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## Abstract

A descriptive study was conducted to evaluate diabetics' self-care levels, attitudes, and perceptions following a structured diabetic education program. Subjects consisted of diabetics between 25 and 65 years of age who had attended the 5 day course at a local military medical center between August 1979 and May 1982. Self-care data consisting of blood sugars and weights before and after classes and evidence of diabetic complications after classes were obtained from patients' records. Background information and attitudes and perceptions about diabetic education and self-care were obtained by a mailed two-part questionnaire. The first part requested subject's age, height, present weight, duration of diabetes, and current treatment. The second part assessed attitudes and perceptions by responses to statements on a Likert-type scale and an open-ended item. Statistically analyzed data indicated certain significant relationships. The study group as a whole lost weight and had blood sugar decreases from before to within 7 months after classes ( $p < .001$ ). Of the variables analyzed, relationships which varied significantly were: age to number of complications, duration of diabetes to weight loss, and control method to weight loss ( $p < .05$ ); duration of diabetes to blood sugar change ( $p < .01$ ); and initial blood sugar to blood sugar change ( $p < .001$ ). Questionnaire item analysis and open-ended item responses indicated positive subjective attitudes and perceptions toward diabetic education and some

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ADULT DIABETIC PATIENTS' SELF-CARE LEVELS,  
ATTITUDES, AND PERCEPTIONS FOLLOWING  
AN EDUCATION PROGRAM

Sandra Mae Witt, B.S.N.

Major, USAF, NC

1983

61 pages

Master of Science in Nursing

Saint Louis University

## Abstract

A descriptive study was conducted to evaluate diabetics' self-care levels, attitudes, and perceptions following a structured diabetic education program. Subjects consisted of diabetics between 25 and 65 years of age who had attended the 5 day course at a local military medical center between August 1979 and May 1987. Self-care data consisting of blood sugars and weights before and after classes and evidence of diabetic complications after classes were obtained from patients' records. Background information and attitudes and perceptions about diabetic education and self-care were obtained by a mailed two-part questionnaire. The first part requested subject's age, height, present weight, duration of diabetes, and current treatment. The second part assessed attitudes and perceptions by responses to statements on a Likert-type scale and an open-ended item. Statistically analyzed data indicated certain significant relationships. The study group as a whole lost weight and had blood sugar decreases from before to within 7 months after classes ( $p < .001$ ). Of the variables analyzed, relationships which varied significantly were: age to number of complications, duration of diabetes to weight loss, and control method to weight loss ( $p < .05$ ); duration of diabetes to blood sugar change ( $p < .01$ ); and initial blood sugar to blood sugar change ( $p < .001$ ). Questionnaire item analysis and open-ended item responses indicated positive subjective attitudes and perceptions toward diabetic education and some

aspects of self-care in a majority of the respondents. The resulting study information serves as a building block for the development of a data base about the relationship between diabetic education and diabetic control.



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ADULT DIABETIC PATIENTS' SELF-CARE LEVELS,  
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AN EDUCATION PROGRAM

Sandra Mae Witt, B.S.N.

An Abstract Presented to the Graduate Faculty of Saint Louis  
University School of Nursing, Department of Nursing,  
in Partial Fulfillment of the Requirements for  
the Degree of Master of Science in Nursing

1983

## Abstract

A descriptive study was conducted to evaluate adult diabetic patients' self-care levels, attitudes, and perceptions following a structured multidisciplinary group diabetic education program. Subjects for the study consisted of diabetics between the ages of 25 and 65 years of age who had attended the 5 day course at a local area medical center during a 34 month period between August 1979 and May 1982. Levels of self-care before classes and 5 to 7 months following completion of the classes were measured by obtaining information from patients' records. These data consisted of blood sugars done by the medical center laboratory, weights measured on clinic scales, and evidence of diabetic complications resulting in hospital admissions, emergency department visits, or unscheduled clinic visits. Attitudes and perceptions about diabetic education and self-care and certain background information were assessed by means of a mailed two-part questionnaire which was returned to the investigator in stamped pre-addressed reply envelopes. The first part of the questionnaire obtained background information about subjects' age, height, present weight, number of years having diabetes, and current type of treatment for diabetic control. The second part of the questionnaire assessed attitudes and perceptions by responses to statements on a Likert-type scale and an open-ended item. All data were statistically analyzed and indicated certain significant relationships. The study group as a whole lost weight and had blood sugar decreases from before class attendance.

to 5 to 7 months after classes ( $p < .001$ ). Of the variables analyzed (attitudes, weight loss, blood sugar change, and number of complications), relationships which varied significantly to the .05 level were: age to number of complications, length of diabetes to weight loss, and control method to weight loss; to the .01 level was length of diabetes to blood sugar change; and to the .001 level was initial blood sugar to blood sugar change. Item analysis and open-ended item responses on the questionnaire indicated positive subjective attitudes and perceptions toward diabetic education and some aspects of self-care in a majority of the respondents. The resulting study information serves as a building block for the development of a data base about the relationship between diabetes education programs and diabetic control.

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AN EDUCATION PROGRAM

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A Project Presented to the Graduate Faculty of Saint Louis  
University School of Nursing, Department of Nursing  
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the Degree of Master of Science in Nursing

1983

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## CHAPTER I

### Background

#### Introduction

As early as 1975, Diabetes Mellitus was identified as a major health problem affecting 10 million Americans and increasing at the rate of 6% a year (Krall, 1978). Diabetes with its complications is the third leading cause of death and the leading cause of new cases of blindness in the United States. In addition, diabetes is a major cause of kidney disease, neurological disorders, and cardiovascular diseases (Bernstein, 1981; Krall, 1978).

As with all chronic illness, the ultimate success of diabetic management depends on motivation of patients to accept the responsibility for changing and monitoring nutritional, medical, recreational, and psychosocial behaviors (Garber, 1977). This motivation usually depends upon patients' desires to minimize long term complications and death due to diabetes. A comprehensive educational program is necessary to achieve optimal management of diabetic patients and should be a part of the initial and follow-up care of every diabetic patient (Geller & Butler, 1981). It is the patient who assumes a major role in the medical management of diabetes, and a well-educated patient is able to participate in a conscientious program of diabetic care (Beaser, 1956; Blevins, 1979; Dries & Dizzia, 1980-1981; Etzwiler, 1967, 1978; Geller & Butler, 1981; Krall, 1978; Morris, 1979; Small, 1978). The concept of Orem's self-care gives

recognition to this idea that individuals are responsible for their own health and ideally have the responsibility for their own self-care. Relationships of health care professionals with clients should be directed toward maintaining, restoring, or increasing the ability of individuals to provide their own self-care (Mullin, 1980).

#### Theoretical Framework

Orem's self-care theory. The central theme of Orem's theory is a belief that human beings have the inherent ability to care for themselves. Orem (1971) identifies self-care as a requirement that every person initiates and performs on their own behalf to maintain life, health, and well-being. Nursing has a role and a responsibility to assist people in self-care practices when there are deficits in their abilities to perform such care on their own. Some of these therapeutic roles nurses take include guiding, supporting, and teaching another person. Teaching involves helping another develop knowledge or particular skills needed to overcome or compensate for self-care action limitations due to disability or disease (Orem, 1980). Orem's (1971, 1980) self-care concepts differentiate between universal self-care and health-deviation self-care categories. The former are those required by all people to meet basic human needs which include air, water, food, activity, rest, elimination, and social interaction. Health-deviation self-care is required only when illness, injury, disease, or treatment measures interfere with human integrated functioning and an individual's ability for self-care.

At this point the need for nursing intervention is desirable to provide therapeutic measures to assist an individual wholly or partly in daily health-related care. Patients are categorized into one of three nursing systems: wholly compensatory, partly compensatory, or supportive-educative. The category depends on the degree of ability a patient is able to assist with or learn new required measures of self-care.

Fitzgerald (1980), utilizing Orem's self-care nursing model to design an educational program for diabetics, believes the key to educating diabetics is to maintain the view that humans are capable of participating actively in health care. Levin (1978) recognizes the essential purpose of patient education is to teach the patient ideas and skills that will help in coping with immediate problems and even in maintaining health and avoiding disease. The new perspective in health education is the concept of promoting self-care. This idea of promoting health and preventing, detecting, and treating disease emphasizes the fact that patients are capable of self-care as decision makers who rely heavily on knowledge and skills already learned. Education in self-care builds on existing practices and supplements with medical-technical concepts and skills usually not taught to the lay person in the past.

Patient compliance has been a problem receiving much attention by health professionals. Newer concepts have brought the realization to many health providers that compliance connotes passivity, submissiveness, and obedience. This view of compliance illuminates the facts that patients' decision making

abilities, self interests, and self concepts are being compromised. It also places blame by chastising patients for noncompliance (Barofsky, 1978; Paulen, 1981). Self-care concepts expand patients' roles in initiating and sustaining health related behaviors. By taking more active and responsible roles in self-care, patients can initiate improved communication with health professionals to negotiate more successful treatment plans to control their disease (Barofsky, 1978).

Linn and Lewis (1979) explored attitudes of practicing physicians about self-care by patients. Using an attitude instrument, they assessed which groups of physicians were more favorable and less favorable toward the self-care concept. Physicians who practice alone, hold externally controlled health beliefs, and were over 46 years of age were more likely to have the least favorable attitudes toward self-care concepts. The most favorable attitudes were found among physicians practicing in a clinic or group, having health beliefs reflecting an inner locus of control, and being under 46 years of age. These self-care concepts which were explored included the management of chronic disease and the treatment of acute illnesses in addition to the traditional health education concepts of health promotion, health maintenance, and illness prevention.

Backscheider (1974) used Orem's self-care conceptual framework of nursing to establish the kinds of services and nursing actions required in an ambulatory diabetic nurse management clinic. The relationship between elements of Orem's theory demonstrated that self-care demands in the self-care agency and

deficits in the self-care agency establish the need for nursing agency in the form of nursing assisting actions. Examination of the therapeutic self-care demands of diabetics treated in the clinic, illuminated the scope of monitoring, regulating, and treatment activities for which diabetics are responsible. Nursing assistance in assessing self-care capacities of diabetics is essential in guiding and supporting the self-care activities of persons having diabetes.

Joseph (1980) focuses on patient education as an important nursing intervention to increase self-care in patients. Utilizing Orem's self-care theory in the nursing process, she emphasizes the role of the nurse in facilitating and increasing the self-care abilities of patients.

Health Belief Model. The Health Belief Model was developed simultaneously with the solution of practical problems by a group of social psychologists in the Public Health Service between 1950 and 1960 (Rosenstock, 1974). These early researchers, building on one another's work, formulated the Health Belief Model to explain preventive behavior. Kasl and Cobb (1966) identified three types of behaviors: health behavior, illness behavior, and sick role behavior. Health behavior was any activity an individual, believing self to be healthy, undertook to prevent or detect asymptomatic disease. Illness behavior was any activity undertaken by an individual, feeling ill, to find suitable treatment. Sick role behavior was any activity undertaken by an individual, believing self to be sick, for the purpose of getting well. The kind of behavior an individual engaged in was modified by two

variables: the perceived amount of threat and the attractiveness or value of the behavior. The perceived threat depended on the importance of health concerns to the individual, the perceived susceptibility to the disease, and the perceived seriousness of the consequences of the disease. Value of contemplated action depended on perceived probability that action would lead to desired results and the perceived expected net benefits of action in terms of perceived effectiveness and costs or barriers (Becker, 1974; Kasl, 1974; Kasl & Cobb, 1966; Rosenstock, 1974).

Kasl (1974) identified individuals having chronic disease as falling somewhere between health and illness behaviors. Complying with treatment regimen to reduce risk requires sick role behavior from an individual not feeling sick. In addition, the person with a chronic disease is generally not institutionalized, but rather under treatment indefinitely, lacking continuous reinforcement from health providers, and lacking feedback from changes in symptoms and treatment. An individual may take ineffective actions by either psychologically removing self from a situation by activities which do not reduce the threat, or increasing fear or anxiety to the level that the individual is incapable of objectively thinking or rationally behaving about the problem (Rosenstock, 1974). Cues to action can trigger appropriate actions such as health providers reinforcing previous educational learning about the chronic disease.

There have been many studies documenting lack of knowledge regarding self-care and management among both diabetic patients



and the professionals who are expected to teach the diabetic. Both of the theoretical frameworks, Orem's self-care theory and the Health Belief Model, influence the existing attitudes, perceptions, and self-care of an individual diabetic.

#### Literature Review

Beaser (1956) evaluated the degree of success of diabetic education through a questionnaire using a population of 238 diabetics. Results of his survey indicated that all subjects were distinctly deficient in knowledge of their disease. He identified patient education as a vital facet of the minimum standards of medical care in hospitals. Education for diabetics consists of not only presenting basic facts but developing a real understanding of the disease and proper attitudes toward its management. This education is not complete until the diabetic is thoroughly educated in self-care.

The proper control of diabetes, as identified by Etzwiler (1967), is achieved only by well informed patients cooperating with interested and knowledgeable nurses, dietitians, and physicians. Evaluating student nurses, dietitians, and physicians, he concluded there is a lack of understanding of basic fundamentals of diabetes among professional personnel which may contribute to inadequate or ineffective patient education. Organized programs for educating hospitalized diabetics are frequently lacking or inadequately staffed. Although programmed instruction can decrease professional time required, education must be individualized with some person-to-person contact to be

effective. Feustel's (1976) study of senior baccalaureate program students supported Etzwiler's (1967) results that graduating nursing students are not adequately prepared to do diabetic teaching.

In a survey of 84 diabetics at a Veterans Administration Hospital, Miller, Goldstein, and Nicolaisen (1978) discovered that over 35% were lacking any formal diabetic training. Although patients with training were more knowledgeable than patients without training, the difference was slight with 45% of the former failing in all areas of diabetic management and 67% of the latter lacking minimum information for proper self-care in all seven areas of diabetic management tested. The knowledge areas that were tested related to urine testing, diet, hypoglycemia, hyperglycemia, foot care, insulin, and oral agents. Poorer scores were achieved by older age groups indicating a need for additional educational courses and follow-up for patients of increasing age. Lawrence and Cheely (1980) also found follow-up training of diabetics necessary after initial education. Reassessing 30 clinic patients 3 to 6 months after individual teaching, they discovered significant knowledge and management errors among diabetics who previously demonstrated correct skills. Based on interviews of 78 hospitalized patients admitted for diabetic complications, Geller and Butler (1981) ascertained that 47% of the admissions were due to some form of educational deficit.

Dries and Dizzia (1980-1981), evaluating the effectiveness of inpatient diabetic teaching of 53 patients, documented

significant increases in all diabetics' post-teaching scores. However, post-teaching average scores did decrease with increasing age. In addition, patients regulated by diet only or diet and hypoglycemics did score lower than patients regulated by diet and insulin. In a study of low income clinic patients, Doody and Grose (1981) interviewed 51 adult diabetics and found no significant differences in their understanding about diabetes among different education levels, ages, durations of disease, or types of treatment. Among diabetics with positive family histories, only those with diabetic spouses or parents demonstrated any greater understanding of their disease.

Heston and Lazar (1980) used a learning device to instruct, reinforce, and evaluate knowledge of 37 preadolescent diabetic children. They discovered significant knowledge increases of basic fundamentals of the disease were acquired and retained for one month without further exposure to information. In another study, a high correlation of knowledge levels was found between 129 diabetic junior and senior high school children and their parents. However, specific knowledge areas that were found to be deficient concerned understanding about diet, acidosis, and sick day management (Collier & Etzwiler, 1971). Etzwiler and Robb's (1972) study of 105 juvenile diabetics and their parents using programmed instruction indicated that knowledge increases were retained for at least 3 months following exposure to a teaching machine. Nevertheless, there were no improvements in diabetic control of these juvenile diabetics having increased self-care knowledge.

After testing 74 diabetics, Nickerson (1972) found significant lack of knowledge among diabetics and identified the need for a better teaching program for hospitalized patients. She designed a study to evaluate group and individual teaching methods. Results of this study indicated the control group, who received no instruction, showed little or no progress, while patients in group sessions had larger gains pre-to-post test scores than those in individual teaching sessions. Teuscher and Heidecker (1976) found programmed instruction, using a self teaching machine, provided more efficient and economical yet effective education of basic diabetic instructions than either group or individual methods.

These studies emphasize the importance of well-educated diabetics and acknowledge that many diabetics and health care professionals lack knowledge about diabetes and its management. Geller and Butler (1981) identified that hospital admissions for diabetic complications were due to educational deficits. Only one study evaluated diabetic control and found no improvements in juvenile diabetics having increased self-care knowledge (Etzwiler & Robb, 1972). It is essential to do further studies to evaluate whether diabetic control is improved following diabetic education programs.

#### Statement of the Problem

Much time and effort are spent on the education of diabetic patients concerning the disease process and self-care. Literature and many studies indicate the need for educating diabetics to

increase their knowledge and skills necessary to manage their disease. Only a few studies have evaluated diabetic control in relationship to diabetic education. Salzer (1975) and Small (1978) emphasized the need to include an explanation of the importance behind procedures in managing diabetes and to provide more extensive information about the cause and course of the disease with reasons for balancing diet, exercise, and medication. Providing the reasons behind "what is needed" and "how to do it" may help diabetics assume more active participation in self-care roles.

#### Statement of the Purpose

It was the purpose of this study to determine how effective a structured multidisciplinary group diabetic education program is for promoting self-care. Specific criteria were used to measure self-care levels 5 to 7 months following the education program. In addition, perceptions and attitudes about diabetes education and self-care were explored.

#### Research Objectives

1. To assess the effectiveness of a structured multidisciplinary group diabetic education program in terms of self-care 5 to 7 months following classes as measured by:
  - a. An acceptable fasting blood sugar or significant decrease in fasting blood sugar as compared to levels before classes
  - b. Any weight loss for those diabetics weighing more than 20% above their ideal weight

c. No diabetic complications requiring hospital admissions, emergency department visits, or unscheduled clinic visits during the 5 to 7 months.

2. To assess perceptions and attitudes about diabetic education and self-care in relation to actual measurements of self-care as listed in 1a, 1b, and 1c.

3. To assess perceptions and attitudes about diabetic education and self-care in relation to different groups of background data:

a. Age (four groups)

- (1) 25-34 years of age
- (2) 35-44 years of age
- (3) 45-54 years of age
- (4) 55-65 years of age

b. Length of time of having diabetes (four groups)

- (1) Newly diagnosed through 1 year
- (2) 2 years through 5 years
- (3) 6 years through 10 years
- (4) 11 years or more

c. Type of treatment to control diabetes at the time of completing questionnaire (three groups)

- (1) Diet and insulin
- (2) Diet and oral agents
- (3) Diet only.

4. To assess measurements of self-care as listed in 1a, 1b, and 1c in relation to different groups of background data as listed in 3a, 3b, and 3c.

### Constitutive Definitions

Attitude: a manner of acting, feeling, or thinking that shows one's disposition or opinion (Guralnik & Friend, 1968).

Perception: the process of taking note of or grasping mentally; knowledge gained by awareness or recognition (Guralnik & Friend, 1968).

Self-care: the practice of activities that individuals personally initiate and perform on their own behalf in maintaining life, health, and well-being (Orem, 1980).

Self-care deficit: the lacking of some essential capacity to perform self-care (Orem, 1980).

Self-care agency: the capacity of persons to engage in health-related actions for themselves (Orem, 1980).

Therapeutic self-care demands: the totality of self-care actions that require supportive life processes and remedial or curative actions for malfunctioning due to disease processes (Orem, 1980).

Nursing agency: the capacity of nurses with specialized abilities that enable them to provide care that compensates for or aids in overcoming the health-derived or health-related self-care deficits of others (Orem, 1980).

## CHAPTER II

### Methodology

#### Overview

This descriptive study was conducted with adult diabetics who had attended a structured diabetic education program in a local area medical center. See Appendix A for structured class content. To assess proposed research objectives, data on self-care was obtained from patients' records, while attitudes and perceptions about diabetic education and self-care and background information was obtained by a mailed questionnaire. This questionnaire was a two-part tool developed by the investigator.

The variables examined were level of self-care 5 to 7 months following completion of the group classes as measured by blood sugars tested by the medical center laboratory, weights as measured on clinic scales, and evidence of diabetic complications resulting in hospital admissions, emergency department visits, or unscheduled clinic visits. Patients' subjective perceptions and attitudes about diabetic education and self-care were also assessed. The desired self-care levels 5 to 7 months after classes consisted of either acceptable fasting blood sugar levels or significant decreases in fasting blood sugar levels from those recorded prior to education classes, any weight loss for patients who were 20% above ideal body weight, and no evidence of diabetic complications requiring hospital admission, emergency department visits, or unscheduled clinic visits during the 5 to 7 month period following attendance at the diabetic education classes.



The following operational definitions are included to clarify the terms utilized in this study.

#### Operational Definitions

Diabetic: person with insufficient available insulin for body needs (Krall, 1978).

Gestational diabetic: person with special type of diabetes in which elevated blood glucose levels appear only during pregnancy (Krall, 1978).

Acceptable blood sugar level: a fasting blood glucose level of 150 mg/dl or less (Levine, 1979).

Normal or ideal blood sugar: a fasting blood glucose level of 70 to 110 mg/dl (Medical Center Laboratory value).

Significant decrease in blood sugar level: a fasting blood glucose level below 200 mg/dl if previous ones were higher (Bernstein, 1981).

Ideal body weight: weight calculation for women allowing 100 pounds for the first 5 feet of height, plus 5 pounds for each additional inch; and for men allowing 106 pounds for the first 5 feet of height, plus 6 pounds for each additional inch (Guide for professionals, 1977).

Obesity: being 20% or more overweight (Guide for professionals, 1977).

Attitudes and perceptions: for this study as measured by the Likert-type scale questionnaire.

Diabetic complications: any new problems, acute or chronic related to diabetes, which resulted in hospital admissions,

emergency department visits, or unscheduled clinic visits up to 7 months after attending the diabetic education classes.

#### Subjects and Setting

Subjects for this study were diabetic patients between the ages of 25 and 65 years of age who had attended the 5 day structured multidisciplinary group diabetic education program at a local military medical center. These patients were either inpatients or outpatients at the time classes were attended, however, patients with gestational diabetes were excluded from this study.

The military medical center is located in an agricultural area in the midwestern part of the United States within 25 miles of a large metropolitan area. The inpatient bed capacity is 175, and outpatient services include such clinics as primary care, family practice, internal medicine, pulmonary, cardiology, neurology, surgery, pediatric, gynecology, and obstetric. The patient population of this military medical center consists of active duty military personnel, retired military personnel, and dependents of either active duty or retired military personnel.

#### Sampling Plan

The subjects were selected by obtaining the list of diabetics who had attended the entire 5 day structured diabetic course during a 34 month period from August 1979 through May 1982. Patients' records were located and reviewed to identify those patients who met the study criteria. A list of these

patients with telephone numbers was compiled for the purpose of contacting the patients to obtain permission to mail a questionnaire and to obtain correct addresses. Data from patients' records and the list of patients' names, telephone numbers, and addresses were coded to match the questionnaires in order to maintain confidentiality while allowing follow-up of nonrespondents and matching of data with questionnaire results. Following the data collection process, the coding system and questionnaires were destroyed.

#### Instrumentation

Since no instrument was found that could be adapted for assessing patients' subjective perceptions and attitudes about diabetic education and self-care, one was developed by the investigator after an extensive review of the literature and information covered in the structured diabetic education classes. The developed tool was a two-part questionnaire. Section I of the tool recorded background information, and Section II was a Likert-type scale for measuring attitudes and perceptions about diabetic education and self-care with one open-ended item to permit ventilation of feelings and expression of unprompted responses which might uncover unanticipated outcomes (Henerson, Morris, & Fitz-Gibbon, 1978). Approximately equal numbers of positively and negatively worded statements were chosen to avoid biasing the responses (Polit & Hungler, 1978). To avoid influencing the way subjects responded to subsequent items, questions were arranged in a randomized order (Henerson et al.,

1978). Using a Likert-type scale of five categories of agreement-disagreement, the positively worded statements were scored by assigning 1 to 5 points to each with 1 for the least favorable and 5 for the most favorable response. Negatively worded statements were similarly scored except with a reverse score for the agreement-disagreement categories of response (Polit & Hungler, 1978).

Content validity of the developed tool was based on reviewing the literature and submitting the tool to a panel of experts. The panel of experts consisted of two nurse specialists who were graduate faculty members and a research methodologist. All reviewed the questionnaire and gave suggestions which were incorporated into the tool.

A pilot study was conducted to determine reliability of the instrument. The questionnaire was given to a representative group of the proposed sample subjects of  $n=24$  to check for clarity, understanding, wording, and time involved in completing the questionnaire. After the pilot study questionnaires were scored, the coefficient alpha method was used to measure internal consistency of the polychotomously scored items of the Likert-type scale in Section II. A coefficient alpha of  $\underline{r} = .73$  was determined to be an adequate measure of internal consistency of the polychotomously scored items of this investigator produced tool. No changes were needed in the questionnaire as determined by the pilot study. A range of 5 to 30 minutes of time was required to complete the questionnaire as indicated by the pilot study subjects. The mean time to complete it was 13.38 minutes

with 10 minutes being the most frequently cited.

The questionnaire consisted of a cover letter, a copy of the privacy act, and the instrument which was divided into two sections. The cover letter included the nine elements of informed consent. The first section of the instrument was used to gather background data of age, height, weight, number of years of being diabetic, and type of treatment for diabetic control at the time of completing the questionnaire. The second section of the tool was used to measure attitudes and perceptions about diabetic education and self-care (Appendices D, E, and F).

#### Data Collection

After receiving approval from the Institutional Review Board and the Air Force Institute of Technology (AFIT), permission was requested and received from the Commander and the Chairperson of the Department of Nursing of the military medical center to conduct the research study. In addition, a survey control number was obtained for the questionnaire from the Survey Control Section of Research and Development of the Air Force (Appendices B, C, and D).

When all approval had been received, data collection was accomplished by the investigator between December 1982 and March 1983. Approximately 135 patients were identified from the class attendance list as having completed the 5 day structured diabetic education program during the August 1979 through May 1982 period. Patients' records were reviewed to obtain telephone numbers, physiological data, and determine if the identified patients met

the study criteria. A number of the patients were eliminated for having no outpatient record, incomplete data, or not being within the study age limits. In addition, three patients died during the data collection period before questionnaires could be completed. Once patients were identified and telephone permission was received, questionnaires were mailed to the subjects requesting their participation in the study. To facilitate response, each questionnaire sent included an investigator addressed and stamped reply envelope. After 2 weeks, a telephone reminder was made to nonrespondents, and second questionnaires were sent to two subjects who had not received the first one. A total time period of 6 weeks was allowed for the questionnaire portion of the data collection process. At the end of this period, only three subjects had not responded. Three subjects who required follow-up were identified and referred to the appropriate clinic nurse to make further contact with the patient. Results of this study in the form of group data were provided to the Air Force and shared with the medical center personnel.

## CHAPTER III

### Data Analysis

This chapter is divided into three sections. The first section describes the study sample (Table 1). The second section discusses weight changes and blood sugar changes for the group as a whole (Table 2). The final section examines the relationships between selected subject characteristics and physiological outcomes (Tables 3, 4, 5, 6, & 7). Data collected on the 70 subjects consisted of background information, physiological data before and after attendance of diabetic classes, and attitudes and perceptions as determined by responses to Likert-type questions 1 through 26 and one open-ended item on the instrument (Appendix F & Table 8).

#### Description of the Study Subjects

Within the sample of 70 subjects, groupings of age, length of diabetes, control method, and initial blood sugars and weight status were determined. Age was divided into four groups: 25 through 34 years (4, 6%), 35 through 44 years (8, 11%), 45 through 54 years (18, 26%), and 55 through 65 years (40, 57%). The four groups of length of diabetes revealed: 2 (3%) were newly diagnosed through 1 year, 32 (46%) were 2 through 5 years, 12 (17%) were 6 through 10 years, and 24 (34%) were 11 years or more. Method of control was divided into three groups: diet and insulin (34, 49%), diet and oral agent (15, 21%), and diet only (21, 30%). Initial blood sugars were divided into three groups: under 150 mg/dl (13,

19%), 151 through 199 mg/dl (10, 14%), and over 200 mg/dl (47, 67%). The majority of subjects were obese, 51 (73%) versus non-obese 19 (27%), on the initial weight-to-height determinations by gender (Table 1).

Table 1  
Description of Study Subjects

Variable	Number	Percent
Age (4 groups)		
25-34 years	4	6
35-44 years	8	11
45-54 years	18	26
55-65 years	40	57
Length of Diabetes (4 groups)		
newly diagnosed through 1 year	2	3
2 through 5 years	32	46
6 through 10 years	12	17
11 years or more	24	34
Control Method (3 groups)		
diet and insulin	34	49
diet and oral agent	15	21
diet only	21	30
Initial Blood Sugar (3 groups)		
under 150 mg/dl	13	19
151 through 199 mg/dl	10	14
over 200 mg/dl	47	67
Initial Weight Status (2 groups)		
obese	51	73
nonobese	19	27
Gender (2 groups)		
male	33	47
female	37	53



### Change in Body Weight and Blood Sugar Level for Study Group

From Table 2, it is noted that the group as a whole demonstrated a significant drop in weight from initial weight measure to final weight measure ( $t(69)=4.17$ ,  $p<.001$ ) with the initial and final weights being 191.24 pounds and 185.21 pounds respectively. In addition, the group as a whole demonstrated a significant drop in blood sugar level from the initial to the final measure ( $t(69)=8.24$ ,  $p<.001$ ) with the initial and final blood sugars being 262.69 mg/dl and 153.44 mg/dl respectively.

Table 2

Change in Body Weight and Blood Sugar  
Level for the Entire Study Group

Variable	Initial		Final		Paired-t (df=69)
	Mean	SD	Mean	SD	
1. Weight	191.24	42.81	185.21	44.73	4.17*
2. Blood Sugar Level	262.69	113.75	153.44	56.62	8.24*

\*( $p<.001$ )

### Relationship Between Selected Subject Characteristics and Attitudes/Perceptions and Physiological Outcomes

Characteristics of age. From Table 3, it is noted that neither attitude/perceptions, weight loss, nor blood sugar decrease varied with age at the .05 level. However, it was found that the number of complications varied with age ( $p<.05$ ) with

the differences in means among the age groups being: 1 complication in the 25 through 34 age group; .38 complication in the 35 through 44 age group; .06 complication in the 45 through 54 age group; and .38 complication in the 55 through 65 age group.

Characteristics of length of diabetes. From Table 4, it is evident that neither attitude/perceptions nor number of complications varied with length of diabetes at the .05 level. However, both weight loss and blood sugar change did vary with length of diabetes. Weight losses among the groups were significant at the .05 level. These weight losses were: 25 pounds (newly diagnosed through 1 year); 8.88 pounds (2 through 5 years); 4.33 pounds (6 through 10 years); and 1.50 pounds (11 years or more). Blood sugar changes were significant at the .01 level. The differences in means among the groups were: an actual blood sugar increase of 43.50 mg/dl (newly diagnosed through 1 year); a decrease of 155.34 mg/dl (2 through 5 years); a decrease of 100.50 mg/dl (6 through 10 years); and a decrease of 64.88 mg/dl (11 years or more).

Characteristics of control method. From Table 5, only weight loss varied significantly with control method ( $p < .05$ ) with differences in means between the groups being: a 4.85 pound loss (diet and insulin); a 1.73 pound loss (diet and oral agent); and an 11 pound loss (diet only). Neither attitude/perceptions, blood sugar change, nor number of complications varied at the .05 level.

Characteristics of initial blood sugar. From Table 6, it is noted that attitude/perceptions, weight loss, and number of

Table 3  
Relationship Between Age of the Patient and the  
Patients' Attitudes and Physiological Outcomes

Variable	Age Group						F (df=3,66)
	25-34 (n=4)	35-44 (n=8)	45-54 (n=18)	55-65 (n=40)	Mean	SD	
1. Attitude	97.50	105.50	100.72	104.40	104.40	8.81	2.39(ns)
2. Weight Loss	14.25	10.25	2.72	5.85	5.85	12.71	1.41(ns)
3. Blood Sugar Decrease	33.75	142.00	112.28	108.88	108.88	119.20	0.85(ns)
4. Number of Complications	1.00	0.38	0.06	0.38	0.38	0.67	2.73*

ns(not significant at the .05 level)

\*(p<.05)

Table 4  
Relationship Between Length of Diabetes and Patients'  
Attitudes and Physiological Measures

Variable	Length of Diabetes					
	Newly diagnosed -1 year(n=2)	2-5 years (n=32)	6-10 years (n=12)	11 years or more(n=24)		
	<u>Mean</u>	<u>Mean</u>	<u>Mean</u>	<u>Mean</u>	<u>SD</u>	<u>F</u> (df=3,66)
1. Attitude	99.00	104.41	104.75	101.13	9.77	0.85(ns)
2. Weight Loss	25.00	8.88	4.33	1.50	10.49	3.84*
3. Blood Sugar Change	-43.50 <sup>a</sup>	155.34	100.50	64.88	68.11	5.22**
4. Number of Complications	1.00	0.28	0.25	0.38	0.71	0.85(ns)

ns=(not significant at the .05 level)

\* ( $p < .05$ )

\*\*( $p < .01$ )

<sup>a</sup> (indicates blood sugar increased)

Table 5

ns (not significant at the .05 level)

\* ( $p < .05$ )

Table 6  
Relationship Between Initial Blood Sugar and the  
Patients' Attitudes and Physiological Outcomes

Variable	Initial Blood Sugar						F (df=2,67)
	under 150 mg/dl (n=13)		151-199 mg/dl (n=10)		over 200 mg/dl (n=47)		
1. Attitude	Mean	SD	Mean	SD	Mean	SD	0.01 (ns)
	103.46	7.08	103.40	9.14	103.06	9.75	
2. Weight Loss	Mean	SD	Mean	SD	Mean	SD	0.48 (ns)
	8.31	12.96	3.30	7.99	5.98	12.67	
3. Blood Sugar Decrease	Mean	SD	Mean	SD	Mean	SD	16.14*
	0.00	33.79	50.20	36.95	152.02	109.03	
4. Number of Complications	Mean	SD	Mean	SD	Mean	SD	1.97 (ns)
	0.62	0.96	0.10	0.32	0.30	0.59	

ns=(not significant at the .05 level)

\* ( $p < .001$ )

complications do not vary with initial blood sugar measurements at the .05 level. Blood sugar decrease/change was found to vary significantly with the initial blood sugar ( $p < .001$ ). The differences in means by initial blood sugar groups were: no change in blood sugar (under 150 mg/dl); a 5.20 mg/dl decrease (151-199 mg/dl); and a 152.02 mg/dl decrease (over 200 mg/dl).

Characteristics of obesity status. From Table 7, it is noted that none of the variables—attitude/perception, weight loss, blood sugar change, nor number of complications—varied significantly at the .05 level with obesity status determined by initial weight-to-height by gender calculations.

Table 7

Relationship Between Obesity Status on Initial Weight and  
the Patients' Attitudes and Physiological Outcomes

Variable	Obesity Status				
	Obese(n=51)		Nonobese(n=19)		t (df=68)
	Mean	SD	Mean	SD	
1. Attitude	102.96	9.38	103.79	8.55	-0.34(ns)
2. Weight Loss	7.35	12.81	2.47	9.40	1.51(ns)
3. Blood Sugar Decrease	116.78	110.34	89.00	112.90	0.93(ns)
4. Number of Complications	0.31	0.62	0.37	0.76	-0.31(ns)

ns(not significant at the .05 level)

Item analysis of attitudes and perceptions toward diabetes.

An attitude/perception questionnaire of 26 items was analyzed item-by-item in Table 8. Positively worded statements were scored 1 through 5 with 5 being the most favorable score and 1 being the most unfavorable score. Negatively worded statements were similarly scored except in the reverse for the agreement-disagreement categories of response. For example, a positively worded statement would receive a score of 5 for a strongly agree response while a negatively worded statement would receive a score of 1 for a strongly agree answer (Table 8 & Appendix F).

Responses to the open-ended item on the questionnaire were categorized for ease of reporting. Additional comments and expression of feelings about diabetes, education, and self-care were elicited from 62% of the questionnaire respondents. Over half of this group mentioned the benefits achieved by diabetic education. Many expressed the positive effect the structured classes had in their personal education level and diabetic control. Even diabetics of long duration noted the importance of reinforcing education with follow-up and class attendance every 1 to 2 years because new information was always learned. One respondent expressed concern that more family members of diabetics do not attend the education classes. Another wished that such education classes could have been attended when diabetes was diagnosed as only "borderline". There were two who expressed feelings of depression from attending classes and having diabetes—one with poor circulation and one who had not accepted the diagnosis before attending classes. Another



expressed the need for further diet information especially dealing with cooking and food preparation. One, who expressed an inability to control the disease because of avoidance of thinking about it, wondered if psychological evaluation and treatment might be warranted. One important aspect of group classes cited by several was the sharing of personal experiences between the diabetics. One received reinforcement for the importance of good diabetic control and self-care through a diabetic classmate who had severe foot complications. Another identified the importance of belonging to the ADA (American Diabetic Association) for added assistance and information which included individualized diet counseling, support, and current information about diabetes and local workshops for continuing education.

The most frequent comment regarding the questionnaire, expressed by 20% of the respondents, was that they did not know other diabetics so answered the statements on a personal basis. A few even indicated that the survey would have been stronger if questions had been directed to the diabetics on a personal basis. One respondent felt the statements were too closely related to the questions asked at the end of the structured classes and had a pre-determined set of values. Another suggested that it might be beneficial to know the reasons why diabetics responded to the statements as they did. Responses to the open-ended item on the questionnaire definitely provided an added dimension for assessing attitudes and perceptions of diabetics. The importance of analyzing diabetic attitudes was emphasized by one individual who indicated that expressing such feelings and thoughts on the

questionnaire had provided a more clear statement of personal attitudes about diabetes than had been possible before. Therefore, the respondent indicated that a copy of the questionnaire would be provided to the personal physician in order to better assist in treatment and understanding.

Item analysis of patient attitudes toward diabetic education and self-care on the Likert-type statements provided responses which coincided with the comments on the open-ended item (Table 8). Over half of the subjects identified a strongly agree response about diabetic education on items 5 (64.3%), 8 (57.1%), and 22 (52.9%). Additionally, statements about self-care and family support received strongly agree responses as indicated on items 1 (55.7%), 4 (55.7%), 23 (58.6%), and 24 (50%). Strong disagreement with negatively worded statements, items 16 (54.3%) and 25 (55.7%), reinforced the attitudes about diabetic education and self-care for this sample. Item 11, regarding education classes depressing diabetics, elicited either strongly agree or agree responses from 5.7% of the respondents. Perhaps this percentage represents diabetics who have a need for psychological evaluation and treatment to improve their attitudes and control of diabetes. These expressions of feelings of depression with disregard for the disease and neglect of proper care and control may also be an indication of the concept identified in the Health Belief Model. Rosenstock (1974) expressed such ideas by identifying individuals who take ineffective actions by either psychologically removing themselves from situations by activities which do not reduce threats, or increasing fear or anxiety to

levels that individuals are incapable of objectively thinking or rationally behaving about problems.

Relationship between attitudes and physiological outcomes.

From Table 9, it is noted that for the study group as a whole there was no relationship between the attitudes and perceptions about diabetic education and self-care with physiological outcomes at the .05 level.

Table 9  
Relationship Between Patients' Attitudes  
and Physiological Outcomes

Attitudes	
<u>Variable</u>	<u>r</u>
1. Weight Loss	.06(ns)
2. Blood Sugar Change	.13(ns)
3. Number of Complications	-.02(ns)

ns (not significant at the .05 level)

Table 8  
Item Analysis of Patients' Attitudes Toward  
Diabetic Education and Self-Care

Item	Responses									
	SA		A		U		F		SD	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
1. Daily foot care is important to the diabetic to prevent problems.	39	55.7	26	37.1	5	7.1	0	0.0	0	0.0
2. Diabetics who test for sugar in their urine every day are unusual.	4	5.7	14	20.0	11	15.7	29	41.4	12	17.1
3. The amounts or portion sizes of foods on a diabetic diet are too small to eat every day and be satisfied.	4	5.7	20	28.6	5	7.1	33	47.1	8	11.4
4. Diabetics who have the support and help of a family member or close friend find it easier to stay on their diet.	39	55.7	27	38.6	2	2.9	1	1.4	1	1.4

Item	SA		A		U		D		SD	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
5. Diabetic education classes are important because they emphasize the need for early detection of problems	45	64.3	23	32.9	1	1.4	1	1.4	0	0.0
6. Most diabetics wear a bracelet or necklace for identification of diabetes.	4	5.7	29	41.4	25	35.7	11	15.7	1	1.4
7. Most diabetics ignore daily foot care as part of their diabetic program.	2	2.9	20	28.6	24	34.3	20	28.6	4	5.7
8. Diabetic education classes help prepare diabetics for a more healthful way of life	40	57.1	26	37.1	4	5.7	0	0.0	0	0.0
9. Most diabetics work at controlling their blood sugars only a few days before seeing their doctor.	2	2.9	9	12.9	17	24.3	33	47.1	9	12.9
10. Diabetes greatly changes the life diabetics have with their family and friends because of following a special diet.	5	7.1	5	7.1	3	4.3	44	62.9	13	18.6
11. Diabetic education classes only depress diabetics.	1	1.4	3	4.3	7	10.0	31	44.3	28	40.0

Item	SA		A		U		D		SD	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
12. Most diabetics can find time for daily exercise as part of their blood sugar control.	12	17.1	51	72.9	6	8.6	1	1.4	0	0.0
13. Most diabetics understand how to manage their diabetes when they are ill.	3	4.3	32	45.7	16	22.9	16	22.9	3	4.3
14. Self control is the most important factor in staying on a diabetic meal plan/diet.	31	44.3	38	54.3	1	1.4	0	0.0	0	0.0
15. Urine testing is useless because most diabetics are unsure of what to do about the results.	3	4.3	4	5.7	6	8.6	39	55.7	18	25.7
16. Most diabetics learn nothing new by attending diabetic education classes.	1	1.4	0	0.0	1	1.4	30	42.9	38	54.3
17. Most diabetics truly believe that better blood sugar control will decrease or minimize their own risk for long term complications.	25	35.7	37	52.9	5	7.1	2	2.9	1	1.4

Item	SA		A		U		D		SD	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
18. Diabetics who maintain good blood sugar control lose less time from school, work, or normal activities.	29	41.4	35	50.0	3	4.3	2	2.9	1	1.4
19. Diabetics rarely stick to their diet when they eat out because it is too much trouble.	0	0.0	23	32.9	9	12.9	37	52.9	1	1.4
20. Most diabetics skip urine tests when they are sick.	1	1.4	8	11.4	24	34.3	32	45.7	5	7.1
21. Most diabetics prefer to avoid knowing what their blood sugar is because they believe it is their doctors' responsibility.	2	2.9	4	5.7	5	7.1	37	52.9	22	31.4
22. Diabetics who work with their doctor, nurse, and/or dietitian on a regular basis have better blood sugar control.	37	52.9	33	47.1	0	0.0	0	0.0	0	0.0
23. To have good blood sugar control, diabetics must accept the fact that most of the day to day responsibility is their own.	41	58.6	29	41.4	0	0.0	0	0.0	0	0.0

Item	SA		A		U		D		SD	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
24. Most overweight diabetics could improve their blood sugars by losing weight.	35	50.0	34	48.6	1	1.4	0	0.0	0	0.0
25. Diabetics who do little or nothing to control and monitor their blood sugars and diabetes have fewer complications as they become older.	3	4.3	1	1.4	4	5.7	23	32.9	39	55.7
26. Most diabetics fail to recognize the symptoms of too high blood sugar or too low blood sugar.	1	1.4	23	32.9	13	18.6	25	35.7	8	11.4



## CHAPTER IV

### Discussion

Diabetic education has been generally accepted as a vital element of the diabetic treatment. Nevertheless, research into the role of patient education in diabetic control has been limited (Graber, Christman, Alogna, & Davidson, 1977). Krall (1978) identified knowledge and understanding through education as the treatment rather than as an addition to the treatment for diabetes. Patient education has been included in recent nurse practice acts making health teaching a priority for nurses (Redman, 1978). Redman (1976) considered it possible to prevent, promote, maintain, or modify a number of health-related behaviors through teaching. Orem (1980) indicated teaching by the nurse as a method of helping patients who lack knowledge or skill to perform self-care actions. In addition, nurses must continue to ensure that nursing provided in particular settings is that which is commensurate with patients' self-care deficits.

Graber et al. (1977) believed that measurement of the patients' knowledge should be considered only as a starting point for evaluating an educational program. Knowledge gains do not accomplish what is needed until patients can apply that knowledge to their daily management and improve some aspects of their lives compromised by diabetes.

### Findings

Variables studied in this project were attitudes and

perceptions as determined by the questionnaire, weight loss, blood sugar decrease, and number of complications. Analyzing the entire study group, a significant loss in weight and decrease in blood sugar were identified at the .001 level (Table 2). Only number of complications varied significantly with age groups ( $p < .05$ ) (Table 3). Length of diabetes varied significantly with weight loss to the .05 level and with blood sugar change to the .01 level (Table 4). Control method only varied significantly with weight loss ( $p < .05$ ) (Table 5). Table 6 showed the significant blood sugar change noted from initial blood sugar determination to the final blood sugar level ( $p < .001$ ). Obesity status did not vary significantly with any of the variables (Table 7). Table 8 displayed an item analysis of the questionnaire. Strongly agree responses to positively worded statements and strongly disagree responses to negatively worded statements indicated favorable attitudes toward diabetic education and certain aspects of self-care. Nevertheless, patients' attitudes did not vary significantly with physiological outcomes (Table 9).

#### Limitations

The study was limited in scope to one military medical center diabetic education program participants, therefore, results could not be generalized further than to a like population group. The majority of subjects of this study were between 55 and 65 years of age (57%) with a length of diabetes of either 2 to 5 years (46%) or 11 years or more (34%), on diet and insulin for control (49%), and obese on initial weight measurement (73%) with an initial

blood sugar over 200 mg/dl (67%) (Table 1). Some of the groupings were small in number studied—25 to 34 years of age (6%) and newly diagnosed through 1 year duration (3%)—thus were not adequately represented in this study (Table 1).

The method of measuring adequate blood sugar control by fasting blood sugars was another limitation of this study. Blood sugars can vary tremendously moment to moment, day to day depending on such variables as diet, exercise, stress, and state of wellness/illness. Hemoglobin Alc is a better test for measuring the long term control of blood sugar and would be a more accurate measurement of control before and after diabetic education. Although few Hemoglobin Alc tests were done during the period covered in this study, it was noted during the retrospective data collection that this test is becoming a more frequent monitor of control. In addition, home glucose monitoring is being done by more diabetics in place of urine testing so more accurate monitoring of control is realized.

#### Implications

Although this study can only be generalized to populations with similar characteristics, information was obtained about subjective attitudes. The majority of subjects believed in the importance of education as a continuous process and adequate self-care as the only way to good control. A small percentage identified depression as an overwhelming aspect of diabetes interfering with good control. Perhaps this group could benefit from psychological evaluation and treatment to achieve better acceptance

of diabetes and improved self-care. Nursing plays an important role in diabetic education and follow-up. Methods to better assist diabetics such as group discussions on a regular basis might create additional support systems for help in continual diabetic control.

#### Recommendations

This research study supplied data in some areas of diabetic education and self-care relationships. However, additional studies need to be done. Measurements of compliance to prescribed treatment, frequency of acute complications and hospitalizations, rate of development of chronic complications, rate of school and work absenteeism, and health-care costs in diabetes are other aspects which need investigation (Graber et al., 1977). Studies using Hemoglobin A1c for monitoring control would be more significant than fasting blood sugars.

Follow-up methods should be studied to determine which is most likely to help diabetics maintain good control. Evaluation of the relationship of good control to development of long-term complications should be studied over the life of diabetics to determine if this is the answer to preventing blindness, blood vessel disease, amputations, neuropathies, and other devastating complications of diabetes. In addition, methods to assist the small percentage who are unable to psychologically accept and control their disease need to be studied.

APPENDIX A  
STRUCTURED CLASS CONTENT

### Structured Class Content

Monday: Pretest, definition, incidence, disease process,  
symptoms, diagnosis, classification—Nurse  
Instructor

Tuesday: Exercise—Physical Therapist Instructor;  
Diet therapy—Dietitian Instructor

Wednesday: Foot care/complications—Podiatrist and Nurse  
Instructors; Insulin and oral agents, urine  
testing information—Pharmacist and Nurse  
Instructors

Thursday: Eye complications—Optometrist and Nurse  
Instructors; Oral hygiene—Dentist and Nurse  
Instructors; Acute and long term complications  
—Nurse Instructor

Friday: General advice, review questions, post-test—  
Internist and Nurse Instructors

APPENDIX B

LETTER TO HOSPITAL COMMANDER

June 28, 1982

Hospital Commander  
USAF Medical Center

Dear Colonel \_\_\_\_\_:

I am an AFIT sponsored graduate student at St. Louis University working on my Master's Degree in Medical-Surgical Nursing. I am interested in studying the attitudes, perceptions, and self-care of diabetics following attendance at a diabetic education program.

I would like your permission to include as subjects for this study all adult diabetics who have attended the multidisciplinary diabetic education program during the past 35 months. A proposal for this study was submitted to the Institutional Review Board of St. Louis University, and full approval has been received. Air Force approval through my AFIT program manager is also being requested. Final results will be shared with the Air Force.

Data collection would be done by me using patients' records and mailing questionnaires to patients between July and December 1982. As provided by the Privacy Act of 1974, all participants will be assured complete protection by that act. The information will be used for nursing research purposes only. The questionnaires will be coded to allow follow-up of nonrespondents. Confidentiality will be maintained throughout the study. Subjects will not include their names on questionnaires.

I appreciate your attention to this matter and look forward to hearing from you.

Sincerely,

Sandra M. Witt, Major, USAF, NC  
Graduate Nursing Student



APPENDIX C

LETTER TO HOSPITAL NURSING CHAIRPERSON

June 28, 1982

Chairperson, Department of Nursing  
USAF Medical Center

Dear Colonel \_\_\_\_\_:

I am an AFIT sponsored graduate student at St. Louis University working on my Master's Degree in Medical-Surgical Nursing. I am interested in studying the attitudes, perceptions, and self-care of diabetics following attendance at a diabetic education program.

I would like your permission to include as subjects for this study all adult diabetics who have attended the multidisciplinary diabetic education program during the past 35 months. A proposal for this study was submitted to the Institutional Review Board of St. Louis University, and full approval has been received. I have also requested permission to do this study from the Hospital Commander. In addition, Air Force approval through my AFIT program manager is being requested. Final results will be shared with the Air Force.

Data collection would be done by me using patients' records and mailing questionnaires to patients between July and December 1982. As provided by the Privacy Act of 1974, all participants will be assured complete protection by that act. The information will be used for nursing research purposes only. The questionnaires will be coded to allow follow-up of nonrespondents. Confidentiality will be maintained throughout the study. Subjects will not include their names on questionnaires.

I appreciate your attention to this matter and look forward to hearing from you.

Sincerely,

Sandra M. Witt, Major, USAF, NC  
Graduate Nursing Student

APPENDIX D

QUESTIONNAIRE COVER LETTERS

February 15, 1983

Dear \_\_\_\_\_:

I am an Air Force sponsored graduate student in St. Louis University working on my Master Degree of Science in Nursing. For my research study, I have chosen to evaluate perceptions, attitudes, and self-care of diabetics who have attended the structured diabetic education program at the USAF Medical Center.

As provided by the Privacy Act of 1974, you will be assured complete protection of that act. Your participation in this study involves completing the enclosed questionnaire. All responses from questionnaires sent to diabetics who have attended classes will be evaluated collectively, and there will be no way to connect answers with you personally. This information is to be used for nursing research purposes only, and no information can be released or identified about any individual who agrees to participate. The report of this study will be in the form of a Master Thesis which is a partial requirement for my Master Degree in Nursing. The final report will be shared with the Air Force. Participation in this study is entirely voluntary and you can choose not to participate without concern about the future care given by the Air Force. After reading the questionnaire, if you wish not to participate you may do so. The questionnaire is coded to assist me in getting an adequate sample size so I would appreciate it if you choose not to complete the questionnaire that you simply return it in the enclosed envelope. By doing that, I will know not to bother you with a reminder or a second questionnaire. Following the data collection phase, the coding system and the questionnaires will be destroyed. Your responses to this questionnaire will indicate your consent to participate in this study.

Your cooperation and time spent responding to the questionnaire would be greatly appreciated. Although there are no immediate benefits to you as a subject in this study, more information will be acquired to better understand how to teach and assist diabetics to achieve better diabetic control and to prevent or minimize the long term complications associated with diabetes mellitus. Please return the completed questionnaire to me in the enclosed pre-addressed stamped envelope by \_\_\_\_\_ 1983.

Questions about this study can be addressed to me at the address indicated. I will be happy to answer any questions you have concerning this study or your part in it. If you should decide not to participate, please return the questionnaire unmarked.

These elements of informed consent conform to the assurance given by St. Louis University to the United States Department of Health and Human Services to protect the rights of human subjects. The Air Force has approved this study and has assigned the survey control number of USAF SCN 82-63.

Sincerely,

Sandra M. Witt, Major, USAF, NC  
Graduate Nursing Student

APPENDIX E  
PRIVACY ACT STATEMENT

## PRIVACY ACT STATEMENT

In accordance with paragraph 8, AFR 12-35, Air Force Privacy Act Program, the following information about this study is provided:

(A) AUTHORITY:

10 U. S. C. 8012, Secretary of the Air Force: Powers and Duties, Delegation by.

(B) PRINCIPLE PURPOSE:

This research study is being conducted to evaluate perceptions, attitudes, and self-care of diabetic patients following attendance of a diabetic education program.

(C) ROUTINE USE:

Data collected will be used to evaluate the perceptions, attitudes, and self-care of diabetic patients who have attended a structured multidisciplinary diabetic education program. Confidentiality will be assured.

(D) Participation in this study is entirely voluntary.

(E) No adverse action of any kind may be taken against any individual who elects not to participate in this study.

APPENDIX F

INSTRUMENT



## QUESTIONNAIRE

### Section I Background Information

Please complete the following information according to which group you fit into. Do not place your name anywhere on this questionnaire. All answers will be confidential.

1. Your age on your last birthday

- ☐ 25 to 34 years of age
- ☐ 35 to 44 years of age
- ☐ 45 to 54 years of age
- ☐ 55 to 65 years of age

2. The length of time you have had diabetes to the present time

- ☐ Newly diagnosed through 1 year
- ☐ 2 years through 5 years
- ☐ 6 years through 10 years
- ☐ 11 years or more

3. The type of treatment you are presently on to control your diabetes

- ☐ Diet and insulin
- ☐ Diet and oral agents ("pills" to control your diabetes
- ☐ Diet only

4. What is your present height?

\_\_\_\_\_feet\_\_\_\_\_inches

5. What is your present weight?

\_\_\_\_\_pounds

## Section II Attitudes and Perceptions

Please mark one answer that most clearly reflects your attitude and opinion for each of the following statements.

	STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE
1. Daily foot care is important to the diabetic to prevent problems.					
2. Diabetics who test for sugar in their urine every day are unusual.					
3. The amounts or portion sizes of foods on a diabetic diet are too small to eat every day and be satisfied.					
4. Diabetics who have the support and help of a family member or close friend find it easier to stay on their diet.					
5. Diabetic education classes are important because they emphasize the need for early detection of problems.					
6. Most diabetics wear a bracelet or necklace for identification of diabetes.					
7. Most diabetics ignore daily foot care as part of their diabetic program.					
8. Diabetic educational classes help prepare diabetics for a more healthful way of life.					
9. Most diabetics work at controlling their blood sugars only a few days before seeing their doctor.					
10. Diabetes greatly changes the life diabetics have with their family and friends because of following a special diet.					
11. Diabetic education classes only depress diabetics.					
12. Most diabetics can find time for daily exercise as part of their blood sugar control.					
13. Most diabetics understand how to manage their diabetes when they are ill.					

	STRONGLY AGREE	AGREE	UNCERTAIN	DISAGREE	STRONGLY DISAGREE
14. Self control is the most important factor in staying on a diabetic meal plan/diet.					
15. Urine testing is useless because most diabetics are unsure of what to do about the results.					
16. Most diabetics learn nothing new by attending diabetic education classes.					
17. Most diabetics truly believe that better blood sugar control will decrease or minimize their own risk for long term complications.					
18. Diabetics who maintain good blood sugar control lose less time from school, work, or normal activities.					
19. Diabetics rarely stick to their diet when they eat out because it is too much trouble.					
20. Most diabetics skip urine tests when they are sick.					
21. Most diabetics prefer to avoid knowing what their blood sugar is because they believe it is their doctors' responsibility.					
22. Diabetics who work with their doctor, nurse, and/or dietitian on a regular basis have better blood sugar control.					
23. To have good blood sugar control, a diabetic must accept the fact that most of the day to day responsibility is their own.					
24. Most overweight diabetics could improve their blood sugars by losing weight.					
25. Diabetics who do little or nothing to control and monitor their blood sugars and diabetes have fewer complications as they become older.					
26. Most diabetics fail to recognize the symptoms of too high blood sugar or too low blood sugar.					

27. Please feel free to make **any** additional comments about the opinions or attitudes you have about diabetes, treatment for diabetes, diabetic education, or **any** other thoughts.

Thank you for taking the time to complete this questionnaire.

This image shows a single page of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

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