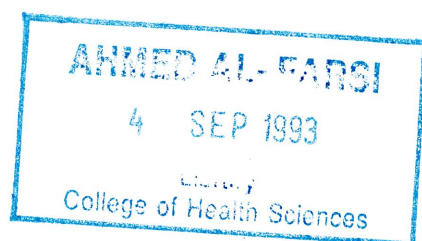


EVALUATION AND IDENTIFICATION OF THE LEARNING NEEDS OF
DIABETES MELLITUS PATIENTS ATTENDING NORTH MUHARRAQ
HEALTH CENTER BAHRAIN, 1988-1989



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by

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THESIS

Presented to the Faculty
of The University of Texas
Graduate School of Biomedical Sciences at Galveston
in Partial Fulfillment
of the Requirements
for the Degree of

MASTER OF SCIENCE IN NURSING

THE UNIVERSITY OF TEXAS MEDICAL BRANCH
AT GALVESTON

December, 1989

ACKNOWLEDGEMENTS

I, the health care giver, the revolutionist, the change agent and the humanist would like to express my appreciation and sincere gratitude to Dean Mary Fenton and the Faculty for opening the door of UTMB School of Nursing for international students.

I would like to express my gratitude to my thesis committee members, Dr. Linda Rounds, Dr. Jerry Lester and Dr. Sally Gadow, for their guidance and assistance in completing this project.

I am also very grateful to the Bahrain Ministry of Health, College of Health Sciences and the Training Department for the scholarship. I would also like to thank all the staff and diabetic patients of North Muharraq Health Center for their support in data collection.

I would like to thank all my American friends, Al-Taitoon family and each of the faculty members of the Nursing Department of the College of Health Sciences in Bahrain for their moral support.

Lastly, I want to thank my husband Dr. Ali Rashid for allowing me to exercise the freedom and the right to continue my education and to stand on my feet as a liberal and self-defining woman. Without his patience and understanding I could not have completed this endeavor.

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The University of Texas Medical Branch at Galveston, 1989

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This study on evaluation and identification of the learning needs of diabetes mellitus patients attending the outpatient Department of North Muharraaq Health Center, Bahrain (Bahrain is an island in the Arabian Gulf between Saudia Arabia and Qatar. For details see Appendix I.) is a descriptive study. The purpose of the study was to identify specific health related problems and learning needs of the diabetes mellitus patients prior to designing a health education program.

The sample size was 50 Bahraini patients, of age range 28-70 years, who attented the outpatient department at North Muharraaq Health Center within a specific period of time from December 18, 1988

to December 26, 1988. The questionnaire from the Diabetes Care Profile was administered by face to face structured interview, within a time limit of 45 minutes. It was translated into Arabic to make it understandable in the language of the patients. General information was asked to specify sociodemographic characteristics, diabetes control, social and emotional factors, long-term outcomes, and specific interest which gave an overall picture of the diabetes mellitus patients.

Statistical analysis included frequencies, measures of central tendency and correlation coefficients. The study showed significant results between age and long term outcome and sex and emotional factors. There were no significant results in the areas of diabetes control, regimen and compliance, or social support. The subjects expressed interest and motivation in identifying specific learning needs such as diet.

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INTRODUCTION

Evaluation and identification of learning needs prior to health education is extremely important because of the need for involvement of patients in medical decisions and in their own self-care. The role of the diabetes patient extends to that of becoming a force for change in health professionals.

Activated patients who perceive that their diabetes is serious can elicit a heightened response from their health care system and cause change in the health care system and in health professional behaviors (Roland, 1986). This role for patients, identifying specific problems and needs, may represent an important mechanism for conducting professional education in diabetes.

If educational interventions are to be effective in increasing information, developing skills and modifying behavior, they must be based on the current characteristics and needs of the patient. An essential component of health care is the educational needs evaluation which provides the basis on which instruction can be individualized (American Diabetes Association, 1981).

A careful and comprehensive evaluation of patient needs provides data regarding the patient's current knowledge base, limitations and readiness to learn. Based on such information and other qualities of the patients, teaching strategies and the content of the educational process can be adapted to overcome barriers to learning. Identifying information about that patient's knowledge

base, educational needs and diagnosis can assist in establishing priorities within the teaching program.

In North Muharraq Health Center in Bahrain, educational intervention for the diabetes mellitus patients is frequently implemented without an adequate understanding of the patient's current health behavior and attitudes; the amount of information that the patient has already acquired about the disease; the family situation; or other related characteristics which need to be considered.

STATEMENT OF THE PROBLEM

The focus of this investigation was a first step towards determining if there are specific learning needs or health problems that can be identified by the diabetes mellitus patients who seek health care. The research questions that were addressed are:

1. Is there a specific learning need or health problem the diabetes mellitus patient can identify?
2. Is there a relationship between selected demographic variables and diabetes control, social and emotional factors, regimen and compliance, long-term outcomes and social-support?
3. Is there a difference in identification of learning needs between male and female diabetes patients?

SIGNIFICANCE

Diabetes mellitus is a chronic disorder of metabolism which over a long period of time is generally accompanied by complications affecting blood vessels and the nervous system. The basic pathophysiological defect in diabetes is lack of insulin. Either insulin is not secreted properly (inadequate production or inability of pancreatic beta cells to recognize insulin-secretion stimulus) or its action is impaired.

The standard classification system identifies three types of diabetes: Type 1 insulin-dependent diabetes (IDDM); Type 2, non-insulin-dependent diabetes (NIDDM); and diabetes associated with genetic syndromes or secondary to other conditions (Cluter, Flavin, & Joshy, 1986). Diabetes mellitus is often a frightening force for those who develop the disease early (Type 1) or later in life (Type 2). Stress as well as constant daily adaptations bombard both adults with diabetes and their families (Vawter, 1983).

Epidemiological Background

Diabetes mellitus epidemiologically remains a significant health problem in the United States. According to the National Diabetes Data Group of the National Institutes of Health, analyses of surveys of the United States population indicate that diabetes currently affects approximately 5.5 million persons (Eaddy, Hough, & Palumbo, 1986). The National Diabetes Data Group analyses further suggest that an additional 4.5 million persons have diabetes that

remains undiagnosed, and that the prevalence of the disease is increasing in the U.S.A.

The costs of diabetes mellitus, in both human and economic terms are high. Government figures place the annual costs of direct medical care associated with the disease at \$7 billion. Moreover, indirect costs due to disability and premature death are estimated to exceed \$7 billion each year in the United States.

Recent death certificate data indicate that diabetes mellitus causes more than 33,000 deaths annually, making it the seventh most common cause of death. These same data further suggest that an additional 95,000 deaths each year may be indirectly attributed to complications of diabetes mellitus.

In Bahrain, 1987 death records showed that 0.5% of the deaths were associated with a cause of diabetes mellitus. The incidence rate is higher in females (30 deaths) than in males (24 deaths). There were only two male deaths who were non-Bahraini. The highest peak of death from diabetes mellitus was in the month of September. The total cost to treat the diabetes patient in Bahrain is \$2,000 per week.

Mortality rates for diabetes mellitus can reflect the efficacy of organized services in a given community. In a survey conducted in Great Britain, 5971 British Diabetic Association members were followed for 11-14 years for mortality rates. Diabetes was found on 60% of death certificates. Relevant data are cause-specific death rates from diabetic-ketoacidosis (DKA) and from associated

microvascular and accelerated macrovascular disease (myocardial infarction and strokes). If the present organization of delivery of diabetes care systems were better, technical developments could lower death rates from DKA and infection. The organization and planning of delivery of services remain inadequate in most countries.

The mortality and morbidity of diabetics in the third-world countries are high. Half the surviving diabetic patients in third-world countries had microvascular complications and the average life expectancy of known diabetics was only 3.8 years. These figures compare with Japanese annual mortality rates of diabetes 2.5 for men and 1.4 for women per 100,000. Premature death in Japan was seen with early age of onset, albuminuria, diabetic retinopathy and fasting glucose levels of over 11mmol/l. Diabetes was observed in 5.9 per 1000 deliveries of babies in South Carolina. The overall diabetic perinatal mortality rate was 102 per 1000, in South Carolina whereas non-diabetic perinatal mortality was 25 per 1000 deliveries. A reported annual perinatal mortality in Kenya of 254 per 1000 population is 5 times the rate for non-diabetics (Beaver, 1985).

Diabetes mellitus is also the leading cause of new cases of blindness among adults in the United States. Diabetes is the cause of 50% of all nontraumatic amputations (50,000 per year), and the cause of one fourth of the new end-stage renal disease cases each year. In addition, diabetes mellitus significantly contributes to

increased risk of myocardial infarction, impotence, arteriosclerosis, retinopathy, nephropathy, and neuropathy (Eddy, Hough, & Palumbo, 1986).

Diabetes is always a difficult disease to control especially in the adolescent group. But the elderly are the second most difficult group to manage. Controlling diabetes in the elderly is complicated by a habituated life style, long-standing food practices and by misconceptions towards health care (David, 1983).

Health Care and Diabetes Mellitus

Most diabetics in the United States are not receiving optimal care, in part because research findings have not been translated rapidly or effectively into practice. Health care professionals responsible for the care and education of patients with diabetes have been found to be inadequately informed about diabetes. Hospitalized patients with diabetes have also been found to be inadequately informed about diabetes and also demonstrated a lack of confidence in the knowledge of staff members about diabetes care practices. Health professionals indicated in several studies that they perceived their educational skills to be less than adequate and expressed a need for more training in methods of teaching (Knope, Kittel, Funnel, & Wolf, 1988).

Diabetes care centers help to solve problems in educating the diabetic person. Receptiveness to educational material is influenced by factors such as the person's educational level, ability to read, emotional response, degree of acceptance of the diagnosis,

motivation, physical limitations, and cultural barriers. In addition, periodic reinforcement and review are necessary. Educational problems may also have iatrogenic roots. Many physicians are not able to spend the enormous amounts of time required for identifying patients' knowledge deficiencies and reasons for nonadherence. Some may provide little time for instruction. A solution to these problems is a setting that provides individualized instruction, needs assessment, emotional support, and the opportunity for follow-up (Schnatz, Reardon, & Abourizk, 1988).

People have different backgrounds and life experiences, different prior exposure to education on the subject in question, different capacities to learn and, most of all, different ends to be achieved by the educational event. To account for all these differences, the educational program should assess the individual status of each client and design an individual plan (objectives) for that person. Both the individual assessment of status (needs assessment) and the development of the individual plan will be most successful in planning an educational program. A significant amount of learning (i.e., change in behavior) will occur even before classes start if participants feel that they have helped set the course to be followed, a course designed especially for them as individuals (Hiss, Devito, Teza, 1987).

Nutritional care is an essential component of therapy for the persons with diabetes mellitus in order to maintain body weight. Diabetes should increase intake of carbohydrates and fiber, decrease

fat intake, and moderate salt and fruits. Frequent meals and adjustment to diabetic diet require special counseling. Therapeutic control of diabetes mellitus typically involves a triad of intake, medication and physical activity (Daly & Sole, 1987). Exercise plans should be discussed by the nurse or other health team member because of the risk of hypoglycemia or hyperglycemia, depending on the individual response. To determine mode of activity, duration, frequency, and intensity of the exercise, a medical assessment must be done (Brown & Thompson, 1988). To understand diabetes and diabetes management requires several skills, including insulin monitoring and adjusting to hypo-and hyperglycemia (Horqitz & Strauch, 1987). In addition, hygienic care requires special attention such as foot and skin care. Assessment will indicate the need for intervention by a health care professional. Diabetes specialists in general, state that those diabetics who are able to control their disease have a decreased risk for developing the frequency and severity of complications. In order for the blood glucose to be controlled, daily management decisions must be made concerning food, activity and insulin dosage.

Diabetes Mellitus Education

The goal for the diabetes education program is to assist the participants in maintaining health and well-being and to avoid the acute and chronic complications of diabetes. Evaluation of knowledge, skills, motivation and ability to identify learning needs and to make life-style adjustments when indicated, are considered

prerequisites to this goal. The concept of patient evaluation and education is not new. In 1919 a diabetic manual was introduced for patient education and later a book on "The Diabetic Life" introduced the modern treatment of diabetes by diet and insulin.

Between 1984 and 1985 studies were done on diabetes, patient education, evaluation of education programs, health care professionals, diabetes care, medical cost and psychology. Thirty-eight percent of the studies dealt with diabetics' attitudes and psychology, 6% with attitudes of health care professionals, 10% with teaching techniques and roughly 15% with evaluation of education programs (Assel & Aufgeessor-Stein, 1986).

Studies on diabetes control shows the mean glycosolated hemoglobin was 2.6% before a teaching program, 1.0%, after 1 year, and 1.5% above the upper limit of normal 22 months after the teaching and treatment program. Hospital admissions fell from a mean of 10 to a median of 1 per patient per year following the teaching program (Assel & Aufgeessor-Stein, 1986).

In prospective studies done on diet, researchers compared the effect of three different teaching approaches on dietary compliance and metabolic control of IDDM patients. The results showed knowledge and compliance improvement. The study emphasized that dietary education should be integrated into the treatment program (Assel & Aufgeessor-Stein, 1986).

Studies on insulin injection techniques by names suggested that teaching is required to reduce the incidence of bacterial

contamination and infection when the four traditional rules are not obeyed (hand washing, vial preparation, skin preparation, and using a plastic syringe). Money could be saved, health care credibility heightened and finally patient's self-care improved by adequate teaching (Assal & Aufgeessor-Stein, 1986).

Studies on foot care have shown an 80% decrease in below-knee amputation in patients at high orthopedic risk who had been instructed in tertiary prevention. In a four-year period there were 32 below-knee amputations in non-instructed diabetics and 5 in instructed patients (Assal & Aufgeessor-Stein, 1986).

In Sweden, a diabetic education and training unit was developed. The program combined current biomedical information about diabetes, details of diet and foot care, techniques for patient education, role responsibilities among members of the health team and support routines for organizing care at the centers. The result of this program produced patients who were more knowledgeable about their disease and better able to engage in self-care (Rosenthal, Carlson & Rosengirt, 1988).

Conceptual Framework

An important part of nursing care in a health promotion and prevention model involves assisting the client to recognize his/her values and priorities and to evaluate the extent to which daily behaviors promote or thwart the achievement of valued goals. Health-promoting behaviors are manifestations of the actualizing tendency

and are directed towards enhancing well-being and the expression of the human potential.

Health promoting behaviors are continuing activities that must be an integral part of an individual's life style, physical exercise, maintenance of optimum nutrition and development of social support systems. Old patterns of behavior must be extinguished and new patterns of behavior learned. The individual behaves in ways that maximize positive arousal, such as increased self-awareness. Individual perceptions identified in the health promotion model that affect readiness and motivation to learn self-care include importance of health, perception of health control, desire for competence in self-care, self-awareness, self-esteem, personal definition of health, perceived health status and perceived benefits of health-promoting behavior. In providing health education for diabetes self-care, one should capitalize on existing knowledge and skills and assess current and past experiences with health behaviors (Pender, 1986).

Health demands individual knowledge, motivation, responsibility and participation in making choices related to health. Personal health behavior can be changed by providing information for decision-making by changing attitudes or values.

A framework that offers a rich appreciation of the client's needs is that of a change theory. Change as a phenomenon is an exploration phase marked by seeking out information in order to formulate new perceptions that can be integrated into the

individual's personality (Baily, 1983). Diabetics experience some changes that are inevitable and can't be planned. However, on diagnosis, the diabetic often has to acquire new skills, habits and attitudes and modify relationships.

Working collaboratively with the diabetic generates trust and acknowledges the person's power in the situation. It is also practical and realistic. The client is more likely to share relevant information and try problem solving in this atmosphere of mutuality.

HYPOTHESES

1. Diabetes mellitus patients attending North Muharraaq Health Center Outpatient Department have specific learning needs and problems that require the attention of the nurse health educator.
2. There is a relationship between selected demographic variables and diabetes control, social and emotional factors, regimen and compliance, long-term outcomes and social-support.
3. There is a difference in identification of learning needs between males and females diabetes patients.

METHODS

The study design was a descriptive using frequencies, measures of central tendency, and correlations to describe the socio-demographics, diabetes control, social and emotional factors, long-term outcomes, regimen and compliance, social support and specific interest of the diabetes patients.

Instrument Development

The instrument titled Diabetes Care Profile which was developed by the Michigan Diabetes Research and Training Center at The University of Michigan Medical School was used. Written permission was obtained to use the instrument. The basis for the instrument criteria stated by The American Association of Diabetes Educators and The American Diabetes Association (1981, 1986) is to evaluate and identify needs of the diabetes patient.

The Diabetes Care Profile presents an overall picture of the diabetic patient. It was designed to be diabetes-specific rather than nondisease-specific or generalizable to other chronic diseases, in order to maximize validity, reliability, and utility. The 92 items on the questionnaire provide subscores on the categories labeled: Control Problems, Psycho-social Impact, Barriers to Compliance, Benefits of Regimen, Regimen Complexity, and Risk of Complications. When combined with demographic and clinical information, the scores on this instrument can present a comprehensive summary of the patient's attitudes, beliefs, behaviors and knowledge that is related to diabetes. This individualized

profile can be utilized to formulate a teaching plan to assist the diabetic to comply with a medical regimen and to cope with the impact of a chronic disease (Hess & Davis, 1983).

The instrument was modified by the investigator, who is also a Bahraini, to fit the cultural needs of the Bahraini diabetic patient. The instrument was also given to a Bahraini physician for review for appropriateness.

Validity and Reliability

The Michigan Diabetes Research and Training Center developed the Diabetes Care Profile (Hess & Davis, 1983) from data obtained from more than 950 administrations. These were used to establish reliability and validity of the test instrument.

Content validity of the Diabetic Care Profile was based on the process of instrument development. A list of 500 characteristics related to the educational needs of patients with diabetes was identified through a literature search of some 250 journal articles. The list was edited to a list of 144 phrases describing patient characteristics stated in behavioral terms. The list was sent to over 1500 diabetes clinicians and educators. The final item selection and arrangement was performed by a five-member review panel (Hess & Davis, 1983).

Reliability was estimated by the scale developers on the basis of internal consistency as expressed by Cronbach's Coefficient Alpha. Reliabilities in their studies ranged from .69 to .86 for each of the six identified factors (Hess & Davis, 1983).

In this current study the investigator utilized the Diabetes Care Profile Assessment (for outline content, see Appendix II) because of its established reliability.

Sample Selection and Recruitment

The sample consisted of 50 Bahraini (males and females) diabetes mellitus patients attending the outpatient department of North Muharraq health center during the time period December 18-26, 1988. Patients were selected from walk in patients, willing to participate. Oral consent was obtained. Ages were 28 years and above.

Data Collection

With the permission of the Ministry of Health of Bahrain and approval of the Institutional Review Board of The University of Texas Medical Branch, data was collected from diabetes patients attending North Muharraq Health Center within a specific period of time from December 18, 1988 to December 26, 1988 (see Appendix III). Oral consent was obtained from the patients at the time of the interview (see Appendix III). A structured face to face interview was held by the investigator. The investigator used interviews to facilitate the process for those patients who could not read or write. The investigator asked questions within 45 minutes and recorded the answers in writing to complete the Diabetes Care Profile. The data remained confidential and anonymous after the completion of data collection.

Data Analysis

Data analysis was performed on an IBM-PC computer. Descriptive statistics were developed to summarize the sample characteristics. Pearson product-moment correlations were calculated for the demographic variables with the Diabetes Care Profile and each of its subscales.

Results

This section summarized the data collected and analyzed using the instrument, Diabetes Care Profile.

Demographic Data

The study group consisted of 50 Bahraini diabetic patients attending the outpatient department of North Muharraq Health Center. Their religious background was Muslim. There were 36% male and 64% female (see Table I). The age range was from 28 to 70 years with a mean of 48.3 years. The educational background differed in levels. Seventy four percent did not attend school while 24% attended high school and 2% attended a university. When education was cross-correlated with sex using the Pearson product-moment correlation it showed a statistically significant relationship. Males were more likely to have more education. The occupational status was 6% students; 64% housewife; 20% employed; 2% unemployed, and 8% retired. The marital status was 56% married, 8% single, and 36% widowed. There were 18% who did not have children while 82% had children. The average number of children was six. The average number of adults living in the same house was six.

There were 46% with a family history of diabetes and 54% with no history. The duration of diabetes from the date of diagnosis to interview ranged from 1 to 28 years. There were 24% non-insulin dependent and 76% insulin dependent diabetes. Knowledge about diabetes showed that 50% have poor knowledge; 46% have good knowledge; 4% have excellent knowledge.

The average height was 150 cm. The average weight was 70 Kg. The maximum weight loss was 7 Kg during the study period. The maximum weight gain was 3 Kg. The average ideal weight was 60 Kg.

TABLE I
Demographic Data
(N = 50)

Characteristic	Male(n=)	Female(n=)
Sex	36%	64%
Age		
28-39 Years old	6%	10%
40-49 Years old	8%	24%
50-59 Years old	14%	24%
60-70 Years old	8%	6%
Education		
Did not attend school	20%	54%
High school	14%	10%
University	2%	0%
Occupational Status		
Students	6%	--
Housewife	--	64%
Employed	20%	--
Unemployed	2%	--
Retired	8%	--
Marital Status		
Married	24%	32%
Single	8%	0%
Widowed	4%	32%
Duration of Diabetes		
0-5 Years	14%	20%
6-15 Years	14%	18%
16-25 Years	6%	26%
> 25 Years	2%	0%

Diabetes Care Profile

The Diabetes Care Profile consists of items asking about diabetes control, social and emotional factors, long-term outcomes, regimen and compliance, and social support. The major characteristics and the relevant subscales were correlated with the selected demographic variables of age, sex, education and occupation. Age was correlated with diabetes control and long-term outcome because of the impact of the habituated life-style on the diabetic patient as mentioned in the literature. Sex was correlated with the social and emotional factors in order to identify the different problems of male and females. Education was correlated with regimen and compliance in order to determine whether education had an effect on the ability to understand a regimen and comply with it. Occupation was correlated with regimen and compliance in order to identify any job impact on the individual's health.

Pearson product-moment correlation (r) was used to determine if there were a relationship. The results below are discussed using the profile characteristics.

Diabetes control

The correlation of age with the specific items of the Diabetes Control subscales for 50 diabetic patients showed no significant relationships. However, correlation of age with the item of number of hospitalizations shows a possible trend ($p = .08$) (see Table II).

Regimen and Compliance

The correlation of education with the specific items of regimen and compliance showed no significant relationship among any of the item subscales (see Table II). In addition, the correlation between occupation and advise on level of exercise or physical activity and control diabetes shows no significant relationship (see Table II).

Other general information gained from the regimen and compliance subscales includes the report by patients that they monitor urine glucose and blood glucose on an average of once per week. As for glucose testing in terms of helping in the control diabetes, 12% of patients believe this is not important; 2% reported sometimes and 86% reported it as very important.

In addition, body weight monitoring is reported to be done on an average of once per week. Results showed that 70% of the study group adjusted their diet on the basis of glucose testing, while 30% do not adjust diet in this manner.

In case of insulin reaction, 16% kept sugar ready while 84% did not. Sixty percent took insulin twice a day. Ten percent injected themselves with insulin, while 64% did not. The areas of the body used for insulin injection were 68% in the arms, 4% in the thigh, and 1% in the buttocks. The average duration of insulin intake was 0-4 years.

Long-term outcome

Correlation of age with the subscale of the long-term outcome showed statistically significant relationships with the following items (see Table II).

- foot problems
- eye problems

While correlation of age with the remaining items showed no significant relationship (see Table II). Neither was there a relationship between education and any of the subscale items.

Social and emotional factors

The correlation of sex with items of the social and emotional factors showed a significant relationship with the following: (see Table II). Females are likely to express their feelings more than males.

- afraid of diabetes
- hard to believe that I really have diabetes
- feels unhappy and depressed because of diabetes
- have no difficulty taking care of diabetes

However, there is no significant relationship between sex and other subscale items (see Table II).

Social Support

The correlation of age and sex with the subscale items of social support showed no significant relationship (see Table II).

TABLE II
Correlation Between Items of Diabetes Care Profile and Demographic Characteristics

Characteristic	r*	p
Diabetes Control		
Age and: -diabetes barriers	.00628	.4827
-number of hospitalizations	.19729	.0848
-emotionally upset	.03928	.3933
-sick or had infection	.05686	.3475
-eat the wrong type of food	.03993	.3915
-took the wrong amount of medicine	.13620	.1728
-had more or less physical activity	.12583	.1920
Regimen and Compliance		
Education and: -control diabetes by diet	-.10155	.2414
-advised on diet	-.09800	.2492
-advised on foot care	-.21655	.0650
-advised to check feet for signs of problems	-.01427	.4608
-number of times checking feet	.05030	.3643
-advise on exercise or physical activity	-.12544	.1927
Occupation and: -advise on level of exercise or physical activity	.16063	.1326
-control diabetes	-.17289	.1149
Long-term outcome		
Education and: -eye problems	-.00206	.4943
-kidney problems	-.20260	.0791
-foot problems	-.14214	.1624
-heart problems	-.18993	.0932

Characteristic		r*	p
Long-Term Outcome			
Age and:	-eye problem	.22494	.0581
	-kidney problem	-.01913	.4476
	-foot problems	.28066	.0242
	-heart problem	-.07101	.3121
Social and Emotional Factors			
Sex and:	-diabetes makes life difficult	.17395	.1135
	-afraid of diabetes	.32510	.0106
	-hard to believe that I really have diabetes	.28086	.0241
	-feel unhappy and depressed because of my diabetes	.39292	.0024
	-have no difficulty taking care of my diabetes	.42572	.0010
	-have good relationship with people	.20448	.0772
	-eating food that I like	.14632	.1553
	-I would like to change many things about myself	.17392	.1135
Social Support			
Age and:	-follow my meal plan	.03619	.4015
	-taking my medicine	.11136	.2207
	-taking special care of my feet	-.01306	.4641
	-getting enough physical activity	.01445	.4603
Sex and:	- <u>Family and friends</u> accept me and my diabetes	-.13240	.1797
	-feel uncomfortable about me because of diabetes	.12482	.1939
	-encourage and reassure about diabetes	-.04235	.3851
	-listen to me when I want to talk about my diabetes	-.09703	.2513

* Non parametric estimate of Pearson Product Moment (r)

Specific Needs and Topic of Health Interest

When asked if a health education program were to be conducted for diabetic patients at North Muharraq Health Center, 98% of diabetic patients expressed a need to attend, while 2% did not have a need. The most convenient time for attending the health education program was 50% in the morning around 8 - 9 A.M. and 50% in the evening around 3 - 4 P.M. or 7 - 8 P.M. Overall, 92% of patients reported topics of health interest related to diabetes. Eight percent reported no interest in any topic. Of all subjects, the topic of greatest interest was diet in the females aged 40 - 49 years (12%). Other subjects were fairly evenly distributed in their interests. However, the interest was minimal, ranging from 2% - 4% for any one topic. It is interesting that no males expressed an interest in insulin injection. There was no single area in which females in all age groups showed no interest (see Table III).

TABLE III
Specific Topic of Health Interest

Topic of Interest	Age Group and Sex				Total %*
	28-39 M F	40-49 M F	50-59 M F	60-70 M F**	
Diet	0% 4%	2% 12%	2% 2%	4% 0%	26%
Insulin Injection	0% 4%	0% 6%	0% 4%	0% 2%	16%
Exercise	2% 2%	0% 2%	4% 6%	2% 2%	20%
Complications of Diabetes	0% 0%	4% 0%	2% 4%	0% 2%	12%
What is Diabetes	2% 0%	2% 2%	4% 6%	0% 0%	16%
Other				2%	2%
No Interest					8%
	4% 10% 14%	8% 22% 30%	12% 22% 34%	6% 8% 14%	100%

*Comment: 8% of the patients did not have a specific topic of interest

** F = Female, M = Male

Discussion

The purpose of this research was to identify specific health related problems and learning needs of the diabetes mellitus patients prior to designing a health education program. The study identified significant problems and learning needs of the diabetic study group.

The correlation coefficients between the Diabetic Care Profile items and demographic variables indicated some significant relationships, some of which were expected due to the nature of the variables. For example, the relationship between age and long-term complications with eye and foot problems was not surprising. The percentage of the population with diabetes increases every decade of life past the fourth decade. Therefore, as age increases so does the incidence of long-term complications. A study (Musaiger, Abdulaziz, 1986) done in Bahrain stated that diabetics run a greater risk of developing complications over time. Vascular complications which affect the eye make diabetes one of the leading causes of blindness. Complications that affect the foot can lead to amputations and disabilities. Similar results were found in U.S. literature (Eddy, Hough, & Palumbo, 1986).

It appears that the study group had greater problems with diabetes control as they grew older. In this study (see Table I) the diabetes occurred more often in the age groups 40 - 49 years of age and 50 - 59 years of age. The prevalence of diabetes is higher in females (48%), while the prevalence is only 22% in males. An earlier study done on this population demonstrated that there was an

increased incidence of diabetes in the age groups of 30-39 years and 40-49 years (Taitoon, K, 1984).

Another study (Musaiger, Abdulaziz, 1986) done in Bahrain showed that the prevalence of diabetes was higher among middle aged patients and females. It is well known that diabetes occurs more commonly among overweight people, the elderly and women. Also, as women live longer than men, they are more likely to develop diabetes, possibly due to their obesity, inactivity and diet.

The length of duration of diabetes ranged from 1-28 years. There were fewer males with a long duration of diabetes, while long duration (16-25 years) was common for females. The reasons for the difference according to sex could be that females live longer and diabetes is also more common in females.

The correlation coefficient between sex and selected social and emotional factors showed a significant relationship. This study group seemed to be aware of their fears and unhappiness from diabetes. They were afraid of diabetes, found it hard to believe that they really had diabetes; felt unhappy and depressed; and had difficulty in taking care of the diabetes. Such responses indicated that the study group recognized certain emotional problems and the diabetes may be a stressor and a threat to their self image. It may also show that the study group is in a maladaptive coping style behavior. Defense mechanisms serve to shield a person from a painful reality and may interfere with self-care. In such a case, lifestyle changes are not made or not maintained to foster the diabetes care.

Inspite of the emotional problems the study group perceived that they have good relationships with people, ate food that they liked and would like to change many things about themselves. Such responses suggest that the study group may be ready to change. Change as a phenomenon is an exploration phase by seeking out information in order to formulate new perceptions, that can be integrated into personality and relationships (Bailey, 1983). For example, some of the remarks that the study group stated during the interview that may support the the belief that they are ready to change include:

"The Ministry of Health should announce to every diabetic to come to the health center and get educated about the diabetes. Diet education is very important for diabetic patient."

"I need more instruction on diet. I'm confused on what to eat daily." (see Appendix IV for additional comments).

There was no correlation of age with subscale items of social support. Although there were no statistically significant results, the study group showed motivation in terms of regimen and compliance even though the majority did not believe that it was important to control diabetes or lose weight. The remarks that support the study group's motivation are included:

"I'm interested to learn about the insulin injection and glucose testing."

"In this health center there is a change of doctors that led to confusion to follow the instructions."

"Appointment to see doctors is difficult. Diet and calories should be discussed by the doctors."

"Doctors don't share the results of urine or glucose test with me. When I ask, they tell me that I should not know about it. There are no instruction about diet and doctors do not spend enough time talking with patients." (see Appendix IV for additional information).

The study group expressed interest in attending a health education program, if designed for the diabetic patients. It is generally accepted that knowledge is essential for optimal diabetes control. However, motivation for an individual to change his life-style in response to new knowledge is needed. It is the author's opinion that this study group is trying to capture the attention of the health professionals as if stating "DO SOMETHING."

The study group as a whole was motivated to learn, had the readiness to change, was seeking information and had specific learning needs to convey to the health professionals. The study group has health problems and there were significant results in long-term outcome and social and emotional factors. There were no significant results in diabetes control, regimen and compliance or social support. This could be due to the sensitivity of the questionaaire, the size of the sample, and cultural aspects.

Limitation of the Study

A limitation of the study is the size of the sample. The study was also conducted within a short period of time. Accuracy of patient's self reporting may be in an additional problem. Patients may not readily express the exact thing he/she is feeling to a health professional new to him or her.

Implications of the Study

There are several implications for the results of this research study for nursing and especially for the nurse health educator in the teaching field. Evaluation of knowledge, motivation and ability to identify learning needs and to make life-style adjustments when indicated are considered pre-requisites to the goal for the diabetes education program.

There are certainly nursing implications for long term outcomes. Nurses need to develop screening programs and education for foot and eye problems especially as patients age. Early identification and intervention may prevent serious problems. Educational programs can be a key factor in motivating patients to self-care in this area.

As for social and emotional factors patients expressed a fear of diabetes and difficulty accepting the disease. In addition, there were feelings of depression regarding the diabetes. However, the group indicated little difficulty taking care of the diabetes. To deal with these feelings, the nurse should include counseling and group meetings to discuss feelings as part of the health plan.

Further, teaching about diabetes and what the disease is may dispel some of the fear and depression. Educating the patients should give them some control over the diabetes if they wish to assume it. Family involvement in the teaching program is important in giving additional support to the patient.

Diabetes education can help the diabetic patient learn more about their disease and how to make decisions on a daily basis to improve overall control. This requires a significant commitment from the individual who provides the instruction and from the patient. With improved diabetes control it is believed that the risk of complications can be decreased and significant reductions in health care costs to the individual and society can be realized.

The nurse health educator assesses and cares for diabetes patients. The Diabetes Care Profile can summarize a diabetic patient's education history, health status and medication regimen. This can be utilized to determine management activities that may need to be changed or initiated.

Recommendations

Finally, several recommendations are suggested for continuing research. Future studies should be designed with a larger sample size. Another recommendation would be to design a tool for pre- and post-diabetes education classes to measure the level of knowledge gained. Cost benefit studies could be made to determine the actual savings of improved diabetes control in terms of the costs of medical care to the individual and the Ministry of Health. Another

recommendation would be to design a tool to screen the Bahraini population for diabetes and to find out the prevalence of diabetes in Bahrain. Cohort studies may be recommended to follow up the progress of diabetes in the study group. Other study recommendations would be to design a tool that can measure psychosocial aspects of diabetes and the effects they have on control of diabetes.

In summary, there are significant learning needs and problems that require the attention of the nurse health educator. This is clinically significant for the health care professional when planning a health education program for the diabetic patient with the goal of health promotion and of decreasing the complications of diabetes and increasing the individual's quality of life.

APPENDICES

APPENDIX I

BAHRAIN:

The state of Bahrain consists of an archipelago of about 33 small low-lying islands situated halfway down the Arabian Gulf, 24km from the Eastern Coast of Saudi Arabia and 28km from the Coast of Qatar, having a total of 622 square kilometers. It is located off Saudi Arabia between Kuwait and Qatar, having a peninsula.

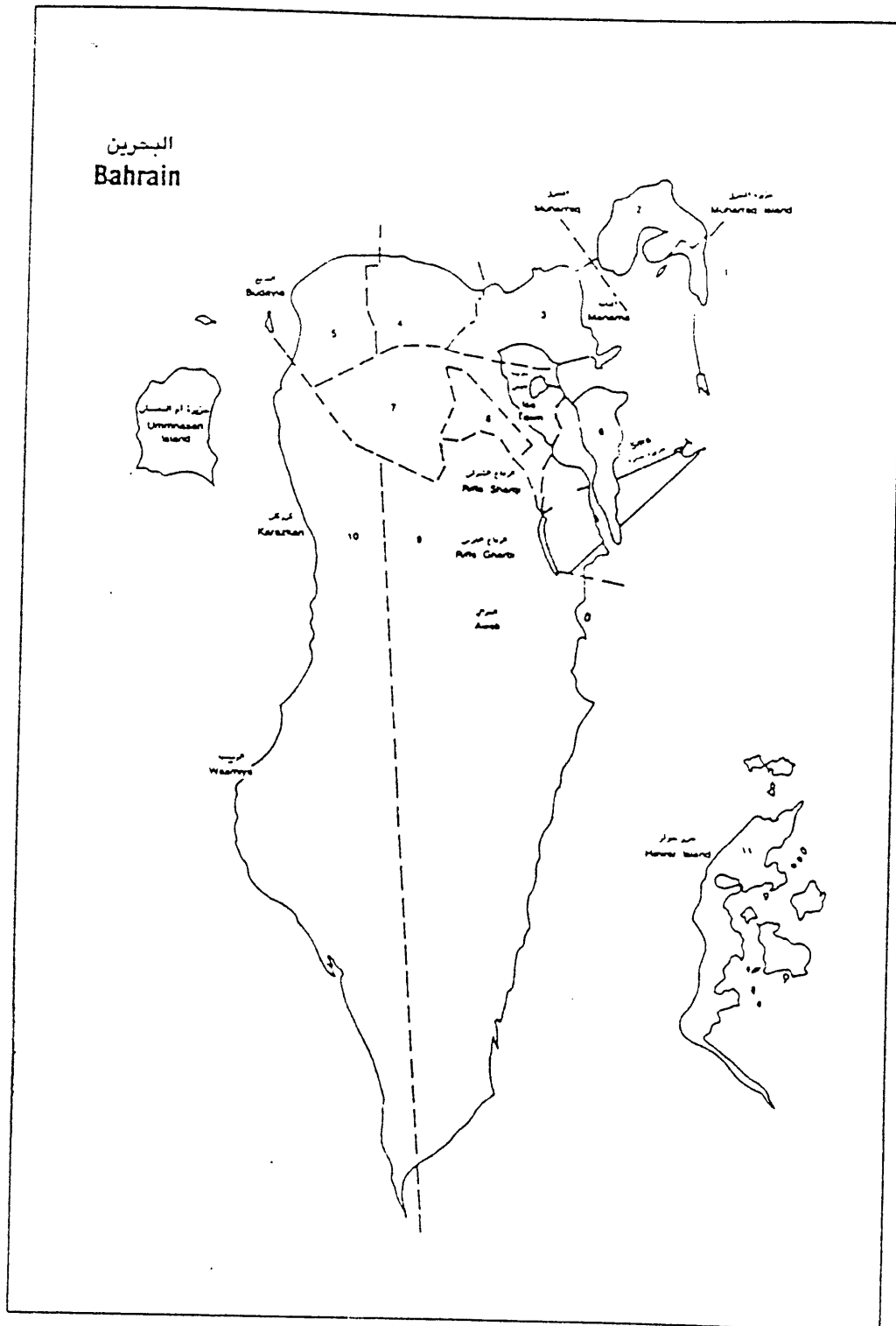
The capital of Bahrain is Manama (Sleeping Place). A causeway completed in 1942, linked Manama to Muharraq Island which forms the Northern part of the island group. Muharraq means a place of burning, originally the name was attributed to a place on the island of the same name where the Hindu cremated their deceased.

The state, according to 1987 statistics has a population of 411,210. Thirty two percent of the population consists of expatriates. The majority of the inhabitants (78%) live in urban areas. The literacy rate is 73%.

The national economy is centered around oil production and related industrialization such as petrol refining, petrol-chemical industry development, aluminum smelting, agriculture and banking. The climate is characterized by high temperatures and humidity in summer. In winter the temperature ranges between 12 - 20⁰ C with regular rainfall.

The present ruler, is Amir, His Highness Shaikh Isa Bin Sulman Al-Khalifa.

MAP OF BAHRAIN



APPENDIX II

Michigan Diabetes Research and Training Center
Diabetes Care Profile

Please answer each of the following questions by choosing the single best answer.

SECTION 1. BACKGROUND INFORMATION

1. I.D. No. _____
2. a. Age _____ b. Religion _____
3. Sex _____ Male _____ Female _____
4. Marital Status: Married _____ Single _____ Widowed _____
5. Do you have children? If yes, state how many.
 _____ No _____ Yes No. of children are _____
6. How many people live with you in the same house?
 _____ Adult (18 years or over)
 _____ Children
7. Educational background: _____ did not attend school
 _____ High School
 _____ College
 _____ University
8. Occupational status: _____ Student
 _____ Housewife
 _____ Employed (occupation _____)
 _____ Unemployed
 _____ Retired
 _____ Other
9. When were you first told you had diabetes? 19 _____
10. Is there any one else in your family like Mother, Father, Sibling with diabetes? Please specify. _____

11. How would you rate your understanding of diabetes and its treatment?

Poor		Good		Excellent
1	2	3	4	5

SECTION II. DIABETES CONTROL

12. How many times in the last month have you had a low blood glucose (sugar) reaction with symptoms such as sweating, weakness, anxiety, trembling, hunger or headache?
13. How many times in the last year have you had sever low blood glucose (sugar) reactions such as losing consciousness or needing help to treat the reaction?
14. How many days in the last month have you had high blood glucose (sugar) with symptoms such as thirst, dry mouth and skin, increased glucose (sugar) in the urine, decreased appetite, nausea, or fatigue?
15. How many days in the last month have you had any ketones in your urine?
16. Have you ever been hospitalized for treatment of diabetes?
17. How many times in the past year have you been hospitalized for diabetes or its complications?
18. How often in the past five weeks have you had changes in your blood glucose (too high or too low) because:

1	1-3	4-6	7-12	12+
---	-----	-----	------	-----

1	1-3	4-6	7-12	12+
---	-----	-----	------	-----

1	1-3	4-6	7-12	12+
---	-----	-----	------	-----

1	1-3	4-6	7-12	12+
---	-----	-----	------	-----

1	1-3	4-6	7-12	12+
---	-----	-----	------	-----

1	1-3	4-6	7-12	12+
---	-----	-----	------	-----

Never	Sometimes	Frequently
-------	-----------	------------

a) you were sick or had an infection	1	2	3	4	5
--------------------------------------	---	---	---	---	---

b) you were emotionally upset?	1	2	3	4	5
--------------------------------	---	---	---	---	---

c) you took the wrong amount of medicine?	1	2	3	4	5
---	---	---	---	---	---

d) you ate the wrong types of foods?	1	2	3	4	5
--------------------------------------	---	---	---	---	---

e) you ate too much or too little food or skipped a meal?	1	2	3	4	5
---	---	---	---	---	---

f) you had more or less physical activity than usual?	1	2	3	4	5
---	---	---	---	---	---

19. How often does your diabetes prevent you from doing your normal daily activities (couldn't work or go to school)?

Never	Sometimes	Frequently
1	2	3
4	5	

SECTION III. SOCIAL AND EMOTIONAL FACTORS

20. My diabetes and its treatment keep me from:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a) having enough money	1	2	3	4	5
b) meeting work and other responsibilities	1	2	3	4	5
c) going out or traveling as much as I want	1	2	3	4	5
d) being as active as I want	1	2	3	4	5
e) eating foods that I like	1	2	3	4	5
f) having good relationships with people	1	2	3	4	5
g) having a schedule I like (e.g., sleeping late)	1	2	3	4	5
21. Paying for my diabetes care is a problem	1	2	3	4	5
22. Having diabetes makes my life very difficult.	1	2	3	4	5
23. I am afraid of my diabetes.	1	2	3	4	5
24. I find it hard to believe that I really have diabetes.	1	2	3	4	5
25. I feel unhappy and depressed because of my diabetes	1	2	3	4	5
26. I have no difficulty taking care of my diabetes.	1	2	3	4	5
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
27. I feel inferior to others because of my diabetes.	1	2	3	4	5
28. I find it hard to do all the things I have to do for my diabetes.	1	2	3	4	5
29. All things considered, I feel satisfied with my life.	1	2	3	4	5

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
30. I can do just about anything I set out to do.	1	2	3	4	5
31. I would like to change many things about myself.	1	2	3	4	5

SECTION IV. LONG-TERM OUTCOMES

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
32. Taking the best possible care of diabetes will delay or prevent:					
a) eye problems	1	2	3	4	5
b) kidney problems	1	2	3	4	5
c) foot problems	1	2	3	4	5
d) hardening of the arteries	1	2	3	4	5
e) heart disease	1	2	3	4	5
33. I have the following complications of diabetes:					
a) eye problems.....	Yes	No			
b) kidney problems.....	Yes	No			

SECTION V. REGIMEN AND COMPLIANCE

Part A: Diet

34. Has your health care provider recommended that you follow a meal plan or diet:

- a) to control your diabetes.... Yes ____ No ____ Not Sure ____
 b) to lose weight..... Yes ____ No ____ Not Sure ____

If NO to BOTH items (no meal plan and no diet), go to Question 44

35. How many calories a day are included in your diet? _____ Not Sure
 36. How many calories a day do you usually eat? _____ Not Sure

37. Have you been advised to follow the schedule for your meals and snacks?
- | | | |
|----------|-----------|------------|
| Never | Sometimes | Frequently |
| <u>1</u> | <u>2</u> | <u>3</u> |
| <u>4</u> | <u>5</u> | |
38. Do you depend on someone else to shop for or prepare your food?
- _____ Yes _____ No
39. Have you been advised to weigh or measure your food?
- _____ Yes _____ No
- If YES, how often do you weigh or measure your food?
- | | | |
|----------|-----------|------------|
| Never | Sometimes | Frequently |
| <u>1</u> | <u>2</u> | <u>3</u> |
| <u>4</u> | <u>5</u> | |
40. Have you been advised to use exchange lists (food groups) to plan your meals?
- _____ Yes _____ No
- If YES, how often do you (or the person who cooks your food) use the exchange lists (food groups) to plan your meals?
- | | | |
|----------|-----------|------------|
| Never | Sometimes | Frequently |
| <u>1</u> | <u>2</u> | <u>3</u> |
| <u>4</u> | <u>5</u> | |
41. Following my meal plan (eating the right foods at the right times) helps me control my diabetes.
- | | | | | |
|-------------------|----------|----------|----------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> |
42. I can stray from my meal plan and still control my diabetes.
- | | | | | |
|----------|----------|----------|----------|----------|
| <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> |
|----------|----------|----------|----------|----------|
43. Following a diet interferes with my other activities.
- | | | | | |
|----------|----------|----------|----------|----------|
| <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> | <u>5</u> |
|----------|----------|----------|----------|----------|
44. What is your height? _____ (inches)
45. What is your weight? _____ (pounds)
46. How has your weight changed in the last year?
- _____ Stayed same
- _____ Lost (number pounds Kg:)
- _____ Gained (number pounds Kg:)
47. What would you like to weigh? _____ (pounds Kg:)

PART B: Medications

48. Do you take pills to regulate your diabetes (to lower blood glucose)?

_____ Yes _____ No

If NO, go to question 53

49. How many pills per day have you been told to take? _____

50. How many pills do you take per day? _____

51. What is the name of the pills?

_____ Orinase (Tolbutamide)
 _____ Diabinese (Chlorpropamide)
 _____ Dymelor (Acetohexamide)
 _____ Tolinase (Tolazamide)
 _____ Micronase (Glyburide)
 _____ Glucotrol (Glipizide)
 _____ Other: _____

52. What is the strength of the pills in milligrams (mg)?

_____ 1.25 mg _____ 100 mg
 _____ 2.5 mg _____ 250 mg
 _____ 5 mg _____ 500 mg
 _____ Not sure

INSULIN

53. Do you use insulin?

_____ Yes _____ No

If NO and taking antidiabetes pills, go to question 61.

If NO and not taking antidiabetes pills, go to question 62.

54. For each insulin (e.g., short-acting, intermediate, etc.) you use, write the number of units opposite the time(s) of day

you use them.	<u>Short-acting</u>	<u>Intermediate-acting</u>	<u>Long-acting</u>
Before Breakfast	_____	_____	_____
Before Lunch	_____	_____	_____
Before Dinner	_____	_____	_____
Before Bed	_____	_____	_____

55. Do you keep a ready source of sugar available in case of an insulin reaction? ☐ Yes ☐ No
56. How do you take your insulin? ☐ Syringe ☐ Infusion Pump
If infusion pump, go to question 62.
57. How many times during the day are you supposed to take your insulin? (times)
58. Typically, how many times during the day do you take your insulin?
 (times)
59. Do you inject your own insulin? ☐ Yes ☐ No
60. How long have you taken insulin? (years)
61. What areas of your body do you use for your insulin injection?
(Mark all that apply)
- ☐ arms
- ☐ thighs
- ☐ buttocks
- ☐ abdomen
- ☐ other:
62. People with diabetes sometimes change how much diabetes medication they take. How often have you changed the dosage of your insulin or anti-diabetes pills because:
- | | Never | Sometimes | Frequently |
|------------------------------------|-------|-----------|------------|
| a) you forgot about your medicine? | 1 | 2 | 3 |
| b) you wanted to experiment? | 1 | 2 | 3 |
| c) you were upset about something? | 1 | 2 | 3 |
| d) you ate too much food? | 1 | 2 | 3 |

PART C: Foot Care

63. Have you been advised by your health care team to take special care of your feet? ☐ Yes ☐ No
- If NO, go to question 66.

64. How often have you been advised to check your feet for signs of problems?

- ☐ Not at all
☐ Once a month
☐ Once a week
☐ Every day

65. How often do you check your feet for signs of problems?

- ☐ Not at all
☐ Once a month
☐ Once a week
☐ Every day

PART D: Physical Activity

66. Has your health care professional recommended a level of exercise or physical activity for you?

☐ Yes ☐ No

67. What level of activity was advised?

- ☐ Light activity (strolling)
☐ Moderate activity
 (quick walking)
☐ Strenuous activity (running)

68. What is your current level of exercise or physical activity?

- ☐ Light activity (strolling)
☐ Moderate activity
 (quick walking)
☐ Strenuous activity (running)

69. How often do you have trouble getting enough physical activity because:

	Never	Sometimes	Frequently
a) you are too busy?	1	2	3
b) it takes too much effort?	1	2	3
c) you don't believe it is necessary?	1	2	3
d) you don't like to do it?	1	2	3

PART E: Monitoring

70. With your current prescription,
how many days a week are you to use
the following tests to check your diabetes?

	One	Two	Three	Four	Five or more	Don't use
a) urine glucose test	1	2	3	4	5	9
b) blood glucose test	1	2	3	4	5	9
c) body weight	1	2	3	4	5	9

If you do NOT check for glucose, go to question 77.

71. On the days you test for glucose,
how many times per day have you
been told to test?

Urine glucose ____ (times/day)

Blood glucose ____ (times/day)

72. How often do you test for glucose
at the times you have been told?

	Never	Sometimes	Frequently
a) you forgot ?	1	2	3
b) you don't believe it is useful	1	2	3
c) the time or place wasn't appropriate?	1	2	3
d) you don't like to do it?	1	2	3
e) you ran out of test materials?	1	2	3
f) it's too expensive?	1	2	3

74. How important do you think it
is that you follow exactly your
test schedule for glucose?

Not important	Somewhat	Very important
1	2	3
4	5	

75. How much does glucose testing
help you control your diabetes?

Not important	Somewhat	Very important
1	2	3
4	5	

76. If you test for blood glucose,
do you use a meter to read your
glucose level?

____ Yes ____ No ____ Don't test

77. When have you been told by your health care professional to test your urine for ketones?

(Mark all that apply.)

- ☐ When you are sick
- ☐ When glucose level is high
- ☐ When on a weight loss diet
- ☐ Fixed schedule
- (for example, weekly)
- ☐ Don't test for ketones

78. How often do you test for urine ketones as you were told?

Never	Sometimes	Always
1	2 3	4 5

79. How important do you think it is that you test for ketones at the times you were told?

Not important	Somewhat	Very important
1 2	3 4	5

80. How much does testing for ketones help you control your diabetes?

Not at all	Somewhat	To great extent
1 2	3 4	5

81. Have you been told to keep a record of glucose or ketone test results?

☐ Yes ☐ No

☐ Only unusual value

If YES, do you keep a record or test results?

☐ Yes ☐ No

☐ Only unusual value

82. Do you adjust your own insulin dosage on the basis of your test?

☐ Yes ☐ No

83. Do you adjust your diet on the basis of your tests?

☐ Yes ☐ No

84. Has your doctor advised you to adjust your own insulin dosage on the basis of your tests?

☐ Yes ☐ No

85. Do you alter your level of physical activity as a result of your test?

☐ Yes ☐ No

SECTION IV. Social Support

86. I want a lot of help from my family and friends in:
- | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|-------------------------------------|-------------------|----------|---------|-------|----------------|
| a) following my meal plan | 1 | 2 | 3 | 4 | 5 |
| b) taking my medicine | 1 | 2 | 3 | 4 | 5 |
| c) taking special care of feet | 1 | 2 | 3 | 4 | 5 |
| d) getting enough physical activity | 1 | 2 | 3 | 4 | 5 |
| e) testing for glucose | 1 | 2 | 3 | 4 | 5 |
87. My family and friends help me a lot to:
- | | | | | | |
|-------------------------------------|---|---|---|---|---|
| a) following my meal plan | 1 | 2 | 3 | 4 | 5 |
| b) taking my medicine | 1 | 2 | 3 | 4 | 5 |
| c) taking special care of feet | 1 | 2 | 3 | 4 | 5 |
| d) getting enough physical activity | 1 | 2 | 3 | 4 | 5 |
| e) test for glucose | 1 | 2 | 3 | 4 | 5 |
88. My family and friends:
- | | | | | | |
|---|---|---|---|---|---|
| a) accept me and my diabetes | 1 | 2 | 3 | 4 | 5 |
| b) feel uncomfortable about me because of my diabetes | 1 | 2 | 3 | 4 | 5 |
| c) encourage and reassure me about my diabetes | 1 | 2 | 3 | 4 | 5 |
| d) discourage or upset me about my diabetes | 1 | 2 | 3 | 4 | 5 |
| e) listen to me when I want to talk about my diabetes | 1 | 2 | 3 | 4 | 5 |
89. If a Health Education program is designed for the diabetic patient at North Muharraq Health Center would you like to attend? ☐ Yes ☐ No
90. What is the most convenient time that you could attend? Please specify. ☐ A.M. ☐ P.M.

91. What is the most important topic that you would be interested in?

1. _____ Diet
2. _____ Insulin Injection
3. _____ Exercise
4. _____ Complications of Diabetes
5. _____ What is Diabetes
6. _____ Other _____

92. Is there anything not asked in this questionnaire that you would like to tell your health care professionals? Thank You.

COMMENTS:

APPENDIX III

ORAL CONSENT FORM

Hello. My name is Kawther Taitoon. I am a nurse and carrying out a research study on "Evaluation and Identification of the Learning Needs of Diabetes Mellitus Patients".

If you are interested and willing to volunteer in this study, I will interview you for around 45 minutes and will ask questions.

The result of this study will be utilized to design a Health Education Program for the Diabetic Patient, therefore your input will be considered.

All information you submit will be confidential and will produce you no harm.

If you have any questions about this study, I will be glad to answer them.

Thank you for considering this request.

DATE

SIGNATURE OF PROJECT DIRECTOR
OR REPRESENTATIVE

APPENDIX A

STATE OF BAHRAIN

MINISTRY OF HEALTH

P. O. BOX 12,

BAHRAIN, ARABIAN GULF.



دولة البحرين

وزارة الصحة

No. : RD/JKA/ma/ 20/

Date : June 29, 1988

الرقم :

التاريخ :

Dr. R. Craig Stotts
 Director,
 Graduate Program
 Associate Professor
 The University of Texas Medical Branch
 1100 Mechanic, Galveston, Texas 77550

Dear Dr. R. Craig Stotts,

SUB: Ms. Kawther Jumma Al-Taitton

As requested by you we are enclosing herewith the Consent Form duly signed to enable Ms. Kawther Jumma Al-Taitton to do her data collection at North Muharaq Health Center, State of Bahrain from December 20, 1988 to January 7, 1989.

Looking forward to meet her in December.

Yours sincerely,

Riyadh Dhaif
 RIYADH DHAIF
 for. Head, Paramedical & Admin. Training.

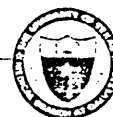
cc: Ms. Kawther Jumma ✓

APPENDIX B

The University of Texas Medical Branch at Galveston

School of Medicine
Graduate School of Biomedical Sciences
School of Allied Health Sciences
School of Nursing

Marine Biomedical Institute
Institute for the Medical Humanities
UTMB Hospitals



Office of
Sponsored Programs—Academic

August 2, 1988

MEMORANDUM

TO: Kawther J. AL-Taitoon, R.N., B.S.N./Linda Rounds, R.N., Ph.D.
Graduate Nursing Student/Assistant Professor
School of Nursing J29

FROM: E. Ray Stinson, Ph.D.
Director of Sponsored Programs-Academic

SUBJECT: Expedited Review, Human Subjects

Project Director: Kawther J. AL-Taitoon, R.N., B.S.N./Dr. L. Rounds OSP #88-229
Project Title: "Evaluation and Identification of the Learning Needs of a
Diabetic Mellitus Patients Attending North Muharran Health Center Bahrain,
1988-1989"

Under the Institutional Review Board's mechanism for reviewing minimal risk protocols, your project referenced above has been approved on August 2, 1988. I am, therefore, pleased to inform you that you may proceed with this project effective immediately.

Project Directors of approved projects are responsible for reporting to the Institutional Review Board any unanticipated adverse reactions observed during the conduct of the project as well as any severe or serious side effects whether anticipated or unanticipated.

Should your project require modification which alters the risk to the subject or the method of obtaining informed consent, the project must be reevaluated by the Institutional Review Board before the modification is initiated.

Completed subject consents should be maintained in the designated place for at least three years after the termination of the project. In order to be in compliance with the requirements of the FDA regulations, 21 CFR 56.27a, a copy of the completed consent document must be provided to the subject.

COMMENTS: NOTE: This study is approved for the use of oral assent.

ERS/nh

APPENDIX C

CONSENT FORM

THE CONSENT FORM IS PART OF A RESEARCH PROPOSAL REQUIREMENT BY THE UNIVERSITY OF TEXAS MEDICAL BRANCH AT GALVESTON. THE CONSENT FORM WILL BE ATTACHED TO THE RESEARCH PROPOSAL IN ORDER TO BE PROCEEDED BY THE I.R.B. (INSTITUTIONAL REVIEW BOARD) FOR APPROVAL.

I AM KAWTHER JUMMA AL-TAITOON, A BAHRAINI, GRADUATE STUDENT AT UTMB. SCHOOL OF NURSING WILL BE CARRYING A RESEARCH, ENTITLED EVALUATION AND IDENTIFICATION OF LEARNING NEEDS OF DIABETES MELLITUS PATIENTS ATTENDING OUTPATIENT DEPARTMENT AT NORTH MUHARRAQ HEALTH CENTER, BAHRAIN. MY DATA COLLECTION WILL PROCEED FROM DECEMBER, 20TH 1988 TO JANUARY 7th, 1989.

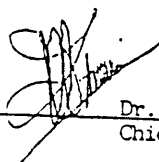
ENCLOSING MY RESEARCH STATEMENT AND IN ORDER TO ACHIEVE THIS GOAL, I INVITE YOU TO COMPLETE THIS CONSENT FORM AND MAIL IT BACK TO ME AS SOON AS POSSIBLE.

I Dr. Fawzi A. Amin UNDERSTAND THE NATURE OF THIS RESEARCH PROJECT AND I FREELY AGREE TO GIVE MY CONSENT.

26th June 1988.

DATE

SIGNED



Dr. Fawzi A. Amin

Chief of Medical Staff for Primary Care.

APPENDIX IV

Remarks of Diabetic Patients

The following remarks were expressed by diabetic patients during the interview:

1. "In this health center there is a change of doctors everyday. This leads to confusion in following the instructions."
2. "Doctors don't give instruction on the diabetes."
3. "Doctors are careless and don't teach about diabetes."
4. "Doctors and nurses don't sit and discuss about the diabetes with me. They don't give instruction, neither ever listen to problems."
5. "Appointments to see doctors is difficult. Diet and calories should be discussed by the doctors."
6. "I don't like the way the doctors talk with me. They talk only on diet and nothing else."
7. "Doctors don't pay attention to what I talk about my lowering blood sugar. He talks to me in a sarcastic way."

8. "Doctors don't share the results of urine or glucose test with me. When I ask, they tell me that I should not know about it. There are no instructions about diet, and doctors do not spend enough time talking with patients."
9. "I'm interested to learn how to give myself injections."
10. "Doctor does not listen to patient's problems and complaints. It is better not to talk because there is no one to listen."
11. "Doctors don't tell us about the blood test results."
12. "I'm interested in learning how to inject myself with insulin injections."
13. "Health education on the diabetes should be given through T.V. so everyone can learn."
14. "I am interested to learn about the insulin injection and glucose testing."
15. "The Ministry of Health should announce to every diabetic to come to the health center and get educated about the diabetes. Diet education is very important for diabetic patient."
16. "I need more instruction on diet. I'm confused on what to eat daily."

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VITA

Kawther Jumma Al-Taitoon, Bahraini subject, received her high school education from Sacred Heart School and General Nursing Diploma from Bahrain School of Nursing in 1973. She attained her administration and teaching in Mental Health and Psychiatric nursing Diploma in 1975; a Bachelor of Science degree in general nursing in 1982; and a Teaching Diploma in Health Education in 1983 from the American Univeristy of Beirut-Lebanon.

During the following years she was employed by Bahrain Ministry of Health and worked for five and one-half years in a Psychiatric Hospital as a staff nurse; head nurse; evening supervisor; community and private psychiatric nurse.

She also worked for four and one-half years in Bahrain College of Health Sciences as a lecturer and a researcher. She also worked as a volunteer teacher in arts and crafts; and first-aid part time teacher at Bahrain Dry Dock.

In addition, she is a member of Bahrain General Health and Safety Society; Bahrain Photographic Society; American Diabetes Nurse's Association; and member of a research enterprise of the Michigan Diabetes Research and Training Center.

In January, 1988 she entered the Univeristy of Texas Graduate School of Biomedical Sciences and is expected to received the Master of Science in Nursing degree in December, 1989. She is a permanent resident of North Muharraq, Bahrain.

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This thesis was typed by Brenda G. Ipina