral interventional such as guided imagery, music therapy etc.
7. A study may be done on the effect of social support on stress and coping responses of adults with Diabetes.

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Appendix i

LETTER REQUESTING PERMISSION TO CONDUCT THE STUDY

To,
The Chief Medical Officer
R.A. Hospital
Ramanathapuram,
Coimbatore.

Respected Sir/Madam,

SUB: **Letter requesting permission for conduct the study.**

Miss.V.Bhavani is a postgraduate nursing student of our institution. She has selected the below mentioned topic for her research project to be submitted to Dr.MGR. Medical University of Health Science, as a partial fulfillment of master nursing degree.

"A study to Assess the Level of Stress Among Patients with type II Diabetes Mellitus in relation to Level blood sugar at a Selected Hospital in Coimbatore.

Regarding this project, she is in need of your esteemed help and cooperation as she is interested in conducting a study of her project, in your institution during the month of july 2009. I request you to kindly permit her to conduct the proposed study and provide her to conduct the proposed study and provide her the necessary facilities.

The student will furnish details of the study, if required personally. Please do the needful and oblige.

Thanking you,

Place:

Date:

Yours faithfully,

PRINCIPAL

Appendix ii

PERMISSION LETTER FOR CONTENT VALIDITY

From

Miss.V.Bhavani
M.Sc (N) II year student
R.V.S College of Nursing
R.V.S Educational Trust
Sulur, Coimbatore.

To

Through the Principal

Respected Madam,

Sub: Letter requesting opinion and suggestion of experts for establishing content validity of the tool

1 am a Master of Nursing student of RVS College of Nursing in the specialty of Medical-Surgical Nursing. As per the requirement for partial fulfillment of the Nursing Degree under the Tamilnadu Dr.MG.R Medical University, I have selected the following topic for dissertation.

"A study to Assess the Level of Stress Among Patients with type II Diabetes Mellitus in relation to Level blood sugar at a Selected Hospital in Coimbatore".

I humbly request you to kindly validate the tool and give your valuable suggestion

Thanking you

Yours sincerely,

(V.Bhavani)

Enclosed:

1.Objectives of the study
2. Hypothesis
3.Description of the tool
4.Research tool
5.Criteria rating for validation
6.Content validation certificat

LIST OF EXPERTS

Medical Expert

DR. R. Asokan, MD.,

Physician and Diabetologist

R.A Hospital,

Ramanathapuram

Coimbatore.

Clinical Psychologist

Dr.Saleendren

Clinical Psychologist and Professor,

D.J. Academy of Management

Coimbatore

Nursing experts

Beena Chakco, M.Sc (N)

Associate Professor

Department of Medical- Surgical Nursing

PSG College of Nursing

Coimbatore.

Mr. Raja, M.Sc(N)

Associate Professor

Department of Medical- Surgical Nursing

KMCH College of Nursing

Coimbatore.

Mr.Kuzhanthaivelu Msc (N)

Associate Professor

Department of Medical- Surgical Nursing

KMCH College of Nursing

Coimbatore.

Appendix iii

CERTIFICATE OF CONTENT VALIDITY

This is to certify that the tool developed by Miss. BHAVANI, M.Sc Nursing, II year student, RVS college of Nursing, RVS Educational Trust, Sulur, Coimbatore to collect data on **"A study to Assess the Level of Stress Among Patients with type II Diabetes Mellitus in relation to Level blood sugar at a Selected Hospital in Coimbatore.**

Is validated by the undersigned and she can proceed with this tool to conduct the main study.

Name and address:

Signature:

Seal:

Date:

Appendix iv

CRITERIA FOR VALIDATION

Kindly go through this tool and please give your views regarding clarity, relevance, adequacy of the tool and remarks if any.

S.No	Item	Clarity		Relevancy		Adequacy		Remarks
		Yes	No	Yes	No	Yes	No	
Part – I Demographic Data								
01								
02								
03								
04								
05								
06								
07								
08								
09								
10								
11								
12								

PART – II QUESTIONNAIRE

S.No	Item	Clarity		Relevancy		Adequacy		Remarks
		Yes	No	Yes	No	Yes	No	
Medications								
01								
02								
03								
04								
05								
06								
07								

S.No	Item	Clarity		Relevancy		Adequacy		Remarks
		Yes	No	Yes	No	Yes	No	
Follow up								
01								
02								
03								
04								
05								
06								
07								

S.No	Item	Clarity		Relevancy		Adequacy		Remarks
		Yes	No	Yes	No	Yes	No	
Diet								
01								
02								
03								
04								
05								
06								
07								

S.No	Item	Clarity		Relevancy		Adequacy		Remarks
		Yes	No	Yes	No	Yes	No	
Excise								
01								
02								
03								
04								
05								
06								
07								

Sl.No	Item	Clarity		Relevancy		Adequacy		Remarks
		Yes	No	Yes	No	Yes	No	
Disease								
01								
02								
03								
04								
05								
06								
07								

SIGNATURE OF THE VALIDATOR

Appendix v

REQUISITION LETTER FOR CO-GUIDE

From

V.Bhavani

M.Sc (N) II Year Student

R.V.S College of Nursing

R. V.S Educational Trust

Sulur, Coimbatore.

To:

Dr.R.Asokan MD

Physician and Diabetologist

R.A Hospital,

Ramanathapuram, Coimbatore.

Through the principal,

Respected madam,

Sub: Request for Co-Guide

I wish to state that I am V.Bhavani Msc(N) II year student of RVS College of Nursing. I have selected the below mentioned topic for dissertation as a partial fulfillment for the Master of Nursing Degree to the Tamilnadu Dr.M.G.R Medical University

"A study to Assess the Level of Stress Among Patients with type II Diabetes Mellitus in relation to Level blood sugar at a Selected Hospital in Coimbatore".

Regarding this I am in need of your valuable help and cooperation by providing services to be a Co-Guide for my study. I humbly request your highness to consider the same and do the needful.

Thanking you,

Yours sincerely

(V.Bhavani)

Appendix- vi

INTRODUCTION

Given below are statements related to the kind of difficulties and feelings usually faced by diabetic patients when they are advised on diet exercise etc. To what extent they are applicable to you, Read each statement and give your response by a tick mark in the appropriate column against the statement

PURPOSE

The purpose of the questionnaire is to find out the difficulties and feelings regarding diabetes management.

INSTRUCTION

Kindly give answer to the following. Your answer will be kept confidential**.**

PART-1

DEMOGRAPHIC DATA

1. Age
   a) 40-50 years ☐
   b) 50-60 years ☐
   c) 60—70 years ☐

2. Sex
   a) Male ☐
   b) Female ☐

3. Educational status
   a) Illiterate ☐
   b) Primary ☐
   c) Secondary ☐
   d) Graduate ☐

4. Religion
   a) Hindu ☐
   b) Christian ☐
   c) Muslim ☐
   d) Others ☐

5. Marital status
   a) Married ☐
   b) Unmarried ☐

6. Family monthly income
   a) 1000-2000 ☐
   b) 2000-3000 ☐
   c) 3000-4000 ☐
   d) 4000 above ☐

7. Type of family
   a) Nuclear family ☐
   b) Joint family Alone ☐

8. Duration of illness
   a) 2-4 years ☐
   b) 5 years and above ☐

9. In the last six months have you been taking medications?

a) Yes ☐

b) No ☐

If yes what medications taken for diabetes

a) Oral hypoglycemic agents ☐

b) Insulin ☐

c) Both ☐

d) None ☐

Are you taking medications regularly

a) Yes ☐

b) No ☐

10. In the last six months have you been doing exercises

a) Yes ☐

b) No ☐

If yes

1. Regularly ☐
2. Irregularly ☐

11. In the last six months have you been following prescribed diet

a) Yes ☐

b) No ☐

If yes

1. Regularly ☐
2. Irregularly ☐

12. In the six months, have you been monitoring the sugar level regularly

a) Yes ☐

b) No ☐

PART – II

S. No	Items	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree
	MEDICATION					
1	I like taking medication					
	I get annoyed to take medicines					
3	I am afraid to administer insulin by myself					
4	It is unnecessary to take .medicines regularly					
5	Regular medication is expensive					
6	I am angry that I have to take medicines					
7	I forget to take medicines					
	DIET					
1	I am not satisfied with the prescribed					
2	Family members/ I find it difficult to prepare the prescribed diet everyday					
3	Not able to take sweets upsets me					
4	It is difficult to follow the prescribed diet during social functions.					
5	Family members feel bad if I don't eat what cooked at home.					
6	It is difficult to follow the prescribed diet					
7	It is difficult to follow the diet outside the home.				-	

	EXERCISE					
1	I feel tired to do exercise.					
2	It is difficult to follow the exercise everyday					
3	exercise will not help me to control my sugar level					
4	Since am always active I feel exercising is unnecessary					
5	I don't think it is necessary to exercise everyday					
6	If diet is followed there is no need for exercise					
7	daily exercising is a waste of time					
	FOLLOWUP					
1	I feel unhappy that when I skip my checkup because of my busy schedule					
2	I get frustrated with the results after self monitoring.					
3	I am afraid getting high blood sugar level reading during self checkup					
4	I feel that frequent checkup will not display a huge difference in blood sugar level					
5	I feel that frequent checkup is not required if the sugar level is not very high					
6	Going for checkup costs time and money					
7	I find it too comfortable to self monitor					

	DISEASE					
1.	I fear that diabetes will get me into coma during sleep.					
2	When I see amputated persons it worries me that it might happen to me too.					
3	I am very angry about what has happened to me.					
4	I feel sad when I look at other healthy individuals.					
5	I feel lonely with this disease in my family					
6	Though I am diabetic I feel perfectly well and in good health					
7	I don't really believe I am a diabetic patients					

tpdhj]jhs]

Kd;Diu

fPnH bfhLf;fg;gl;Ls;s thf;fpa';fs; ePhpHpt[nehahspfs; czt[kw;Wk; clw;gapw;rp rk;ge;jkhf ghpe;Jiuf;fg;gLk; nghJ re;jpf;Fk; md;whl gpur;ridfs; c';fSf;F vt;tss[J}uk; ,e;j thf;fpa';fs; bghUe;Jnkh goj;J ghh;j;J chpa fl;lj;jpy; Fwpg;gplt[k;.

nehf;fk;

,e;j tpdhj;jhs; thf;fpa';fs; ePhpHpt[nehahspfs;; rpfpr]ir rk;ge;jkhf ghpe;Jiuf;fg;gLk; nghJ re;jpf;Fk; md;whl gpur;ridfis fz]lwptjw]F..

Fwpg;g[

jat[bra]J gpd]tUk] midj]J tpdhf]fSf]Fk] tpil mspf]ft[k]. c']fspd] jfty] ,ufrpakhf itf]fg]gLk].

gFjp -1

1. taJ
   - m) 40 – 50 ☐
   - M) 50 – 60 ☐
   - ,) 60 – 70 ☐

2. ghypdk]
   - m) Mz] ☐
   - M) bgz] ☐

3.fy]tpj] jFjp
   - m) gog]gwptpd]ik ☐
   - M) Muk]g gs]sp ☐
   - ,) nky]epiy ☐
   - <) gl]ljhhp ☐

4. kjk]
   - m) ,e]J ☐
   - M) fpwp!]jth] ☐
   - ,) K!]yPk] ☐

<) ,ju tif ☐

5. jpUkzj] jFjp

m) jpUkzkhzth] ☐

M) jpUkzkhfhjth] ☐

6. FLk]g khj tUkhdk]

m) 1000 - 2000 ☐

M) 2000 – 3000 ☐

,) 3000 – 4000 ☐

<) 4000f]F nky] ☐

7. FLk]g epiy

m) jdpf]FLk]gk] ☐

M) Tl]Lf]FLk]gk] ☐

,) jdpik ☐

8. nehapdhy] ghjpf]fg]gl]L ,Uf]fpd]w fhyk]

m) 2 – 4 tUl']fs] ☐

M) 5 tUl']fs] ☐

9. fle]j 6 khj']fshf kUe]Jfis cl]bfhz]L tUfpd]wPh]fsh >

m) Mk]] ☐

M) ,y]iy ☐

Mk] vd]why] ve]j tifahd kUe]Jfis vLj]J bfhs]fpwPh]fsh >

1. tha]tHp rh]f]fiu khj]jpiu ☐
2. ,d]Rypd] ☐
3. ,uz]Lk] ☐
4. vJt[kpy]iy ☐

10. kUe]Jfis jpdKk] cl]bfhz]L tUfpd]wPh]fsh>

m) Mk]] ☐

M) ,y]iy ☐

fle]j 6 khj']fshf clw]gapw]rp nkw]bfhz]L tUfpd]wPh]fsh >

1. Mk]] ☐

2. ,y]iy ☐

Mk] vd]why]

1. jpdKk] ☐
2. rpy rka']fspy] ☐

11. fle]j 6 khj']fshf czt[fl]Lg]ghl]il filgpoj]J tUfpd]wPh]fsh>

m) Mk]] ☐
M) ,y]iy ☐

Mk] vd]why]

1. jpdKk] ☐
2. rpy rka']fspy] ☐

12. fle]j 6 khj']fshf eP']fs] c']fSila rh]f]fiuapd] mst[epiy ghpnrhjpj]J tUfpd]wPfsh>

m) Mk]] ☐
M) ,y]iy ☐

gFjp – 2

t. vz]	kUe;Jfs;	jpl]l tl]lkhd cld]ghL	eLj]ju cld]ghL	bghUj]jkpy]iy	eLj]juk hd vjph]g]g[	jpl]l tl]lkhd vjph]g]g[
1.	vdf;F kUe;J cl;bfhs;tJ gpof;Fk;					
2.	ehd; kUe;J cl;bfhs;tij btWf;fpd;nwd;					
3.	ehdhfnt vdf;F ,d;Rypd; nghl;Lf;bfhs;tjpy; gak;					
4.	bjhlh;e;J kUe;Jfs; rhg;gpLtJ mtrpak; ,y;iy vd;W epidf;fpd;nwd;					
5.	bjhlh;e;J kUe;Jfis rhg;gpLtJ mjpf bryt[					
6.	ehd; kUe;J rhg;gplntz;Lk; vd;W epidf;Fk; nghnj vdf;F vhpr;ry; cz;lhfpwJ					
7.	bjhlh;e;J kUe;Jfis rhg;gpl ehd; kwe;J tpLfpnwd;.					

t. vz]	tiffs]	jpl]l tl]lkhd cld]ghL	eLj]ju cld]ghL	bghUj]jkpy]iy	eLj]juk hd vjph]g]	jpl]l tl]lkhd vjph]g]

					g[	g[
	clw]gapw]rp					
1.	jpdKk] clw]gapw]rp bra]tJ vdf]F fisg]ghf cs]sJ					
2.	jpdKk] clw]gapw]rp bra]tJ vdf]F f#]lkhf cs]sJ					
3.	clw]gapw]rp bra]tjpdhy] vd]Dila rh]f]fiu mst[FiwahJ vd]W epidf]fpnwd]					
4.	ehd] ed]whf ,Uf]Fk] nghJ clw]gapw]rp bra]tJ mtrpak] ,y]iy vd]W epidf]fpnwd					
5.	jpdKk] clw]gapw]rp bra]tJ mtrpak] ,y]iy vd]W epidf]fpnwd]					
6.	fl]Lglhd czit filg]gpof]Fk] nghJ clw]gapw]rp bra]tJ mtrpak] ,y]iy vd]W epidf]fpnwd]					
7.	jpdKk] clw]gapw]rp bra]tJ neuj]ij tPzhf]FtJ					

t. vz]	tiffs]	jpl]l tl]lkhd cld]ghL	eLj]ju cld]ghL	bghUj]jkpy]iy	eLj]jukhd vjph]g]g[	jpl]l tl]lkhd vjph]g]g[
	bjhlh]r]rpahf ghpnrhjpj;jy;					
1.	vd]Dila mjpf ntiy fhuzkhf ehd] kUj]Jt Mnyhrid jtph]g]gij epidf]Fk] nghJ vdf]F f#]lkhf cs]sJ					
2.	vdJ rh;f;fiu msit ghpnrhjpg;gJ vdf;F vhpr;riy jUfpWJ					
3.	rh;f;fiu msit ghpnrhjpf;Fk] nghJ mjpf msit fhz;gpg;gJ vdf;F gakhf cs;sJ					
4.	mof;fo kUj;Jt ghpnrhjid bra;tjpdhy; rh;f;fiu mst[FiwahJ					
5.	rh;f;fiu mst[mjpfkhf ,y;yhj nghJ kUj;Jt ghpnrhjid mtrpak] ,y]iy]					
6.	kUj;Jt ghpnrhjidf;F bry;tJ mjpf gzk; kw;Wk; neu bryt[					
7.	vd;id ghpnrhjpj;J bfhs;tJ vdf;F kpf trjpahf cs;sJ					

t. vz]	tiffs]	jpl]l tl]lkhd cld]ghL	eLj]ju cld]ghL	bghUj]jkpy]iy	eLj]jukhd vjph]g]g[	jpl]l tl]lkhd vjph]g]g[
	czt[					
1.	fl]Lg]ghlhd cztpy] vdf]F jpUg]jpapy]iy					
2.	jpdKk] fl]Lg]ghlhd czit jahh] bra]tjw]F vdJ FLk]g egh]fSf]F f#]lkhf cs]sJ					
3.	,dpg]g[gz]l']fis jtph]g]gJ vdf]F kdf]f#]lkhf cs]sJ					
4.	tpHhf]fhy neu'fspy] fl]Lg]ghlhd czit filg]gpog]gJ vdf]F f#]lkhf cs]sJ					
5.	vd]dhy] vdJ FLk]g egh]fs] jahh] bra]a[k] czit rhg]gplhky] ,Ug]gJ mth]fSf]F f#]lkhf cs]sJ					
6.	fl]Lg]ghlhd czit filgpog]gJ vdf]F f#]lkhf cs]sJ					
7.	tPl]ow]F btspapy] czt[cl]bfhs]Sk] nghJ fl]Lg]ghlhd czit filgpog]gjw]F f#]lkhf cs]sJ					

t. vz]	tiffs]	jpl]l tl]lkhd cld]ghL	eLj]ju cld]ghL	bghUj]jkpy]iy	eLj]jukhd vjph]g]g[	jpl]l tl]lkhd vjph]g]g[
	neha;					
1.	rh;f;fiu nehapdhy; cw';Fk; nghJ Raepidit ,He;J tpLntndh vd;W gakhf cs;sJ					
2.	rh;f;fiu nehapdhy; ghjpf;fg;gl;L fhy;fis ,He;jth;fis fhqk;nghJ vdf;Fk; ,Jnghy; ele;J tpLnkh vd;W gakhf cs;sJ					
3.	vdf;F rh;f;fiu neha; te;jij epidf;Fk; nghJ vdf;F gakhf cs;sJ					
4.	kw;wth;fs; Mnuhf;fpakhf ,Ug;gij epidf;Fk; nghJ vdf;F f#;lkhf cs;sJ					
5.	vdJ FLk;gj;jpy; vdf;F kl;Lk; rh;f;fiu neha; te;jJ vdf;F kpft[k; f#;lkhf cs;sJ					
6.	ehd; Mnuhf;;fpakhf ,Ug;gjw;F ehd; vy;ytw;iwa[k; bra;J tUfpnwd;					
7.	vdf;F rh;f;fiu tpahjp cs;sJ vd;gij ek;gKoatpy[;iy					