A STUDY OF RESPONSES GIVEN BY KNOWN

DIABETICS IN AN OUTPATIENT CLINIC

TO QUESTIONS ABOUT DIABETES MELLITUS

by
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INTRODUCTION

Introduction to the Problem

The American Diabetes Association estimates that 4, 200, 000

people in the United States have the chronic disease, diabetes mellitus.

Another 1, 600, 000 undiagnosed diabetics and 5, 600, 000 potential

diabetics are thought to exist. (2) The patient with diabetes mellitus

needs long term medical care and adequate education to carry out the

prescribed program of medical care. The provision of this long term

medical care and adequate medical education in medical centers caring

for large numbers of diabetic patients can be a major problem. The

following describes one such west coast medical center and its pro-

gram for the care and education of patients with diabetes mellitus.

Care for the adult patients with diabetes mellitus in this univer-

sity medical center is segmented. Outpatients may be seen in the

specialized diabetes clinic or in one of the many medicine clinics

which are held throughout each week. All of the clinics are staffed

by residents and faculty supervised student physicians. Nursing care

given each patient is minimal and tends to be administrative in nature.

One class for diabetic patients is held each week during diabetes clinic.

This is a half hour lecture given by a clinic nurse and covers a variety of topics including insulin administration, urine testing, special care needs, or general rules of good health. There is no planned sequence of lecture topics so that the patients may or may not hear all lectures over a given period of time.

A patient when hospitalized may be placed in the county hospital within the medical complex or in the state operated medical school hospital. Patients are examined and treated by residents, interns and supervised medical students who are assigned to general services such as medicine, surgery or obstetrics. Specialized care regarding diabetes is obtained through consultation with the endocrine resident, a second or third year medical resident who covers the endocrine service for two months. This consultation is not mandatory but is generally sought when residents and interns are unable to maintain near normal blood sugar levels and reduce symptoms of the diabetic patients. Teaching needs (i.e., diet instruction, insulin administration, etc.) are rarely considered until the last day or days of hospitalization. Diet instruction of hospitalized patients is given by the outpatient clinic dietitian and is usually given on the day of discharge after the physician has ordered the discharge diet. Menus from which foods may be selected are not available in either hospital and routine evaluation of diet knowledge is not made by dietary staff.

Emerging from this setting is the problem for study. Do the

patients in this setting have sufficient knowledge of their disease and its management to carry out their prescribed program of medical care? What are some of the factors related to the acquisition of this knowledge?

Purpose of the Study

The purpose of this study was to describe patient responses to questions about diabetes mellitus as obtained by use of a prepared set of questions asked of known diabetics in two outpatient clinics of this medical center. Because of previous experience working with diabetics, the researcher believed that the following factors were related to patient scores on the interview guide: age, sex, clinic attended, education level, type of medication taken for diabetes, whether over weight or not, and duration of diabetes.

Limitations

This study was limited in the following ways:

1. Data can be related only to the population examined since randomization of the population was not possible.

2. Data were obtained from medication (insulin or oral hypoglycemic agent) dependent adult diabetic patients who were free from physical or mental illness which would impair ability to answer questions.

3. Data were obtained by use of the study tool.

Assumptions

For the purpose of this study the following assumptions were made:

1. Basic knowledge of diabetes aids the patients in implementing the therapy program prescribed.

2. Urine testing technique demonstrated by the patient was representative of technique used at home.

Definitions

The following definitions apply to terms used in this study:

1. Duration of diabetes - The length of time the patient has had diabetes as he reports it.

2. Ideal Weight - Ideal weight values as found in the Metropolitan Life Insurance tables.

3. Over weight - 10-20 per cent above ideal weight. (13)

4. Obesity - 20 per cent or more over ideal weight. (13)

5. Educational level - The number of years of education as reported by the patient.

6. Medication dependent diabetic - A patient receiving an oral hypoglycemic agent or insulin to control blood glucose levels.

Review of the Literature

At present diabetes is not a curable disease. A diabetic patient needs knowledge of the disease and its management in order to carry out the medical regimen prescribed by his physician. The acute complications of hypoglycemia and acidosis are preventable and some authorities state that control of blood glucose levels within normal physiological limits tends to eliminate or decrease the occurrence of many long term complications.(8, 10, 18)

Physicians prominent in the treatment of patients with diabetes emphasize the importance of patient education.

Joslin (9) stated:

It is perfectly true that diabetes is a chronic disease. The important item is that it is susceptible to treatment. Effective treatment, however, rests in the hands of the patient. . . . There is no disease in which an understanding by the patient of the methods of treatment avails as much.

Doldger (5) reported:

The diabetic should know everything that can be known about his ailment, its history, nature, how it develops, the problems it creates, and how it is treated. He should be able to distinguish medical fact from popular fancy, prejudice from sound practice. Knowing these things, he will be better able to cope with his disease every day of his life.

Rosenthal (15) stated:

The successful treatment of diabetes depends for the most part upon complete co-operation between the

patient and the physician. Such co-operation can be
achieved only when the patient is equipped with suffi-
cient knowledge of the disease and its management.

A number of studies indicate that patients and families are not

adequately informed regarding diabetes and its associated care.

Beaser (4) reported the results of a questionnaire on diabetes given

to 128 adult diabetics. He showed that all were distinctly deficient in

knowledge of their disease. Stone (17) analyzed factors identified in

126 diabetic patients who had not achieved control of their disease.

He found that 83 were ignorant of the reasons for their diabetic regi-

men and established that only four of these appeared unable to learn.

Etzwiler (7) in studying the understanding of juvenile diabetics and

their parents found that most of the children before the age of 12 did

not comprehend even the rudimentary principles of their disease.

Fifty per cent of the 12 to 17 year olds did not know that the presence

of acetone in the urine of the diabetic was an indication of serious

trouble. When parents were tested 40 per cent of the mothers and 26

per cent of the fathers could answer 14 out of 15 fundamental questions

correctly.

Nickerson (12) found that hospitalized patients with diabetes

lacked even the most fundamental knowledge of the care required for

their disease. Only 5 of 74 patients were able to demonstrate correct

procedures for testing urine. The average score on the pretest was

17.4 of a possible 41 points.

Williams, Martin, Hogan, Watkins, and Ellis (19) in a study of diabetics in four clinical settings found that knowledge and performance of recommended therapy were related. They also found that well directed continuing support of the patient may be just as important to disease control as teaching per se. They stated that supportive care can be provided by a continued nurse patient relationship such as that offered by the public health nurse. They also found that the patient who had diabetes longer was more likely to administer insulin incorrectly. On the basis of these findings, they stated that in addition to teaching, periodic review of information was needed.

The most effective instruction method for a patient with a chronic illness has not been established. Physicians generally see their role as diagnosis and treatment. In contrast, the primary role of the nurse lies in the care process, expressive in nature, and consisting of caring, helping, comforting and guiding. Neither physician nor nurse has exclusive domain for patient education. Both attempt to meet patient psychological needs. (3)

Individual leaders in nursing see patient teaching as an important aspect of patient care. Abdellah (1) described nursing care as helping restore self-help ability. Lambertsen (11) defined nursing as a dynamic, therapeutic, and educative process and described the nurse as assisting the patient and his family in a therapeutic-educative relationship.

Redman (14) defines teaching as, "communication especially structured and sequenced to produce learning, " and she sees all nurse-patient interaction as contributing to the process of adaptation. She has found that patient teaching has been practiced irregularly. She suggested that patient education would improve if the nurse was helped to accept her teaching role.

It is apparent from the literature that education of the diabetic patient about his disease is lacking. Nurses with adequte preparation acting within the flexibility of the new nursing roles may be able to provide the necessary guidance and teaching for patients with diabetes mellitus.

The purpose of this study is to describe patient responses to questions about diabetes mellitus. The descriptive data gathered from this study may then be used to identify present knowledge and to plan for a patient education program which meets patient needs.

CHAPTER II

PROCEDURE OF THE STUDY

The study was descriptive in nature. The following section
relates the procedures used in planning, implementing and analyzing
the study.

The source of data was patient answers to questions asked on a
guided interview. The interview guide used was modified from a pre-
test developed by Mrs. Donna Nickerson, R.N. in the diabetes educa-
tion program at the University of Florida Department of Medicine.
Permission for use of this study tool was granted (Appendix A).
Because of previous experience working with diabetics, the researcher
believed that this series of questions covered areas which were repre-
sentative of the knowledge required to carry out prescribed therapy
and avoid acute problems.

The interview questions used were two option answer with
unstructured option in some instances. There was a total of 41 ques-
tions. The last four were open ended and asked for information about
the patients and their needs. These questions were tabulated and
reported separately from the total score. The guided interview and
key are found in Appendices B and C.

To evaluate the interview guide as an information gathering tool,

it was presented and discussed in a research seminar by a group of 8 graduate nursing students. The guide was also administered to four patients. The original interview guide was modified in the following ways.

1) The order was changed to avoid presenting a very difficult question first.

2) Consecutive numbers were used to facilitate scoring.

3) The wording of some questions were altered to test more basic principles and to facilitate understanding by patients in this clinical setting.

4) The questions or parts of questions not pertinent to our patient population were eliminated.

The interview guide consists of a demographic data page followed by the questions. The questions of the interview guide were placed in categories according to subject tested. Table 1 contains the category titles and the numbers of the questions in each category.

Table 1. Interview Guide Categories and Questions in Each Category.

Category	Question Numbers
Diet	3, 4, 5, 6, 11
Drugs	8, 9, 10, 12
Urine Testing	23, 24, 26, 27
Complications	15, 18, 28, 29, 30, 35, 37
Daily Care	16, 17, 19, 20, 21, 22, 36
Physiology	1, 2, 7, 13, 14, 25, 31, 32, 33, 34

Twenty of the patients were present for appointments in medicine clinic and 20 were present for appointments in diabetes clinic. Ten patients in each clinic were taking oral hypoglycemic agents and 10 were taking insulin at the time of data collection. Criteria for selection of subjects included the following: 1) able to understand spoken English, 2) able to distinguish colors, 3) previously unknown to the researcher, 4) free from physical and emotional illness which would impair ability to answer questions, 5) willing to participate and able to give written consent, and 6) attended either diabetes clinic or medicine clinic. Subjects in the study included all who met the criteria and were present on the days of data collection.

Subjects were told that the researcher was a clinic nurse and that the purpose of the study was to provide improved instruction and care for diabetic patients. Each subject was asked to sign the study participation agreement which the patient read or the researcher read to the patient. A copy of this agreement is found in Appendix D.

The demographic data were collected and all questions were read to the subjects. Answers were recorded verbatim. Patients were told that the researcher could not answer questions during the interview but would be glad to answer questions at the end of the interview. In order to use uniform techniques, questions were repeated for patients but were not explained and answers given by patients were not clarified by the researcher by use of further questioning. All

patients were interviewed in examining rooms away from other patients and staff.

Following the interview each patient was asked to demonstrate a urine test for sugar using the method he used at home. Testape made by Lilly Drug Company was used for those patients who used this method at home. Materials for the other methods of testing were provided by the Ames Company. Because of limited facilities, those patients who used Benedict's method for testing were asked to describe their home testing rather than demonstrate their technique. The scoring guide for the various urine tests appears in Appendix E. This guide was provided by Mrs. Donna Nickerson. Appendix F contains a scoring guide compiled by the researcher for use with patients using Benedict's method of testing.

At the completion of the interview correct urine testing was demonstrated by the researcher and if the patient desired, incorrect answers were discussed with correct information given.

The answers given by the subjects were scored by the researcher and by two registered nurses who served as judges. One nurse teaches a weekly series of classes for diabetics in a local private hospital. The other nurse was the clinic nurse for the diabetes clinic. Both have had special preparation and extensive experience working with diabetic patients.

The patient names and the clinic attended were unknown to the

judges. The judges scored all answers to a particular question at one time to promote uniform scoring. Correct responses were given one point. If a response was partially correct and partially incorrect a score of 0.5 was given to the question. No points were given for incorrect answers. When there was not full agreement among the judges, the majority opinion was accepted.

The interview guides, scoring sheets and key for the interview guide were given to the judges. The following written directions were given to each judge.

1. Scoring -

    1 point for a correct response

    0 for a totally incorrect response

    0.5 for a response that is partially correct and partially incorrect

2. Score all items except numbers 10, 23, 24, 27, 38-41.

3. If you are in doubt about an answer score it but make a comment about why you are in doubt in the comment column on the scoring sheet. Do not expect exact wording. When the patient is essentially correct, give credit.

4. Score all responses to one question before moving to the next to promote uniform scoring.

5. Score all answers for number 26 even though it applies only to those taking insulin.

Scores from all three judges were marked on a master data sheet. Scores were then checked for agreement between judges and recorded on a second data sheet. Total scores and subgroup scores were then calculated. A copy of the score sheet is included in Appendix G.

An analysis of the data included the following steps:

1. Tabulation of demographic data to describe the subjects and to identify groupings according to age, education, sex, duration, etc.

2. Translation of scores into percentage form.

3. Determination of mean, median and mode and the frequency distribution for total scores for all subjects.

4. Analysis of total score using chi-square to test for significant difference between median scores of groups according to clinic attended, drug therapy, sex, age, duration of illness and education.

5. Determination of median score of patients for each sub-category of questions.

The answers which were not given numerical scores were reported separately.

Interjudge agreement for correct answers was calculated and reported for each individual question and for the total number of questions.

The discussion of the findings, conclusions and recommendations are included in the final section, Chapter IV.

CHAPTER III

RESULTS

This study describes patient knowledge of diabetes mellitus as identified by a prepared set of questions read to known diabetics in two clinical areas of an outpatient clinic. The study population consisted of 40 patients interviewed by the researcher during their routine clinic visits.

Description of the Sample

The sample consisted of 40 patients. Twenty were interviewed in medicine clinic and 20 in diabetes clinic. Ten patients in each clinical area were taking oral hypoglycemic agents and ten were taking insulin at the time they were interviewed. Criteria for selection of patients were as listed in Chapter II page 11. Patients in the study included all those who met the criteria and were present for clinic on the days during which data were collected.

The average age for all patients was 57.9 years with a range of 22 to 79 years. Refer to Table 2 for age distribution.

Table 2. Frequency Distribution of Respondents by Age, Clinic Attended, and Drug Therapy

Clinic Attended/Drug	Age Range (Years)						
	20-29	30-39	40-49	50-59	60-69	70-79	Total
Medicine Clinic/Oral Agent	0	0	2	4	2	2	10
Medicine Clinic/Insulin	1	0	1	1	4	3	10
Diabetes Clinic/Oral Agent	0	0	1	4	5	0	10
Diabetes Clinic/Insulin	1	0	2	4	2	1	10
Totals	2	0	6	13	13	6	40

Of the 40 patients in the study, 25 per cent (N = 10) were male and 75 per cent (N = 30) were female. See Table 3.

Table 3. Distribution of Respondents by Sex, Clinic Attended and Drug Therapy.

Clinic	Oral Agent		Insulin		Totals	
Medicine Clinic	Males	0	Males	2	Males	2
	Females	10	Females	8	Females	18
Diabetes Clinic	Males	6	Males	2	Males	8
	Females	4	Females	8	Females	12
Totals	Males	6	Males	4	Males	10
	Females	14	Females	16	Females	30

The range of education in number of years reported by the subjects was 0 to 14 years. The mean number of years was 9.5 years for the total group. Education level for the clinic attended groups

and drug therapy groups is tabulated in Table 4.

Table 4. Distribution of Respondents by Years of Educational
Preparation, Clinic Attended, and Current Drug Therapy.

Clinic Attended/Drug Therapy	Mean (Years)	Range (Years)
Medicine Clinic/Oral Agents	10.25	5-14
Medicine Clinic/Insulin	9.45	3-14
Diabetes Clinic/Oral Agents	9.40	5-12
Diabetes Clinic/Insulin	8.55	0-12.5

The duration of illness was tabulated for the total group and sub-
groups. The range for the total group was 1 month to 36 years. The
mean for all 40 patients was 9.8 years and the median was 7.5 years.
See Table 5 for data regarding subgroup means and ranges.

Table 5. Mean and Range of Duration of Disease of Two Subgroups
by Clinic Attended and Drug Therapy.

Clinic Attended/Drug	Mean (Years)	Range (Years)
Medicine Clinic/Oral Agents	2-10	4.6
Medicine Clinic/Insulin	5-36	16.7
Diabetes Clinic/Oral Agents	0.5-19	7.85
Diabetes Clinic/Insulin	0.08-18	9.4

A summary of information regarding weight of the subjects indicates that 3 were within normal range, 2 were under weight, and 35 were over weight. Eight of the 35 were over ideal body weight and 27 were obese. See Table 6 for the distribution by weight of the respondents separated into clinic attended and drug therapy sub-groups.

Table 6. Distribution of Respondents by Weight, Clinic Attended and Drug Therapy.

Clinic Attended/Drug	Under Weight	Normal	Over Weight	Obese
Medicine/Oral Agents	0	2	2	6
Medicine/Insulin	0	0	4	6
Diabetes/Oral	0	1	0	9
Diabetes/Insulin	2	0	2	6
Totals	4	3	8	27

Of the 40 patients 2 had juvenile onset diabetes (i.e. onset of the disease before the age of 15 years). One was seen in each clinic. Thirty-eight had maturity onset diabetes (i.e. onset after the age of 15 years).

Twenty of the patients were treated with one or a combination of insulins. Twenty of the patients were treated with oral agents to control hyperglycemia. The distribution according to type of drug

used and the number of patients receiving each type is listed in

Table 7.

Table 7. Distribution of Respondents by Drug Therapy and Clinic
Attended.

Drug	Medicine Clinic	Diabetes Clinic	Totals
NPH Insulin	1	5	6
NPH and Regular Insulin	8	2	10
Lente Insulin	1	2	3
Ultra Lente and Regular Insulin	0	1	1
Tolbutamide (Orinase)	3	5	8
Tolazamide (Tolinase)	1	0	1
Chloropropamide (Diabinese)	4	2	6
Phenformin HCL (DBI)	1	0	1
Chloropropamide and Phenformin HCL	1	0	1
Tolbutamide and Phenformin HCL	0	3	3
Totals	20	20	40

An important part of daily care for diabetic patients is the testing of urine for sugar. Table 8 contains data obtained from the patients regarding the method used to test urine for sugar.

Table 8. Distribution of Respondents by Urine Testing Method, Clinic Attended and Drug Therapy

| | Medicine Clinic | | Diabetes Clinic | | Totals |
	Oral Agents	Insulin	Oral Agents	Insulin	
Clinitest	3	3	7	9	22
Benedict's Solution	1	3	0	0	4
Testape	2	1	1	0	4
Clinistix	0	2	0	0	2
Diastix	1	0	0	0	1
No Testing	3	1	2	1	7
Totals	10	10	10	10	40

Marital status of the respondents is reported in Table 9.

Table 9. Distribution of Respondents by Marital Status, Clinic Attended and Drug Therapy.

| Marital Status | Medicine Clinic | | Diabetes Clinic | | Totals |
	Oral Agents	Insulin	Oral Agents	Insulin	
Married	4	1	4	5	14
Single	0	3	3	1	7
Widow or Widower	4	2	3	3	12
Divorced	1	3	0	1	5
Separated	1	1	0	0	2
Totals	10	10	10	10	40

Data regarding employment was collected. One patient of the 40 reported current employment.

Patient charts were reviewed by the researcher to determine if the patients had diabetic complications such as nephropathy, retinopathy, or neuropathy. It was found that the charts were not adequate as a source of information because not all physicians evaluated patients for the presence of complications and definitive laboratory reports were not available on all patients.

Analysis of Data by Total Score

The mean percentage score for all subjects was 60.80 per cent. The median percentage score was 63.25 per cent. Scores in terms of per cent of correct responses are reported in Table 10.

Table 10. Frequency Distribution of Respondent Scores Reported in Terms of Total Per Cent Correct.

Score Range (Per Cent Correct)	Number
25-34.5	2
35-44.5	5
45-54.5	7
55-64.5	6
65-74.5	12
75-84.5	7
85-94.5	1

A test of the relationship between knowledge and drug therapy group was performed using chi-square with respondents classified

above and below the median percentage score. There proved to be a statistically significant relationship between type of drug and total score. The result was interpreted to mean that those patients in this sample taking insulin knew more about diabetes than those taking oral agents. See Table 11 for the data.

Table 11. Total Score of Respondents by Drug Therapy.

| Total | Drug Therapy | |
Score	Oral Agent Group	Insulin Group
Above Median*	5	15
Below Median*	15	5

*Median Total Score = 63.25 per cent
Chi-square = 8.10, df = 1, P < .01

A test of the relationship between clinic attended and total percentage score using chi-square proved not to be significant. This result is interpreted to mean that the clinic attended had no effect on total score in this sample. See Table 12 for the data.

Table 12. Total Score of Respondents by Clinic Attended

| Total | Clinic Attended | |
Score	Medicine Clinic	Diabetes Clinic
Above Median*	8	12
Below Median*	12	8

* Median Score = 63.25 per cent
Chi square = .9, df = 1, Not Significant

A test of the relationship between knowledge and duration of disease using chi-square proved not significant. This result is interpreted to mean that duration of diabetes in this sample had no effect on total knowledge score. See Table 13 for the data.

Table 13. Total Score of Respondents by Duration of Diabetes.

Total Score	Duration of Diabetes	
	Above Median+	Below Median+
Above Median*	12	8
Below Median*	8	12

*Median Total Score = 63.25 per cent
+Median Duration = 7.5 years
Chi-square = .9, df = 1, Not Significant

A test of the relationship between knowledge and number of years of education reported using chi-square proved not to be significant. This result is interpreted to mean that the number of years of education had no effect on total score in this sample. See Table 14 for the data.

Table 14.   Total Score of Respondents by Stated Years
           of Education.

Total Score	Stated Years of Education	
	Above Median+	Below Median+
Above Median*	13	7
Below Median*	7	13

*Median Total Score = 63.25 per cent
+Median Education = 10 years
Chi-square = 2.48,   df = 1,   Not Significant

A test of the relationship between knowledge and age using chi-square proved not to be significant.   This result is interpreted to mean that the age of the patients in this sample had no effect on total score.   See Table 15 for the data.

Table 15.   Total Score of Respondents by Age.

Total Score	Age	
	Above Median+	Below Median+
Above Median*	10	10
Below Median*	10	10

*Median Total Score = 63.25 per cent
+Median Age = 58 years
Chi-square = 0,   df = 1,   Not Significant

A test of the relationship between knowledge and sex of the respondents using chi-square proved not to be significant. This result is interpreted to mean that the sex of the respondent had no effect on total score in this sample. See Table 16 for the data.

Table 16.   Total Score of Respondents by Sex

| Total | Sex | |
Score	Female	Male
Above Median*	13	7
Below Median*	17	3

*Median Total Score = 63 25 per cent
Chi-square = 1.20,   df = 1,   Not Significant

Analysis of Data from Interview Guide by Category of Information

The items of the interview were categorized according to the subject matter being tested. The categories were physiology, diet, drugs, urine testing, daily care and complications. The numbers of the questions in each category are listed in Table 1, page 10. The mean and median scores correct in percentage form are reported for all respondents in Table 17.

Table 17. Mean and Median Scores for All Respondents on
Interview Guide Categories.

Category	Mean (Per Cent Correct)	Median (Per Cent Correct)
Physiology	58.0	55.0
Daily Care	77.3	85.0
Complications	50.0	50.0
Urine Testing	56.5	66.5
Drugs	36.9	33.5
Diet	82.7	80.0

The interview categories were tested separately to see if the relationship between knowledge and drug therapy group held significant for each category as it did for the total score. Chi-square was used to test for this relationship.

A test of the relationship between drug therapy group and physiology score proved significant. This result is interpreted to mean that those patients taking insulin knew more about the physiology of diabetes than those taking oral agents. See Table 18 for the data.

Table 18.   Physiology Scores of Respondents Separated into Drug Groups.

| Physiology | Drug Therapy | |
Score	Oral Agent	Insulin
Above Median*	6	14
Below Median*	14	6

*Median Physiology Score = 55.0 per cent
Chi-square = 4.8,   df = 1,   P < .05

A test of the relationship between drug therapy and diet score proved significant.   This result is interpreted to mean that those patients taking insulin knew more about diet than those taking oral agents.   See Table 19 for the data.

Table 19.   Diet Scores of Respondents Separated into Drug Groups.

| Diet | Drug Therapy | |
Scores	Oral Agent	Insulin
Above Median*	6	14
Below Median*	14	6

*Median Diet Score = 80.0 per cent
Chi-square = 4.88,   df = 1,   P < .05

A test of the relationship between drug therapy group and urine
testing score proved significant.   The five patients who did no urine
testing were eliminated from this tabulation.   This result is inter-
preted to mean that those patients taking insulin knew more about
urine testing than those taking oral agents.   See Table 20 for the data.

Table 20.   Urine Testing Score of Respondents Separated
into Drug Therapy Groups.

Urine Testing Score	Drug Therapy	
	Oral Agent	Insulin
Above Median*	4	13
Below Median*	12	6

*Median Urine Testing Score = 66.5 per cent
Chi-square = 4.93,   df = 1,   P < .05

A test of the relationship between drug therapy group and daily
care score proved not to be significant.   This result is interpreted
to mean that there is no difference between the insulin group and the
oral agent group.   See Table 21 for the data.

Table 21. Daily Care Score of Respondents Separated into Drug Therapy Groups.

Daily Care Score	Drug Therapy	
	Oral Agent	Insulin
Above Median*	9	11
Below Median*	11	9

*Median Daily Care Score = 85.5 per cent
Chi-square = 0.1, df = 1, Not Significant

A test of the relationship between drug therapy group and complications score proved not to be significant. This result is interpreted to mean that there is no difference between the knowledge about complications for those taking oral agents and those taking insulin. See Table 22 for the data.

Table 22. Complications Score of Respondents Separated into Drug Therapy Groups.

Complications Score	Drug Therapy	
	Oral Agent	Insulin
Above Median*	7	13
Below Median*	13	7

*Median Complications Score = 50.0 per cent
Chi-square = 2.5, df = 1, Not Significant

A test of the relationship between drug therapy group and drug category score proved not significant. This result is interpreted to mean that there is no difference between the knowledge about drugs for those taking oral agents compared to those taking insulin. See Table 23 for the data.

Table 23. Drug Score of Respondents Separated into Drug Therapy Groups.

| Drug | Drug Therapy | |
Score	Oral Agent	Insulin
Above Median*	9	11
Below Median*	11	9

*Median Drug Score = 33.5 per cent
Chi-square = .08, df = 1, Not Significant

Interjudge Agreement

There was an 89.1 per cent interjudge agreement on the 33 questions scored by all judges. See Table 24 for the per cent agreement on the individual items scored by the two judges and the researcher.

Table 24. Per Cent Interjudge Agreement on Individual Items Scored by All Judges.[*]

Item Number	Per Cent Agreement	Item Number	Per Cent Agreement	Item Number	Per Cent Agreement
1	100	14	97.5	27	-
2	60	15	87.5	28	87.5
3	100	16	67.5	29	80
4	65	17	100	30	97.5
5	100	18	90	31	95
6	100	19	100	32	92.5
7	82.5	20	90	33	72.5
8	100	21	100	34	75
9	70	22	87.5	35	90
10	-	23	-	36	100
11	100	24	-	37	97.5
12	100	25	72.5		
13	95	26	97.5		

* Items number 10, 23, 24, and 27 were not scored by all because the material tested required a judgment by the researcher made at the time of interview.

Analysis of Open Ended Questions

Questions 38 through 41 were open ended. Question 38 asked, "What would you like to learn about diabetes?" Respondent answers ranged from, "Nothing, I know everything," to "Everything there is to learn". The answers were grouped into five categories: personal problems to the patient, broad general responses, specific limited responses, no knowledge desired and I don't know, responses. See Table 25 for the frequency distribution of these answers. A representative sample of responses is found in Appendix H.

Table 25. Frequency Distribution of Respondent Answers to Question 38, "What Would You Like to Learn About Diabetes?"

Category	Number of Responses
Personal Problems	5
Broad General	11
Specific Limited	20
No Knowledge Desired	6
I Don't Know	3

Question number 39 asked, "What is the hardest thing about being diabetic for you?" Answers were separated into the following categories: diet, physical limits, social limits, economic limits,

medication problems, don't know, nothing and other. See Table 26

for the distribution of these answers

Table 26. Frequency Distribution of Respondent Answers to
Question Number 39, "What is the Hardest Thing
About Being Diabetic for You?"

Category	Number of Responses
Diet	21
Physical Limits	5
Medication Problems	4
Social Limits	2
Don't Know	2
Economic Limits	1
Nothing	1
Other	2

Twenty-one patients said diet control was the hardest part of

being diabetic. Thirteen of these were unhappy with the limits on

amounts of foods and one objected to the large amounts of food. Two

mentioned difficulty losing weight and three said that they could not

"understand" their diet. One patient who was on a diet that severely

restricted carbohydrate, fat and salt complained that the diet was

monotonous. One stated that food preparation was a major problem.

Four answered that administering the daily injections of insulin was the hardest part about being diabetic. Two others reported that problems with traveling required them to stay home more than they would like.

Five gave answers which involved some sort of physical complaint such as loss of visual acuity, shortness of breath, and heart problems limiting activity. One reported that frequent illness resulted in missed school. Some of these physical problems were directly related to diabetes and others were not.

One patient mentioned being unable to drive and losing his job as a bus driver as the hardest problem.

When asked question number 40, "What might be done to help improve the care at the clinic," 19 patients were unable to make any suggestions for improvement of care at the clinic. Five stated that they thought the care was good. Four complained about the long wait. Four mentioned relief of specific physical problems such as dizzy spells and help with vision. Three patients were new to the clinic. One said that it was difficult to reach doctors and get appointments. This patient was a juvenile diabetic who had had many bouts with ketoacidosis and stated that she did not know whom to call when she needed help. One patient pointed out that the food in the cafeteria was not appropriate for diabetics. One young person was bothered by seeing large numbers of elderly patients in the clinic population

especially if they had visible complications of diabetes such as amputation or blindness. One asked help with losing weight and one requested assistance in obtaining increased welfare payments.

The last question, number 41, asked, "From whom and where did you learn about diabetes?" Table 27 gives the distribution of these answers

Table 27. Frequency Distribution of Respondent Answers to the Question, "From Whom and Where Did You Learn About Diabetes?"

Source of Information	Number of Responses
Clinic Classes	14
Doctors	12
Nurses	5
Dietitian	3
Books	9
Hospitals	6
Family	2
Visiting Nurse	1
Community Programs	2
Practical Nurse Course	1
No One	3
No Answer	3

CHAPTER IV

SUMMARY, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Summary

The patient who has the disease diabetes mellitus has a life long condition that can cause death from acute and chronic body changes. The nature of the disease and its therapy requires daily attention from the patient. Education of the patient is necessary to help him carry out the medical therapy prescribed.

It was the purpose of this study to describe patient responses to questions about diabetes mellitus as obtained by the use of a prepared set of questions asked of known diabetics. The knowledge gained can then be used to plan for a patient program which prepares patients to carry out the prescribed medical therapy plan in a more accurate manner.

The method of investigation was descriptive, using an interview guide with two option answer and unstructured option questions. The guide was administered by the researcher with questions read to 40 adult diabetic patients and the responses recorded verbatim. The subjects were also requested to do a urine test for glucose using the method they used at home.

The subjects were 20 patients who attended the medicine clinic and 20 patients who attended the diabetes clinic of a university out-patient clinic. The population consisted of 30 females and 10 males. The mean age was 57.9 years. The mean number of years of education in school was 9.5 years. All but five patients were over weight. The mean duration of diabetes was 9.8 years. Twenty of the patients were taking oral hypoglycemic agents and 20 were taking insulin at the time of this study.

The researcher believed that the age, duration of time known diabetic, education, sex, drug therapy, and clinic attended would affect the total score of correct responses on the interview guide. Analysis of total score testing for the relationship between total score and these factors using chi-square indicated that drug therapy was significant. Age, duration of diabetes, education, sex and clinic attended proved to be not significant.

The interview guide was divided into categories according to subject matter being tested. The category scores were tested using chi-square to see if the relationship between specific categories and drug therapy group held significant. It was found that the physiology, diet and urine testing categories demonstrated significant difference between those patients taking insulin and those taking oral agents. The daily care, complications, and drug category scores revealed no significant difference.

The mean total score for all patients was 60.80 per cent, and the median was 63.25 per cent. The physiology category mean score was 58.0 per cent. The daily care category mean score was 77.3 per cent. The complications category mean score was 50.0 per cent. The urine testing category mean score was 56.5 per cent. The drug category mean score was 36.9 per cent. The diet category mean score was 82.7 per cent.

Four open ended questions not included in the total score revealed that patients when asked what they would like to learn about diabetes, were unaware of what they did not know as shown by the interview guide. Patients were unable to make suggestions about what they would like to learn. When asked what was the "hardest" problem about being diabetic, more than half mentioned diet and obesity as the major problems. Patients when given the opportunity to make suggestions for improvement in care were generally unable to make suggestions. When asked about sources of information about diabetes, the clinic classes and doctors were identified as sources but nurses and dietitians were rarely mentioned.

Discussion

Analysis of total score indicated that drug therapy group did affect total score with the insulin group obtaining significantly higher scores than the oral agent group. The insulin group also knew

significantly more about the urine testing, physiology and diet categories of the interview guide than did the oral agent group. The researcher believes that the scores of those patients taking insulin are higher because those patients taking insulin are generally taught more and are required to do more about urine testing, diet and the problems associated with high and low blood sugar than those patients taking oral agents.

Age, sex, duration of diabetes, education and clinic attended proved to have no significant affect on total score. The researcher believes that one or more of the following reasons may account for these results.

1. The total score and these factors were not related.

2. The type of patients within the study population did not represent a wide enough variation in these factors to demonstrate significance.

3. The interview technique which did not allow for clarification of patient answers may have resulted in credit given when the patient did not really know the answer and credit not given when the patient did know the correct answer but was unable to answer in acceptable terms.

4. The content areas of the questions may not be valid.

The analysis of the categories of the interview guide reveals that the mean score on the physiology section was 58.0 per cent. The

knowledge of the relationship between blood sugar and the effects of exercise and illness was lacking but 29 patients were able to recognize that emotional upset raises the blood glucose level. Some patients were unable to give one symptom of low or high blood sugar.

Patient scores on the diet category were better than most areas. The mean was 82.7 per cent. The higher scores may be due to the use of easy questions, or to the fact that diet information is so frequently used by the diabetic.

The urine testing category mean score was 56.5 per cent. Thirteen were unable to state that they were testing their urine for sugar even though the answer to this question was given in a previous question. Their inability to answer may be due to the wording of the question. The wording and the question order should be changed in future study. Three of the 35 patients who tested urine were able to demonstrate accurate urine testing according to criteria in Appendices E and F. Twenty of the patients tested at an incorrect time in relation to meal times.

The mean score for the daily care section of the interview guide was 77.3 per cent. The scores for this section were better than most sections. The type of questions included in this category tested general health rules that all people should follow and may account for the higher scores and more uniform scoring throughout both drug therapy groups.

Scores were limited for the complications category. The mean score was 50.0 per cent. Few patients knew about acetone and its significance. One patient of the total was able to answer all three questions about acetone correctly. Neither of the juvenile diabetics were able to answer all three acetone questions yet both had experienced acidosis.

The drug category revealed limited knowledge with a mean of 36.9 per cent. Eight of 40 patients were aware that oral hypogly-cemic agents are not insulin. Responses to this question (number 8) may be influenced by the wording of the question and if used again the question should be modified. Less than half of the patients were aware that oral agents stimulate the production of insulin. One patient was able to answer correctly question number 12 which dealt with the difference between 40 unit insulin and 80 unit insulin.

Interjudge agreement for all questions was 89.1 per cent. Because of the design of the study patient answers were not clarified by the researcher. Use of follow up questions and a more flexible interview may decrease the areas of disagreement between judges. When there was disagreement between judges, the disagreement was a matter of degree rather than opposite scoring. For example, two judges may have scored 1 point and the third judge 0.5 for a given patient answer.

The open ended question asking, "What would you like to learn about diabetes?" revealed that patients were unaware of the areas about which they lack knowledge. The patients were also unable to make suggestions of areas about which they would like to learn. Some were uninterested in the questions they missed. If given more time they may have been able to think of questions.

Many patients stated that diet and obesity were the most difficult problems for them. Kinds of food and amounts of food are limited for many diabetics. The diabetic faces daily conflicts because he must limit intake of sugar which is so abundant in the American diet. The diabetic also finds diet a source of frustration because food is used in our society as an important part of socialization.

Patients were unable to make suggestions for improvement of their care. The lack of suggestions may be the result of never experiencing any other type of care. Patients may have been reluctant to complain to the researcher because the researcher was seen as a part of the clinic staff.

The clinic classes and the doctors are seen as sources for patient instruction. Nurses were rarely mentioned and may not be seen as sources of information because they frequently do not take an active part in patient education. A more accurate tally of sources of patient education may be obtained by future studies if the patient is given a list of possible sources which he can check.

Conclusions

On the basis of this study in this limited sample only, the following conclusions can be made.

1. Total score and drug therapy group proved to be related. Those taking insulin had significantly higher total scores than those taking oral agents.

2. Age, sex, duration of diabetes, education, and clinic attended did not significantly affect total score.

3. Those patients taking insulin had significantly higher scores on the physiology, diet, and urine testing categories than those taking oral agents.

4. Patients were unable to suggest what they would like to learn and showed little awareness of what they did not know.

5. Diet and obesity were major problems identified by the patients.

6. Patients were unable to make suggestions to improve the care given to them.

7. The clinic classes and the doctor were seen as sources for instruction but few patients specifically identified nurses or dietitians.

Recommendations

Based on the findings of this study a replication is recommended with the following changes.

1. Use an interview format which allows for follow up or probe questions to clarify answers given by patients.

2. Change in wording of questions 1, 8, and 17 to eliminate answers given because the patient did not understand the terms used.

3. Change the question order so that answers to one question are not given in previous questions.

4. Place questions in sections to facilitate scoring.

5. Use of the modified interview guide with groups from other socio-economic levels.

6. Use of the modified guide for testing of groups before and after an organized series of classes.

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APPENDIX A

Correspondence

The J. Hillis Miller Health Center

University of Florida

Gainesville, 32601

June 5, 1972

Ms. Pauline Bingham
12335 S.W. Summer Street
Tigard, Oregon 97223

Dear Ms. Bingham,

I was pleased to hear about your interest in patients with diabetes and in your proposed study.

I am enclosing a copy of the oral questionnaire used, a key and urine testing check list. We would be most happy for you to use any tools we have devised as is at no cost, provided of course, proper credits are used in research material.

I hope this material will be of some assistance to you in your study. Please let me know if I can be of any further help.

Sincerely yours,

Donna Nickerson, R.N. (Mrs.)
Nurse Specialist, Diabetes.

D.N.:ams

APPENDIX B

Interview Guide

INTERVIEW GUIDE

I. Vital Statistics

    A.   Name _____

    B.   Clinic number _____

    C.   Date _____

    D.   Address _____

    E.   Age _____

    F.   Sex _____

    G.   Marital Status _____

    H.   Reason for Present Visit _____

    I.   Duration of Diabetes _____

    J.   Employment _____

    K.   Education level _____

    L.   Weight _____

    M.   Height _____

    N.   Type of diabetes _____

    O.   Type of Complications _____

	Yes	No	Patient's Comments
1. Is diabetes inherited?			
2. What is diabetes?			
3. Is it important to eat three times a day?			
4. Why is it (is it not) important to eat three times a day?			
5. Should a diabetic eat pies, cakes and candy?			
6. Can the whole family eat the same diet as a diabetic?			
7. What does insulin do?			
8. Are the pills for diabetes oral insulin?			
9. What do the pills do?			
10. What is the name of the insulin or pill you take?			
11. Must you stay on your diet if you take insulin or pills?			
12. If you are taking 20U of U80 insulin and you are switched to U40 insulin & U40 syringe, how many units of insulin would you take?*			

	Yes	No	Patient's Comments
13. Does your urine sugar go up or down when you exercise? Why?			
14. Does your sugar go up or down when you are emotionally upset?			
15. Why should a diabetic take better care of his feet than a person without diabetes?			
16. What should you do if you get a cut? Should you do anything else?			
17. Should a diabetic wear garters or twist hose to hold them up?			
18. Why?			
19. How should a diabetic cut his toe nails?			
20. What do you use to cut your toe nails?			
21. Should a diabetic use corn plasters, strong antiseptics or home remedies on his feet?			

		Yes	No	Patient's Comments
22.	What special precautions are necessary before you take a bath? How do you check the temperature?			
23.	Do you test your urine?			
	What do you use?			
	How often do you test?			
	Do you know of any other test besides a test for sugar?			
24.	Patient demonstration			
25.	Why do you test your urine?			
26.	Do you test the first urine in the morning or the second?*			
27.	Do you test before or after meals?			
28.	What is acetone or ketone?			
29.	What does acetone in the urine mean?			
30.	What should you do if moderate to large acetone shows up in the urine?			

	Yes	No	Patient's Comments
31. Does high blood sugar mean you have too much or too little insulin?			
32. If a person with diabetes gets sick does their sugar go up or down?			
33. How does someone feel when their blood sugar is low? When they have an insulin reaction?			
34. How does someone feel when their sugar is too high?			
35. What should you do if you think your blood sugar is low? Can you be specific?			
36. Do you carry identification saying you are diabetic?			
37. What else should a diabetic carry in case of low sugar reaction.			
38. What would you like to learn if anything about diabetes?			

39. What has been the
    hardest thing about
    being diabetic?

40. What suggestions do
    you have to improve
    your care at the
    clinic?

41. Where have you
    learned about
    diabetes?

* Insulin dependent patients only.

APPENDIX C

Key for Interview Guide

KEY FOR INTERVIEW GUIDE

1. Yes (1)

2. Excess sugar in blood (1) or
    lack of insulin juice or other word (1)

3. Yes (1)

4. Need for food to act upon (1) or
    avoid insulin reaction (1) or
    keep system in balance (1)

5. No (1)

6. Yes (1)

7. Something which brings sugar down (1) or
    substitute for normal function of pancreas (1)

8. No (1)

9. Stimulate organ to put out insulin (1) or
    something which brings sugar down (1)

10. Any correct answer (1)

11. Yes (1)

12. 20 units (1)*

13. Down (1) (answers to why not scored)

14. Up (1)

15. Decrease circulation (1) or
    trouble healing (1) or more infection, gangrene (1) or
    decreased feeling or sensation and numbness (1)

16. Wash with soap and water (1) or
    clean in some way (1) or
    watch carefully and consult with doctor if it becomes infected (1)

17. No (1)

18. Cuts off blood supply (1)

19. Straight across and file the edges (1)

20. Scissors or toenail clippers (1) or
    file (1)

21. No (1)

22. Check temperature of water with body part other than feet (1)

23. Yes (1)

24. Correct demonstration (1)

25. See if sugar present in urine (1)

26. Second (1)*

27. Oral agents after (1)
    insulin before (1)

28. Breakdown of fat (1) or
    acid in urine (1)

29. I'm in trouble (1) or
    bad sign (1) or burning fat (1) or
    lack of insulin (1)

30. Call doctor (1) or
    take regular insulin

31. Too little (1)

32. Up (1)

33. Low - nervous, shaky, sweaty, headache, mouth and lips
    numb (1) (one correct sufficient)

34. High - tired, nausea, vomiting, thirsty, frequent urination,
    rapid breathing, dry mouth, (1) (one correct sufficient)

35. Take quick acting sugar (1)
    (fruit juice, sugar cubes, pop, instant glucose)

36. Yes (1)

37. Some form of sugar (1)

* Question applies to insulin dependent diabetics only.

APPENDIX D

Research Study Participation Agreement

RESEARCH STUDY PARTICIPATION AGREEMENT

Mrs. Pauline Bingham, R.N., a graduate student at the University of Oregon School of Nursing, collecting data for her field study, requires the following consent from the patient:

Date_____Hour_____

I volunteer to participate in the study designed to evaluate patient understanding of diabetes mellitus. The study will involve answering an oral questionnaire given by Mrs. Bingham and demonstrating a urine test. This study has been discussed with me, and I have been given an opportunity to ask questions. I understand that I have a right to refuse participation in the study and that the results of any testing will remain anonymous.

_____
Patient's Signature

APPENDIX E

Check Lists for Urine Testing

CHECKLISTS FOR URINE TESTING (SUGAR AND KETONE)

Clinitest

1. Uses correct number drops of water (10).

2. Uses correct number drops of urine (2 or 5).

3. Puts water into tube first or rinses dropper after putting urine in.

4. Holds dropper vertically.

5. Drops fall into bottom of tube rather than sliding down sides of tube.

6. Next drops 1 clinitest tablet into tube without touching tablet.

7. Holds tube still rather than shaking it while boiling.

8. Waits 15 sec. after boiling stops to read results.

9. Reads results correctly according to proper chart.

Testape

1. Tears strip of tape off dispenser.

2. Touches only end of tape not dipped into urine.

3. Dips tape into urine.

4. Removes tape from urine and reads results in 60 sec.

5. Holds tape rather than setting it down until reading is made.

6. Reads results correctly according to proper chart.

Clinistix

1. Holds stick at proper end, not touching reactive paper.

2. Dips stick into urine.

3. Removes stick immediately from urine and waits 10 sec. to read results.

4. Continues to hold stick rather than setting it down before reading.

5. Reads results correctly according to proper chart.

Acetest

1. Sets acetest tablet on clean surface without touching it.
2. Drops 1 drop urine on tablet.
3. Waits 30 sec. to read results.
4. Reads results correctly according to proper chart.

Ketostix

1. Holds stick at proper end, not touching reactive paper.
2. Dips stick into urine.
3. Removes stick immediately and waits exactly 15 sec. to read results.
4. Continues to hold stick rather than setting it down before reading.
5. Reads results correctly according to proper chart.

APPENDIX F

Check List for Benedict's Test

CHECKLIST FOR BENEDICT'S TEST FOR SUGAR[1]

1. Uses correct amount of Benedict's solution in the test tube (1/2 tsp. or 2.5 cc or uses a tube previously scratched at the 2.5 cc level).

2. Adds 4 drops of urine.

3. Shakes tube to mix.

4. Places tube in container of boiling water for 5 minutes.

5. Has specific method of timing the 5 minutes (i.e. a stove timer)

6. Shakes tube.

7. Reads results correctly according to proper chart.

[1] Stephens, John, Page, Otto, and Hare, Robert, Handbook of Diabetes Mellitus, 3rd Ed., Portland, 1961, pg. 46.

APPENDIX G

Scores

25	26	27	28	29	30	31	32	33	34	35	36	37	#	Total Score	Per Cent Correct	Drug	Urine Testing	Compli-cation	Daily Care	Physi-ology	Diet
1	1	1	0	0	0	1	0	1	1	1	1	1	1	24.0	65.0	0.0	3.0	3.0	6.0	8.0	4.0
1	-	0	0	1	0	1	1	1	1	0	1	1	2	24.0	68.5	2.5	1.0	3.5	6.5	7.5	3.0
1	-	0	0	0	0	1	1	1	0	1	0	1	3	19.0	54.5	1.0	1.0	4.0	2.5	6.5	4.0
1	1	1	1	0	1	1	1	1	.5	1	1	1	4	31.0	84.0	3.0	3.0	6.0	5.0	9.0	5.0
0	0	1	.5	0	1	1	1	1	1	1	1	1	5	28.5	77.0	1.5	2.0	5.5	6.0	8.5	5.0
1	-	0	0	0	0	1	0	1	0	1	0	0	6	15.5	44.5	0.0	1.0	2.0	4.0	5.0	3.0
0	-	0	0	0	0	1	1	1	0	1	0	1	7	20.0	57.0	1.5	0.0	4.0	4.5	6.0	4.0
1	-	1	0	0	0	1	1	1	0	1	1	0	8	20.5	58.5	1.0	2.0	2.5	6.0	5.0	4.0
0	1	1	0	1	1	1	1	1	0	1	1	1	9	30.5	82.5	2.0	3.0	6.0	7.0	7.5	5.0
1	0	0	1	0	0	1	0	1	.5	1	1	1	10	25.5	69.0	3.0	1.0	4.5	6.5	6.5	4.0
1	1	0	1	1	1	1	1	1	.5	1	0	1	11	25.0	67.5	1.0	2.0	7.0	5.0	6.0	4.0
1	1	1	0	0	0	1	0	.5	0	1	1	1	12	20.5	55.5	2.0	3.0	2.0	4.0	4.5	5.0
0	1	1	0	0	0	1	0	1	0	1	0	1	13	26.0	70.5	2.0	3.0	4.0	5.0	7.0	5.0
1	-	1	0	0	0	0	1	1	0	1	0	0	14	16.0	45.5	1.0	2.0	1.0	3.0	5.0	4.0
1	0	1	0	0	0	1	0	1	0	1	1	1	15	24.0	65.0	3.0	2.0	4.0	5.0	5.0	5.0
0	-	0	0	0	0	1	0	1	0	1	0	1	16	12.5	36.0	0.0	0.0	3.5	4.0	3.0	2.0
1	-	0	0	0	0	0	1	0	0	0	1	0	17	13.5	38.5	0.0	1.0	1.0	4.5	3.0	4.0
1	1	1	0	0	0	0	0	.5	0	1	1	1	18	15.0	40.5	1.0	4.0	2.5	3.0	1.5	3.0
0	-	0	0	0	0	0	0	1	0	0	1	1	19	17.0	48.5	1.0	0.0	3.0	6.5	3.0	3.5
1	-	0	0	1	1	1	1	1	1	1	1	1	20	28.0	80.0	2.0	1.0	6.0	6.0	9.0	4.0
1	-	1	0	0	0	1	1	1	1	1	1	0	21	24.5	70.0	1.0	2.0	3.0	6.0	8.5	4.0
0	-	0	0	0	0	1	1	1	0	0	0	0	22	15.0	43.0	2.0	1.0	1.0	2.0	5.0	4.0
1	1	0	0	1	1	1	1	1	1	1	1	1	23	31.0	84.0	1.0	3.0	6.0	7.0	9.0	5.0
1	1	1	0	0	1	0	0	1	1	1	1	1	24	27.5	74.5	2.0	3.0	5.0	6.5	6.0	5.0
1	-	1	0	0	0	0	1	0	.5	1	1	1	25	20.5	58.5	0.5	2.0	4.0	6.5	3.5	4.0
1	1	1	0	0	0	1	1	1	0	0	1	1	26	30.0	81.0	3.0	4.0	3.0	7.0	8.0	5.0
0	0	0	0	0	0	0	1	1	0	1	1	1	27	15.0	40.5	1.0	0.0	3.0	3.0	4.0	4.0
0	-	0	0	0	0	1	0	1	0	0	1	0	28	17.5	50.0	1.0	1.0	1.0	7.0	3.0	4.5
0	1	1	0	0	1	1	0	0	1	0	1	1	29	24.5	66.0	1.0	3.0	4.0	6.5	5.0	5.0
0	-	0	1	0	0	0	1	1	0	0	0	0	30	10.0	28.5	0.0	0.0	1.0	4.0	4.0	1.0
1	-	0	0	1	0	0	1	1	0	0	1	1	31	23.0	65.5	2.0	1.0	4.0	6.0	5.0	5.0
1	-	0	0	0	0	1	1	1	.5	1	1	1	32	20.5	58.5	1.0	1.0	3.0	5.0	7.0	3.5
1	1	1	0	1	0	1	1	1	1	1	1	1	33	31.0	84.0	1.5	3.0	5.0	7.0	9.5	5.0
1	1	0	1	0	0	1	1	1	1	1	1	1	34	27.0	73.0	1.0	2.0	5.0	6.5	7.5	5.0
1	-	0	0	1	1	0	1	0	0	1	1	1	35	23.0	65.5	2.0	1.0	6.0	7.0	4.0	3.0
1	-	0	0	0	0	.5	.5	0	1	1	0		36	18.5	53.0	1.0	1.0	2.5	6.0	3.0	5.0
0	-	1	.5	0	0	0	1	1	0	0	1	0	37	21.5	61.5	1.0	2.0	1.5	7.0	5.0	5.0
1	1	1	0	0	0	1	0	1	.5	0	0	0	38	19.5	52.5	0.0	3.0	0.0	6.0	7.5	3.0
1	1	1	0	1	.5	1	1	1	1	1	1	1	39	31.5	85.0	2.0	3.0	5.5	6.0	10.0	5.0
0	0	1	0	0	0	0	0	0	0	.5	1	1	40	10.5	28.5	3.0	1.0	1.5	3.0	1.0	4.0

APPENDIX H

Representative Sample of Responses to Question 38

REPRESENTATIVE SAMPLE OF RESPONSES TO QUESTION 38

The following are examples of comments taken verbatim from the answers given to question 38 which asked, "What, if anything, would you like to learn about diabetes?" After each response the total score for the subject is found in parenthesis.

"I don't know if there's much more to learn." (24. 5)

"I don't think that there is anything that I would like to learn." (15. 0)

"I'd like to learn the things I don't know." (19. 0)

"I know about everything. I know how to take insulin and how to get out of it if you take too much. Too much is poison and you can fight any poison by hot water on the feet and sweating it out." (20. 5)

"Everything. I guess I don't know too much." (26. 0)

"Well, I'd like to know whether I'm doing the right thing." (1 2. 5)

"There were several questions that you asked me that I'm a long way from being clear on." (30. 0)

"All of it - I don't want to get worse." (10. 0)

"I don't feel that I can learn too much about anything in the way of my health." (18. 5)

"I'd like to know why I can't get control of my diabetes." (30. 5)

"What happens to children of diabetics?" (28. 5)

"I'd like to know how not to pass out." (21. 5)

"Do I have low or high diabetes? Is weight involved?" (13. 5)

"I think I need to know about acetone and the difference between low and high sugar." (23. 0)

"I want to know why skinny people are harder to control." (27.5)

"I'd like to know more about the use of the oral drugs and what was in the papers about them." (28.0)

"I'd like to know how to keep weight down." (25.5)

"I'd like to know how to control appetite." (30.5)

"I want to know what a low sugar reaction is like and why I'm so thirsty." (20.0)

"I'd like to know how to cure it." (20.5)

"I would like to know how to get off insulin." (24.0)

"I'd like to know how to get around going to doctors - I hate to go." (28.5)

AN ABSTRACT OF THE FIELD STUDY OF

PAULINE R. BINGHAM

For the: MASTER OF NURSING

Date of receiving this degree: June 8, 1973

Title: A STUDY OF RESPONSES GIVEN BY KNOWN DIABETICS

    IN AN OUTPATIENT CLINIC TO QUESTIONS ABOUT

    DIABETES MELLITUS.

Approved: _____
      Evelyn Schindler, M.A.   Field Study Advisor

The purpose of this study was to describe patient responses to questions about diabetes mellitus obtained by use of a set of questions asked of known diabetics in two outpatient clinics of a university medical center.

An interview guide made up of questions about diabetes mellitus and its management was read to 40 adult patients. The patients were asked to demonstrate the urine test for sugar which they used at home.

Conclusions

This study was conducted with a limited number of subjects who were not randomly selected. The findings cannot be generalized to any patient group other than the one studied.

The results indicate that the group taking insulin had achieved significantly higher scores on the test for knowledge about their disease than the group taking oral agents. The patients generally were unable to make suggestions about their care or what they would like to learn about diabetes. Patients identified diet adjustments and obesity as major problems. The clinic classes and doctors were seen as the sources for information by patients but few patients identified nurses and dietitians as resource persons.