

ADULT DIABETIC CLIENTS'  
SELF-CARE ACTIVITIES

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# ADULT DIABETIC CLIENTS' SELF-CARE ACTIVITIES

## ABSTRACT

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The purpose of this study was to describe self-care activities of adult diabetic clients. Self-care, as conceptualized by Orem (1971, 1980), provided the framework for the study.

A total of 106 subjects completed and returned a mailed questionnaire. The Diabetes Self-Care Report, used to collect data, was designed by the researcher to elicit a self-report of diabetes self-care performed in the home.

Five areas of diabetes self-care (diet, exercise, medication, hygiene, and monitoring level of diabetic control) were assessed in three categories (knowledge, skill, and motivation). Frequency counts were utilized to tabulate reported difficulties.

The areas of diet and exercise contained more reported difficulties than the other areas of diabetes self-care. The category of motivation presented more reported problems for the sample than did the categories of knowledge and skill.

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## CHAPTER I

### INTRODUCTION

Diabetes is a serious chronic condition known to affect over 5 million Americans and about 300,000 Australians. The American Diabetes Association (ADA) (1984) and the Australian Diabetes Foundation (1983) have estimated that 4% to 5% of the population have diabetes.

Laboratory tests indicating abnormal plasma glucose levels are "sufficient evidence" for the medical diagnosis of diabetes, but the disease is not simply a disorder of altered glucose metabolism (Kryston, 1975, p. 313). According to Williams and Porte (1974), diabetes is "a complex syndrome for which there is no definitive cause or cure" (p. 555). Diabetes is said to exist when the insulin, required for the carbohydrate metabolism essential to life, is either lacking or ineffective. In Type I diabetes, individuals produce absolutely no insulin to sustain life. Individuals, who produce some insulin, but in amounts inadequate for their body requirements, are categorized as Type II (ADA, 1984). The onset of either type of diabetes will necessitate an altered lifestyle.

Diabetes is a chronic condition which requires a lifetime of skilled management and daily care. Diabetic clients are taught to maintain a delicate daily balance between food intake and physical activity in order to maintain safe blood glucose levels (Guthrie & Guthrie, 1982a). Daily management may include insulin or hypoglycemic agent administration and the testing of urine or blood glucose. In addition, careful daily hygiene measures and constant safety precautions are required (Guthrie & Guthrie, 1982a). To provide daily management of their condition, diabetic clients must be prepared to provide their own skilled care at home.

According to Allison (1973), "patients outside of health care institutions are responsible for managing their own health care on an ongoing basis, and health care personnel assist only when patients have knowledge or skill limitations which hinder self-care" (p. 54). According to Orem (1980), the nurse's role is to facilitate self-care. This study was undertaken to describe the self-care ability of diabetic clients.

#### Statement of the Problem

The problem of this study was to describe the self-care activities engaged in by the adult client to manage his/her diabetes.

### Justification of the Problem

Health care professionals are not readily available to assist and to teach in the home. The diabetic client is expected to take the active role in self-care immediately upon discharge and must assume 24-hour responsibility for the daily regimen. The need for patient education to prepare diabetics for discharge is well recognized, and such programs are widely available (Nemchik, 1982). According to the National Diabetes Advisory Board (1983), "education for self-care is recognized to be a fundamental component of quality treatment for the individual with diabetes" (p. 31).

Diabetic patient education programs may be provided, but are they effective in promoting self-care? A crisis usually brings the diabetic client into the acute care setting and necessitates the learning of new and complex techniques. The goal may be to educate the client about his disease, but the conditions may not be optimum for learning (Resler, 1983). If and when learning occurs, is knowledge itself sufficient to provoke the necessary self-care activities? According to Podell (1976), "at least a dozen studies show a positive correlation between patient knowledge and compliance. On the other hand,

at least two dozen studies show no such relationship" (p. 215).

Self-care practices performed in the home may not be accurately reflected by measures of compliance. Approaches to measure compliance have included objective measurements such as the number of appointments that are kept, pill counts, blood chemistry levels, and changes in body weight. Subjective measures such as self-report of compliance to a therapeutic regimen have also been utilized to measure compliance (Sipes, 1982). Studies describing the actual self-care activity of patients managing medical treatment regimens at home are not found in the literature.

Prescribed treatment regimens are not automatically accepted and implemented by patients. Strauss and Glaser (1975) explained that "patients must continue to manage their daily existences under specific sets of financial and social conditions. Their chronic illness and associated regimens only complicate--and are secondary to--their daily management problems" (p. 21). In an attempt to adapt to the regimen prescribed for their health deviation, clients may modify their previous lifestyle and environment or clients may attempt to modify the regimen to fit them (Strauss & Glaser, 1975).

A multitude of discrepancies are possible between the prescribed procedures, even minimally safe measures, and the actual self-care performed in the home. Potentially dangerous procedures may be adopted by diabetic clients or tasks essential to good management may be overlooked. According to Burke (1982), "assessment should never end with discharge from the hospital . . . it is in the home where patients will be managing their diabetes, . . . it is in the home where assessment should continue" (p. 287). The present study focused upon a description of the self-care activities performed by diabetic clients in their own homes.

### Conceptual Framework

Self-care, as conceptualized by Orem, provided the framework for this study. Orem's basic assumption is that man has the innate ability and responsibility to care for himself (Anna, Christensen, Hohan, Ord, & Wells, 1978). Concepts of self-care (Orem, 1971, 1980) relevant to this study are described below.

Self-care may be defined as the deliberate, voluntary, and goal-oriented actions taken by an individual to maintain life, preserve health, and promote well-being. According to Orem (1971), "self-care is the practice of activities

that individuals personally initiate and perform on their own behalf . . . an adult's personal, continuous contribution to his own health and well-being" (p. 13). Self-care is a requirement of every person to meet basic human needs, developmental needs, and, at times, health-deviation needs. Self-care is learned behavior and usually takes the form of well-established habits (Anna et al., 1978; Joseph, 1980, Orem, 1980).

Self-care agency is conceptualized as "a set of human abilities for deliberate action . . . examined in relation to the capacities individuals have, including their skill repertoires and the kinds of knowledge they have and use" (Orem, 1980, p. 83). Self-care demands are needs which require action to be taken to maintain health and well-being. Whether or not the individual can meet these demands with a set of actions will depend upon his self-care abilities (Orem, 1980).

The nurse's role is to maximize each patient's potential for self-care (Anna et al., 1978, p. 8). The active role and responsibility are assigned to the patient whenever possible. According to Joseph (1980), nurses must assess the individual's assets and limitations of self-care agency in relation to knowledge, motivation, and skill. When individuals cannot

meet the demands placed upon them, and the desired self-care behavior is not produced . . . the patient has insufficient self-care agency to meet the therapeutic self-care demand because of a lack of knowledge, skill or motivation. (Joseph, 1980, p. 137)

The need for nursing intervention is then established.

Health deviated states require modification of the usual self-care practices. Individuals must often revise their ways of meeting basic needs, modify the self-image, adjust the routine of daily living, and develop a new lifestyle (Orem, 1971). Changing established habits and learning new routines is often difficult. "Health deviation may (or may not) bring about feelings of illness, of being sick, of not being able to function normally and these feelings . . . will influence what the person may choose to do" (Orem, 1971, p. 49).

For the purposes of this study, diabetes mellitus was viewed as a health deviation state. The study focused on the diabetic client's ability to provide self-care activities to meet the demands of a health-deviation state.

#### Assumptions

The following assumptions were formulated for this study:

1. Health-deviation self-care needs, specific to the health status of individuals, can and should be identified.
2. Diabetes mellitus is a health-deviation state.
3. Adult diabetic clients attending the outpatient diabetes clinic have been exposed to diabetes self-management information.
4. Limitations in the self-care ability of diabetic clients can and should be assessed by nurses.

#### Research Questions

For the purposes of this study, the following research questions were formulated:

1. What self-care activities, as measured by the Diabetes Self-Care Report, are performed without difficulty by adult clients to manage their diabetes in the following areas: (a) diet, (b) exercise, (c) medication, (d) hygiene, and (f) monitoring level of control?
2. When difficulties are experienced by adult clients in their self-care activities to manage their diabetes mellitus in the above areas, are the difficulties, as measured by the Diabetes Self-Care Report, predominantly related to a lack of knowledge, a lack of skill, or a lack of motivation?

### Definition of Terms

For the purposes of this study, the following terms were defined:

1. Diabetes mellitus--a chronic syndrome characterized by an absolute lack (Type I) or a relative lack (Type II) of the insulin required for carbohydrate metabolism in the body. The medical diagnosis of diabetes mellitus, as entered upon the patient's clinic attendance file card, was accepted for the purpose of this study.

2. Adult clients--all male and female patients, over 25 years of age, with a medical diagnosis of diabetes mellitus, who attended a diabetes outpatient clinic between July 1, 1984 and December 31, 1984.

3. Self-care activities--those deliberate and voluntary actions taken by an individual to maintain life and preserve health (Orem, 1980). For the purpose of this study, self-care specifically necessitated by the presence of the health-deviation state of diabetes was considered to pertain to diet, exercise, medication, hygiene, and monitoring level of control. The instrument, Diabetes Self-Care Report (Appendix A) contained six questions to address each of the five areas of diabetes care. For the purposes of this study, self-care was defined as the client's self-report of diabetes related

activities implemented in the home as measured by the Diabetes Self-Care Report.

4. Difficulties--the client perceived problems with the implementation of self-care in the home as measured by 20 questions on the Diabetes Self-Care Report. The instrument offered respondents a choice of "big problem," "small problem," or "no problem" as a response to each item.

5. Knowledge--information perceived by the senses and understood. For this study, knowledge related to diabetes self-care was measured by correct responses to statements #27 through #36 of the instrument, Diabetes Self-Care Report. Incorrect responses to the statements were assumed by the researcher to indicate respondent's lack of knowledge in that area.

6. Skill--the competent performance of a task. For this study, skill related to diabetes self-care was measured by the self-report of "no problem" in response to statements #7 through #16 of the instrument, Diabetes Self-Care Report. "Big problem" or "small problem" responses to the statements were assumed by the researcher to indicate a perceived lack of skill in that area.

7. Motivation--the propensity to take action. For this study, motivation related to diabetes self-care

was measured by self-report of "no problem" in response to statements #17 through #26 of the instrument, Diabetes Self-Care Report. "Big problem" or "small problem" responses to the statements were assumed by the researcher to indicate a perceived lack of motivation in that area.

#### Limitations

The conclusions of the study may have been limited by the following:

1. The self-administered questionnaires may not have accurately reflected the actual self-care activities of the subjects.
2. The sample may not be representative of the total population of adult diabetic clients who received the questionnaire.
3. A new instrument was used in the study. No reliability data were obtained on the instrument prior to its use with subjects.

#### Summary

This chapter has discussed the need for identification and description of the self-care activities performed by diabetic clients in their homes. Self-care (Orem, 1971, 1980) provided a conceptual framework for the study. Diabetes mellitus is viewed as a chronic condition

requiring health-deviation self-care which must be learned and maintained for the remaining life span of the client. The nurse's role is to facilitate the client's self-care ability to meet his own self-care demands. Diabetic patient education programs in hospitals and in ambulatory areas are quite common, but attention has not been focused upon a description of the actual practices adopted over time by diabetic clients in the home.

## CHAPTER II

### REVIEW OF LITERATURE

This review of literature examined areas related to self-care of the adult diabetic client. The specific areas addressed were interpretations of the term "self-care, diabetes as a chronic disease, diabetes self-care, teaching self-care, and application of Orem's self-care model.

#### Interpretations of the Term "Self-Care"

Several interpretations of the term "self-care" are found in the literature. Five views are described below.

According to Silten and Levin (1979), "self-care" is a "lay-movement" which reflects a growing interest in "do-it-yourself" health care (p. 202). Maintaining that health-related procedures such as blood pressure measurement, routine urinalysis, and throat cultures can be learned, Silten and Levin claimed that such tests should be performed by lay people. Procedures should be "demystified, deprofessionalized, and incorporated into the lay person's compendium of life skills" (p. 202). The lay person is designated as the primary care-

giver, but he may draw upon profesional assistance if he so desires. The professional care system may not be willing to relinquish control, but "public access to health knowledge does not require professional approval" (Silten & Levin, 1979, p. 203).

A second view has been advanced by Pender (1982). The term "self-care" is used to describe all the everyday activities which individuals must engage in to accomplish daily living and to sustain and enhance life and health. In addition, all actions taken by the individual to minimize risks and to promote personal growth are defined as self-care actions. According to Pender (1982), "the competence with which the task (of self-care) is accomplished determines the quality of life experienced and has a significant impact on longevity" (p. 150). Pender did not advocate "do-it-yourself" health care. Rather, self-care is seen as the opposite of self-neglect and clients are encouraged to become "knowledgeable partners in maintaining and promoting personal health" (p. 150).

A third interpretation has been advanced by McCourt (1981), a rehabilitation nurse specialist. She discussed "self-care" strictly in terms of functional abilities. Skills required for activities of daily living, such as bathing, feeding, dressing, and toileting are assessed.

Patients are said to exhibit "self-care deficits" if they require the help or equipment of another person.

A fourth interpretation of self-care has been provided by Mulligan (1980). Mulligan described self-care in a manner similar to that of McCourt. Patients are usually assigned to categories of total care, partial care, or self-care and "self-care means that the ill adult only needs the bed made and perhaps a few medications" (p. 180).

Finally, Orem's (1980) self-care as a model for nursing will be recalled. A description of the model was presented as the conceptual framework for the present study, and a complete definition of terms will not be repeated here. Self-care, according to Orem, is defined as the deliberate, voluntary, and goal-oriented actions taken by an individual to maintain life, preserve health, and promote well-being.

According to Orem (1980), intervention by a health professional is justified only when an individual is unable to perform self-care. Since Orem places the ultimate responsibility upon the client, her view is compatible with that of Silten and Levin (1979) although she does not advocate "do-it-yourself" health care.

Orem believed in promoting self-care under all conditions of wellness, acute illness, or chronic disease. In this respect, Orem encompassed Pender's (1982) view of self-care which focuses upon primary prevention, enhancing wellness, and avoiding disease.

Skill or functional ability is considered by Orem to be a component of self-care. Consequently, her view is compatible with the work of McCourt (1981) who described self-care in terms of accomplishing the activities of daily living. On the other hand, since the educational needs of ambulatory patients warrant nursing intervention, according to Orem (1980), the "self-care" classification in the acute care facility as described by Mulligan (1980) may not be compatible with Orem's concept.

#### Diabetes as a Chronic Disease

As living conditions improve in advancing countries, the chronic, degenerative, and occupational diseases became more apparent (Warr, 1981). According to Anderson and Bauwens (1981), at least 80% of the over-65 population has one or more chronic illnesses. A declining statistical death rate may be optimistic but misleading because the health status of the population is not addressed (Anderson & Bauwens, 1981).

The National Commission on Chronic Illness in 1949 (cited in Anderson & Bauwens, 1981) defined chronic illness as an impairment or deviation from normal presenting one or more of the following criteria:

1. Is permanent.
2. Leaves residual disability.
3. Is caused by nonreversible pathological alterations.
4. Requires special training of the patient for rehabilitation.
5. May be expected to require a long period of supervision, observation, or care.

Diabetes mellitus is a chronic disease of alarming proportions. The Australian Diabetes Society (1982) estimated prevalence of diabetes at 2.8% of the Australian adult population (approximately 300,000 persons), and 3,500 new cases are diagnosed per month. In the United States the number of diabetics is rising at a rate of 6% annually (Beebe, 1981, p. 20).

Persons with chronic illness cannot expect to be disease-free. Their goal is to live as normally as possible despite their disease ( Anderson & Bauwens, 1981; Strauss & Glaser, 1975). Orem (1980) explained that health-deviation states necessitate adjustments in self-care. Two

of the specific areas which she identified as requiring adjustment pertain to "establishing new techniques of self-care" and "revising the routine of daily living" (p. 30). According to Orem (1980), disease is something to be lived with, and the characteristics of the health deviation itself will determine the kinds of self-care demands that the individuals will experience.

Pratt (1976) estimated that a stabilized diabetic patient "may receive twelve hours per year of medical care from doctors and nurses and the rest from family and self" (p. 27). Pender (1982) maintained that in chronic disease self-care is primary, with professional care in the form of education or guidance supplementary. Self-care at home is essential because chronic disease must be cared for 24 hours a day, 365 days a year. "Ambulatory chronically ill patients must be full participants, even managers of their own care" (Miller, 1982, p. 25).

#### Diabetes Self Care

In order to live a normal life, the person with diabetes must manage his condition 24 hours a day. The five general areas of diabetes self-care are diet, exercise, hygiene, medication, and monitoring level of control.

### Diet

The diabetic diet is the cornerstone of diabetes management according to Stacy (1982). Calculated food intake distributed evenly throughout the day is essential for patients on insulin. Calorie control is usually required, and weight reduction may be necessary. A well-balanced nutritional diet, with regularly spaced meals and planned snacks, is required (Beebe, 1981; Krall, 1978; Stacy, 1982; Wahlquist, 1982).

The application of dietary principles based on heart disease prevention is appropriate for diabetic clients, since approximately 75% of all diabetics die of vascular complications (Gordon, 1976). The incidence of coronary heart disease is 3 times greater for the diabetic compared to the nondiabetic individual (Smithhurst, 1978). Reduced intakes of salt, cholesterol, and saturated fat are, therefore, strongly recommended (Stacy, 1982).

According to Stocks (1983) and Hopper (1983), compliance to the diabetic diet was the most frequently cited "problem" part of the diabetic regimen. Reported difficulties include estimating portion sizes, eating at exact time intervals, and abandoning favorite foods. Stacy (1982) contended that the diet may be erroneously perceived as restrictive by the patient when, in fact, the whole

family can enjoy and benefit from the same nutritional meals (Stacy, 1982).

### Exercise

Regular exercise is beneficial not only to increase physical fitness, but also to facilitate weight control. Regular exercise is defined by Wiggins (1983) as activity to elevate and sustain the heart rate (at 75% of the person's age-predicted maximum) for 20 minutes at least 3 times per week. Weight control is aided by calorie expenditure and by an 18-24 hour increase in metabolic rate following muscular activity (Wahlquist, 1982).

Diabetics engaging in regular exercise may achieve a desirable long-term improvement in their glucose metabolism (Hein, 1983). Increased tissue sensitivity to insulin, which improves glucose assimilation, was found by Saunders, Levinson, Abelman, and Freinkel (1964) who studied the effects of exercise on the utilization of glucose. Since blood glucose levels are significantly lowered during exercise, insulin dependent diabetics must deliberately ingest extra carbohydrates one-half hour before exercising in order to prevent a hypoglycemic reaction (Guthrie & Guthrie, 1982b).

A regular daily exercise program is strongly recommended for all diabetics. Sedentary individuals or those with physical limitations or handicaps can plan easy stretching and range of motion exercises even if aerobic benefit is not achieved (Guthrie & Guthrie, 1982b). Exercise is often neglected, as Pratt's (1976) study found. In her non-diabetic urban sample of 273 families only 10% of the adults exercised regularly. Abbott (cited in Pratt, 1976) concluded that lack of exercise was the nation's number one health problem.

#### Hygiene

Hygiene measures for diabetics which play an important part in the prevention of infection, consist of skin care, foot care, and avoidance of trauma. Diabetics are not predisposed to infections, but host factors such as increased glucose concentrations, altered white blood cell activity, and decreased circulation may cause infections that, once established, may be difficult to control (Braverman, 1971; Thornton, 1971). Since insulin requirements are increased under the stress of illness, blood glucose levels can get out of control. Although the best treatment for infection is control of blood glucose levels, "the decisive factor in whether or not infection

develops may be cleanliness of the skin" (Krall, 1978, p. 125).

Foot care should also be part of daily hygiene. Vascular disease often decreases circulation to the feet of a diabetic person. In addition, the presence of neuropathy and subsequent loss of sensation to heat, cold, pressure and trauma, predisposes the diabetic to incur injuries to the feet that are not readily recognized. Daily visual inspection is recommended (Jordan & Nickerson, 1982). The person with diabetes should carefully wash, dry, and inspect the feet daily. Even a minor change or small reddened area should be checked by a physician or nurse clinician. Toenails can be carefully cut straight across, but if the patient cannot see well, or if nails are extremely hard, a podiatrist should be consulted for routine care. Jordan and Nickerson (1982) reported a study by Nickerson (1982) in which 82% of hospitalized diabetic patients were found to be using improper first aid treatment on their feet at home. Simple measures to improve circulation to the feet such as "Buerger's exercises" (p. 166), slow walking, and avoidance of tobacco are recommended by Jordan and Nickerson (1982).

The importance of avoiding trauma to the feet cannot be overemphasized. According to the American Diabetes

Association (1984), 20,000 leg and foot amputations are performed annually on diabetics with gangrene infections. Barker (1971) indicated that "gangrene lesions most often arise in what should have been avoidable, minor episodes of trauma" (p. 1045). A person with diabetes should avoid ill fitting shoes or socks and all external applications of heat or cold. Feet should be protected from cuts and bruises at all times. Diabetics must never go barefoot, even around the house (Jordan & Nickerson, 1982).

#### Medication

Medication is usually required by the diabetic patient. Type I diabetes mellitus, by definition, must be treated with daily insulin injections, but Type II diabetics may respond to diet alone or oral hypoglycemic agents, in lieu of insulin therapy.

There is controversy about the liberal use of oral hypoglycemic agents, such as tolbutamide, which are used to stimulate the pancreas to produce more insulin. Prout (1971) discussed the findings of a long-term double blind study conducted with 200 patients, from 1961 to 1966. An increased mortality, related to cardiovascular changes, was observed among tolbutamide treated patients. Similar findings were reported in a 10-year study by Sonsken,

Lawry, Perkins, & Lim (1984) which found an increased risk of microvascular complications associated with the use of oral hypoglycemic agents in Type II diabetics.

A conservative approach was emphasized by Stacy (1982). Weight loss alone may reverse Type II diabetes and lessen or eliminate the need for medication. Every effort should be made by sensible dieting and regular exercise to lose weight, before any medication is prescribed.

For those patients beginning insulin therapy, patient teaching must include information about insulin, such as action times and side effects, and skill practice in administration procedures, such as measurement of correct dosage and self-injection technique. Some authors have challenged the traditionally taught aseptic technique for insulin injection. Borders, Bingham, and Riddle (1984) conducted a study with 254 ambulatory adult diabetic patients to determine the appropriateness of the preparatory procedure in combating infections at the injection site and found "no scientific support for traditional advice to insulin users" (p. 118). Aziz (1984) studied a related topic with 14 insulin dependent children. Manufacturers recommend that each disposable syringe-needle unit be used only once. No problems were reported, however, after the children used each unit an average of 6.3 times

(range 1-16 times) over a range of 11-144 days. Dullness of the needle prompted disposal of the unit in most cases.

Controversies such as those over the possible dangers of oral hypoglycemic agents or over the appropriateness of aseptic injection technique have challenged traditional practices. Differences in teaching methods and instructional content from one agency to another are, therefore, to be expected. For the purposes of the present study, the area of medication was viewed strictly as the medical protocol prescribed by the patient's physician.

#### Monitoring Level of Control

The term "diabetes control" refers to maintaining blood glucose levels within a specified normal range. According to Jordan (1983a), hypoglycemia, defined as less than 50 milligrams per deciliter (mg/dl), must be avoided since glucose supplies to the brain can sink dangerously low. Regular scheduled meals with additional carbohydrates before exercise are recommended to prevent insulin reactions.

Hyperglycemia is characteristic of diabetes mellitus, but the upper limit should be controlled by diet, oral hypoglycemic agents, or insulin, to less than 180 mg/dl at all times (Jordan, 1983a).

Complications of the large and small blood vessels, such as heart disease, peripheral vascular disease, nephropathy, retinopathy, and neuropathy, often arise in the person with diabetes mellitus. Since hyperglycemia is thought to promote these conditions, tight diabetic control maintaining near normal blood glucose levels may prevent or reduce the common long-term complications (Jordan, 1983b).

In a study by Watkins, Williams, Martin, Hogan, and Anderson (1967) descriptive criteria were established for degree of control in diabetes mellitus. Four of the five criteria refer to blood glucose levels, while the remaining criteria refers to the patient's body weight.

In order to monitor their level of diabetic control, individuals must periodically determine their blood glucose level. According to Nickerson (1982), several methods for home urine testing are available, but the results are frequently inaccurate. Home blood glucose monitoring 4 times per day for 2 days each week is the preferred method for accuracy, but, according to Guthrie and Guthrie (1982c), it is invasive and expensive.

Scheduled appointments with a supervising physician at least every 3 to 6 months are recommended. In addition, some method of urine or blood home testing should be

used regularly to monitor the blood glucose levels which determine the level of diabetic control (Nickerson, 1982).

Williams, Martin, Hogan, Watkins, and Ellis (1967) explained that, contrary to popular belief, physicians do not know enough about diabetes to help patients achieve good control. Over 70% of diabetic patients in their study were reported to be in poor control. Williams et al. (1967) asserted that control is not related to knowledge level, or duration of disease, or patients' performance of prescribed therapy; however, knowledge level is related to performance of prescribed therapy.

#### Teaching Self-Care

Support for the value of patient teaching, in general, is widely found in the literature. Diabetes education is the most common type of program implemented. Patient teaching may not automatically produce adequate self-care.

#### Patient Teaching

Patient teaching is believed to be beneficial for patients. Of 29 evaluative studies on patient teaching reviewed by Wilson-Barnett and Osborne (1983), 23 studies were found to document desirable outcomes. In a survey of 151 nurses, Palm (1971) found that 59% believed patient teaching to be a high priority task. A program of necessary

and appropriate health information should be integrated into routine hospital services, according to the Blue Cross White Paper on Patient Health Education (1976).

The value of patient teaching has become so widely accepted that Syred (1981) expressed a negative opinion of nurses who are in a position to influence patients but appear "to abdicate the role of health education" (p. 27). She found that "all too often patients discharged from hospitals are given little or no advice on the scope of their abilities and daily living requirements at home" (p. 28).

Other authors have attempted to explain why patient teaching is not done. Mulligan (1980) described the tendency, in acute care facilities, to classify ill adults by "tasks to be done" (p. 177). "The self-care patient is perceived as an unoccupied bed . . . and he is often the individual with the greatest educational needs" (p. 177). Winslow (1976) identified several factors which may deter patient teaching by nurses. These include lack of time, lack of nursing administration support, and lack of knowledge or inadequate teaching skills of the nurse.

In attempts to standardize and facilitate documentation of patient teaching, guidelines, standards, protocols,

and sheets of instruction are often used. In Guidelines for Diabetes Care, the American Diabetes Association and the American Association of Diabetes Educators (1981) suggested levels of educational content for diabetic teaching. The National Diabetes Advisory Board (1983) has developed standards for diabetes patient programs. Resler (1983) discussed the "check-list approach" used in many facilities as an example of a standardized approach to patient teaching.

A standardized approach is not welcomed by all. Levin (1978) criticized the written protocols and instruction sheets often prepared by nurse educators as designed to promote "optimal compliance with professionally prescribed health behavior" (p. 171). According to Chang (1980), "patients should determine the desired outcome in accordance with their decision as to which risks they choose to contend with or avoid" (p. 49). Chang cautioned that the decision-making responsibility belongs to the patient, and the "patient's choices may not always conform to professional values" (p. 49).

A self-care framework, such as Orem's (1980), supports the medical regimen, yet allows for the patient's right to independence. Orem directs nurses to focus attention upon the patient's self-care practices, then to intervene

to increase self-care abilities through patient teaching. According to Joseph (1980), patient education includes assisting patients to care for themselves and teaching them "to perform certain procedures needed for their treatment" (p. 132).

### Diabetes Education

According to Krall (1978), diabetes education "is not an addition to treatment, it is treatment" (p. 222). Most hospitals that do teaching have established diabetic, cardiac and pre-operative programs (Task Force Report, 1976). Historically, diabetes management is the earliest example of formal patient teaching by hospital staff (Nemchik, 1982; Resler, 1983).

Health care costs for diabetics may be reduced through effective patient education, and diabetes is treated directly and indirectly in practically every health care facility in the nation, regardless of size or location (National Diabetes Advisory Board, 1983). More than 2 million Americans are hospitalized each year because of diabetes, according to the American Diabetes Association (1984), and health care costs continue to rise at an alarming rate (Silten & Levin, 1979; Stanhope & Lancaster, 1984; Warr, 1981).

Miller and Goldstein (1972) reported a significant reduction in emergency room visits and hospital admissions over a 2-year period following the installation of a telephone information service for diabetic clinic patients. The National Diabetes Advisory Board (1983) predicted more efficient use of health care services, more effective use of resources, less use of hospital emergency rooms, and a lower incidence of long-term complications would result from diabetes patient education.

Diabetic teaching methods have been criticized. According to Resler (1983), the "check-list" approach promoted by most agencies does not allow for individual goal setting and the effectiveness of informal teaching that accompanies the giving of physical care is often underestimated (Resler, 1983).

Other authors found the use of printed material in lieu of individualized instruction to be unsatisfactory. McNeal, Salisbury, Baumgardner, and Wheeler (1984) found a wide discrepancy between the comprehension levels of the subjects and the reading level of diabetes education instructional material from a public health program. Since the subjects were unable to understand the information presented, they were unable to implement self-care.

Conflicting views were offered by Korhoner (1983) who asserted that individual instruction vs. printed material produced no difference between two groups after 18 months. One group received intensive diabetes education both individually and in groups from teams of educators, dietitians, and physicians. The second group received a short instruction course consisting mainly of printed material. The researchers concluded that any educational program was of limited value unless permanent changes in behavior occurred.

Instruction courses which aim to increase knowledge levels may not produce behavior change. Williams, Martin, Hogan, Watkins, and Ellis (1967) found that although increased knowledge of the diabetic regime was necessary, it may not be sufficient for adequate performance of the regime. In studies of relationships between knowledge levels and compliance to medical regimes as reviewed by Marston (1970), increased knowledge levels were not shown to increase levels of compliance.

Knowledge alone may not change behavior as Pratt (1976) explained,

a high level of health information does not assure sound health practices . . . factors other than knowledge have an important bearing on health behavior. But incorrect and insufficient health information

does influence behavior because it prevents people from taking sound health care measures. (p. 43)

In a study by Salzer (1975), diabetic education classes were planned and implemented for a prepaid health maintenance organization in New York. Although questionnaires at the initial meeting, 1 month later, and 1 year later yielded data to indicate that learning had occurred, the author cautioned that "the answers represent participants' knowledge of what they should be doing, not their known practices" (p. 1326).

Smith (1981) used a survey with questionnaires for 76 diabetic patients and found no significant relationship between patients' perception of their level of compliance and their level of diabetes related knowledge. The researcher concluded that increased knowledge did not necessarily increase compliance to the therapeutic regimen.

Increased knowledge is necessary for performance of the diabetic regimen, according to Williams et al. (1967). Their compliance model depicts several determinants of day-to-day diabetes management and of these "knowledge how" and "knowledge why" are shown to result from patient teaching.

Adequate performance of the diabetic regimen is not an easy skill to master. Hoover (1982) described the

difficulties encountered by a diabetes health care team when they decided to follow the same regimen that they had been prescribing.

Stocks (1983) described a similar experience in an experiment with 10 staff members of a diabetic clinic in Brisbane, Australia. The participants were instructed to take insulin twice a day (saline), follow a strict diet on a set schedule, test urine solutions containing known amounts of glucose, record results, and adjust insulin in relation to test results. When penalty points were assessed, the group had made many errors and, "if this was the performance of health professionals it indicated just how difficult were the tasks imposed on those with diabetes" (p. 17).

Patient teaching, without ongoing evaluation of the results, may not produce the desired client behaviors. The need for periodic assessment of the diabetic client at home was shown by Mountier, Scott, and Beaven (1982). The researchers analyzed questionnaires from 111 diabetic patients who had been using home glucose monitoring devices for 18 months. Approximately 43% were found to use unsatisfactory procedures, and 15% failed to write down results. The researchers concluded that many patients did not use the equipment appropriately, did not react appropriately

to high blood sugar readings, and had not experienced an improvement in glycemic control since initiation of home glucose monitoring.

After assessment of patients in the home, Watkins et al. (1967) identified possible reasons for poor overall management of the diabetic regimen. Poor eyesight, misunderstanding of prescribed treatment, lack of knowledge of "why" and "how," and lack of motivation were the reasons cited. The researchers recommended reassessing eyesight, knowledge, and regimen management from time to time using a specific plan.

Long-term behavior change should be the desired outcome in diabetes education. According to Resler (1983), diabetes teaching centers which provide ongoing assessment, intervention, and evaluation, greatly increase the likelihood that patients will succeed in adhering to the regimen.

In summary, patient teaching is now widely accepted as beneficial for patients and as part of the nurse's role. Diabetes education programs are now found in most hospitals, but some instruction methods and teaching practices have been criticized. Increased knowledge levels in the diabetic patient may be insufficient alone to produce competent performance of the diabetic regimen overtime.

### Applications of Orem's Self-Care Model

The work of others based upon Orem's self-care model will now be discussed. An extensive literature review revealed two general categories: work pertaining to nursing practice and work pertaining to instrument or model development. The five examples of model or instrument development will be discussed first.

Kearney and Fleischer (1979) conducted a study to develop an instrument "to measure a person's exercise of self-care agency" (p. 25). Five indicants of self-care agency were identified through group discussion. Content validity for the final tool of 43 items was established by a panel of experts. Over 200 students were used to determine a test-retest reliability of .77. According to Kearney and Fleischer (1979), the determinants of self-care agency are: (a) an attitude of responsibility for self, (b) motivation to care for self, (c) the application of knowledge to self-care, (d) the valuing of health priorities, and (e) high self-esteem.

Allison (1973) developed a model based upon Orem's framework while establishing a nurse-conducted and physician-supervised Diabetic Management Clinic. One nurse and a nursing assistant screened, interviewed, and provided

care for 10-15 patients each clinic session. Changes in the traditional roles and functions of the nurse were discussed and job descriptions were developed for the new clinic based upon a model using Orem's self-care as a framework for practice.

Backscheider (1974) developed a framework for the assessment of patient capabilities as compared to patient action responsibilities specifically related to diabetes mellitus. Patient action responsibilities were based upon the therapeutic regimens utilized in the Diabetic Nurse Management Clinic at Johns Hopkins Hospital. Self-care capabilities were assessed extensively and divided into physical, mental, motivational, and/or emotional capabilities. This lengthy assessment tool was designed for use by nurses in the Diabetic Clinic.

Joseph (1980) presented an analysis of Orem's concepts of self-care in the nursing process which she believed can be used to assist nursing to focus upon patient education. The characteristics of self-care agency are visualized as knowledge, skill, and motivation. The simplicity of the model is appealing. Since the patient education focus is appropriate for an assessment of diabetic clients at home, this model, in particular, was used to guide the instrument development for use in this study.

The remaining authors contributing to the development of work based on Orem focused upon aspects of nursing practice rather than model development. These works which represent a variety of clinical settings will be briefly described.

Anna, Christensen, Hohon, Ord, and Wells (1978) described the effect of implementation of a self-care based practice in a 202-bed nursing home. Nine graduate students reported improved self-care practice of selected patients during their short stay.

Nowakowski (1980) reported on a community health education program which held group classes designed "not to ignore disease but to focus upon the individual" (p. 26). It is interesting to note that the five lengthy characteristics of self-care agents described in this article are vastly different than the indicants of self-care agency generated by Kearney and Fleischer (1979).

Facteau (1980) discussed Orem's framework in relation to pediatric nursing. The stated goal was to facilitate "learned behavior that enables a child to perform various activities of daily living." If the child has limited self-care ability, due to age, a substitute self-care agent is designated.

Michael and Sewall (1980) stated that Orem's self-care framework formed the basis for their "reality therapy" and "group therapy" approach with adolescent alcohol abusers. Other than the use of terms "self-care demands" and "self-care deficits," the application of Orem's model is difficult to discern.

Harris (1980) reported the use of a self-care framework "to increase the self-care agency of families who experience cesarean deliveries" (p. 192). Walborn (1980) applied Orem's concepts to Hospice care, and Kinlein (1977) described her implementation of the self-care concept in an independent nursing practice which focused upon the self-care practices of the individual. No instrument was offered by these authors.

Two authors reported an application of Orem's framework to nursing practice with diabetic clients. The first author, Fitzgerald (1980), exhibited a wealth of clinical experience with diabetic clients in her descriptive work. A design for an educational program based upon Orem's model of self-care was presented.

The second author, Miller (1982), undertook a descriptive study to identify the needs of 65 ambulatory diabetic patients. A participant-observer method was used. The author provided care at a diabetic clinic 1 morning a

week for 1 year. During this time, each of 65 subjects had a minimum of three professional nursing contacts. An assessment tool designed by the researcher was used on initial contact to measure the patient's self-care agency. In addition, a diabetes related evaluation was completed at each patient contact. Data from these tools and from care plans recorded for each patient were later used to compile specific self-care requisites. Data were collected until no new categories were discovered, and each category had been saturated with examples. Ten categories of needs were eventually developed as a result of this descriptive study.

### Summary

Chapter 2 has presented a review of the literature relevant to the thesis topic. The areas reviewed are now briefly described.

Four interpretations of the term self-care were reviewed for the purpose of comparison with Orem's use of the term. According to Orem (1980), the ultimate responsibility for self is assigned to each individual, but the nurse may intervene to facilitate self-care. Orem's view was found to be compatible with three of the other views.

The chronic nature of diabetes mellitus with all its implications was then discussed. Chronic or permanent conditions were shown to require adjustment and often specific daily care.

Alterations in activities of daily living and the learning of new skills necessitated by the onset of diabetes mellitus were then reviewed. Specific modifications required in the following five areas of diabetes self-care, diet, exercise, hygiene/foot care, medication, and monitoring level of control were discussed.

Although the value of patient teaching is supported in the literature, some teaching methods have been criticized. The goal of diabetes education was measured by increased patient knowledge in some instances but by long-term changes in behavior in other instances. In chronic disease states requiring daily implementation of self-care, long-term behavior change was thought to be the preferred outcome.

Several applications of Orem's concept of self-care were then reviewed. Both theoretical and clinical work by other authors was shown to testify to the adaptability of Orem's framework.

## CHAPTER III

### PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

This study was a non-experimental descriptive survey designed to describe the self-care ability of adult diabetic clients providing their own skilled care at home. According to Polit and Hungler (1983), the aim of the descriptive survey is to describe the distribution and frequency of data obtained from a sample that is chosen to represent a population. This study utilized a cross-sectional sample of the population, and data were gathered with a questionnaire which was self-administered, completed, and returned by mail.

#### Setting

The research setting for this study was the community served by a 500-bed general hospital in southwestern Australia. The hospital supports a diabetic clinic for outpatients and employs two specialized nursing sisters to provide individual teaching and counseling for diabetic patients and their families.

A total of 1,141 patients was enrolled at the clinic during the time of the study. All patients initially

received a medical evaluation by endocrinologists at the clinic. Some, but not all, patients were referred to a staff dietician for consultation. Follow-up appointments with a physician were scheduled at least every 3 months. In addition, patients were encouraged to contact the clinic whenever they desired. All phone calls and inquiries from patients were accepted by the nurse educators but referred to dietician, podiatrist, or physician, as required. Due to the close medical supervision of these patients, and documented teaching by nurse educators, exposure to diabetes related self-care information was assumed.

#### Population and Sample

The population for this study was those adult clients with a medical diagnosis of diabetes mellitus who visited the outpatient clinic between July 1, 1984 and December 31, 1984. A probability sample of 200 subjects was systematically drawn from the attendance records maintained by the unit secretary. The first file card was selected at random, then every fourth file card selected until 200 cards corresponding to 200 subjects were drawn. According to Polit and Hungler (1983), systematic sampling performed in this way is comparable to simple random

sampling. A total of 200 questionnaires was mailed and completed questionnaires were returned by 106 subjects.

#### Protection of Human Subjects

Permission to conduct this study was obtained from the graduate school of the Texas Woman's University (Appendix B) and the participating hospital (Appendix C) prior to the collection of data. The study fell under Category I of Guidelines for Research Involving Human Subjects, and, therefore, was exempt from Human Subjects Review Committee (Appendix D).

Potential subjects were advised by cover letter (Appendix E) of the nature and purpose of the study and of their right to decline. In addition, potential subjects were assured that all names and addresses of participants would be kept confidential and only group data would be released.

#### Instruments

The instrument used in this study was the Diabetes Self-Care Report (Appendix A). This questionnaire was developed by the researcher specifically for this study to elicit information about self-care activities in the home. The instrument contains 30 items constructed to

address the three main components of self care: skill, knowledge, and motivation (Joseph, 1980).

The 10 knowledge statements were constructed in a true/false format. These are dichotomous items considered by Polit and Hungler (1983) to be the simplest type of closed-ended questions and "most appropriate for gathering factual information" (p. 311). Knowledge was defined for the present study as information perceived and understood. Knowledge related to diabetes self-care was measured by correct responses to 10 statements, #27 through #36, of the instrument. Incorrect responses to the statements were assumed, by the researcher, to indicate a respondent's lack of knowledge in that area. Therefore, frequency counts of incorrect responses to knowledge statements were taken to represent the number of respondents in the sample who may have lacked knowledge of diabetes self-care.

The 10 skill statements were designed to elicit a self-report of problems encountered by the subjects during implementation of diabetes-related procedures. A response scale containing three options: "big problem," "small problem," or "no problem" was chosen for the instrument. The subject was requested to circle the answer which best described his experience for each task listed.

Skill was defined for the present study as the competent performance of a task. Skill related to diabetes self-care was measured by the self-report of "no problem" in response to 10 statements, #7 through #16, of the instrument Diabetes Self-Care Report. "Big problem" or "small problem" responses to the statements were assumed by the researcher to indicate a perceived lack of skill in that area. Therefore, frequency counts of either "big problem" or "small problem" responses to the skill statements were taken to represent the number of respondents in the sample who may have lacked skills in diabetes self-care.

The 10 motivation statements were presented with the same format as the skill statements. A structured format was selected for this instrument to facilitate comparison of responses. According to Polit and Hungler (1983), fixed alternative questions take less time for the subject to complete and the responses are easily tabulated. Motivation was defined for the present study as the client's propensity to take action. Motivation related to diabetes self-care was measured by self-report of "no problem" in response to statements #17 through #26 of the instrument, Diabetes Self-Care Report. "Big problem" or "small problem" responses to the statements were assumed by the researcher to indicate a perceived

lack of motivation in that area. Therefore, frequency counts of "big problem" or "small problem" responses to the motivation statements were taken to represent the number of respondents in the sample who may have lacked motivation in diabetes self-care.

Demographic data to describe the sample were elicited by six questions. The present age, age at onset of diabetes, method of diabetes control, and the sex of the subject were requested. In addition, the patient's perception of his general health and perception of his level of diabetes control were sought.

Validity, according to Polit and Hungler (1983) is the accuracy with which an instrument measures what it claims to be measuring. Content validity of the Diabetes Self-Care Report was established through a panel of experts. Four panel judges were requested to independently assess the clarity of wording and appropriateness of content covered by the instrument. Verbal consent was obtained from prospective panel members before the instrument, with accompanying cover letter, was mailed to them (Appendix F). The instrument was examined by the judges and returned by mail. As a result of panel suggestions, the wording of the instrument was modified and the number of statements reduced. The knowledge, skill, and motivation components

of the instrument, in final form, contained 10 statements each. The addition of 6 demographic statements produced the final instrument containing 36 statements.

Reliability, according to Polit and Hungler (1983) is the "degree of consistency with which it measures the attribute it is supposed to be measuring" (p. 424). Reliability studies were attempted on the Diabetes Self-Care Report, but not completed. Difficulties were encountered in obtaining subjects to participate in test-retest reliability studies.

A pretest of the instrument was conducted to establish the clarity of all instructions. Three adult diabetic individuals participated in the pretest. Final revision of the instrument was then concluded.

#### Collection of Data

The population for the study were those adult clients with a medical diagnosis of diabetes mellitus who visited the outpatient clinic between July 1, 1984 and December 31, 1984. A systematic random sample of 200 subjects was drawn from the attendance records maintained by the unit secretary, and a confidential mailing list was compiled. Questionnaire packets were then prepared containing

a cover letter, Diabetes Self-Care Report, and a stamped preaddressed return envelope.

The cover letter explained the planned study, requested subject participation, and acknowledged the subjects right to accept or decline. The return of completed, anonymous questionnaires was construed as consent to participate in the study. When permission to conduct the study was obtained from the graduate school of Texas Woman's University and from the participating agency, questionnaire packets were mailed to the sample of 200 subjects. A total of 106 completed questionnaires was returned. Data analysis was conducted after 30 days.

#### Treatment of Data

Descriptive statistics were used to analyze the data collected with the Diabetes Self-Care Report. Each returned questionnaire was hand scored. A frequency count was performed for each statement. According to Polit and Hungler (1983), descriptive statistics summarize raw data, and the frequency distribution is a useful method with which to clarify and present that data.

Demographic data obtained by the instrument was compiled in order to describe selected characteristics of the sample. The present age, age at onset of diabetes,

method of diabetes control, and sex of the subject were tabulated. In addition, the subject's perception of general health and level of diabetes control was examined.

In response to Research Question 1, a frequency count of reported difficulties in each of the five areas of diabetes self-care addressed by the instrument was determined. These areas were diet, exercise, medication, hygiene, and monitoring level of control.

In response to Research Question 2, the frequency of reported difficulties in each area was categorized as difficulties related to a lack of knowledge, a lack of skill, or a lack of motivation. A subject's response of either "big problem" or "small problem" was considered to be a report of difficulty.

A tally sheet was used to record the subjects' responses and to facilitate tabulation a matrix was formed to provide a frequency count for each of the three possible options beside each of the skill and motivation statements. Responses were coded so that "big problem," "small problem," and "no problem" were entered as "1", "2," and "3" respectively. Only two options (true or false) were possible for the knowledge statements. "True" and "false" were coded as "4" and "5."

## CHAPTER IV

### ANALYSIS OF DATA

This non-experimental descriptive survey was conducted to describe the self-care ability of adult diabetic clients at home, as measured by the Diabetes Self-Care Report. Frequency counts of reported difficulties in five areas of diabetes self-care were tabulated and the responses categorized as to difficulty due to lack of knowledge, lack of motivation, or lack of skill.

Chapter IV provides a description of the sample and an analysis of the data gathered from 106 respondents. A discussion of the study findings, conclusions, and implications of the study are also presented. Finally, recommendations for future research are identified.

#### Description of Sample

The sample consisted of 106 subjects who responded to a mailed survey and returned completed questionnaires. All subjects were over 25 years of age with a medical diagnosis of diabetes mellitus as documented on clinic files. Sixty-three (59.4%) of the subjects were female and 43 (40.6%) were male. The respondents ranged in

age from 26 to 85 years. The mean age was 62 years, and 51.8% of the subjects were over 60 years of age. When viewed as a group, 25 (23.5%) subjects were found to be between 25-40 years of age. Twenty-six (24.6%) subjects were found between 41-60 years of age and 55 (51.9%) subjects were aged 61-85 years (Table 1).

Further description of the sample was obtained by tabulation of reported age of onset of diabetes mellitus. Twenty-two (20.8%) subjects reported age of onset of diabetes as less than 20 years. Forty (37.7%) subjects reported diagnosis of diabetes between 21 and 40 years of age. Forty-four (41.5%) subjects reported onset of diabetes at 41 to 99 years of age (Table 2).

Tabulation of the reported method of diabetes control is presented in Table 3. Seventy-four (69.8%) of the respondents reported use of insulin. Twenty-nine (27.4%) subjects reported use of oral hypoglycemic agents. Three subjects (2.8%) reported control by diet alone.

The subjects' perceptions of their level of diabetes control is presented in Table 4. Sixty-four (60.5%) subjects reported good control; while 42 (39.5%) subjects perceived fair control and none of the subjects reported a perception of poor control.

Table 1

Age and Sex of Subjects

Age (Years)	Number of males ( <u>N</u> = 43)	Number of females ( <u>N</u> = 63)	Total number ( <u>N</u> = 106)
25-40	9 ( 8.5%)	16 (15.0%)	25 (23.5%)
41-60	15 (14.2%)	11 (10.4%)	26 (24.6%)
61-85	<u>19 (17.9%)</u>	<u>36 (34.0%)</u>	<u>55 (51.9%)</u>
Total number	43 (40.6%)	63 (59.4%)	106 (100%)

Table 2

Reported Age of Onset of Diabetes

Age (Years)	Number of males ( <u>N</u> = 43)	Number of females ( <u>N</u> = 63)	Total number ( <u>N</u> = 106)
1-20	9 ( 8.5%)	13 (12.3%)	22 (20.8%)
21-40	21 (19.8%)	19 (17.9%)	40 (37.7%)
41-99	<u>13 (12.3%)</u>	<u>31 (29.2%)</u>	<u>44 (41.5%)</u>
Total number	43 (40.6%)	63 (59.4%)	106 (100%)

Table 3

Reported Method of Diabetes Control

Method of control	Number of males ( <u>N</u> = 43)	Number of females ( <u>N</u> = 63)	Total number ( <u>N</u> = 106)
Insulin	28 (26.4%)	46 (43.4%)	74 (69.8%)
Oral agent	15 (14.2%)	14 (13.2%)	29 (27.4%)
Diet alone	<u>0</u>	<u>3 ( 2.8%)</u>	<u>3 ( 2.8%)</u>
Total number	43 (40.6%)	63 (59.4%)	106 (100%)

Table 4

Subjects' Perception of Diabetes Control

Level of control	Number of males ( <u>N</u> = 43)	Number of females ( <u>N</u> = 63)	Total number ( <u>N</u> = 106)
Poor	0	0	0
Fair	17 (16.0%)	25 (23.5%)	42 (39.5%)
Good	<u>26 (24.6%)</u>	<u>38 (35.9%)</u>	<u>64 (60.5%)</u>
Total number	43 (40.6%)	63 (59.4%)	106 (100%)

The subjects' perceptions of their general health is presented in Table 5. Eight (7.6%) subjects reported poor health. Thirty-six (34%) subjects perceived their general health to be fair while 62 (58.4%) reported good general health.

### Findings

Research questions were formulated for this study. The first question was as follows: What self-care activities, as measured by the Diabetes Self-Care Report, are performed without difficulty by adult clients to manage their diabetes in the following areas: (a) diet, (b) exercise, (c) medication, (d) hygiene, and (e) monitoring level of control?

No single self-care activity, as measured by the Diabetes Self-Care Report, was performed without difficulty by 100% of respondents. Table 6 presents subjects' responses to skill and motivation questions. The frequency of "no problem" response to each statement ranged from 42 to 99. Since 106 respondents returned questionnaires, the highest possible frequency for each category was 106.

When respondents chose the "no problem" response for an item, it was assumed by the researcher that no difficulties were perceived by the subjects in that area.

Table 5

Subjects' Perception of General Health

Description of general health	Number of males ( <u>N</u> = 43)	Number of females ( <u>N</u> = 63)	Total number ( <u>N</u> = 106)
Poor	5 ( 4.8%)	3 ( 2.8%)	8 ( 7.6%)
Fair	14 (13.2%)	22 (20.8%)	36 (34.0%)
Good	<u>24 (22.6%)</u>	<u>38 (35.8%)</u>	<u>62 (58.4%)</u>
Total number	43 (40.6%)	63 (59.4%)	106 (100%)

Table 6

Subjects' Responses to Skill and Motivation Statements

Statement number	Condition or self care activity addressed	Frequency of "No Problem" response (N = 106)	Percentage of respondents reporting "No Problem"
#15	Bathing daily	99	(93.3)
#11	Testing urine or blood	97	(91.5)
# 9	Giving medication	97	(91.5)
#10	Cooking meals	94	(88.6)
#12	Keeping appointments	92	(86.7)
#22	Calling the clinic	92	(86.7)
#20	Recognizing test value	91	(85.8)
#16	Memory problems	88	(83.0)
#23	Frequent infections	85	(80.1)
#14	Measuring food	83	(78.3)
#25	Feeling unwell	77	(72.6)
#19	Skin care	76	(67.9)
#13	Physical handicap	75	(70.7)
# 8	Difficulty walking	73	(68.8)
#21	Overeating (alone)	58	(54.7)
#26	Exercise--no time	55	(51.8)
#24	Feeling angry	50	(47.1)
#18	Exercise--too tired	48	(45.2)
# 7	Poor vision	48	(45.2)
#17	Overeating (with others)	42	(39.6)

The majority of respondents reported "no problem" in response to 16 of 20 statements. The four areas in which less than 50% of respondents reported "no problem" were feeling angry, feeling too tired to exercise, experiencing poor vision, and tending to overeat in the company of others.

Table 7 presents the frequency of "no problem" responses arranged into categories representing the five areas of diabetes care. The area of most frequent "no problem" response was monitoring level of diabetic control.

Research question 2 asked: When difficulties are experienced by adult clients in their self-care activities to manage their diabetes mellitus in the areas of diet, exercise, medication, hygiene, and monitoring of level of control, are the difficulties predominantly related to a lack of knowledge, a lack of skill, or a lack of motivation?

Table 8 presents the frequency of incorrect response to knowledge statements grouped into the five areas of diabetes self-care. Incorrect responses to the knowledge testing statements of the Diabetes Self-Care Report were taken to indicate difficulties in the knowledge category of self-care. The area of most frequent incorrect response was diet.

Table 7

Frequency of "No Problem" Response in Five Areas of Diabetes Self Care

Area of diabetes self care	Statement number	Frequency of "No Problem" response ( <u>N</u> = 106)	Percentage of respondents reporting "No Problem"
A. Diet	#10	94	88.6
	#14	83	78.3
	#21	58	54.7
	#17	42	39.6
B. Exercise	# 8	75	70.7
	#13	75	70.7
	#26	55	51.8
	#18	48	45.2
C. Medication	# 9	97	91.5
	#16	88	83.0
	#25	77	72.6
	#24	50	47.1
D. Hygiene	#15	99	93.3
	#23	85	80.1
	#19	76	67.9
	# 7	48	45.2

(table continues)

Area of diabetes self care	Statement number	Frequency of "No Problem" response (N = 106)	Percentage of respondents reporting "No Problem"
E. Monitoring	#11	97	91.5
level of	#12	92	86.7
diabetes	#22	92	86.7
control	#20	91	85.8

Table 8

Frequency of Incorrect Response to Knowledge Statements

Area of diabetes self care	Statement number	Frequency of incorrect response (N = 106)	Percentage of respondents selecting an incorrect response
A. Diet	#27	59	55.7
	#32	57	53.8
B. Exercise	#28	3	2.8
	#33	3	2.8
C. Medication	#34	14	13.2
	#36	0	0
D. Hygiene	#35	21	19.8
	#30	13	12.3
E. Monitoring level of control	#31	12	11.3
	#29	2	1.9

Table 9 presents the frequency of reported difficulty in response to the skill statements. Reported "problems," either "big" or "small," were taken to indicate difficulties in the category of skill. The area of hygiene, specifically statement #7, which referred to visual impairment, elicited the greatest report of skill difficulty in this sample.

Responses to statements designed to reveal motivation difficulties are presented in Table 10. The area of greatest reported difficulty, in the motivation category, was the area of diet.

A comparison of the percentage of respondents reporting difficulties in five areas of diabetes self-care is now presented. Reported difficulties are grouped into the categories of knowledge (Figure 1), skill (Figure 2), or motivation (Figure 3). The category of motivation contained the highest percentage of respondents reporting difficulties. In this study, diet and exercise were the greatest problem areas of diabetes self-care.

#### Summary of Findings

The following findings were drawn from an analysis of the data:

No single self-care activity as measured by the instrument, Diabetes Self-Report, was performed without

Table 9

Frequency of Reported Difficulty in Response to Skill Statements

Area of diabetes self care	Statement number	Frequency of "problem response" (N = 106)	Percentage of respondents reporting skill difficulties
A. Diet	#14	23	21.7
	#10	12	11.3
B. Exercise	# 8	33	31.1
	#13	31	29.2
C. Medication	#16	18	17.0
	# 9	9	8.5
D. Hygiene	# 7	58	54.7
	#15	7	6.6
E. Monitoring level of control	#12	14	13.2
	#11	9	8.5

Table 10

Frequency of Reported Difficulty in Response to Motivation Statements

Area of diabetes self care	Statement number	Frequency of "problem" response (N = 106)	Percentage of respondents reporting motivation difficulties
A. Diet	#17	64	60.4
	#21	48	45.3
B. Exercise	#26	51	48.1
	#18	36	34.0
C. Medication	#24	56	52.8
	#25	29	27.4
D. Hygiene	#19	30	28.3
	#23	21	19.8
E. Monitoring level of control	#20	15	14.2
	#22	14	13.2

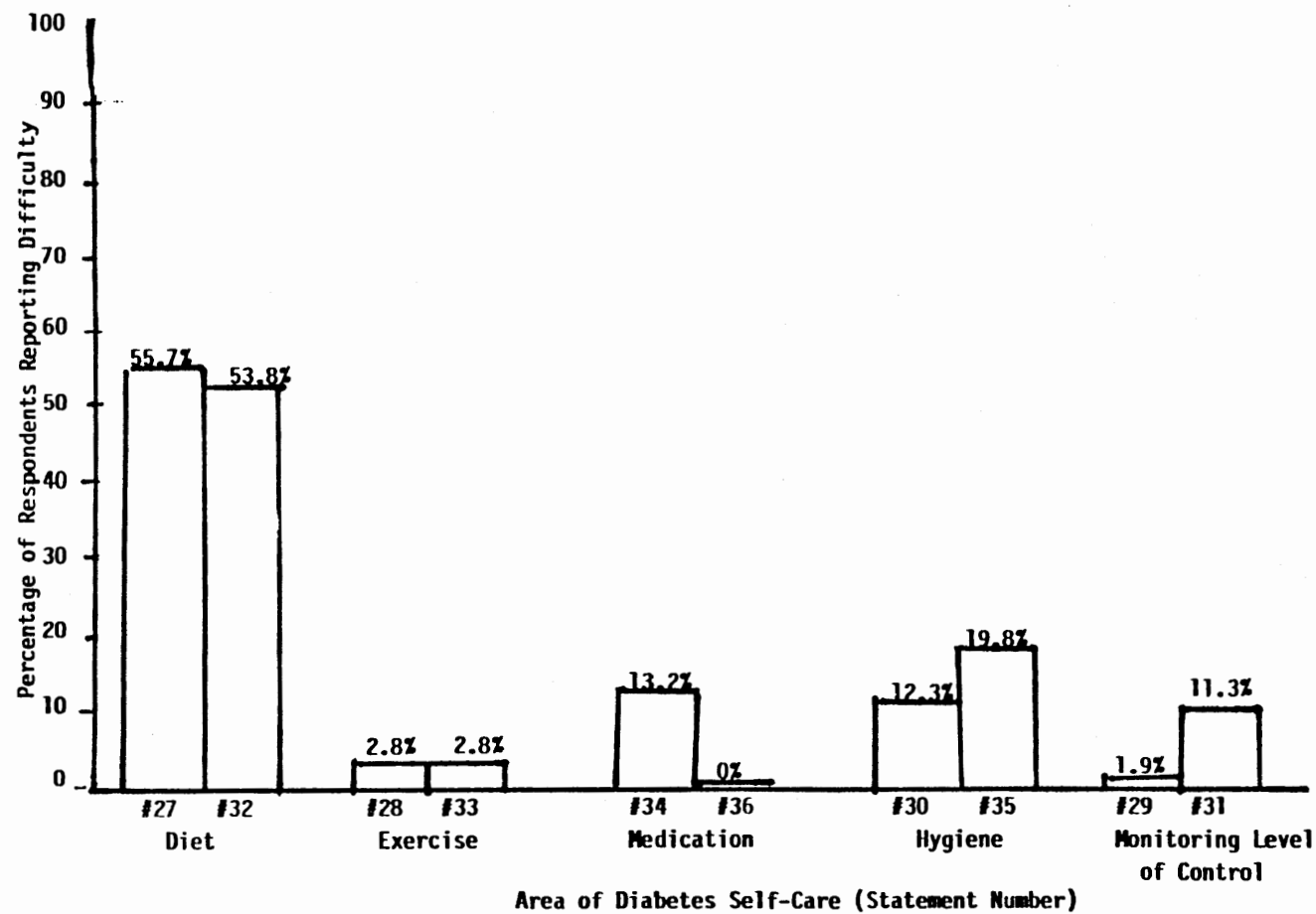


Figure 1. Percentage of respondents selecting incorrect knowledge responses.

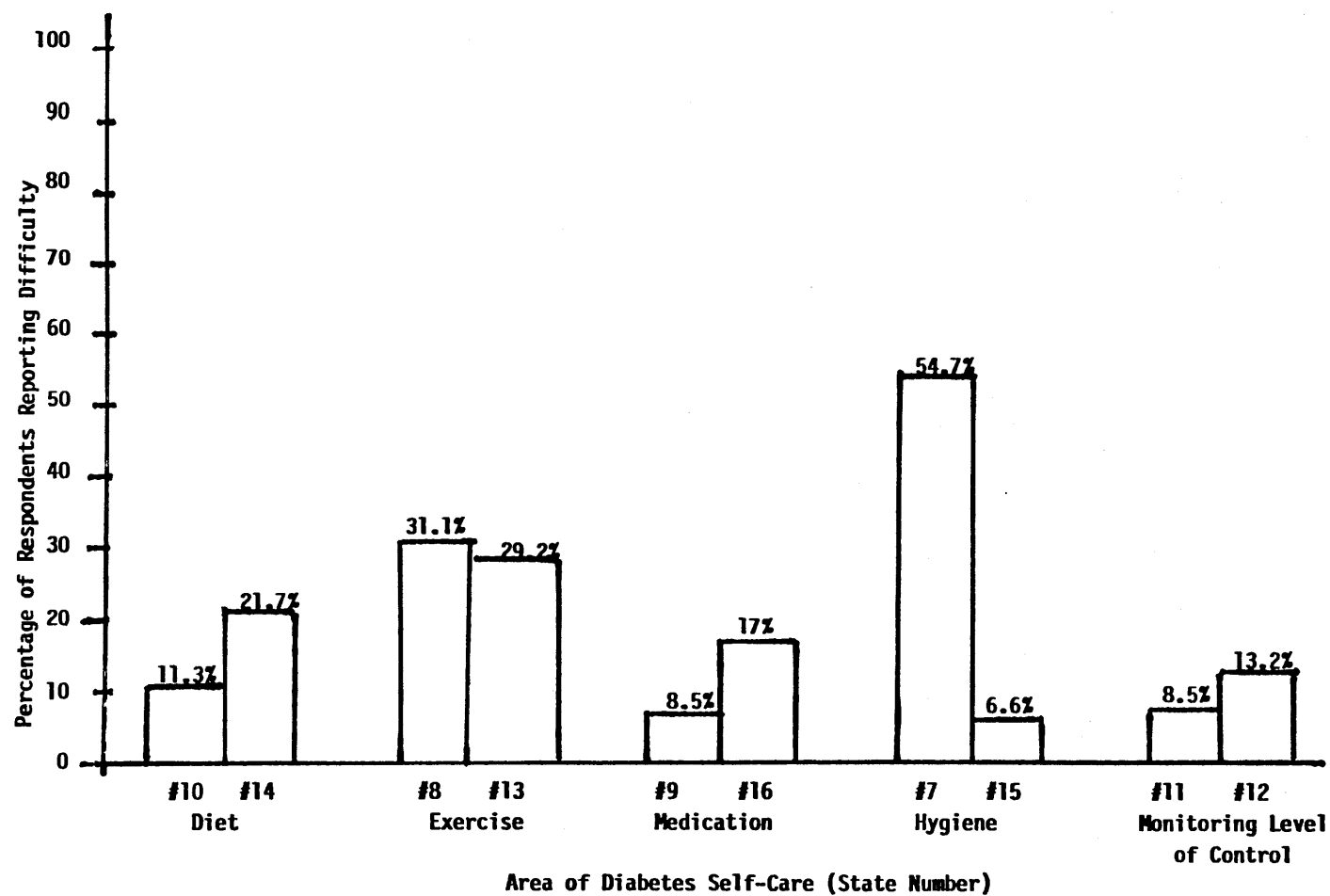


Figure 2. Percentage of respondents reporting difficulties in skill.

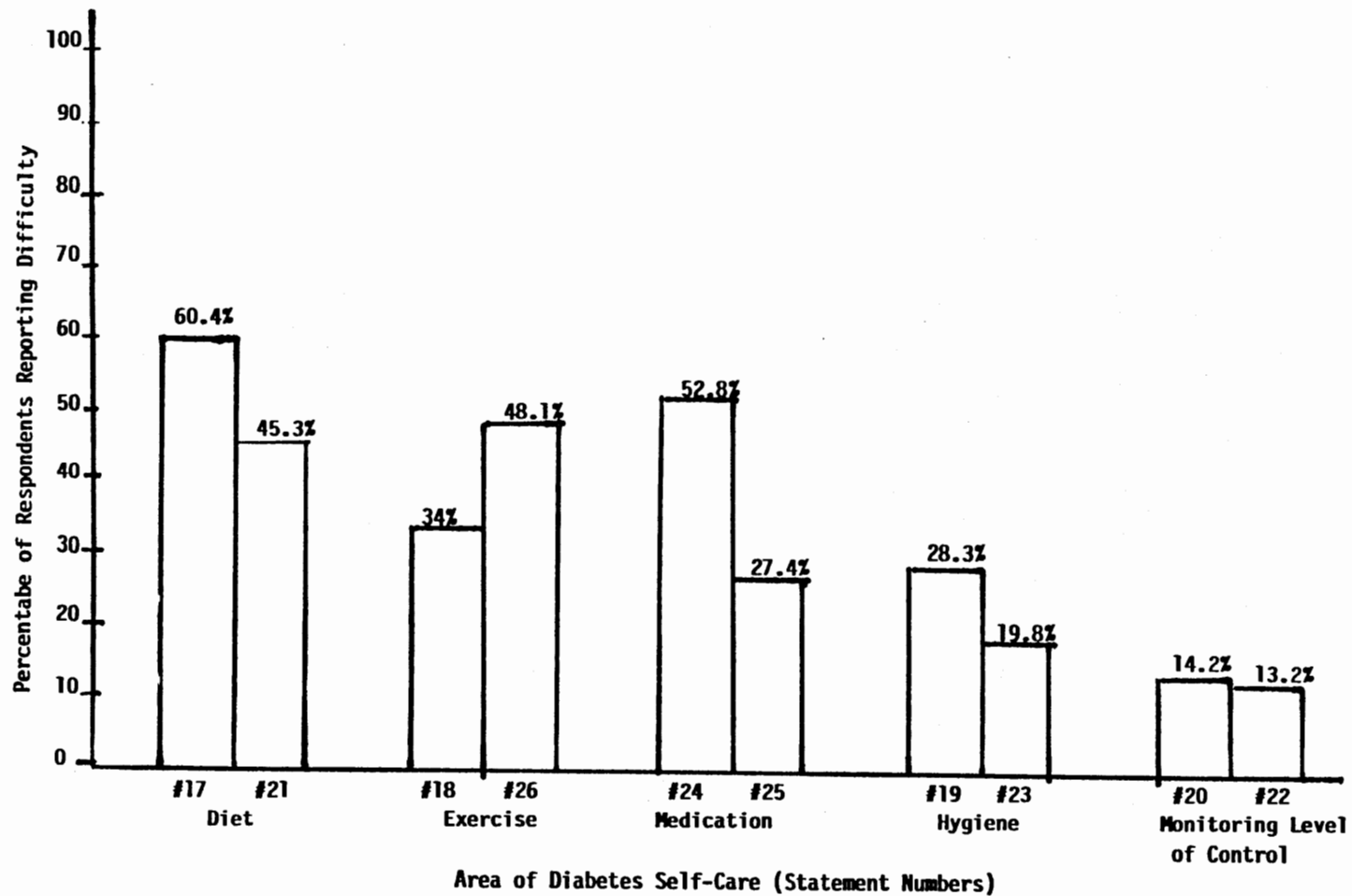


Figure 3. Percentage of respondents reporting difficulties with medication.

difficulty by all respondents. The area, monitoring level of control, produced the greatest percentage of respondents selecting the "no problem" response.

These frequencies of reported difficulties were grouped into the categories of skill or motivation. The frequency of either "big problem" or "small problem" response to the instrument statements was interpreted by the researcher to indicate a respondent's difficulty with that aspect of self-care.

When incorrect responses to the knowledge statements were tabulated, the area of diet was found to contain the highest percentage of incorrect responses. The area of exercise contained the lowest percentage of incorrect responses to the knowledge statements.

In the skill category, the areas of hygiene and exercise contained the highest percentage of "problem" responses. Visual impairments were reported by 54.7% of the respondents while 31.1% reported impaired mobility.

In the motivation category, the areas of diet and exercise contained the highest percentage of "problem" responses. In addition, 52.8% of the respondents reported feeling angry or discouraged because of the restrictions diabetes placed upon them.

Overall, the category of motivation was found to present the greatest difficulties to this sample. The areas of diet and exercise contained the most frequent "problem" response in relation to diabetes self-care.

## CHAPTER V

### SUMMARY OF THE STUDY

Chapter 5 presents a summary of the study and includes a discussion of the findings. Conclusions and implications based upon the findings are offered, as well as recommendations for further study.

#### Summary

The problem of this study was to describe the self-care activities engaged in by the adult client to manage his diabetes, as measured by The Diabetes Self-Care Report. Orem's concept of self-care provided the conceptual framework for this study.

Research questions formulated for this study were as follows.

1. What self-care activities, as measured by the Diabetes Self-Care Report, are performed without difficulty by adult clients to manage their diabetes in the following areas (a) diet, (b) exercise, (c) medication, (d) hygiene, and (e) monitoring level of control?

2. When difficulties are experienced by adult clients in their self-care activities to manage their diabetes mellitus in the above areas, are the difficulties, as

measured by the Diabetes Self-Care Report, predominantly related to a lack of knowledge, a lack of skill, or a lack of motivation?

The names of 200 people, with a documented medical diagnosis of diabetes mellitus, was drawn from attendance files at an outpatient diabetes clinic. Packets containing the questionnaire, a cover letter, and a return envelope were mailed to the selected sample. Within 30 days, 106 completed questionnaires were received representing a response rate of 53%.

Frequency counts were performed with the responses to each of 36 statements from 106 completed questionnaires. Data collected pertaining to Research Question 1 revealed that no self-care activity, as measured by the instrument, was performed without difficulty by 100% of the respondents.

Data collected pertaining to Research Question 2 grouped the frequencies of response and categorized the reported difficulties in self-care as related to lack of motivation, lack of skill, or lack of knowledge. Motivation was the category of most reported difficulty.

### Discussion of Findings

No activity of diabetes self-care, as measured by the Diabetes Self-Care Report, was performed without difficulty by 100% of the respondents. These findings underline the contention of Burke (1982) who noted that assessment of diabetes patients must continue in the home. Watkins et al. (1967), in a classic study utilizing home visits, reported inadequate implementation of therapeutic regimens by diabetic patients. Similar results were found in other studies (Mountier et al., 1982; Salzer, 1975; Sipes, 1982; Smith, 1981) using questionnaires, knowledge tests, or return demonstration of skills for data collection. The present study utilized self-report which may have influenced the results.

In the present study, when responses were grouped into five categories representing the five areas of diabetes self-care, the frequency of "no problem" response was examined. The area of monitoring level of diabetes control was most frequently perceived as "no problem" by the respondents.

Diet was found to be a problem area. This finding is consistent with studies by Hopper (1983) and Stocks (1983) who found diet to be the area of highest reported problems with compliance. Despite acceptance of diet as the key

area in diabetes control in the literature (Beebe, 1981; Krall, 1978; Wahlquist, 1982), little diet counseling was implemented with the diabetic clinic outpatients. Some patients were referred to a staff dietician for a 1 hour appointment and given printed materials to take home. Marston (1970) emphasized that established habits such as a lifetime of dietary practices were resistant to change.

Exercise was found to be a problem area with more than half the sample reporting not enough time to exercise or feeling too tired to exercise daily. This finding is consistent with Abbot's (cited in Pratt, 1976) conclusion that lack of sufficient exercise may be "the nation's number one health care failure" (p. 37).

The areas of monitoring level of diabetes control and administering medications were the areas of least reported difficulty for this sample. It is interesting to note that these areas are rated high priority "survival level" by nurses and activities relating to these areas dominate the "check lists" designed for documentation of patient teaching (American Diabetes Association and American Association of Diabetes Educators, 1981).

In the present study, reported difficulties in self-care were tabulated and then categorized into groups corresponding to the three components of self-care as

described by Joseph (1980). Knowledge and skill, as evaluated by knowledge tests and return demonstrations of skill, are necessary, but may not be sufficient to produce adequate self-care unless motivation to implement the regime is also present (Joseph, 1980).

Findings in the present study appear to support Joseph's assertion that knowledge alone may be insufficient to produce adequate self-care. For example, only 2.8% of the sample responded incorrectly to each of two knowledge questions pertaining to exercise, but 48.1% reported motivation difficulties in the exercise area. Change in established lifestyle patterns are not quickly, nor easily, produced and motivation to change is essential (Marston, 1970; Orem, 1971; Strauss & Glaser, 1975).

Skill is a component of self-care ability according to Joseph (1980). A lack of skill related to a physical handicap was reported to affect the exercise ability of 31 respondents. Visual problems, which would hamper self-care ability, especially in the area of hygiene/foot care, were reported by 58 respondents. If self-care is impossible due to lack of skill, assistance in those areas should be arranged.

### Conclusions and Implications

Two conclusions were drawn from the findings of the study. These conclusions are as follows:

1. Adult diabetic outpatients possess varying levels of self-care ability.
2. Implementation of self-care may be influenced by a lack of knowledge, skill, and/or motivation.

This study has demonstrated wide individual variation in reported difficulties with diabetes self-care among diabetic patients exposed to a similar patient education material. Although innumerable factors may have interfered with the implementation of self-care, patient teaching must be considered inadequate if self-care is not realized. Providing new information may not be enough to produce self-care ability in a health deviation state. Since knowledge is necessary, but not sufficient for self-care, periodic assessment of the individual's level of knowledge, skill, and motivation would allow the nurse educator to direct her efforts toward the inadequate component(s).

The results of this research may be used by nurses in the planning and implementation of diabetes education programs. A conceptual framework based on Orem's self-care has been described. A program based upon self-care would aim to foster independence in the client. Whether

conveying necessary information in the five main areas of diabetes care or supporting the necessary lifestyle changes over time, the nurse's goal is to promote self-care.

#### Recommendations for Further Study

Based upon the conclusions of this study, the following recommendations for further study are offered:

1. A replication of the study be conducted with subjects receiving patient education at another diabetes clinic.
2. A study be conducted with a similar sample, but utilizing home visits to assess skill implementation in addition to a questionnaire for data collection.
3. A study be conducted to compile a list of the motivating factors which patients identify as influencing their implementation of self-care.

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## APPENDICES

APPENDIX A

Diabetes Self-Care Report

COMPLETION OF THIS QUESTIONNAIRE WILL BE CONSTRUED  
AS CONSENT TO PARTICIPATE IN THIS STUDY

Many people report problems managing diabetes at home. This anonymous questionnaire asks about how you are managing at home.

CIRCLE THE ANSWER WHICH BEST DESCRIBES YOU:

FOR EXAMPLE - You live in:	<u>Australia</u>	Europe	America
1 Your general health is	POOR	FAIR	GOOD
2 Your diabetes control is	POOR	FAIR	GOOD
3 Your control method is	INSULIN	PILLS	DIET ONLY
4 Your age when diabetes was found	1-20	21-40	41-99
5 Your age now	_____		
6 Your sex	MALE	FEMALE	
7 Are you able to see fairly well?	BIG PROBLEM (for you)	SMALL PROBLEM (for you)	NO PROBLEM (for you)
8 Are you able to walk fairly well?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
9 Are you able to give yourself your insulin or pills without difficulty	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
10 Are you able to prepare food for yourself fairly well?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
11 Are you able to perform your urine or blood tests, at home, fairly well?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
12 Are you usually able to keep your scheduled appointments with your doctor?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
13 Are you physically able to exercise everyday?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
14 Are you able to measure the food serves for your diet fairly well?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM

15	Are you able to bathe daily by yourself without help?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
16	Have you had any problems with your memory recently?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
17	Do you tend to overeat when friends and family are around?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
18	Do you feel too tired to exercise every day?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
19	Do you usually find time to care for and inspect your skin every day?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
20	Can you really see the value of regular urine or blood sugar tests?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
21	Are you tempted to overeat when you are alone?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
22	Are you able to call the doctor or clinic when something is worrying you?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
23	Are you prone to frequent illness or infections, no matter what you do?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
24	Do you ever feel angry or discouraged because of any restrictions diabetes places on you?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
25	Do you find that even though you take pills or insulin you do not feel better?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM
26	Can you usually find time to exercise every day?	BIG PROBLEM	SMALL PROBLEM	NO PROBLEM

TRUE OR FALSE

PLEASE CIRCLE TRUE OR FALSE

- |    |  |      |       |
|----|--|------|-------|
| 27 | One bread "exchange" or serve contains 50 grams of carbohydrate.   | TRUE | FALSE |
| 28 | Daily exercise is good for a person with diabetes.   | TRUE | FALSE |
| 29 | Good "diabetic control" means that the blood sugar level is held close to normal.                                  | TRUE | FALSE |
| 30 | Diabetics should walk barefoot daily to be sure feet can air dry.  | TRUE | FALSE |
| 31 | Diabetes can get out of control even when doctor's instructions are carefully followed.                            | TRUE | FALSE |
| 32 | On sick days, diabetics should avoid their regular food but drink plenty of water.                                 | TRUE | FALSE |
| 33 | Exercise can cause changes in the blood sugar level of a person with diabetes.                                     | TRUE | FALSE |
| 34 | If a person has diabetes, he must inject insulin daily.  | TRUE | FALSE |
| 35 | Diabetics should scrub skin daily with strong soap to prevent skin infections.                                     | TRUE | FALSE |
| 36 | If a regular dose of pills or insulin is missed, skipped or forgotten, a double dose should be taken the next day. | TRUE | FALSE |

APPENDIX B

Letter from Graduate School



Texas Woman's University

P.O. Box 22479, Denton, Texas 76204 (817) 383-2302 Metro 434-1757 Tex-An 834-2133

THE GRADUATE SCHOOL

April 15, 1985

Ms. Judith Anne Young  
1115 Stoney Creek  
Cedar Hill, TX 75104

Dear Ms. Young:

I have received and approved the Prospectus for your research project. Best wishes to you in the research and writing of your project.

Sincerely yours,

*Leslie M. Thompson*  
Leslie M. Thompson  
Provost

tb

cc Dr. Rose Nieswiadomy  
Dr. Anne Gudmundsen

APPENDIX C

Agency Permission Form

TEXAS WOMAN'S UNIVERSITY  
COLLEGE OF NURSING

AGENCY PERMISSION FOR CONDUCTING STUDY\*

THE \_\_\_\_\_

GRANTS TO JUDITH ANNE YOUNG R.N. B.S.N.  
a student enrolled in a program of nursing leading to a  
Master's Degree at Texas Woman's University, the privilege  
of its facilities in order to study the following  
problem.

ADULT DIABETIC CLIENTS'  
SELF CARE ACTIVITIES

The conditions mutually agreed upon are as follows:

1. The agency (may) (~~may not~~) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) (~~may not~~) be identified in the final report.
3. The agency (wants) (~~does not want~~) a conference with the student when the report is completed.
4. The agency is (willing) (~~unwilling~~) to allow the completed report to be circulated through interlibrary loan.
5. Other \_\_\_\_\_

5. 3. 86.  
Date

J. Young  
Signature of Student

\_\_\_\_\_  
Signature of Agency Personnel

Kate M. McInerney, Ph.D.  
Signature of Faculty Advisor

\*Fill out & sign 3 copies to be distributed: Original-student; 1st copy-Agency; 2nd copy-TWU School of Nursing

APPENDIX D

Research Review Committee Form

TEXAS WOMAN'S UNIVERSITY  
COLLEGE OF NURSING

PROSPECTUS FOR THESIS/DISSERTATION/PROFESSIONAL PAPER

This prospectus proposed by: Judith Anne Young, R.N., B.S.N.

\_\_\_\_\_ and entitled:

Adult Diabetic Clients'  
Self-Care Activities

Has been read and approved by the members of (his/hers)  
Research Committee.

This research is (check one):

  X   Is exempt from Human Subjects Review Committee  
review because classified as Category I research.

\_\_\_\_\_ Requires Human Subjects Review Committee review  
because \_\_\_\_\_

Research Committee:

Chairperson, Rose M. Nicolson

Member John C. Thompson

Member Margaret McElroy

Dallas Campus   X   Denton Campus \_\_\_\_\_ Houston Campus \_\_\_\_\_

APPENDIX E

Explanation to Subjects

Self-Care Report  
P. O. Box 142  
Bayswater WA 6053

Dear Sir or Madam:

I am a registered nurse and a student at Texas Woman's University in America. You are receiving this questionnaire because you visited the Diabetic Clinic at Sir Charles Gairdner Hospital. I have obtained permission to conduct a survey because I wish to learn how people manage their diabetes at home.

If you decide to enter in the survey, the return of the questionnaire will be considered as your consent to participate in this research.

To protect your identity, the questionnaire enclosed is anonymous. (Do not put your name on it). You may need up to 1 hour to answer all the questions. Mail the questionnaire back to me in the enclosed return envelope when you are finished.

By answering this survey you will provide information about the problems people with diabetes sometimes experience. This information will help nurses to teach other patients how to manage their diabetes at home.

I will not contact you again but, if you wish, you can reach me at the above address. The results of this study will be made available to you upon request. Please write if you have any questions about the survey, or need more information about diabetes.

Thank you.

Yours truly,

Judy Young, R.N., B.S.N.  
Graduate Student

APPENDIX F

Letter to Panel of Experts

## Letter to Panel of Experts

Dear

Thank you for consenting to judge the instrument designed for my research study. Your input will assist in refinement of the Diabetic Self-Care Report.

Based on Orem's concept of self-care, the instrument elicits a self-report of the activities performed by clients to manage their diabetes. Questionnaires will be mailed for self-administration to 200 adult clients.

Please review the instrument and evaluate each statement for clarity of wording and content. Enclosed you will find an instruction sheet, the instrument, a feedback sheet and a return envelope. Please complete and return before November 21, 1984.

My deepest thanks are offered for the donation of your time and expertise..

Yours turly,

Judy Young, R.N., B.S.N.  
Graduate Student