

A FOLLOW UP STUDY OF THE DIABETIC REGIMEN AND LIFE EVENTS
OF FIFTEEN DIABETIC SUBJECTS IN CONTROL
AND FIFTEEN DIABETIC SUBJECTS OUT OF CONTROL

by

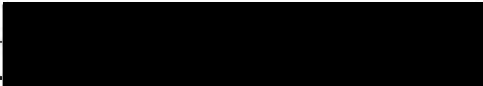
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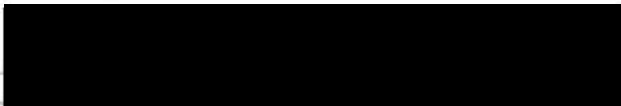
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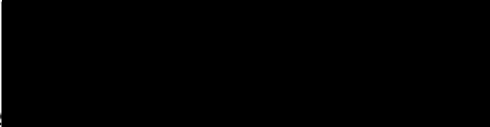
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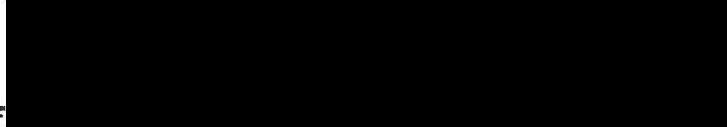
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g.v.m.

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CHAPTER I

INTRODUCTION

There is an increasing concern with the psychological aspects and the prevention of complications in the growing number of persons with diabetes in our society today. Joslin (1959) referred to studies by Wilkerson and Kroll (1947) in Oxford, Massachusetts concluded that 1.7 percent of the community had diabetes. Schmitt (1971) concluded that by current estimates, there are approximately six million established or undetected diabetics in the United States of which 95 percent of these are older than 15 years of age. About 72,000 persons become diabetic each year and about one American in fifty is diabetic. Due to greater longevity, the incidence of diabetes will increase.

At the beginning of the century, Fulghum (1970) reported that diabetes ranked twenty-seventh as the cause of death; in 1968 it ranked seventh in the United States and fifth in the statistics of the Metropolitan Life Insurance Company, and it is predicted to rate second to heart disease by 1980. In Oregon, diabetes now ranks eighth as the cause of death.¹ The average age at death is about 66 years and the average death rate for the diabetic patient is eight

¹Personal communication with Oregon State Board of Health, March 1971.

percent per year.

Tracing the history of diabetes reveals that in the seventh century A.D., a physician in Montpellier, India was the first to suggest the etiology of diabetes, and in 1696, Morton was the first to describe it. The period before 1914 was referred to as the Naunyn Era or the dark ages of diabetic treatment.

The average duration of life after diagnosis of diabetes, was about five years; the average age at death was about 44 years, and the death rate was about 28 percent per year. Diabetic coma was responsible for about 70 percent of adult diabetic deaths. From 1914 to 1921, Allen and Woodyatt controlled diabetes with starvation diets and the death rate dropped four percent per year for their patients. Insulin was discovered in 1921 by Banting and Best, and for the first time the diabetic was able to utilize a sufficient amount of food to permit him to resume his former occupation; to live a near normal life and have a family, thus passing on the recessive trait to their offspring.

In 1972, more effective ways to detect diabetes and to provide substitute therapy is available to diabetic patients; and class instruction scheduled in hospitals and clinics provide information about modern management. With long acting insulin, improved techniques and equipment for administration of insulin and development of oral medication, the treatment of diabetes has been simplified.

Diabetes Mellitus is presently controlled by a special diet and oral agents, or insulin injections if the latter is inadequate. This will avoid symptoms of the disease, with the cooperation of the patient, improve resistance to infection and can prevent ketoacidosis.

Holcomb, et al. (1970) discussed various factors that influenced the establishment of a healthy philosophy which are: character, intelligence and temperament, family members, friends and business associates, the physician and character of diabetes. A good attitude usually indicated good control but if the diabetes is mild, or because distressing symptoms were minimal due to early and adequate treatment, the patient may become overconfident and careless in diet regulation, insulin dosage or urine testing. Family members should have a sympathetic understanding, not pity or sympathy; and one member should be instructed in the diabetic regimen to carry out the routine if necessary.

"A Way of Life" was advocated by Holcomb (1970), which was a realistic acceptance of the disease and a sincere determination to control it. He continued that when diabetes is controlled the diabetic must be convinced that he can do all things and in all different environments for he has a twofold responsibility, first to himself, and second to the diabetic population to manage his diabetes to the best of his ability. A diabetic diary which describes episodes of stress and illness, urine test results

and changes in insulin dosage was not only invaluable to the patient as a future guide but was also helpful to the physician who advised him. It is no longer necessary to keep diabetes a secret as diabetics have proved they can hold a position with less absenteeism than the non-diabetic and can qualify for life insurance, so that his status from an economic and social aspect has improved.

Schmitt (1971) believes the well-regulated diabetic is a disciplined individual who regulates his life to accomplish goals in education and employment. Because of constant medical supervision and regular checkups, the diabetic is frequently an outstanding worker with less absenteeism.

Among social characteristics, Williams (1967) found that low income did not seem to limit diabetic control, but he did find among married men, that the larger the number of persons in the household, the poorer the control. He also used the biological factor, age, for a measurement. A later mean age of onset was found in those in good or fair day to day control and an earlier mean age onset for those in poor or very poor day to day control. Murawske (1970) states men seem to have greater and different problems than women, possibly due to role definitions in American society. These problems are presented by a greater need to deny their illness or to present themselves as defective or "sick."

It was pointed out by Watkins (1969), that it is easy to forget that diabetes is like any other chronic disease, in that it affects and is affected by the basic needs of life. Indiscretions in eating and forgetfulness, or errors in medication or urine testing make the difference between being in control or out of control.

Holcomb (1970) admits the daily methodical attention to diet, testing urine and insulin injections are a nuisance, but so is shaving and brushing the teeth when in a hurry. Thus the diabetic must learn to use the tools of his art skillfully, and with mastery he can acquire ease and poise, especially in selection of food unobtrusively and accurately by sighting when away from home.

Besides having to cope with every day problems of living with the disease, Watkins and Moss (1969) concluded that the diabetic is also confused by many different interpretations of his prescribed regimen, not only by the professionals, but also the many different kinds of equipment and techniques.

It was explained by Holcomb (1970) that the lack of a systematic plan for the selection of areas for insulin injection or repeated injections in the same area may be responsible for difficulty in keeping the urine sugar-free. Since insulin is absorbed more slowly from the subcutaneous space of the a) thighs than from the subcutaneous spaces of b) abdomen, arms or back, it is not advisable to switch

from (a) to (b) as the insulin will be absorbed differently, but sites are interchangeable within (b). He further stated that if insulin was taken twice daily, then morning and evening injections should consistently be given in the same area, following an outlined plan. Also long acting insulin which is of a thicker consistency than crystalline insulin absorbs slower and if not injected between the proper layers of the tissues, it produces lumpiness and the possibility of fat atrophy. Moreover, soreness may develop due to delay or prevention of absorption of the insulin, resulting in requirement for a higher dosage.

Lack of understanding of basic fundamentals of the disease was found by Etzwiler (1967) among professional personnel which may contribute to inadequate or ineffective patient education. Derr (1970) conducted a study in testing for glycosuria after she found patients out of control were either careless in testing their urine or did not test at all. Nurses, too, she found were often casual about the urine-testing procedures for hospitalized patients.

No relationship was found between management and control by Watkins (1967). Those who knew more about diabetes in general managed better. Those who were in poorer control had more experience with problems and, therefore, knew more about the complications of the disease. Geist (1964) found other studies showed similar comparisons in the 45 to 66 percent of patients studied were in poor control and

knowledge about diabetes varied from poorly informed to very well informed. Bucklin, et al. (1958) found patients needed authoritative repetitive teaching for a real understanding of the relationship between facts.

Stone (1961) concluded in a study of 126 patients that 83 lacked sufficient knowledge about their proper diet. This fact contributed to poor regulation, not because of failure to test the urine or give insulin properly, but because of failure to follow the diet. Thirty-seven of the 126 patients did not follow instructions when eating out, working or traveling. Thirty-six patients who eventually were classified as the "resistant" group, remained poorly regulated even though they were knowledgeable about the diabetic regimen and had fewer emotional or social problems. These patients required recognition and study. Four features appeared to accompany unsatisfactory control: ignorance about the diabetic regimen, social or environmental difficulties, emotional problems, and refusal of control.

Profound psychologic changes can take place in patients as well as members of their family and social groups at the onset of diabetes. Problems of adjustment by the family and by the patient to his disease was pointed out by Mirsky (1948). Not only are their fears and feelings of inadequacy heightened, but they may react emotionally with aggressiveness or injured pride. In turn, to compensate the diabetic may express fear as indifference, feelings of

inadequacy as boastfulness or belligerence, the need to be taken care of as aggressiveness or independence, the hostility as a depression or self-injury.

Murwaske's study (1970) also indicated a high depression score by the Minnesota Multiphasic Personality Inventory scale. This confirmed what had been clinically observed with newly discovered diabetics.

Williams (1967) concluded that the greater the patient's satisfaction with his physician, the better the control. This may be due to motivation and less psychic stress, although patients with authoritarian type physicians were found significantly to do better.

Stress due to infection, severe emotional disturbance, steroid hormones, obesity or trauma may precipitate the passage from one stage of the disease to another according to Malins (1970). Since the metabolic changes occurring under stress are mostly due to the function of the hormones of the anterior pituitary and adrenal glands, endurance of stress does suggest the need to be careful in predicting the course of events in individual cases.

Following or during an emotional disturbance, Dunbar (1954) states patients may behave as if intoxicated or demented together with amnesia for acts committed. Since many of these acts are usually in sharp contrast to the patient's normal personality, their actions may be due to a delay in absorption of food resulting in the need for sugar.

During these stress periods, according to Hinkle (1951), it is quite customary for patients to alter their eating habits, neglect to sterilize their equipment, and take their insulin irregularly or not at all. Since they are all different aspects of the total reaction to stress, it is unwise to name any single factor as being most important. He also postulated that overeating was a part of the characteristic response of diabetic patients to stress and that deprivation, loneliness and depression occurred as a result of a series of losses of significant support to their emotional security. Hinkle observed that fluctuation in thirst, polyuria and glycosuria took place in association with stresses in the life situation. This theory is exemplified by Holmes (1968) in studies focusing on the amount of change necessary to adjust to life events and disease.

Retinopathy occurred in 16 percent of 1050 insulin dependent patients approximately 15 years after onset of disease and insulin independent patients showed an earlier appearance of symptoms, on the average, by six years as reported by Deull (1970).

Twenty percent of the patients who have had one leg amputated due to gangrene, will need the other leg removed within three years according to Viskum (1970). The survival prognosis of conservatively treated diabetics with gangrene is less than the population at large with approximately 50

percent surviving three or more years. These deaths were caused mainly by arteriosclerotic heart disease, not the gangrene.

Duncan (1969) states that currently due to better reporting and use of different criterion measures the principal causes of death in the maturity-onset diabetes are in the following order:

1. Cardiovascular disease (coronary thrombosis)
2. Infection
3. Malignancy

Twenty-five years ago, causes of death in this group were in this order:

1. Infection
2. Gangrene
3. Arteriosclerotic heart disease

Murawske (1970) reports incomplete data of another study which suggests continuing support is as important as the teaching, i.e., frequent contacts with the patients giving more attention to the individual situation.

An unpublished thesis by McIrvin (1944) stated that if nurses broaden their knowledge about diabetes they could give more and better nursing care. Hornbach (1970) asserted the nurse's role is not only to assist the patient with learning about his disease, but is compounded by the extensiveness of emotional adjustment the patient has, in coping with a life-time disorder.

Statement of the Problem

What happens when diabetic patients return home after receiving complete instructions in how to control the disease and its effects, that results in loss of control and development of complications? Two internists, with a speciality in diabetes, who have set up classes for their hospitalized and outpatient clinic patients, have expressed grave concern over what happens when the patient goes home. Three of five patients returned to the hospital for regulation of control after being in control for three to seven years. All of these patients had developed complications which ranged from insulin fat atrophy, foot neuropathy, to retinopathy.² Are there events in a patient's life that affect the patients understanding and ability to follow through on the instructions given at the clinic?

To visualize the existing situation, the example of one patient is given who had diabetes for 30 years and returned to the clinic for the third time. The first time was in 1958 when he had lost his wife and was caring for three small children. He stated he kept spilling sugar but did not contact a doctor until the small veins in both eyes began to burst. In 1966 he complained of his eyes again. Three months before the last admission, he had remarried and felt he could not tell his bride how to cook for him.

²Personal communication with the two internists, March 1971.

In the meantime, he had changed jobs, which involved long hours on hunting trips as a guide. He did not feel he could carry sufficient food for all of the men besides himself, so went without eating as long as the other men did.³

Definition of Terms

The following definitions of terms were used in the study:

1. Magnitude of Change: as defined by Holmes (1967) as any cluster of events or occurrences which alter the life adjustment of the diabetic subject, in the social structure of the American way of life.
2. Complete Instruction: as attendance of a series of diabetic classes with opportunity to demonstrate knowledge and skill obtained.
3. Diabetic control: as defined by Keiding, et al. (1965):
 1. Excellent: Never in coma, food weighed or measured, annual medical visits, blood sugar "satisfactory," urine sugar tested more than once a day; substantially sugar-free.
 2. Good: Coma only at onset, food weighed or measured, annual medical visits, blood sugar "satisfactory," urine sugar tested once a day; substantially sugar-free.
 3. Fair: Coma at onset and with severe infections, food not weighed or measured, is "conscientious," no binges; urine sugar tested regularly but not routinely; occasionally sugar.

³Personal interview at the hospital setting, March, 1971.

4. Poor: In coma which was avoidable more than once; insulin required after two years or irregular use; diet free; medical visits not made regularly; blood sugar in hyperglycemia stage; urine sugar pronounced; infrequent testing.
4. Diabetic non-control as defined by the two internists at beginning of this study: was present if more than ten percent carbohydrate intake is excreted in the form of glucose in a 24 hour volume of urine; the urine specimen shows two percent (4+) for two successive days with ketone present; the patients have insulin reactions frequently; when they have extreme thirst, dryness of mouth, frequent urination, and/or weight loss, fatigue and pruritis; when they are unable to maintain daily activities of living or when they manifest diabetic complications.
5. Complications: as any physical signs of infection of the kidneys or urinary bladder; of fungus infections, boils or carbuncles, or poor healing of skin infections; or retinitis, neuropathy or diabetic acidosis.

Purpose

This was a follow-up study of the diabetic regimen and life events. The following null hypotheses were investigated:

1. There will be no difference between the diabetic controlled and the diabetic non-controlled in

utilization of information received at the clinic as reported to the interviewer in the course of a home visit.

2. There will be no significant difference between the magnitude of life events requiring change to a person's adjustment associated with being in control or out of control.

Further opinions of the subjects were explored to determine how the person felt about having diabetes, and how he was affected by factors residing in the family and community.

CHAPTER II

MATERIAL AND METHODS

To ascertain if there were differences in the life styles between diabetic subjects in control (DC) and diabetic subjects out of control (DN), these two groups were compared in a descriptive study.

The primary sources of data were the responses of 30 subjects using two data collecting tools and one rating scale.

The secondary sources of data were from a review of related literature and studies.

Criteria for Selection of Study Subjects

The subjects were classified into two groups as DC or DN, as a clinical judgment of their physicians and the Keiting (1965) diabetes standard of control. A pool of 45 patients were suggested by the physicians. The criteria for inclusion in the study were as follows: the subject must be 18 years of age or over; a patient of either of two selected internists; with a diagnosis of diabetes and insulin dependent; had attended the diabetic clinic classes; and volunteered to participate in response to an introductory letter from the physician (Appendix A).

Data Collecting Tools and Procedure

The interviewing guide was originated by the writer and documented information in the following categories: demographic and factors associated with life events and illness (Appendix B). The questions were derived from conversations with the following number of subjects: in the hospital (3), clinic (6), and home visits (5). Suggestions were sought from several nurses and the two physicians. A pilot study consisted of two DC and two DN subjects interviewed in the home environment to refine the interviewing tool and technique, and to test Holmes (1967) Schedule of Recent Experiences Questionnaire (SRE) for its feasibility with this population. Revisions of the questions and format were made as indicated and the final tool contained 78 variables with seven open-ended questions pertaining to reactions to the disease, family and community involvement to permit quantitative analysis of the opinions expressed by the subjects.

The clinic as a community project, in which the patient receives his instruction and is given guidelines for his care, became the focus for the present study. An intensive analysis of the milieu enabled the interviewer thoroughly to understand the particulars of the diabetic regimen (Metzger, 1971).

The SRE questionnaire was patterned after one used by Holmes (1967), which contains 43 items and was used to

elicit a cluster of social events (Appendix C). Each item was given a value according to the SRE rating scale (Appendix D), which represented the amount of adjustment required in a person's life style to cope with the experience. The values were totaled to determine the life change unit score. Oral instruction for completing the SRE questionnaire consisted of the individual subject checking each item yes or no. Clarification of each item was given as needed.

Data collected by the interviewing tool were arrayed in tables and where feasible the mean, median and frequency were tabulated. The median test was used to determine if there was a significant difference between the two groups and the t test was employed to find out if there was a significant difference in the mean scores between the DC and the DN group. Responses to the open-ended questions were left verbatim.

The life change unit scores determined by the SRE rating scale for each subject was tabled. The mean and median were found. The t test and median test applied. Each item value was tabled with its frequency, the mean found and the t test applied.

CHAPTER III

REPORT OF STUDY

The results are discussed in four sections: 1) Characteristics of the subjects and demographic information; 2) Medical history and diabetic regimen; 3) Reactions to having diabetes, family and community involvement; and 4) Schedule of recent experiences.

The study was carried out by individual home visits to 30 diabetic subjects who had attended clinic classes at a selected general hospital and medical center under the direction of two internists. The subjects were adults ranging from 18 to 80 years of age. They were divided into two groups according to clinical judgment of the physicians as to their degree of the disease: Group I, diabetes controlled (DC) and Group II, diabetes non-controlled (DN).

Forty-five subjects were asked to participate in this study and were mailed a letter of introduction by the internists. Follow-up telephone calls were made to each subject. Four subjects refused to take part in the study, five subjects were unable to be reached and four subjects worked odd shifts which prevented an acceptable appointment time. Thirty-two subjects were interviewed over a time period of two months. Data obtained from two subjects were discarded due to non-insulin regulation. Length of interviews

averaged from 45 to 90 minutes with one interview lasting two and one half hours. The purpose of the study was explained, anonymity of the participants was assured and each subject was assigned a code number.

1. Characteristics of the Subjects

The study population was composed of 30 diabetic patients of which 15 had control of their disease and will be referred to as the DC group. Fifteen did not have control of their disease and will be referred to as the DN group. In the DC group there were 11 women and four men; in the DN group there were seven women and eight men. See Table 1.

Table 1. Study Population of Subjects

Sex	DC	DN	N
Women	11	7	18
Men	4	8	12
Total	15	15	30

Of the subjects interviewed, 20 lived in the city of Portland, three lived in Milwaukie, two lived in Beaverton, and one each in Hillsboro, West Linn, and Scappoose, Oregon. Two subjects were residents of the state of Washington; one lived in Vancouver, the other in Stevenson. As shown in

Table 2, eight subjects in the DC group lived in Portland; 12 subjects in the DN group also lived in Portland.

Table 2. Residences of Subjects

Area	DC	DN	N
Portland, Ore.	8	12	20
Beaverton, Ore.	1	1	2
Milwaukie, Ore.	1	2	3
West Linn, Ore.	1	0	1
Hillsboro, Ore.	1	0	1
Scappoose, Ore.	1	0	1
Stevenson, Wash.	1	0	1
Vancouver, Wash.	1	0	1
Total	15	15	30

The range in age for the DC group was 18 to 80 years, and the DN group was 18 to 75 years. The mean age of the total study group was 46.6 years. The DC group had a mean age of 41.4, and the DN group mean age was 51.4. The median age for the total group was 50.5 years; the DC group had a median age of 38.5, and the DN group had a median age of 58 years. This highly selected small sample showed a positive skewed frequency distribution age curve for the DC group. The Median Test was applied to see if both groups came from a common population. The difference between the two groups was significant ($X^2=4.80, p.<.05$) which shows that the DC group came from a younger population than the DN group. See Table 3.

Table 3. Ages of Subjects

Age	DC	DN	DN
18-22	2	3	5
23-27	1	1	2
28-32	2	0	2
33-37	3	0	3
38-42	1	0	1
43-47	1	0	1
48-52	2	0	2
53-57	0	3	3
58-62	1	3	4
63-67	0	2	2
68-72	1	1	2
73-77	0	2	2
78-82	1	0	1
Total	15	15	30
Mean	41.4	51.4	
Median	35.5	58.5	
Range	18-80	18-75	
Combined mean age of subjects in study, 46.4			

For both groups, marital status as shown in Table 4 was not associated with being in or out of control. Eight out of 11 of the women in the DC group were married compared with six out of seven in the DN group. Four or all of the men in the DC group were married compared to six out of eight in the DN group.

Table 4. Marital Status of Subjects

Marital Status	DC	DN	N
Single	3	3	6
Married	10	11	21
Widowed	1	1	2
Divorced	0	0	0
Separated	1	0	1
Total	15	15	30
<u>Women</u>			
Single	3	1	4
Married	6	5	11
Widowed	1	1	2
Separated	1	0	1
Total	11	7	18
<u>Men</u>			
Single	0	2	2
Married	4	6	10
Widowed	0	0	0
Separated	0	0	0
Total	4	8	12

The highest level of educational achievement in this study was college graduation attained by five subjects in the DC group. The median for the total study group and the DC group as shown in Table 5 was post high school; i.e., some college or vocational training beyond high school. The DN group had a median of 10 to 12 years of schooling. Those

with only grade school education were in the DN group.

Table 5. Education of Subjects

Education	DC	DN	N
05-08 yrs.	0	2	2
09-10 yrs.	3	1	4
10-12 yrs.	3	6	9
Post high school	4	6	10
College graduate	5	0	5
Total	15	15	30
Median	Post high school--10-12 years		

Race and religion was mainly Caucasian and Protestant. One Negro woman in the study was in the DN group.

Table 6 presents the occupations of the study group. More women in the DN group were housewives, five, than in the DC group, two. Seven women in the DC group were in skilled or professional occupations in comparison to one in the DN group. Four or all of the men in the DC group were in professional occupations compared to three out of eight in the DN group. No men in the study group were employed below the skilled in the scale by Hollingshead (1958). It should be noted that all participants were private patients. This may be reflected in the nature of occupation.

Table 6. Occupation of Subjects

Occupation	DC	DN	N
<u>Women</u>			
Business; Less Professional	2	0	2
Administrative	0	0	0
Clerical; Sales	4	1	5
Skilled	1	0	1
Semi-skilled	1	1	2
Unskilled	1	0	1
Housewives	2	5	7
Total	11	7	18
<u>Men</u>			
Executive; Major Professional	2	0	2
Business; Less Professional	0	2	2
Administrative; Personnel	2	1	3
Clerical; Sales	0	3	3
Skilled	0	2	2
Total	4	8	12

Four out of 11 of the women in the DC group were fully employed outside of the home, while six were not presently employed. In the DN group, two out of seven women worked part-time while five were not employed outside of the home. Four or all of the men in the DC group were employed full time outside of the home; in the DN group three out of eight were employed full time, two part time and three were

unemployed. For the total study group, 11 subjects were employed full time, five were employed part time and 14 were not employed outside of the home. These data are shown on Table 7.

Table 7. Employment Schedule of Subjects

Time	DC	DN	N
<u>Women</u>			
Full time	4	0	4
Part time	1	2	3
Not employed	6	5	11
Total	11	7	18
<u>Men</u>			
Full time	4	3	7
Part time	0	2	2
Not employed	0	3	3
Total	4	8	12

The DC are a younger group of people with small children and adults in the home, while the DN are an older group with teenagers and adults in the home. There appears to be some clustering of adults for the DC 8 to 37 age group and the DN 18 to 22 age group. From 53 to 67 years of age there were more adults in the DN group which probably reflects a decade and includes the spouse exclusive of children and subject. See Table 8.

Table 8. Number of Children and Adults in Household
According to Age of Subjects

Age	DC (N=15)		DN (N=15)		N	
	<u>Children</u>	<u>Adults</u>	<u>Children</u>	<u>Adults</u>	<u>Children</u>	<u>Adults</u>
18-22	2	5	1	6	3	11
23-27	1	1	2	1	3	2
28-32	4	2	0	0	4	2
33-37	6	3	0	0	6	3
38-42	1	1	0	0	1	1
43-47	0	1	0	0	0	1
48-52	0	2	0	0	0	2
53-57	0	0	2	4	2	4
58-62	0	1	0	2	0	3
63-67	0	0	0	2	0	2
68-72	0	1	2	1	2	2
73-77	0	0	3	1	3	1
Total	14	17	10	17	24	34
Mean	.93	1.13	.66	1.13		

2. Medical History and Diabetic Regimen

In studying age of when diagnosis was made within the two groups, the greatest difference was found between the young adult and adult age range. In the DC group five subjects were diagnosed when young adults whereas there were none diagnosed within this age range in the DN group. As the subject's age increased the number diagnosed in the DC group decreased to three and increased to eight in the DN group. See Table 9. The mean age for the DC group was 25.3, and the DN group 30.3.

Table 9. Age of Subjects When Diagnosed

Range	DC	DN	N
Children (0-12)	1	4	5
Teenager (13-20)	5	2	7
Young Adult (21-35)	5	0	5
Adult (36-65)	3	8	11
Over 65	1	1	2
Total	15	15	30

As shown in Tables 10, 11 and 12 medical complications were less common in the DC group, with five subjects neurological, two cardiovascular, and ten surgical. The DN group had ten subjects with neurological complications, eight with cardiovascular, and 12 with surgical.

Table 10. Diabetic Complications of Subjects

Complications	DC	DN	N
Neurologic	5	10	15
Infections	1	0	1
Other	2	0	2
None	7	5	12
Total	15	15	30

Table 11. Other Diseases of Subjects

Other Diseases	DC	DN	N
Cardiovascular (C.V.)	2	8	10
Other (allergies, etc.)	2	3	5
None	11	4	15
Total	15	15	30

Table 12. Number of Surgeries of Subjects

Surgeries	DC	DN	N
Genitourinary	4	1	5
Gastrointestinal	4	5	9
Other (C.V., Cataracts)	2	6	8
None	5	3	8
Total	15	15	30

More DC subjects indicated that their parents were diabetic rather than any other relatives (Table 13, DC four versus DN two). Fifteen of the 30 stated that no relative had had a diagnosis of diabetes.

Table 13. Diagnosis of Diabetes Among Family Members of Subjects

Family Members	DC	DN	N
Parents	4	2	6
Siblings	2	3	5
Grandparents	1	0	1
Close relatives	1	2	3
None	7	8	15
Total	15	15	30

Health checkups with the physician were made more regularly by the DC group than by the DN group who checked more often by telephone. Table 14 shows frequency of appointments; 14 subjects in the DC group and 12 subjects in the DN group saw their physician at least every twelve months. One in the DC group and three in the DN group did not know how often they had checked with their doctor. From two month intervals to 12 months and over, there does not appear to be much difference.

Table 14. Frequency of Appointments
with Physician by Subjects

Month	DC	DN	N
2	2	4	6
4	7	6	13
6	3	0	3
12	2	2	4
Over 12 months	1	3	4
Total	15	15	30

Twice as many of the DC group returned for additional clinic classes within the first year after diagnosis as the DN group (four to two). As shown by Table 15, during a two to five year period, four subjects in the DC group and five in the DN group returned for further class instruction. There appears to be no difference between groups after the first year. The respondents gave multiple reasons for attending or for not attending additional classes. Two subjects in the DC group and six in the DN group wanted more instruction. In the DC group, four returned for the complete series to reestablish their regimen; one subject stated he had remarried and wanted his wife to learn the routine; one said he knew he needed additional classes but his hours of employment prevented him or his wife from attending; two emphasized they would not learn anymore and one mentioned he could ask his doctor if he had any

questions; two subjects in wheelchairs (right amputee and old hip fracture) stated they could not attend without assistance.

Table 15. Frequency of Clinic Attendance by Subjects

Years	DC	DN	N
0-1	4	2	6
2-5	4	5	9
6-15	3	4	7
Over	4	4	8
Total	15	15	30

Eight of the spouses in the DC group attended clinic classes whereas ten of the spouses in the DN group attended. Two parents for the DC group attended the clinic classes and three attended for the DN group. See Table 16.

Table 16. Family Members Attend Clinic Classes with Subjects

Family member	DC	DN	N
Spouse	8	10	18
Children	2	0	2
Parent	2	3	5
None	3	2	5
Total	15	15	30

As shown in Table 17, most of the DC group, 14 subjects, stated they were able to put the knowledge gained in the clinic classes into practice all the time, whereas only nine subjects in the DN group reported they were able to do so, and two were able most of the time.

Table 17. Subjects Responses to Utilization of Knowledge Obtained in Clinic

Utilization of Knowledge	DC	DN	N
All the time	14	9	23
Most of the time	1	2	3
Some of the time	0	1	1
Not much of the time	0	3	3
Total	15	15	30

The most difficult problem encountered by participants in the clinic classes was the weighing and calculating of the diet. Four subjects in the DN group had trouble with calculation. The DC group reported no difficulty. All of the subjects except three in the DN group were able to eat their favorite food if calculated into their diet. Reasons given by these three exceptions were: "I cannot calculate; wife did not attend clinic classes; and I used to be a gourmet cook." Only two subjects in each group have continued to weigh all their food up to the present time (Table 18). Eight in the DC group weighed part of their

meals, six in the DN group did the same. The reason given here by both groups was that breakfast and lunch usually contain the same foods so it was a waste of time to weigh. One subject in each group traveled and only weighed their food when they were home. Five in the DC group had stopped weighing, six in the DN group had also stopped. Many reasons were given for this action. Some examples were: "Weighing takes too much time; I hate to weigh because I have to stop and let the food get cold; after 35 years I should know how much I can eat; I take extra insulin so I don't have to weigh; the doctor has never been strict about weighing." One patient never did weigh, "I just couldn't get that math."

Table 18. Food Weighed by Subjects

Food Weighed	DC	DN	N
All food	2	2	4
Part of meals	8	6	14
Did but stopped	5	6	11
Never did	0	1	1
Total	15	15	30

As shown in Table 19, four subjects in the DC group regulated their diet by weighing all their food, but only one in the DN group did so. In both groups there was little difference in the weighing and sighting combination (seven

DC and six DN). Three in the DN group did not regulate their diet by any method.

Table 19. Ways Diet Regulated by Subjects

Food Regulated	DC	DN	N
Weigh	4	1	5
Exchange	0	0	0
Sight	4	5	9
Weigh and sight	7	6	13
Not regulated	0	3	3
Total	15	15	30

Many of the subjects said their family selection of food agreed with their diet (Table 20). One patient in the DC group stated she felt cheated during family gatherings since she could not eat ethnic food; also she cooked separate ethnic food for her husband. One lived alone and said she had to cook differently when her family visited her. One subject in the DN group said he could not stay within the prescribed diet since his new wife did not know what foods or how much he should eat.

Table 20. Adherence to Prescribed Diet by Subjects.

Prescribed diet	DC	DN	N
Yes	13	9	22
No	0	1	1
Sometimes	2	5	7
Total	15	15	30

According to Table 21, eight women in the DC group prepared their own food with no assistance from their spouses, whereas in the DN group five prepared their own food and two of the remainder said their spouses prepared their food.

Table 21. Who Prepares Diet for Subjects

Who	DC	DN	N
<u>Women</u>			
Self	8	5	13
Spouse	0	2	2
Parent	3	0	3
Total	11	7	18
<u>Men</u>			
Self	0	1	1
Spouse	4	6	10
Parent	0	1	1
Total	4	8	12

Multiple answers were given by the respondents in answer to what they did when they went out to eat as shown in Table 22. More of the DN group ordered from the menu, ordered specific foods and sighted amounts to eat. In the DC group, more subjects did not go out to eat and if they did, they increased their insulin to compensate for over-eating, took food along or snacked before going out to counteract change in schedule.

Table 22. Regulation of Diet
When Eating Out by Subjects

What They Do	DC	DN	N
Do not go out	0	2	2
Order from menu	4	8	12
Order special food	3	4	7
Eat what is served	0	1	1
Sight amount	10	11	21
Increase insulin	2	1	3
Take food along	1	0	1
Other (snack)	2	0	2
Total (multiple answers)	22	27	49

Table 23 shows that nine subjects in the DC group, versus two in the DN group took food along when traveling. Twelve subjects in the DN group relied on restaurant food in comparison to seven in the DC group.

Table 23. Diet Regulated While Traveling
by Subjects

What They Do	DC	DN	N
Do not travel	1	1	2
Take food along	9	2	11
Stop and prepare	4	5	9
Restaurant	7	12	19
Plan to visit at mealtime	1	0	1
Other	3	0	3
Total (multiple answers)	25	20	45

All subjects in the study regulated their diabetes with daily insulin injections. Table 24 shows 11 subjects in the DC group injected insulin before breakfast and before dinner. Three subjects administered insulin only before breakfast; while one subject also used insulin at bedtime. Ten subjects in the DN group took insulin before breakfast and before dinner, while five took insulin only before breakfast.

Table 24. Frequency of Insulin Injections
by Subjects

Times Per Day	DC	DN	N
AC breakfast	3	5	8
AC breakfast & AC dinner	11	10	21
AC breakfast & at bedtime	1	0	1
Total	15	15	30

The majority of subjects in both groups (25), were regulated with both NPH and Regular insulin. Table 25 shows that six in the DC group said they would adjust the Regular insulin dosage to compensate if spilling sugar; only three in the DN group would do the same. Two subjects each in both groups would adjust the NPH insulin. Seven in the DC group stated they may regulate either NPH or Regular insulin depending upon the time of day they were spilling sugar; nine in the DN group did the same. Two subjects in the latter group usually checked first with their doctor; one never did increase the insulin dosage. Insulin was usually regulated according to the time of day sugar was spilled and if tests showed sugar on three successive days. The dosage would then be increased two units for two days until the tests were sugar free. More of the DC group, nine versus six in the DN group, used the two unit scale to increase their insulin. In each group four increased the insulin only one-half to one unit; two called their doctor first. Two subjects in the DN group adjusted their insulin according to how they felt, and one never did increase the insulin.

Table 25. Insulin Adjusted if Spilling Sugar by Subjects

Type of Insulin	DC	DN	N
NPH	2	2	4
Regular	6	3	9
NPH or Regular	7	9	16
None	0	1	1
Total	15	15	30

As noted in Table 26, both groups, ten DC and eight DN, knew how insulin was utilized in the body. Only three in each group knew how hormones affected the body during emotional upsets. Both groups were similar in knowledge of foot and eye problems. Fourteen in the DC group knew the difference between acidosis and insulin reaction, ten in the DN group also knew.

Table 26. Knowledge of Diabetic Factors by Subjects

Topic	DC		DN	
	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
1. How insulin utilized	10	5	8	7
2. Effect of hormones	3	12	3	12
3. Incidence of foot problems	13	2	12	3
4. Incidence of eye problems	10	5	9	6
5. Difference between insulin reaction and acidosis	14	1	10	5
Rank order of knowledge	5,3,1,4,2		3,5,4,1,2	

Table 27 shows that insulin reactions occurred more frequently in the DN group; one subject had a reaction daily, four had reactions one to two times a week, eight had reactions one to two times a month, one less often and one did not know how often. One subject in the DC group had insulin reactions one to two times a week, six had reactions one to two times a month, six less often, one never and one did not know how often. There was no difference in frequency of acidosis within the two groups.

Table 27. Frequency of Insulin Reactions
by Subjects

How Often	DC	DN	N
Daily	0	1	1
1 to 2 times/week	1	4	5
1 to 2 times/month	6	8	14
Less often	6	1	7
Never	1	0	1
Do not know	1	1	2
Total	15	15	30

All subjects in the study except one in the DN group adhered to the pinch method for injecting insulin. This subject was diagnosed 29 years ago and has never had additional instruction. For sites of injections, ten subjects in the DC group used the rotating method compared to only six in the DN group (Table 28). Sites preferred by the DC group were the thighs by four subjects, and the

abdomen by one subject, whereas the DN group sites preferred were the arms by two subjects, thighs by four subjects, abdomen by two subjects, and the buttock by one subject. Eight subjects in the DC group expressed difficulty or distastefulness towards rotating sites; five in the DN group felt the same.

Table 28. Area of Insulin Injection
by Subjects

Area	DC	DN	N
Thighs	4	4	8
Arms	0	2	2
Abdomen	1	2	3
Back	0	0	0
Buttocks	0	1	1
Rotate Sites	10	6	16
Total	15	15	30

As noted in Table 29, eight subjects in the DC group gave their own injections compared to five in the DN group. Three in the DC and six in the DN had their spouses give part of their injections, while three in the DN group had their spouses give all the injections. None of the spouses in the DC group gave all of the injections, although four had other family members administer their insulin.

Table 29. Who Dispenses Insulin
Injections to Subjects

By Whom	DC	DN	N
Self	8	5	13
Self and spouse	3	6	9
Spouse	0	3	3
Other family members	4	1	5
Total	15	15	30

The type of equipment used to inject the insulin by the subjects in the study was identical in each category. In both groups, ten used a disposable needle with a glass syringe, but four adhered to reusable needles. Only one in each group used both disposable syringe and needle. See Table 30.

Table 30. Equipment Used for Insulin
Injections by Subjects

Type	DC	DN	N
Disposable needle and syringe	1	1	2
Disposable needle only with glass syringe	10	10	20
Reusable needle with glass syringe	4	4	8
Total	15	15	30

In the care of equipment, 12 subjects in the DC

group both boil and immerse equipment in 70% iso-propyl alcohol, seven in the DN group did the same. Other methods of sterilization by two DC subjects were only immersing in alcohol between injections and one only boiling for five minutes. Four in the DN group used alcohol, three boiled, and one only rinsed the syringe and needle with tap water. See Table 31.

Table 31. Care of Equipment by Subjects

How	DC	DN	N
Boil 5 minutes	1	3	4
Immersion in 70% iso-propyl alcohol	2	4	6
Both	12	7	19
Rinse with tap water only	0	1	1
Total	15	15	30

Table 32 shows that one subject in the DC group never boiled the glass syringe compared to four in the DN group. However, eight DC and six DN subjects did boil the syringe weekly, which is the recommended time. This is in addition to the alcohol immersion.

Table 32. Syringe for Insulin
Injection Boiled by Subjects

How Often	DC	DN	N
Daily	2	3	5
Weekly	8	6	14
Monthly	2	1	3
Over month	1	0	1
Never	1	4	5
Disposable	1	1	2
Total	15	15	30

All subjects in the DC group, except one, tested their urine routinely two to four times a day. One subject tested after each urination. In the DN group one tested once a day, one never tested and four had no definite routine. Nine tested regularly two to four times per day. See Table 33.

Table 33. Frequency of Urine Testing by Subjects

Times Per Day	DC	DN	N
0	0	1	1
1	0	1	1
2	7	4	11
3	3	3	6
4	4	2	6
After each voiding	1	0	1
Other (3 times a week, etc.)	0	4	4
Total	15	15	30

Clinitest and/or Testape was the method employed by 14 subjects in both groups for testing urine. One used the Benedict method and one did not test. All 15 subjects in the DC group and ten in the DN group stated testing was not a difficult procedure but four DN emphasized it was difficult and one said it was at times. Table 34 shows varied comments were given by both groups as to how they felt about the procedure. Ten DC and six DN subjects stated "no problem;" two in the former group and one in the latter group said it was a nuisance but the fact that it had to be done was emphasized by two DC and three DN subjects. Two respondents in the DN group complained that it took time, one commented it was no more than taking medicine, one remarked "you just get used to it," while one said he just forgets to do it.

Table 34. Reaction Towards Urine Testing Procedure by Subjects

Reaction	DC	DN	N
Dislikes to do it	2	3	5
Takes time	0	2	2
A nuisance	2	1	3
No more than taking medicine	0	1	1
Forget	0	1	1
No problem	10	6	16
Get used to it	1	1	2
Total	15	15	30

Of those who tested their urine, one DN subject stated if he started to show sugar he knew in a day or two he would become ill. This gave the subject a clue to modify his diet and make attempts to gain control, others just disregarded the findings and increased the insulin. One DN subject said he never tested since he disregarded the findings anyway.

According to Table 35, if diabetic acidosis was suspected, nine subjects in the DC group and six in the DN group tested the urine for acetone and knew the meaning of the test, whereas three subjects in the DC group and five in the DN group did not test and did not know what the test was. Of those who did test, eight in the DC group and five in the DN group used the Ketone stick for testing, two subjects in both groups used Acetone tablets.

Table 35. Test for Acetone by Subjects

Testing	DC	DN	
Does test and knows meaning	9	6	15
Does test and does not know	1	1	2
Does not test but knows	2	3	5
Does not test and does not know	3	5	8
Total	15	15	30

A diabetic record was kept by six subjects in the DC group and seven in the DN group all the time, while five of

the former and four of the latter kept records some of the time, i.e., just before a scheduled doctor's appointment. The DC group seemed to be more organized (ten versus five in the DN group) using the physician's form, although three DN versus one DC had a well kept diabetic diary. Other means of recording by both groups were use of scrap paper and notebooks.

3. Reactions to Having Diabetes, Family and Community Involvement

Verbatim comments pertaining to the participant's reactions to having diabetes, family and community involvement illustrate the attitudes and feelings of the subjects interviewed for this study. It was the opinion of the researcher that the non-controlled diabetic does not accept his disease because it makes him feel different by not being able to eat what he wants to eat, by having to take insulin, and by feeling he cannot function like other people. He is afraid of not getting or keeping employment. Subjects in both groups expressed a desire for anonymity of their disease not only in relationship to their employment but also for social acceptance.

The rationale usually advanced to explain their actions reinforced this impression through the following questions and a synopsis of their responses (See Appendix E for the verbatim responses of each subject) given during the personal interviews by each group:

What is it like to be a diabetic?

The DC group seemed to accept their restrictions and lead a normal life whereas a large majority of the DN group found it difficult to adjust to the restrictions placed on them as diabetics as they "felt sorry for themselves."

How has your family accepted your disease?

There was only one negative impression in the DC group whereas the most negative tone was found in the DN group where families were over-protective, encouraged lax diet or avoided the subject of diabetes.

How has this (their acceptance) affected you?

Most of the subjects in the DC group and over half in the DN group seemed contented with the acceptance by their family towards their disease.

Other diabetics have stated that when family fails to give needed support they sometimes neglect their routine. Have you found that sometimes you do this? If so, tell me about it.

Of those who answered in the affirmative (3DC, 6DN), there were no differences between the DC group and the DN group in their responses regarding the neglect of their routine when family support was lacking.

Sometimes people lose control when there is a painful event. Have you found this in your life? If so, what do

you do?

Twelve subjects answered affirmatively in both groups. Over three-fourths of the DC subjects made a serious attempt to stay on their routine or make adjustments compared to one-third of the DN group.

Sometimes people lose control when there is a joyful event. Have you found this in your life?

Two out of eight or one-fourth DC group go off their diet during this type of situation, in contrast, six out of eleven or a greater half of the DN group. Not only do more in the DN group have difficulty, especially in the area of diet, but they respond negatively to either a joyful or sorrowful event.

What accounts for loss of control?

In studying both groups' conception of what accounts for loss of control, commonalities were found in their multiple answers. Illness was considered a major reason by a majority of the DC subjects and by less than half of the DN subjects, whereas change in eating habits was a factor for one-third DC compared to three-fourths DN. This difference between groups may be attributed to their report of more emotional reactions and lack of diet regimen management by the DN group.

What is it like to be out of control?

Almost all subjects except one in each group, could

report symptoms with the DC group recognizing them earlier. This is what they were like: more in the DC group reported symptoms of being tired, sleepy, weak or sick with three subjects having more complicated symptoms; whereas the DN group reported less symptoms of being tired or sleepy with more subjects being weak, sick or nervous with seven subjects having more complicated symptoms.

What do you do when out of control?

Even though multiple diversity of answers were given by both groups the one factor common to a majority of subjects was alteration of diet, the action of choice by one-third DC and two-thirds DN. This again is a reflection of diet not only being the cause of being out of control in DN but the necessity for further diet change to attempt to get back in control.

Does knowing other diabetics give you support, and if so, explain.

In spite of the fact that all subjects had opportunity to meet other diabetics through course of instruction, the majority of the subjects in both groups did not view other diabetics as supportive. A follow-up interpersonal relationship program may be useful as five DC and two DN subjects were enthusiastic about sharing views with other diabetics. Apparently this was not related to age since the range was from nineteen to seventy-five years with three subjects under

fifty-two years. Sex may have been a factor as all those who responded positively were female. One male in the DC group who gave a negative response later stated, "Talking with other diabetics made me see I could live a normal life." Additional subjects in the DC group who responded negatively knew other diabetics but took the option not to become too identified as a person with diabetes.

How do you think extending the clinic classes to the community where you live would be beneficial?

A large majority of the subjects interviewed, two-thirds in each group, said that clinic classes in the community would be beneficial to them and to all diabetics because general practitioners do not specialize. For this reason it would be convenient for the new as well as the chronic diabetics and their families to attend refresher courses, to keep up with new developments, and to familiarize non-diabetics with the disease.

The remaining one-third negative responses of the DC group stated the following rationale: a neighborhood clinic would not work due to staffing and funding problems, but it depended upon the number of diabetics and interested people in the community; other diabetics might not want anyone to know about their illness; and, it would be up to the individual's doctor if attended. The one-third remainder which were negative of the DN group voiced the

clinic they now attend was centrally located. And further, most people would go to their own doctor to find out what they wanted to know.

How can a nurse help?

The majority of subjects in both groups did not seem to have much confidence in a nurse to help them individually. It is interesting to note that twice as many DN expressed the nurse could help them by being a morale builder but at the same time remarked the nurse did not know very much about diabetes.

How do you think a nurse can help diabetics to control their disease?

Both groups emphasized the nurse could help other diabetics by taking more personal interest and by obtaining more knowledge about the disease and treatment. The DN comments were geared more towards morale building and encouragement to stay on the routine than the DC group.

4. Schedule of Recent Experiences

This tool was picked to determine if there was a relationship between the magnitude of life events requiring change to a person's adjustment associated with being in control or out of control. According to Holmes (1967), if the life change unit added up to 150 points, there was a low risk of becoming ill; up to 300 points, there was a

greater risk; and greater than 300 was considered a high magnitude life crisis.

In comparing the upper, middle, and lower life change unit scores of the entire group in this study, the distributions are pretty even. Table 36 shows seven DN in the top scores versus three DC and exactly reversed in the lower scores while the middle scores have five subjects each. Note the one extreme DC score which does not correlate with Holmes' studies.

Table 36. SRE Life Change Unit Scores Arrayed According to Risk Factor Category

	Upper	Medium	Low
	620	319	165
	443DN	305	153DN
	433	301	150DN
	371DN	255DN	139
	371DN	241DN	124
	353DN	238DN	117DN
	348DN	228	115
	348DN	220	111
	346DN	174DN	104
	323	167DN	62
	DC	DN	
N	15	15	
X	237	272	GX 254
Md	220	241	Gmd 233

The DC group had a mean value of 237 and the DN group had a mean value of 272. The difference between the means, with 1 df, was not significant with a t score of .71. The median for each group was DC 220, DN 241. The Median test was applied which was not significant ($X^2=.21, p.<.05$).

The lack of statistical significance must be considered in a sample of this size, and the fact that one extreme score can alter the results markedly.

Although the difference shown did not reflect which item was contributing the most (see Table 37), the frequency of items shows which events were most noted by the DN group. The pattern was the same for the high and low end values thus it balances out for the entire group. Even though the difference was not great, this study does seem to support that the non-controlled diabetic has more life events to cope with in the low value items. Interpretation of items may have differed among the subjects.

The DC mean values for the individual items was 45.66, DN 43.98. The difference between the means, with 1 df, was not significant with a t score of .28.

Table 37. SRE Rating Scale and Frequency
of Life Events by Subjects

Life Event		Value	DCf	DNf
1.	Death of spouse	100	0	1
2.	Divorce	73	1	0
3.	Marital separation	65	2	0
4.	Jail term	63	0	0
5.	Death of close family member	63	4	3
6.	Personal injury or illness	53	9	13
7.	Marriage	50	1	3
8.	Fired at work	47	0	0
9.	Marital reconciliation	45	1	0
10.	Retirement	45	1	4
11.	Change in health of family member	44	4	6
12.	Pregnancy	40	2	0
13.	Sex difficulties	39	2	0
14.	Gain of new family member	39	4	3
15.	Business adjustment	39	4	2
16.	Change in financial state	38	7	4
17.	Death of close friend	37	5	4
18.	Change to different line of work	36	4	4
19.	Change in number of arguments with spouse	35	4	1
20.	Mortgage over \$10,000	31	2	1
21.	Foreclosure of mortgage or loan	30	0	0
22.	Change in responsibilities at work	29	4	3
23.	Son or daughter leaving home	29	1	4
24.	Trouble with in-laws	29	0	1
25.	Outstanding personal achievement	28	2	0
26.	Wife begin or stop work	26	3	0
27.	Begin or end school	26	5	5
28.	Change in living conditions	25	4	5
29.	Revision of personal habits	24	3	10
30.	Trouble with boss	23	1	2
31.	Change in work hours or conditions	20	3	10
32.	Change in residence	20	4	1
33.	Change in schools	20	3	3
34.	Change in recreation	19	2	9
35.	Change in church activities	19	1	4
36.	Change in social activities	18	3	5
37.	Mortgage or loan less than \$10,000	17	4	3
38.	Change in sleeping habits	16	4	8
39.	Change in number of family get-togethers	15	4	5
40.	Change in eating habits	15	4	5
41.	Vacation	13	12	14
42.	Christmas	12	10	12
43.	Minor violations of the law	11	1	2

In Figure 1 the values of each item were shown according to an accumulated percentage scale. Note differences between both groups for the items valued 19 to 49. The life events within this area for the DN group were on changes within the past year from the existing steady state to: retirement, family member leaving home, change in work hours, and revision of personal habits.

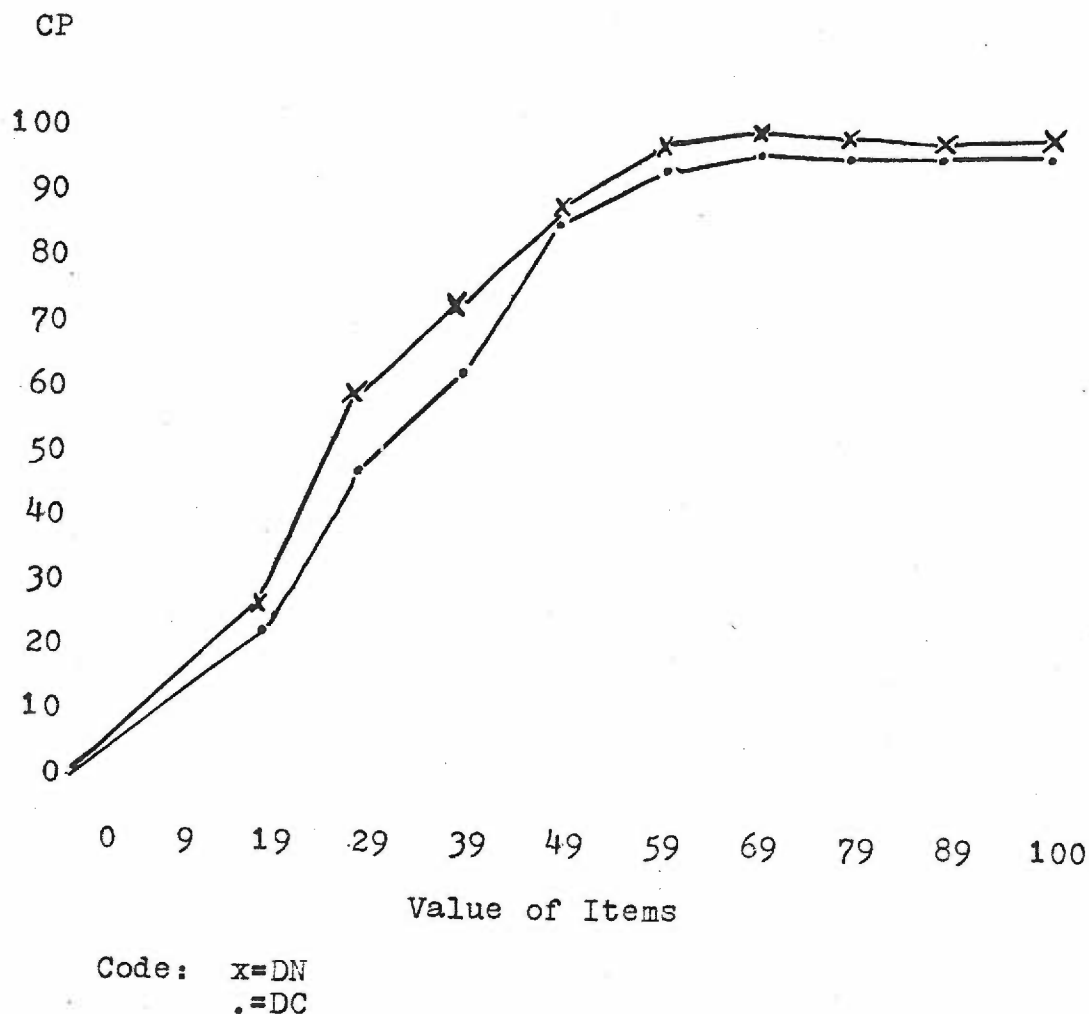


Figure 1. Cumulated Percentage of Frequency of Items of Recent Experiences

CHAPTER IV

DISCUSSION

1. Characteristics of the Subjects and Demographic Information

One unique aspect of this study was that all subjects had been through a comparable course of study specifically designed for the diabetic which made it possible to make comparisons on their ability to utilize the instructions that they received.

The characteristics of the subjects in both groups were similar in that the majority lived within the greater Portland metropolitan area, were married, had a high school education or more, were Caucasian and of Protestant religion. There was no difference in the number who were employed outside of the home; however most of those employed full time were in the DC group. According to Schmitt (1971), the well-regulated diabetic is a disciplined individual and frequently an outstanding worker with less absenteeism because he takes better care of himself with constant medical supervision and regular checkups. This theory substantiates Holcomb's (1970) "Way of Life" philosophy.

An age difference of ten years was noted between the mean of the DC group and the mean of the DN group. The trend now is for women to be career minded and to seek

employment outside the home; it was observed that more women in the DC, or younger, group were working in skilled or professional occupations, but the majority of DN women were housewives. Also, it appears as if the younger group were more flexible in regulating their regimen and had more facility for change.

The presence of small children could also have been a stimulus for the DC group to stay in control. There were teenagers in the homes of the DN subjects, and according to Williams (1970), the larger the number in the household, the poorer the control. This was not the element in this study, but the difference here was age of the children, rather than number.

In the study made by Murawske (1970), it was found that the role designated to men by society allows them little chance to accept their disease realistically, and therefore causes them to have a greater and different problem than women regarding control. Because of problem with role, this may be the reason associated with more DN men unemployed, retired, or only working part time.

Subjects with an academic degree were in control whereas those with only a grade school education were found to be out of control. One DC subject changed his career from engineering to chemistry to allow for the change that a diabetic regimen requires; whereas three DN men retired or took part time employment which allowed a more lax

adjustment to their diabetic regimen. This follows Schmitt's theory (1971) that the controlled diabetic is more disciplined because he regulates his life to accomplish the goals for which he is educationally and physically equipped for.

A difference is noted between men and women thus: the DC subjects have a higher level of education and employment, both men and women; and, in regulating life by means of a schedule or type of work. The DC women who were gainfully employed organized themselves whereas the DN women could not exercise discipline over their diabetic regimen. The DC men were able to work full time and maintain their regimen, whereas the DN men were unable to control their disease, thus were not able to sustain steady employment. Where the DC, as a group, were more flexible in adjusting to having diabetes, the DN group seem to be more passive and possessed of less initiative. This in turn limited their employment.

2. Medical History and Diabetic Regimen

Most subjects in the DC group were diagnosed while they were teenagers and young adults. This is in contrast to the DN group, who were either younger or older than the DC group. A later mean age of onset was found by Williams (1967), in those in good or fair day to day control and an earlier mean age onset for those in poor or very poor day

to day control. Although the present study did find an earlier mean age of onset for some of the subjects, the majority of the DN group were diagnosed later in life.

The two groups were about the same as having family history of diabetes. Members of both groups admitted, more or less, to a feeling of injured pride due to their disease and remarked that since they knew of no family history of the disease they were not true diabetics. This could be due to family mobility or the fact the subjects themselves wished to keep their disease unknown. Years ago, Holcomb (1971) claims diabetics fared much better keeping their disease anonymous, but due to their outstanding work record and now being insurable, acceptance by businesses and society has improved.

As found by Watkins (1969), those in poorer control had more experience with problems which does seem to support this study in that more complications were found in the non-controlled group. Percent of surgical instances, cardiovascular and neurological diseases were at a higher level for the DN subjects. Cardiovascular disease was most prevalent as suggested by Duncan (1951).

It seemed necessary for the DN group to make irregular, on the spur of the moment, phone calls to their doctor and not do any advance planning. This allowed them to exert some influence of their own as to their control besides fulfilling the need to be noticed. Mirsky (1948)

concluded that emotional stress does heighten their fears and feelings of inadequacy. Endurance of stress, as inferred by Malins (1970), may precipitate the passage from one stage of the disease to another. Furthermore, the fact that the DN group could not relate or plan ahead and the DC group did so, also suggests lack of discipline.

It was of interest to note that about half of the DN group had seen their physician within two weeks of the study interview. There is reason to suspect these subjects made appointments with their doctor after they had received his letter in reference to the present study. This concurs with the uncompleted data of a study Murawski (1970) mentions along with the report of his study, that frequent contacts with the patients giving attention to individual situations is as important as the teaching.

Less than two-thirds of the DN group were able to put knowledge gained from the clinic classes into practice while nearly all in the DC group were able to do so. Other authors, Geist (1964) and Stone (1961), found knowledge about diabetes varied from poorly informed to very well informed. Stone's (1961) study had many variables dealing with management. His findings were consistent with many of the variables in this study that pertained to the diabetic regimen, especially diet regulation. When eating in restaurants or on a trip, the DC group in contrast to the DN group planned ahead by taking extra insulin, snacked

before going out, or took food along. It is of interest to note that the spouses of two females in the DN group prepared all of the food.

Calculation of the diet seemed to be the biggest problem to subjects in the DN group; this may suggest frustration and a feeling of restriction which could partly explain their lack of control. Of those who did regulate their diet, weighing and sighting was the combination most used. Holcomb (1970) states with mastery the diabetic acquires ease and poise to select food unobtrusively and accurately especially in sighting when away from home.

The husbands of three DN women gave all the insulin injections, which may explain why the arms and buttock were used besides the thighs, back and abdomen, preferred by the DC group. Holcomb (1970) points out the difficulty of control due to injections into the same site repeatedly, improper exchanging of injection areas and to different rates of absorption of insulin in the various areas. Most subjects adhered to the pinch method of injection as taught in the clinic classes.

In this small sample many more DN did not use aseptic technique as recommended. For example, three subjects boiled the glass syringe once a month; one subject went over a month; and five subjects never did boil the syringe. This supports Bucklin's (1958) findings that diabetics

needed authoritative repetitive teaching for real understanding of the relationship between facts.

More DN subjects checked first with their doctor before adjusting the insulin dosage; this may account for the frequent telephone calls to the physician and could suggest lack of confidence in their judgment. Mirsky (1948) explains the problems of adjustment to the disease that can lead to a feeling of inadequacy.

Many more insulin reactions occurred in the DN group. Hinkle (1952) points out how during stress periods it is customary for patients to alter their eating habits and take their insulin irregularly or not at all.

Fewer in the DN group, than in the DC group, tested their urine according to the recommended schedule, and many who did test disregarded the findings. This goes along with Derr's (1970) rationale for conducting a study in testing for glycosuria. Stone (1961) concluded poor regulation was not due to failure to do urine testing but to failure to follow the diet.

A higher percentage in the DC group recognized the difference between insulin reactions and acidosis and tested for acetone if acidosis was suspected. Most in this group kept an organized diabetic diary which embodies the Holcomb (1970) and Schmitt (1971) description of the controlled diabetic.

3. Reactions to Having Diabetes, Family and Community Involvement

The majority of the subjects in control had adopted "A Way of Life" philosophy recommended by Holcomb (1970), in contrast to the noncontrolled subjects who talked more about the management of their disease. This accounted for a longer interview interim than with the DC group.

The DN subjects seemed to have a need to talk about their regimen, its limitations and its controlling factors of fear and projection of complications. Their sensitivity towards management of the disease and their acceptance of self as a capable person appeared to determine success or lack of success in keeping control. In turn, this was affected, more or less, how the family, the physician and the nurse at all levels showed acceptance of the disease and of the subject as a person.

The number of subjects in the DC group who were satisfied with their family's acceptance of their disease was nearly double that of those in the DN group. Both groups felt it was easier to stay on their diet when they had their family's acceptance. The difference between the two groups was that the DN families appeared to be over-protective, encouraged lax diet, or avoided the subject of diabetes. Both families were similar in their understanding of the disease and in degree of involvement of the regimen. However, twice as many subjects out of control neglected

their routine because they felt their families did not give them the amount of support they needed. These data gave a cue as to family needs and seems to fit in with what Mirsky (1948) says, that the diabetic will compensate by reacting in various ways to express fear, feelings of inadequacy, the need to be taken care of, and hostility.

Not one main contributor, but many factors, (as supported by Hinkle, 1951), as to what happens in the family and the community, causes loss of control. Many things make a difference as expressed by subjects in both groups. Emotional problems and illness could throw the DC subjects out of control while a change in eating habits was a contributing factor for the DN group. Here again, this supports Hinkle's (1951) studies that during stress periods it is quite customary for patients to alter their eating habits. Although the majority of the DN group stated a change in eating habits accounted for loss of control, it is of interest to note that to recover the action of choice was to make an alteration in their diet of which four DN subjects ate candy or sweets while only one DC did so.

The one factor common to a majority of the subjects in both groups in responses to joyful or painful events involved diet change, whereas the differences seemed to be that the DN group responded negatively, to attempts to keep in control. Fewer DC subjects became depressed, but more DN

subjects became nervous as expressed in various ways. Mirsky (1948), Hinkle (1951) and Dunbar (1954) have pointed out in their studies different reactions patients show in response to emotional disturbances. This study also points to the role circumstances play in keeping control for the diabetic.

A common factor for the majority of subjects was lack of support from other diabetics. This did not lessen their interest in other diabetics or to belonging to an organization and helping with research. Both groups were similar in not wanting society to label them as diabetics, but were receptive to a community clinic to familiarize non-diabetics with the disease. This may be one way for the diabetic to feel he is accepted by society and to realize he can live a near normal life.

Most subjects in both groups expressed a community clinic would be beneficial, although their reasons differed. These same subjects rationalized that since the diabetic was already informed he therefore did not need to attend.

Several subjects interviewed responded that one way nurses could help them in the home was to give the insulin injection, but questioned their availability. Two-thirds of the subjects in both groups did not view the nurse as being very knowledgeable about diabetes and its regimen for control. This seems to be in agreement with Etzwiler (1967) whose study revealed lack of understanding of basic

fundamentals of the disease among professional personnel, and Derr (1970) who found nurses were casual about the urine testing procedures.

4. Schedule of Recent Experiences

It was felt some determination of global differences between the groups should be assessed to determine if there was an area within the diabetic's life style that affected being in control or out of control. Holmes' (1967) studies indicate that life events affect an individual's health but magnitude of change between the two groups was not significant in the present study.

Also Holmes' (1967) studies dealt with big differences of magnitude of change whereas the difference in this study was small events which weighed small in value on his scales, thus for the overall large difference there was not much variation. The inference here does seem to be in an area involving the diabetic in the daily living activities and may suggest more difficulty adjusting to the daily diabetic regimen.

According to Holmes' (1968) findings of other studies show these clusters of events play an important role in the natural history of many diseases. The occurrence of each event usually evoked or was associated with some adaptive or coping behavior on the part of the individual.

There is some evidence that for the DN group who

obtained a high life unit score, there had been a cluster of small value events that did affect them in that it was a constant challenge to stay in control.

Limitations of the study included the small size of the sample, the selection of subjects from a certain segment of society (with no attempt made to evaluate the previous life events of one year); the uncontrolled variable pertaining to the timing of the interview, the presence of family members to influence responses; and that definition of controlled or non-controlled as a clinical judgment varies from practitioner to practitioner and is a subjective evaluation.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The null hypothesis that there would be no difference between the diabetic controlled and the diabetic non-controlled in utilization of information received at the clinic as reported to the interviewer in the course of a home visit was accepted. There did seem to be some differences in the following areas:

1. The DC group practiced their knowledge gained in clinic classes, whereas the DN group's lack of utilization of information led to their difficulty in calculation.
2. The DC group recognized the difference between insulin reaction and acidosis, and tested for ketones, whereas the DN group had more insulin reactions and did not test for ketones.
3. The DC group compensated for their diet by snacking or taking extra insulin when away from home whereas the DN group neglected their diet.
4. The DC group adjusted their insulin according to time of day and amount of glycosuria present, whereas more of the DN group did not test for glycosuria but checked first with their doctor before changing the insulin dosage.

5. The DC group made regular appointments with their physician at least once every 12 months and returned for extra classes within the first year, whereas the DN group contacted the doctor more frequently by telephone instead of making regular appointments or attending extra classes.

6. The DC group had less complications than the DN group, who faced the most difficulty in the area of cardiovascular disease.

The null hypothesis of no significant difference between the magnitude of life events requiring change to a person's adjustment associated with being in control or out of control was accepted. It was noted in the areas of daily living activities, a cluster of events required the most change for the DN group.

Further opinions of the subjects explored showed that the DN group had more difficulty adjusting to the diabetic regimen and daily life events.

Conclusions

Specific conclusions cannot be made from a study of this size when only general comparisons were made between the two groups. Acceptable inferences drawn from the study include:

1. The adult diabetic regulated by insulin is continually confronted with the problems of coping with dietary restrictions, urine testing, variations in social and employment activities, insulin reactions and acidosis, and

emotional adjustment of his family to an incurable disease.

2. Knowledge of how the controlled and the non-controlled diabetic differ in utilizing information received at the clinic, the type of life events with which each must cope, and how the diabetic feels toward the amount of knowledge the nurse possesses, may help her better understand how to anticipate their needs. This is an area in which nurses could well specialize by increasing their knowledge and understanding of the disease and the patient and their skill in behavior modification.

3. Even though the subjects in both groups indicated they felt they were accepting their disease, some of their behavior indicated they were not. This was shown by their method of coping with stress, which was going off their diet and fear of dying. The importance of family acceptance of the disease with support of the systematic routine was a positive variable in this study. Therefore understanding from all those that deal with diabetics is essential.

4. Using Holmes' scale for magnitude of change, there does seem to be an area involving the diabetic in the low value daily living activities.

It was the opinion of the respondent's two physicians that many of the diabetics considered non-controlled were unable to accept their disease. Therefore, it was considered important that their care should be modified in order for

them to cope with daily living activities.

Recommendations

1. It is hoped the results of this study will suggest an area for nurses to become more involved in counseling the diabetic.

2. An implication for further study is in the area of urine testing to see if illness can be predicted by the results.

3. One area for study would be length of needle, which did not seem an important variable at the beginning of this study, but may be one factor that influences control, as the correct length of needle is essential for proper absorption of insulin between the fat and muscle.

4. Another area for study would be sites of injection to see if rates of absorption influence the amount of insulin required or the difference between being in control and out of control.

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APPENDICES

APPENDIX A

Letter of Introduction

June 9, 1971

Dear Ms.

We are very much interested in your progress as a patient we are treating for diabetes. In order to be more helpful, we are planning additional studies in order to continually improve our ongoing treatment program.

To acquire more knowledge, we have a research nurse, Mrs. G. Metzger, RN, to call upon our diabetic patients to ask a few questions regarding diet routine and management of day-to-day affairs. She will be contacting you in the near future and make arrangements for a mutually agreed time. It would be best for you to allow about an hour for this interview.

We hope you will take part in this important study, however, your part will be voluntary.

Sincerely,

Dr. _____, MD

Dr. _____, MD

APPENDIX B
Interview Guide

FORM FOR GUIDED INTERVIEW AND FOR RECORDING RESPONSES

Code _____

Name _____ Telephone _____ Appt. _____

Address _____ City _____ State _____ Zip _____

_____ Farm	_____ 25,000 to 100,000
_____ Rural non-farm	_____ 100,000 to 500,000
_____ 2,500 or less	_____ over 500,000
_____ 2,500 to 25,000	

Age _____ Sex: M _____ F _____ Race: C _____ I _____ N _____ O _____ Nat _____ Rel _____

Marital Status: M _____ S _____ D _____ W _____ No. in Household _____ Ages _____

Education: Highest grade attained _____

Employed at present: Yes _____ No _____ Full Time: Yes _____ No _____ Part-

time: Hr/da _____ Occupation _____

Duties _____

Were you able to work up to being diagnosed? Yes _____ No _____ If
no, how long? _____A. MEDICAL HISTORY

1. Age diagnosed _____ Known complications _____
2. Other members in family diabetic? Yes _____ No _____ How
related _____ Age _____ Age at onset _____
3. Other diseases _____
4. Surgery _____
5. How often do you check with your doctor? _____
6. Last date _____ Next date _____

Code _____

B. DIABETIC ROUTINE

1. What is it like to be a diabetic? _____

2. When was the last time you attended clinic classes? _____

3. Why did you return? _____
4. Was anything confusing to you? _____
5. Were you able to put this knowledge into practice? _____

C. DIET

1. How have you found measuring food difficult? _____

2. Have you been taught to use the exchange system?
Yes _____ No _____
3. Have you found this method easier? Yes _____ No _____ How? _____

4. How close do you keep to the family diet? _____
5. To prescribed diet? _____
6. If not, describe present diet _____
7. Can you eat your favorite food if calculated into
diet? Yes _____ No _____
8. Who prepares your food? _____
9. What do you do when you go out to eat? _____
10. On trips? _____

Code _____

D. INSULIN

1. Are you taking insulin at the present time? Yes _____
No _____ When _____
2. What kind?

NPH	U40	U80	Amt	Amt
Reg	U40	U80	Amt	Amt
Lente	U40	U80	Amt	Amt
Other	U40	U80	Amt	Amt
3. How were you taught to give insulin? _____
4. What part of the routine have you found difficult or distasteful? _____
5. Reading labels? _____
6. Filling syringes? _____
7. Rotating sites? _____
8. How do you care for the needle and syringe? _____
9. Use disposals? Yes ___ No ___ Sometimes ___ Just Needle ___
What length? _____
10. Boil: Yes ___ No ___ How remove? _____
11. Alcohol: Yes ___ No ___ How remove? _____
12. Have you found it difficult? Yes ___ No ___ How _____

E. ORAL MEDICATION

1. Are you taking oral medication? Yes ___ No ___ Name _____
Dosage _____
2. What time of day? _____ How do you understand this medication works in the body? _____

Code_____

F. URINE TESTING

1. How often do you do urine testing? Daily: 1x____2x____
3x____4x____Other_____
2. What method do you use? Clinitest?_____Testape?_____
Other_____
3. Have you found it difficult? Yes____No____Distasteful?
Yes____No____How?_____
4. Do you keep a written record?_____
5. What do you do if you are spilling sugar?_____
6. Do you test for acetone? Yes____No____Sometime_____
Tablet?_____Ketone st?_____
7. What does the reaction mean to you?_____
8. If insulin adjustment is necessary, what scale?_____
9. What type of insulin do you adjust?_____

G. FAMILY

1. How has your family accepted your disease?_____
2. How has this affected you?_____
3. Other diabetics have stated when family fails to give
needed support they sometimes neglect their routine.
Have you found that sometime you do this?
4. Yes____No____Tell me about it_____
5. Sometimes patients lose control when there is a painful
event. Have you found this in your life?
6. Yes____No____Occ____What do you do?_____

Code _____

7. Sometimes patients lose control when there is a joyful event. Have you found this in your life? Yes ___ No ___
What do you do? _____
8. Has any unusual occurrence happened in the past month?? _____
9. Three months? _____
10. Six months? _____
11. In the past year? _____

H. METABOLIC

1. Have you thought about what happens to the body during this time? _____
2. How insulin is utilized? _____
3. How hormones affect the body? _____
4. How leg ulcers and foot problems develop? _____

5. Eye problems develop? _____
6. What is the differences between insulin reaction and acidosis? _____
7. Frequency of insulin reactions? _____
Acidosis? _____
8. What accounts for when you get out of control? _____
9. How do you feel? _____
10. What do you do? _____

Code _____

I. ENVIRONMENT

1. Does knowing other diabetics give you support? Yes _____
No. _____ Explain _____
2. How do you think extending the clinic classes to the
community where you live would be beneficial? _____

a. (If answer tells about people in general, have
patient relate it to himself) _____

3. How can a nurse help? _____

4. How do you think a nurse can help diabetics to control
their disease? _____

APPENDIX C

Schedule of Recent Experiences Questionnaire

Code: SCHEDULE OF RECENT EXPERIENCES QUESTIONNAIRE
by Thomas H. Holmes, M.D.

<u>Life Event</u>	<u>Yes</u>	<u>No</u>
1. Death of Spouse	_____	_____
2. Divorce	_____	_____
3. Marital Separation	_____	_____
4. Jail Term	_____	_____
5. Death of Close Family Member	_____	_____
6. Personal Injury or Illness	_____	_____
7. Marriage	_____	_____
8. Fired at Work	_____	_____
9. Marital Reconciliation	_____	_____
10. Retirement	_____	_____
11. Change in Health of Family Member	_____	_____
12. Pregnancy	_____	_____
13. Sex Difficulties	_____	_____
14. Gain of New Family Member	_____	_____
15. Business Readjustment	_____	_____
16. Change in Financial State	_____	_____
17. Death of Close Friend	_____	_____
18. Change to Different Line of Work	_____	_____
19. Change in Number of Arguments with Spouse	_____	_____
20. Mortgage Over \$10,000	_____	_____
21. Foreclosure of Mortgage or Loan	_____	_____
22. Change in Responsibilities at Work	_____	_____
23. Son or Daughter Leaving Home	_____	_____
24. Trouble with In-Laws	_____	_____
25. Outstanding Personal Achievement	_____	_____
26. Wife Begin or Stop Work	_____	_____
27. Begin or End School	_____	_____
28. Change in Living Conditions	_____	_____
29. Revision of Personal Habits	_____	_____
30. Trouble with Boss	_____	_____
31. Change in Work Hours or Conditions	_____	_____
32. Change in Residence	_____	_____
33. Change in Schools	_____	_____
34. Change in Recreation	_____	_____
35. Change in Church Activities	_____	_____
36. Change in Social Activities	_____	_____
37. Mortgage or Loan Less than \$10,000	_____	_____
38. Change in Sleeping Habits	_____	_____
39. Change in Number of Family Get-Togethers	_____	_____
40. Change in Eating Habits	_____	_____
41. Vacation	_____	_____
42. Christmas	_____	_____
43. Minor Violations of the Law	_____	_____

APPENDIX D

Schedule of Recent Experiences Rating Scale

SCHEDULE OF RECENT EXPERIENCES RATING SCALE
by Thomas H. Holmes, M.D.

<u>Life Event</u>	<u>Value</u>
1. Death of spouse	100
2. Divorce	73
3. Marital separation	65
4. Jail term	63
5. Death of close family member	63
6. Personal injury or illness	53
7. Marriage	50
8. Fired at work	47
9. Marital reconciliation	45
10. Retirement	45
11. Change in health of family member	44
12. Pregnancy	40
13. Sex difficulties	39
14. Gain of new family member	39
15. Business adjustment	39
16. Change in financial state	38
17. Death of close friend	37
18. Change to different line of work	36
19. Change in number of arguments with spouse	35
20. Mortgage over \$10,000	31
21. Foreclosure of mortgage or loan	30
22. Change in responsibilities at work	29
23. Son or daughter leaving home	29
24. Trouble with in-laws	29
25. Outstanding personal achievement	28
26. Wife begin or stop work	26
27. Begin or end school	26
28. Change in living conditions	25
29. Revision of personal habits	24
30. Trouble with boss	23
31. Change in work hours or conditions	20
32. Change in residence	20
33. Change in schools	20
34. Change in recreation	19
35. Change in church activities	19
36. Change in social activities	18
37. Mortgage or loan less than \$10,000	17
38. Change in sleeping habits	16
39. Change in number of family get-togethers	15
40. Change in eating habits	15
41. Vacation	13
42. Christmas	12
43. Minor violations of the law	11

APPENDIX E

Verbatim Responses to Reactions to Having Diabetes,
Family and Community Involvement

B. 1. What is it like to be a diabetic?

The DC respondent's opinions represent indiscriminately their position and tolerance:

I don't feel any different. I am lucky.

I'm no different from normal except I watch what I eat. Food does not effect or limit me too much.

It's been so long since I was diagnosed, now an established way of life. My mother is most helpful to me to stay on prescribed diet.

A big change in regimentation. Before I ate more at night; now I feel healthier and have an improved understanding of medical problems and changes.

I don't mind, if I have to have something it might as well be diabetes for it is not fatal. It has taught me discipline and I've learned a great deal. I do better in balanced meals for the family.

Life is not much different than before. I've learned new things to take care of myself, but it has limited my activities.

I became accustomed to it.

It doesn't bother me any. I stay on my diet and keep regular hours.

I don't know. I have to be careful on certain diets, regulate meals, and not eat too many fats or sweets.

It's frustrating at times, but I'm proud at other times as I can do what everyone else does, except overeat.

It curtailed education in college. I seem to have accepted it.

I feel that I am living a normal life. Occasionally I get tired of taking shots then realize that I want to live.

It is always with you. My family helps me but I try to conceal it. It's best not to worry but if anything happens, I call the doctor.

It involves many restrictions that must be recognized and lived with. It held back my marriage as I felt it was unfair to ask someone to put up with the restrictions. It did make me withdraw more.

I have a fear of going out alone and no one to help me. People would stare and think I was intoxicated. So I try to do every thing on my own and not let people know.

The DN respondents answered with the following comments:

I've always been one and have no difficulty. I am also going to college.

I don't see much difference. I just have to be more careful of habits.

I have to eat certain things that I don't like. It is easier now as I can buy things that taste pretty good.

It's more restrictive.

It's not pleasant.

It has some handicaps. I haven't found any great disadvantages. It is hard for me to keep on my diet, eat on time, and take insulin.

Just restrictions on eating. Used to think I should not talk about it.

It's hard at times to stay on the routine.

I'm restricted to diet, and activities. My parents worry if I'll be able to get employment.

When under control, I'm as good as anybody; otherwise I'm weak. I am different from other diabetics because I no longer know when I am having a reaction except by the urine test.

A big old bore--inconvenient. It's like brushing your teeth, take for granted.

Not so good, I get weak and getting worse now. I can't see and had to quit driving.

It's hell. Nothing good. Means changing life pattern and style so much.

It's hell. Can be cured from T.B., but not from diabetes.

The story of my life. Constipated, get almost sick, diarrhea, weak; one week feel good then cycle re-starts. I worry about my job, the boss does not know I'm a diabetic.

G. 1. How has your family accepted your disease?

The responses give by the DC group in a general progression from positive to negative:

Very well. My mother prepares meals for the entire family, and no family activities are given up.

Very well, my family is encouraging and they plan meals I can eat.

My husband is very understanding. My step-son is a pharmacist and he also understands.

Very well by my wife, the children know I can't have candy or sweets but they do tease me.

My husband is very considerate. My mother and brother felt sorry for me.

Very well, hard on my mother at first but she has adjusted. My sister in some ways is ambiguous especially if causes inconvenience to her.

Very well after fifteen years.

Fine, no bad feelings although my mother never did get the hang of watching my diet. Now both of my parents worry if they will become diabetic.

Pretty good, my parents do not make a big deal out of it. It doesn't bother my husband either.

It was there before I had my family so we do not think about it, they are concerned when I do not feel well.

Seemingly OK, I had the disease before I had a family.

It's happened, nothing we can do about it; it's part of me now.

I do not know. They are well aware of my disease but do not give me special favors. What can my family do I can't do?

My husband pays no attention to my routine.

The responses given by the DN group:

My family help and pull for me all they can, my sister got a diabetic book to study.

Fine, they help me all they can.

Pretty good, my family keeps me on my toes. It was upsetting to my mother at first.

My father felt guilty bringing a diabetic child into the world and mother keeps hoping I will be under better control. My husband never holds it against me and is very helpful.

My family is very cooperative and sympathetic up to a point, but they continue to do things they know upset me.

My wife knew when I married her that I was a diabetic.

My wife does not like reactions.

My daughter cried when I was first diagnosed, she was a first year student nurse, but has accepted it now.

When my parents were living they kept me on my diet, now my sister and sister-in-law encourage me to "just once eat pie."

They are too over-protective.

They say nothing, I just have to live with it.

The family pays little attention to my disease. My husband's sister is an RN and she couldn't believe I had it, so there's nothing for them

to accept or reject.

They don't bother, so no use making an issue out of it.

My son and daughter never did understand why I was always tired.

We never talk about it, they knew I had it when I lived at home, but I'm too old now and I don't care any more.

G. 2. How has this (their acceptance) affected you?

The responses given by the DC group:

I'm glad they treat me like everybody else.

The whole family helps one another, it's natural.

Very well.

I'm glad they accepted it, at first my husband's mother was concerned.

I appreciate it.

A deep appreciation for my mother. I do not hold my sister's attitude against her, but I do have a close friend more thoughtful and considerate.

Would of been bad if I wasn't married, I have no tendency or temptation to take candy from the children.

Their attitude is accepted.

Makes it much easier to stay on my routine.

No way, I respond well to the routine as the disease must be taken care of and controlled.

It doesn't bother me.

I don't like having others so concerned about me and worry about my health.

I felt sorry for myself until I went to the clinic.

Doesn't affect me as I do not live with them now.

I get fed up taking shots then realize I want to live.

The responses given by the DN group:

Fine, I like their help.

The family helps me, I do not resent the interest-- a good idea.

I'm contented, everybody, even the children, accept it.

Occasionally I eat what I shouldn't.

My family's help keeps me from eating all that food and getting fat.

I mind my husband better than I did my parents.

I was diabetic when I got married.

They don't bother me. No use getting alarmed as diabetes same as cancer since neither can be cured.

I wish I didn't have it. I'm more casual about it now for it keeps me out of the draft.

Nothing I can do about it.

I felt pretty bad.

I don't like my parents always asking me if I took insulin, what did I eat.

Their attitude upsets me.

They never did understand.

I would rather not talk about it.

G. 3. & 4. Other diabetics have stated when family fails to give needed support they sometimes neglect their routine. Have you found that sometime you do this? If so, tell me about it. The following elaborations were made by those

who answered in the affirmative to this question.

The responses given by DC group:

I do better now that I do not live with my parents.

It would have to be something special. I always suffer or pay for it if I cheat on food.

Just knowing some dishes are prepared without knowledge of composition annoys and upsets me.

The responses given by DN group:

I don't eat, but my family is not responsible for my health.

I need my family's support but I cannot expect them to feel like I do, they will not adjust to me so I have to do like they do.

My mother got lax after my dad was diagnosed, he got off of his diet and I followed along.

Too protective, always asking if I took insulin, what did I eat.

I used diabetes to get back at my parents, just as much my fault.

If I get mad or upset I go off my diet (this subject answered negatively)

G. 5. & 6. Sometimes people lose control when there is a painful event. Have you found this in your life? If so, what do you do? There were 12 in both groups who answered affirmatively.

The DC responses pertaining to what they did about it follows:

I try to stay on my routine.

Usually nothing, I try to improve my attitude.

I check urine more often, increase insulin if necessary, and contact the doctor if advisable.

Sometimes I do not get enough rest so I will do a urine test and try to get sugar under control. I may have to consult the doctor.

Depends upon severity, I may need to increase insulin.

I get upset but take insulin.

My routine may be off, that is my hours of eating and rest then I omit urine testing, but I will take insulin.

I get upset but I will still take insulin. If I cannot eat I will go on a liquid diet.

I felt sorry for myself and ate less but always took insulin.

It affects my nerves. I don't know if it causes a reaction.

I tend to cheat. I tend to eat more plus sweets.

Nothing. When my father died I knew I was more emotional.

The responses that the DN group did about it follows:

I keep my guard up and don't let it bother me for I would be in real trouble if I did.

I try not to neglect myself.

Nothing, I stick to the same routine.

I increase insulin and call the doctor.

I might slip upon my routine but not really lose control.

I don't eat right or keep up with insulin.

I don't eat enough, then I have a reaction.

I may not eat enough and forget to take insulin.

I usually have a reaction and go to bed.

I overeat.

I cry, this keeps my blood sugar going up and down.

Unhappiness can affect you very much, I've been punished by being very ill.

G. 7. Sometimes people lose control when there is a joyful event, have you found this in your life? Eight out of 15 DC subjects and 11 out of 15 DN subjects admitted this did happen to them.

Those in the DC group answered with the following comments:

I try to stay on my routine.

I increase my insulin to counteract it.

I still have to take care of myself.

My heart beats faster, but I never forget insulin or overeat.

I just increase my insulin.

I may overeat.

I have a tendency to eat more.

I'm more apt to have a reaction as I do not need as much insulin.

Those in the DN group answered with these remarks:

There is absolutely no temptation (this subject answered yes to losing control during a joyful event).

I don't eat but I try not to neglect myself.

I stay right on my diet but my feelings make me spill up to 4+ sugar.

I'm apt to overeat but I never neglect taking insulin.

I eat more.

I go off my diet.

I overeat.

I get overtired.

I overeat and forget to take insulin.

Why bother?

I forget I'm diabetic and want to be accepted and do as others do but my body wouldn't let me. I need orange juice handy as competing with the world and have to figure out how to keep up.

H. 8. What accounts for loss of control?

The responses given by DC group:

Maybe more activity, illness, or tension.

Illness.

Emotional upset, surgery, separation from my husband until he found a job.

Illness, injury, emotional upsets, tension, or not watching my diet.

Change jobs.

Not watching my diet.

I don't feel good so I do not eat.

Upset nerves, cold, flu.

Moved here from California and changed schools, change in mental attitude, and not enough exercise.

Emotional upset, if lax in measuring food I overeat.

I overwork and get tired then I do not eat on time.

Change in eating habits or a stress factor.

Illness.

Illness or inactivity, I think I'm brittle.

I get mad or tired of taking shots.

The responses given by DN group:

Not enough insulin or my feelings make me spill.

Emotional upsets; flu or infection, eating out too often.

Flu, get overtired or not eating regularly.

Emotional upsets or overeat.

Cold or concern over my business.

Emotional upsets or lose interest in taking care of myself.

Illness, emotional upsets or overeat.

Not eating on time.

Overeating or overactivity.

Illness, sweets.

Just anticipating something I want to do, irregularity of hours or exercise, forget to eat.

Emotions, not paying attention to my diet.

Flu, not eating enough for the amount of insulin I've taken.

Illness, overeat or forget to take insulin.

Worry about my son's drinking, bills to pay, house needs repairing, and it's scary to me that my grandson is graduating and planning a trip to Europe.

H. 9. What is it like to be out of control?

The responses given by DC group in a general order of lesser symptoms to more complicated symptoms:

Usually find as I get out and do more to control reactions.

Overtired.

Usually sluggish.

Sleepy.

Sleepy and tired.

Depressed as trying so hard to stay stable.

Sick.

Sick, tired, can't wait to go to bed.

No different than anyone else with virus infection.

Sick, shaky and nervous.

Weak, thirsty and tired.

Perspire and can't stop what I'm doing to prevent a reaction.

Shaky, tongue numb, confused and violent--fighting and not wanting to be helped.

Terrible, I couldn't eat or stand up and I was afraid I was going to die.

Never felt any difference.

The responses given by DN group:

Feel more tired.

Sleepy.

Nervous.

Weak.

Shaky and nervous.

Feel drowsy, an effort to move or do anything.

Bad, I want to cry.

I do not feel good or have any energy, and my tongue is dry.

My mouth gets numb.

Thirsty, increased desire to urinate, can't sleep.

Weak, jittery, perspire, blurry vision.

Nausea and vomiting, dizziness.

Shaky then may pass out.

Like I'm drunk.

No feeling, my wife knows by my eyes and facial expression.

H. 10. What do you do when out of control?

The responses given by DC group in a general progression of confidence shown in managing their disease:

I check my diet, never call the doctor.

I eat more at night because that is the common time for me to have a reaction.

I try to get extra rest.

I increase food, insulin dosage and rest.

I take more insulin if urine test 4+.

I do urine test, raise insulin dosage or call the doctor.

I increase my insulin dosage.

I increase insulin dosage and activity.

I adjust insulin dosage before calling the doctor.

I take some orange juice with sugar, then rest.

I take sugar cubes.

I took insulin and called the doctor after realizing how foolish I was.

I increase my insulin dosage one unit usually under doctor's orders.

Go to the doctor.

Go to bed.

The responses given by DN group:

I'm more careful with my diet.

I eat half a sandwich, peanuts or bread. Very

seldom do I take sugar cubes.

I eat some food but no candy unless desperate as candy hurts my stomach.

I check my diet, change insulin dosage.

I drink more, increase insulin.

I eat candy then drink milk.

I eat candy, increase insulin if spilling sugar.

I eat candy or pie, if no relief I will drink a glass of milk then a sandwich. Maybe reactions are a blessing, that way I get some dessert.

I increase my insulin (Four subjects gave this answer).

I eat or drink something, then call the doctor if spilling sugar.

I eat sugar, candy or orange juice. If this does not help, I take a shot of glycogen or go to the hospital.

I go to bed and call the doctor for I'm insulin sensitive.

I. 1. Does knowing other diabetics give you support, and if so, explain.

Five DC and two DN gave positive responses. The DC responses, both positive and negative, were as follows:

Yes, during course of treatment I saw how others handled their problems. This helped me think of different ways to solve my problems.

Yes, when first diagnosed I liked to be around other diabetics to compare notes.

Yes, we have the same problems and are a mixture of ages.

Yes, I have a friend who calls me and we exchange cards.

Yes, but it doesn't excite me as I feel I'm in a minority group.

No, perhaps it would if I knew any.

No, I know several diabetics but they do not know I know they are diabetic. I would like to belong to an organization to help with research in diabetes.

No, I am not intimately acquainted with one to compare notes.

No, when my friend was living, we gave both support.

No, but talking with other diabetics made me see I could live a normal life.

No, I know one my age and I guess I give her support.

No, I do not know any personally.

No, I have yet to find a diabetic in control. Those I know are weak and cheat on their routine.

No, a lady in the hospital was worse off than me. A lot of people will not admit they are diabetic.

No, it would just be another person that has to do annoying things to himself to keep in existence. I do know one person and it is interesting to hear how he controls himself.

The DN responses were:

Yes, I belonged to the Diabetes Association when it was in existence. I like to know how other diabetics are getting along.

Yes, but only when I was in the hospital.

No, I get all the support I need from my doctor. I would like to help other diabetics but I don't know enough about the disease so I warn them to see their doctor.

No, I don't need support, just need to watch myself.

No, the kids at school do not want anyone to know they are diabetic or be bugged about it.

No, they may be worse off than me, so would be of no help.

No, I had diabetes two weeks before my husband but no support.

No, I do not know any except my father and an uncle by marriage.

No, my daughter is diabetic and it's no easier when she is home for the summer from school.

No, my housekeeper is a diabetic and she does not understand the disease herself.

No, they know I have it and I know they do but we never talk about it.

No, the diabetics I've known have died.

No. (Three subjects did not elaborate.)

I. 2. How do you think extending the clinic classes to the community where you live would be beneficial?

The DC group comments were as follows:

Very much, too many general practitioners do not specialize in diabetes.

Very good, I'm the type of person who would not go to the doctor unless I had an appointment.

It would refresh my memory and be instruction for others, especially teachers who need to know more about diabetes.

It would encourage people to want to go to find out more about the disease, especially if they have relatives or friends who are diabetic.

I tend to get rusty, a neighborhood clinic would keep me up on new things.

More people would get good care.

Educational facilities are always a convenience.

It would help new diabetics and educate members of the community.

It would be good for new diabetics.

Don't know, should be appreciated as many diabetics live in this area who go to regular doctors and regular doctors do not know what to do.

It would depend upon the number of people who are diabetic in the community.

It would depend upon how many diabetics there are on this side of town.

Only diabetics who are interested would attend. Others do not want anyone to know that they are diabetic.

Can't say, it would be up to the individual's doctor if they attended.

They would have a hard time staffing and funding. It would not pay off.

The DN group responded thusly:

It would be very beneficial for children and senior adults to solve their problems so would be accepted as intelligent normal people.

Other people besides diabetics could attend.

Would be wonderful but people are not interested if it does not affect them personally.

Fine, if one lives far away but he should stick to his own doctor and his teaching unless agrees with the teaching done at the clinic.

I know people that should go.

It would be for new diabetics.

It would give people information on diabetes.

It wouldn't hurt, many of my friends ask questions so if people are interested they will attend.

It would be closer for help, if needed.

I don't know anybody around here.

I think most people would go to their own doctor to find out what they wanted to know.

Don't know.

The clinic is centered here.

People would not go.

It would be of no use for people would not go.

I. 2a. How would the clinic be beneficial to you?

The DC group answered in this way:

I would attend as I always learn something new.

It would keep me up on the latest discoveries. I would take more interest in my routine if I knew what would happen if and when I ignored it.

It would be closer for me and more convenient since I do not remember what hours supplies can be obtained.

It would be beneficial for me as a refresher course and to meet other diabetics.

I would keep up with the latest developments and have more confidence in caring for myself. You never get rid of diabetes so you must make the best of it.

I like to see how others have handled their problem then I watch myself more carefully.

It wouldn't be so far to travel.

I wouldn't go unless they had new topics to discuss.

I probably would not go unless they had new developments that I needed instruction in.

I could not walk to get there.

I don't feel any particular need to go, but it would be easier to get my wife to go.

I don't need further instruction, after a while I do not want to hear any more, besides I could call my doctor if I have any problems.

I've kept control.

Classes are for beginners as doctors seem to memorize their lectures.

It would not help me as I only live six minutes away from the clinic now.

The DN responses were:

Maybe I should go back to learn new angles about the care of diabetes.

Transportation is not a problem but I would attend to see what was going on.

I would go to meet other diabetics and to learn the latest about diabetes.

It would be helpful if the hours were convenient for both my wife and I to go together.

I would go more often.

It would be a refresher course, but it would not be a priority for me.

I don't know.

It is hard for me to travel.

I'm near the clinic now.

I would stay with my own doctor.

I would not attend as I am informed. My family would not go either and they need the knowledge to learn how to prevent it.

It would not be helpful to me as I'm near to my doctor. The only difficulty I have is getting an appointment.

I couldn't ask my husband to take time off from work to take me, besides it's not that important.

I do not want others to know I'm diabetic. I should be treated as a special problem as I need a tool to live and if you mix the two groups, I would be bored.

I would not be interested in going as it would be only a rehash about diabetes.

I. 3. How can a nurse help?

The DC group gave the following answers:

It would be nice to have one in the neighborhood to help if I got sick.

The nurse should be a morale builder. She should explain the disease is not unusual or fatal as they can live normal lives and have a variety of diets.

She could give encouragement, be somebody to talk to.

She could give guidance, then it would not be necessary to bother the doctor unless the problem was serious.

Only if I ran into trouble with gangrene or something like that would they be able to help me.

Not too much, when I was in the hospital the nurses wished they knew more about diabetes.

I'm surprised nurses do not know more about diabetes especially injection technique. With more education they could instruct teachers in how to handle students.

I don't know, she may be more encouraging to help keep myself under control.

I don't know, my sister and sister-in-law are nurses and give me injections occasionally.

I don't know.

I don't have weighs for all foods so she could help there.

In my case, I have kept control.

I have close contact with my doctor.

I don't think I need help, if I do I can call my doctor.

I don't need any help.

The following responses were given by the DN group:

A nurse could help by answering questions. It's a comfort to know someone is trying to help you.

She could help by understanding what to do.

A nurse helps by showing interest.

I don't know unless she could come when you are ill.

She would not get here in time to give me my shot so what could she do?

I don't know unless she could of given me my shots when my husband was ill.

Not unless she knew enough to change me over to pills and calculate my diet when husband is out of town.

I do not need any help, I can call the doctor if I need to.

The nurse cannot cover the depth of disease like the doctor can.

I don't think a nurse could help me.

I don't know.

I was desperate when I first came home from the hospital. She can't help me read labels.

The nurse could help me by treating me like a special problem.

She would be no help to me unless she knew newer methods than I know about taking care of myself.

They could not help me as most nurses do not know very much about diabetes.

I. 4. How do you think a nurse could help diabetics control their disease?

Those in the DC group answered with the following comments:

There is no substitute for understanding, thorough teaching is important.

She could help by just giving encouragement, someone the diabetic can trust.

She could help with diets and answer questions to relieve the doctor.

By helping the patients with their problems and keeping supplies for those that need them.

The school nurse could help the diabetic students if they would let her.

The nurse could do more teaching, hold classes and help the doctor in the clinic.

A nurse can explain the reasons for out of control.

The new diabetic needs help at first, as it is very important to be assured you will be OK and can live with it.

People are frightened of being a diabetic so she must first get them to acknowledge they are diabetic.

I don't know, maybe detect diabetes while caring for patients in general then instruct them in diets, etc.

I don't know any diabetics personally for a nurse to help.

In a remote section of the state she could help if she knew the symptoms. Most nurses in a community hospital are ignorant of the symptoms and proper techniques of injections.

The nurse goes along with the doctor.

The DN remarks were as follows:

That's hard to answer. In the hospital some nurses are so happy and kind.

They can help by handling common sense problems without bothering the doctor.

They should talk to the family to help them understand the disease, arrange for the family to carry out detection and preventive measures. This could relieve the anxiety of the family member who is diabetic.

By just talking and teaching, but she cannot make you stay on your diet.

It may be easier to get to a nurse for help.

People need encouragement and information as to 'why' of diet, not a rule to obey.

The nurse can help the most by accepting diabetics as intelligent normal people and realizing some need to be treated as special problems.

By helping them when they first come home from the hospital.

By keeping closer contact as they have influence with diabetics to help them follow instructions, also they can foresee trends and stop same before it develops into something serious.

By giving knowledge and consequences, for the diabetic could die if not properly instructed.

By explaining to the diabetic the importance of regularity in routine.

I really don't know, everybody's problem is different.

I don't know.

She can help the most by going to diabetic school.

Nurses as a whole do not understand diabetes, so it's really up to the individual. They would be more helpful if they did.

AN ABSTRACT OF THE THESIS OF

GENEVIEVE V. METZGER

for the Master of Science in Nursing Education

Date of receiving this degree: June 9, 1972

Title: A FOLLOW UP STUDY OF THE DIABETIC REGIMEN
AND LIFE EVENTS OF FIFTEEN DIABETIC SUBJECTS IN CONTROL
AND FIFTEEN DIABETIC SUBJECTS OUT OF CONTROL

APPROVED:

May Rawlinson, Ph.D., Assistant Professor, Thesis Adviser

ABSTRACT

This was a follow up descriptive study of the diabetic regimen and life events that require change in adjustment to determine what happens when diabetic patients return home after receiving complete instructions on how to control the disease and its effects, that results in loss of control and development of complications.

Magnitude of change as defined by Holmes (1967) is any cluster of events or occurrences which alter the life adjustment. Complete instruction was defined as attendance of a series of diabetic classes with opportunity to demonstrate knowledge and skill obtained. Diabetic control (DC) and diabetic non-control (DN) was defined according to the clinical judgment of the patients' physicians and the Keiding (1965) diabetes standard of control.

An interviewing guide was originated by the writer that documented information on demographic and factors associated with life events and illness, and the Schedule of Recent Experiences Questionnaire (SRE) (Holmes, 1967) was used to gather data from 15 DC and 15 DN subjects in their home environment. The SRE Rating Scale (Holmes, 1967) was used to measure the amount of change required for adjustment.

The data collected by the interview guide were arrayed in tables. The median test was used to determine if there was a significant difference between the two groups and the

t test was employed to find out if there was a significant difference in the mean scores between the DC and DN groups. The difference between the two groups was significant ($X^2=4.80$, $p.<.05$), which shows the DC group came from a younger population.

The life change unit scores determined by the SRE rating scale for each subject was tabled. The t test was applied. The difference between the means, 1 df, was not significant with a t score of .71. The Median test was applied which was not significant ($X^2=.21$, $p.<.05$). Each item value was tabled with its frequency, the mean found and the t test applied. The difference between the means, with 1 df, was not significant with a t score of .28. The values of each item showed the data according to an accumulated percentage scale.

The findings showed no difference between the two groups in utilization of information received at the clinic as reported to the interviewer in the course of a home visit and magnitude of life events requiring change to a person's adjustment associated with being in control or out of control.

There did seem to be some differences between the two groups in the following areas: in utilizing knowledge; in recognition of and in number of complications, and in adjusting insulin accordingly; in making and keeping regular doctor appointments; in compensating for diet irregularity;

in adjusting to the diabetic regimen with or without family support and in daily life events.

Limitations of the study included the small size of the sample, the selection of subjects from a certain segment of society (with no attempt made to evaluate the previous life events of one year); the uncontrolled variable pertaining to the timing of the interview, the presence of family members to influence responses; and that definition of control or non-control as a clinical judgment varies from practitioner to practitioner and is a subjective evaluation.

