SELF-CARE MANAGEMENT KNOWLEDGE AND SKILLS AMONG DIABETIC PATIENTS AT THE UNIVERSITY COLLEGE HOSPITAL, IBADAN.

BY

SYLVIA ELEKYONG ESSIEKEN
B.Ed. (HOM) IBADAN

A Dissertation submitted in partial fulfilment of the requirements for the degree of Master of Public Health (Health Education) at the University of Ibadan, Ibadan.

Department of Preventive and Social Medicine
Faculty of Clinical Sciences and Dentistry
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DEDICATION

This work is dedicated:

To tho Almighty God who sustained me throughout the period of this degree programme.

To my dearest Parents, Chief and Mrs. A.O. Essession whose love and encouragement spurred me to this hoight.

To my brothers and sisters Michael, Winifred, Evelyn, Kathloon and Joseph for their love and prayers.

ABSTRACT

This study was designed to determine the nature and extent of knowledge of cause, prevention and treatment of diabetes among diabetic patients. It sought to relate their diabetic management skills to knowledge, social and educational status, as well as attendance of diabetic association meetings.

The study was carried out at the Medical Out-Patient Department, University College Hospital, Ibadan and was limited to the clinic setting. In all one hundred and fifty (150) male and female, young and old diabetic patients were studied, after a pre-test on twenty (20) diabetic patients at Adeoyo State Hospital, Ibadan.

A case study design was employed. Detailed information was obtained at one contact. Observation and interview using an interview guide were used for data collection. The interview schedule were drawn both in English language and Yoruba (Yoruba language being the medium of communication in the locality). Patients interviewed were selected using systematic random sampling method.

Based on the information gathered data were presented in a descriptive manner as examples and

case studies. Chi-squared test (χ^2) and Z test were used to verify statistical association between variables.

The sex distribution of the respondents showed the males to be 54% and females 46%. More than one third of the respondents were insulin - dependent. Various symptoms led respondents to seek care in the hospital, prominent among which were, excessive urination, persistent thirst, excessive eating and loss of weight.

Since the onset of diabetes, the insulin-dependent respondents were admitted in the hospital on the average of 1.27 times while the non-insulin dependents were admitted on an average of 0.50 times. With clinic appointments, the insulin dependents had an average of 4.75 appointments while the non-insulin dependents had an average of 4.25 appointments within a period of six months.

Areas where respondents had adequate knowledge of the management of diabetes were identified. These included knowledge of diet for diabetics and consequences of adherence to the dietary regulation; knowledge of the complications of diabetes; testing urine for sugar; and the insulin dependent respondents were skilful in injecting themselves with insulin.

Findings showed that respondents complied with their clinic appointments and adhered to recommended medication regimens.

Findings from the study identified areas where respondents were deficient in the knowledge of diabetes. These included knowledge of the causes of diabetes; knowledge of measuring insulin into the syringe and knowledge of appropriate insulin dosage.

Because of problems encountered respondents received support from their children, parents, spouse, friends and relatives, hospital, social welfare and the Church/Mosque.

Respondents stated that they had knowledge of the presence of the health educator and dietitian assigned to the department; that they counselled and educated patients and members of their families on the management, and skills for the care of diabetes.

For the improvement of services respondents wanted the hospital to provide medication for diabetes on regular basis and to improve the educational programmes organized for patients. Respondents wanted the Diabetic Association, to improve on the procedure it adopts to procure medication for its members and to ensure that other diabetic patients

join and become active members of the association.

On the basis of the findings and the conclusions drawn, relevent recommendations were made with respect to the health education needs of diabetic patients.

ACKNOWLEDGEMENT

I wish to express my sincere gratitude to my Supervisor, Dr. Jayashree Ramakrishna for her personal interest, guidance, encouragement and useful suggestions she made throughout the period of the study.

I wish to thank my adviser, Professor A. Adetuyibi of the Department of Medicine, for his interest, direction and critical review of the medical aspects of the research.

I am grateful to Dr. O. Oladepo for his assistance and review of the work.

I wish to thank Dr. Ajuwon for improving my understanding of diabetes mellitus.

I would also like to thank Mr. W.R. Brieger for his assistance in various ways particularly for giving me unlimited access to his books and journals and support during my enforced stay in Igbo-Ora.

My gratitude is extended to Sister Suberu, the health educator at the Medical Out-Patient Department for her support and for the cooperation of the staff of the medical outpatient department.

I appreciate and acknowledge the prayer and support of Rev. Fr. (Dr.) John A.K. Aniagwu; Matthew Uwaya, O.P. and Rev. Fr. Ayo-Maria Atoyebi, O.P. My thanks also go to Dr. Patrick I.E. Oyakhire for proof-reading this research.

I extend my sincere gratitude to Prof. O.O. Kale of Preventive and Social Medicine Department for his assistance and review of the study after my Supervisor Dr. J. Ramakrishna returned to her Country, India.

I also thank the Biomedical Communications Centre Medical Illustration Unit for producing the Sketch Plan of the Medical Out-patient, University College Hospital, Ibadan. My sincere thanks also go to my typist Miss Augusta Onyeachonam.

To all others who in one way or the other helped to see me through this course, I say thank you.

CERTIFICATION

I certify that this work was carried out by Sylvia Akpenyong Assession (Miss) in the Department of Preventive and Social Medicine, College of Medicine, University of Ibadan, Ibadan, Nigeria.

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TABLE OF CONTENTS

TABLE OF CONTENTS (Contd.)

TABLE OF CONTENTS(Contd.)

TABLE OF CONTENTS(Contd.)

LIST OF TABLES

LIST OF TABLES(Contd.)

LIST OF TABLES(Contd.)

LIST OF TABLES(Contd.)

LIST OF FIGURES

Page

FIGURE

CHAPTER ONE

INTRODUCTION

The objective of WHO's programme of public information and education for health is to encourage people to want to be healthy, to know how to stay healthy, to do what they can individually and collectively to maintain health, and to seek help when needed (Levin, Katz, and Holst 1976). Werner (1983) states that self-reliance and self-care from the family to the national level are not only prime ingredients but also are key determinants of "health for all". Self-reliance satisfies the need for identity, fulfilment, and optimizing the human potential as a constructive social resource. Levin (1981) claims that through selfcare, barriers to health care (accessibility, social distance) between professional and consumer are reduced.

The non-professional construction of health and health care (Levin 1981) defines self-care as the first level and most pervasive form of primary care. Self-care encompasses activities related to health promotion, disease prevention, illness and injury treatment, chronic disease management and rehabilitation. Self-care is not an exclusive practice for industrialized

societies nor is it further development appropriate only for countries with high literacy rates and high standards of living. It is very much a part of traditional health care, it is the dominent mode of health care for most of the world's rural people in developing countries.

Studies have shown that as chronic diseases begin to dominate the morbidity patterns in the developing world as they do in the industrialised nations, there is a growing need to shift the goals and strategies of medical intervention from cure to care (Levin 1981).

Acoording to Brieger (1983) coping with chronic disease conditions poses a special hardship for patients. Often the disease conditions result in crises and early death due to poor management. Many of the chronic disease patients suffer from isolation, alienation, discomfort, fear associated with the illness and are dependent on others to make health or illness related decisions.

Diabetes Mellitus, one of the chronic disease conditions common among the middle aged and elderly than the young, devastating in either setting, is one of the main causes of activity limitation and one of the most common chronic diseases. Although diabetes was among the most ancient of recorded diseases, it continues to be a medical and public health problem of great magnitude

because of its ever increasing incidence and prevalence all over the world, and the probability of individuals eventually acquiring the disease increases with age.

According to the WHO (1985) the prevalence of diabetes mellitus in United States of America, South of South America, Ivory Coast, is between 5 and 10%. In Canada, USSR, Europe, South Africa, Australia and Nigeria it is between 2 and 5%. According to Osuntokun et al. (1971) out of the 200,000 patients seen and treated in the various clinics in the University College Hospital over a period of three years, the prevalence of diabetes mellitus (in the hospital population U.C.H. Ibadan) was 0.43%.

At the same hospital, the total number of diabetic new out patients seen during the year 1983-1985 were:

Year	Male	Female	Total
1983	72	73	145
1984	100	80	180
1985	95	69	164

The prevalence of diabetes mellitus in the non-hospital populations in Nigeria has not been determined (Osuntokun et al. 1971).

According to WHO (1985) education and training of diabetic patients and their families are the foundations of good diabetic therapy. Areas of instructions that

should be incorporated in the patient education programme should include basic concepts of diabetes and its control; principles of dietary management; urine testing, its importance and interpretation; complications of diabetes; exercise; personal hygiene; use of insulin/oral hypoglycaemic agent; the diabetic association and its importance; and the psychological and social aspects of the disease.

Educational programmes for diabetic patients can be conducted at the physicians' office, health educators' office, or at the clinic and should be carried out according to the needs, interest, abilities, knowledge and understanding of the patients. Health instructions can either be done individually or in groups, and should employ a variety of teaching aids such as visual equipment, demonstration, books, pamphlets to stimulate patient interest and acceptance.

Well planned patient education programmes improve the psychological, and social wellbeing of the patients. With the psychological wellbeing; this helps in decreasing fear of diabetes and its complications; it improves acceptance of diabetes and better participation by the patient in the diabetic management therapy.

Social wellbeing: Adequote education on diabetes decreases fear of diabetes by patients; reduces times absent from work or school; decreases sense of isolation as the patient learns to adapt management to his/her social needs. Furthermore patient education programmes encourages diabetic patients to come together to form groups for the purpose of identifying with others with similar problems, share experiences, inform public via the media of their difficulties and solicit for their support.

Here in Ibadan, patients with diabetes mellitus utilizing the services of the Adeoyo State Hospital and University College Hospital, have formed diabetic associations where they meet regularly to discuss issues of interest relating to their chronic condition. At the University College Hospital, the present diabetic association was launched in July 1982; the association had earlier been launched in 1971 but folded up because of financial and administrative misunderstanding among members of the group.

On the average about fifty (50) diabetic patients attend the U.C.H. diabetic association meetings regularly and take active part in the activities of the group. The meetings are held every first Monday of the month while diabetic clinics are held every Monday. The

health education unit at the medical outpatient department is in charge of organizing the activities of the association. The objective of the unit is to provide diabetic patients with the knowledge of the nature of diabetes and adequate skills for its management.

Activities organized for the patients include:

i) Health talks on the basic concepts of diabetes mellitus and its control, on clinic days and during their monthly meetings.

ii) Individual and group counselling involving demonstrations on how to test urine for sugar, how to record the result of the urine test in a notebook and the importance of bringing notebook on clinic days to show the doctor/the health educator.

iii) Patients are taught the symptoms of hypo/hyper-glycemia and what to do when symptoms appear. Patients are encouraged to know their drugs and the daily dosage. Patinets on insulin are taught how to sterilise syringe and needle using familiar kitchen equipment. They are taught how to measure insulin and the injection technique.

They are encouraged to store insulin in a cool environment, in a refrigerator preferably or under clay

waterpot. They are educated on the importance of compliance with medication and regular attendance at clinic. The Counselling of the members of the family of the patient with childhood diabetes is also accomplished.

Studies on management of diabetes have shown that patients who are well informed about diabetes, develop relevant skills, restrict dietary intake and maintain appropriate body weight, will manage diabetes very effectively (Whitman et al. 1985; WHO 1985). In the light of these, this study set out to determine whether diabetic patients utilizing the services of the University College Hospital Ibadan, have adequate knowledge of diabetes, as well as the skills and resources required for its management and also determine factors that promote regular attendance at meetings of the Diabetic Association.

The dissertation consists of six chapters. The first gives the background to the problem being studied. Chapter two reviews literature on diabetes mellitus; theoretical framework (that is applicable health education theories and models) that would be useful in interpreting some issues involved in this study is also presented; and self-care in health. Chapter three describes the methodology of the study in terms of the

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statement of the problem, scope and significance of study, the objectives of the study, the research design, sampling procedure, instruments for data collection, reliability and validity, methods adopted in analysing the result and limitation of the study. Chapter four gives an analysis of the result, the organization of the diabetic clinic, procedure at the pharmacy when collecting medications; Diabetic clinic personnel (their duties and function) patients perception of health care providers; Investigator's observation of the patient - provider interraction; and the organization of the diabetic association at the University College Hospital, Ibadan. Finally four case studies are illustrated.

Chapter five interprets the results with the aid of health education models and theories and relate the results to other relevant studies.

Chapter six highlights results and conclusions and make specific recommendations to aid improvement of services.

CHAPTER TWO

REVIEW OF LITERATURE

NATURE AND EXTENT OF THE PROBLEM

Patients with chronic illness have many longterm concerns about their future, prominent amongst which are the loss of their customary social roles, maintaining their self esteem and their need to develop a new life style (Viney 1984). In addition the diseases require complex and expensive diagnostic technology to define them, and the medical interventions which are available serve primarily to maintain or preserve function (Smolensky, 1977 and Grant, 1981).

Problems experienced by patients with chronic disease in general, and diabetes in particular are: i. Socio-cultural ii. Economic iii. Physical and iv. Psychological in nature.

i. Regarding Socio-cultural Problems: Diabetics may suffer from lack of social support especially from members of the family, from doctors and other health care providers, also unpleasant dietary restriction may curtail their social life. The belief that diabetes is sexually transmitted sometimes lead to divorce among couples.

ii. The Economic Problems include high cost of insulin, oral hypoglycaemic agents, expenses

of recommended diet especially for the lower socio-economic class.

iii. Physical problems include those that may involve chronic complications such as degenerative changes in the lens of the eye, blood vessels of the retina, capillaries in the kidneys; nerves leading to numbness and uncomfortable peppery burning sensation in the hands and feet; sexual impotence, foot ulceration, amputation of the foot. These in turn may lead to expensive treatment and hospitalisation and further alienate them from the family.

iv. With Psychological problems these may involve patients having difficulty in accepting that diabetes is longterm disease requiring treatment for life. Diabetics may be embarrassed about their condition and are afraid that people will treat them differently (Entmacher and Marks 1971; Brieger, 1983).

With increasing rise in chronic diseases particularly diabetes, it has become evident that acute care or formal health care for maintenance is inadequate. Patients require continuous, longterm watchful care; and there is a need for them to assume a greater responsibility for self-care. According to Cluff (1981) chronic

diseases as a whole are not confined to the elderly population (65 years and above) alone, members of the younger population (below 45 years) are equally affected.

Diabetes mellitus, a chronic disease is a syndrome characterized by relative deficiency of the hormone insulin produced by the gland pancreas, or because of the presence of factors that oppose the action of insulin (Campbell 1974; Watkin, 1983). Diabetes is also characterized by an abnormally high blood sugar (hyperglycaemia) and the excretion of sugar in the urine. Since water is required for the excretion, the volume of urine is increased and at the same time the loss of water from the body is accompanied by an increased loss of salts (Griffiths 1974). The large amount of water lost makes the patient thirsty and this is the direct cause of large intake of water (Bloom 1975). As a result of glucose being lost through urine, more calorie must be supplied by excessive eating by the affected person (Horrobin 1973). Again because of the defect in carbohydrate metabolism in the body resulting in diabetes, the glucose reserves of the body, that is liver glycogen are rapidly lost. Sugar is then made from tissue protein resulting in loss of weight by the individual. Furthermore, excessive quantities of fat are metabolised resulting in the formation of fatty acids which are later converted into

ketone bodies by the liver and released into the circulation (Griffiths 1974). The ketone bodies consist of acetone, acetoacetic acid and betahydroxybutyric acid (Horrobin 1973).

Acetoacetic acid is formed in such large amounts that it cannot be completely oxidized. It becomes accumulated in the blood and tissues and are responsible for a condition of acidosis (causing deep rapid breathing) and coma (Best and Taylor, 1970: and Griffiths, 1974).

Diabetes mellitus is classified into:

a. Insulin dependent diabetes mellitus (IDDM)
b. Non-insulin dependent diabetes mellitus (NIDDM)
c. Malnutrition related diabetes mellitus (MRDM)

Insulin Dependent Diabetes Mellitus (IDDM) Type I

This usually develops during the first 40 years of life in patients of normal or less than normal weight (Macleod 1982). The insulin dependent diabetes mellitus also known as type I diabetes is due to damage to and eventual loss of the B - cells of the Pancreatic islets of Langerhans with resulting loss of insulin production (Watkin 1983). This type of diabetes affects mostly young boys and girls and the aged. Patients with type I diabetes depend on insulin throughout life. Without insulin life expectancy is only a few months. Patients are thin and have the tendency to lapse into ketosis due

to deficiency of insulin. Although type I diabetes is not directly inherited, individuals may inherit a predisposition (Watkin, 1983).

Non-insulin Dependent Diabetes Mellitus (NIDDM) or Type II Diabetes

The non-insulin dependent diabetes mellitus secretes insulin but the anti-insulin factors present in the body prevent the insulin from being active. The NIDDM also known as Type II is most frequently associated with Obesity; and in women with the birth of large babies. The NIDDM usually appears in middle aged or elderly patients who are often obese and non-obese (WHO, 1985).

Environmental factors that may unmask type II diabetes include sedentary life style, dietary factors, stress, urbanization and acculturation (WHO 1985). In many cases of type II diabetes, there are strong genetic components, or a strong family history of diabetes (Watkin 1983). Hyperglycaemia can be controlled by dietary means alone or by oral hypoglycaemic agents and diet (Weller and Boylan 1967).

Malnutrition Related Diabetes Mellitus (MRDM)

According to the recent studies by WHO, (1985), this is believed to occur in poor communities in tropical developing countries. It is known to affect large number of young people causing chronic ill-health and early death.

This new category of diabetes includes the variety of types known in the past as tropical diabetes, pancreatic diabetes, pancreatogenic diabetes, endocrine pancreatic syndrome and ketosis - resistant diabetes of the young. For example high intake of cyanide producing foods (cassava and certain beans) combined with protein malnutrition may cause damage to pancreatic islets and lead to Malnutrition - related diabetes mellitus (MRDM).

Factors Contributing to Diabetes Mellitus

They include the following:

i. Heredity - when one or both parents are diabetic the chances of the children developing diabetes are increased.

ii. Age - Diabetes is principally a disease of the middle aged and elderly. (Macleod, 1982).

iii. Sex - Male to female ratio is 1: 2 in the older age group (Weller, 1967; Macleod, 1982). According to Kinnear (1963) and Osuntokun (1971), statistics from hospital population at University College Hospital, Ibadan indicate that more men are affected than women although it has been explained that in Nigeria as in most parts of Africa, males come to hospital more readily than do females.

iv. Obesity - the predisposing factor in middle age diabetes is Obesity.

v. Socio - economic factors: There is a higher prevalence of diabetes mellitus in lower income families.

vi. Diet - overeating combined with under activity also predispose the middle aged and elderly to diabetes.

vii. Stress - physical injury or emotional disturbance is sometimes suggested as the initial cause of the disease.

viii. Others - A few and rare cases of diabetes occur as a result of a recognisable pathological process or secondary to the treatment of some other conditions such as:

i. Pancreatic disorders

ii. Disorders of the endocrine glands

iii. Drug induced or chemical induced condition (Adetuyibi, 1976; Macleod, 1982).

Familiar Symptoms of Diabetes

These include severe thirst, excessive urination (polyuria), weight loss, weakness, tiredness, deteriorating vision, foot ulceration, sugary urine attracting interested population of ants, pains or cramps in the fingers or toes, drowsiness, itching of the external female organs, itchy skin and coma (Adetuyibi, 1976; Macleod, 1982; Watkin, 1983; WHO, 1985).

Treatment of Diabetes Mellitus

The aims of treatment of diabetes include:

i. To preserve life and relieve symptoms.

ii. To achieve the best possible control of diabetes with blood glucose concentrations maintained as near normal as possible.

iii. To minimise complications.

iv. To attain and maintain an appropriate body weight.

v. To enable the patients have as normal a social life as possible (Macleod, 1982; Watkin, 1983 and WHO, 1985).

Control of diabetes can be achieved by lowering blood glucose using either

i. diet alone

ii. diet and oral hypoglycaemic agents

iii. diet and insulin

iv. Physical exercise if affected patient is obese.

Diet

The treatment for diabetes mellitus include some form of dietary restriction for statisfactory control. Some patients with non-insulin dependent diabetes mellitus respond adequately to restricted food intake and dietary advise combined with a program of increased phyaical activity while others may require the addition of oral hypoglycaemic agents to the diet (WHO, 1985).

All the patients with insulin dependent diabetes mellitus depend on diet and insulin. Dietary advise to patients should be nutritionally adequate taking into consideration the age, sex, actual weight in relation to desirable weight, activity, occupation, culture, education and economic status of each patient. The advise should aim at maintaining as normal diet as possible taking into account locally available foods, habitual foods and mealtimes of patients should be retained. A list of foods grouped into four categories should be given to each patient.

i. Foods with high carbohydrate content which are to be avoided altogether. Examples are sweets, cakes, sweet beverages like ovaltine, palmwine, "Garri", "Eba", "Lafun", "Foofoo" (all prepared from Cassava/Mannihot).

ii. Foods with a relatively low carbohydrate content which are to be eaten in small quantity. Examples are Yam, Rice, Bread, Creamcrackers, Fruits, Milk, "Amala" (prreparedfrom yam/unriped plantain).

iii. Non-carbohydrate foods which may be eaten as desired: examples are beans, unriped plantain, meat, fish, tea, coffee, vegetables, eggs, chicken, soda water, tonic fanta, palmoil.

iv. The total amount of fat should be restricted because diabetic patients have an increased risk of death from coronary heart disease. This may be related to the amount of saturated fat in the diet. It is therefore recommended that intake of foods containing saturated fat should be limited while polyunsaturated fat intake should be increased (Davidson et al 1975).

v. Alcohol consumption should be restricted. This is because beverages with low alcoholic content such as beer and wine do contain considerable amounts of carbohydrate and add substantially to the day's carbohydrate intake. For example a 12 ounce bottle of beer contains about as much carbohydrate as a slice of bread. Unsweetened beverages with a high alcoholic content such as whiskey, brandy, rum and gin if taken in small quantities do not greatly increase glycosuria (Krall and Joslin, 1971; Macleod, 1982 and WHO, 1985).

Oral Hypoglyceamic Agents and Diet

A number of drugs are effective in reducing hyperglycaemia in patients who would otherwise require insulin. These include:

i. Chlopropamide or Diabenese

ii. Daonil or Glibenclamide

These are usually administered once a day and they help to stimulate the pancreas to produce more insulin (Adetuyibi, 1976; Macleod, 1982). Metformin or glucophage act for much shorter periods and so are usually administered twice or thrice daily (WHO, 1985). Diamicron or gliclazide (also an hypoglycaemic agent) prevents blood vessel damage. In addition to the above named oral hypoglycaemic agents patients are expected to adhere to the recommended foods written under the section for diet.

Insulin and Diet

Two types of insulin are used in the treatment of diabetes mellitus namely the soluble or regular insulin and the long acting, slowly released insulin (Adetuyibi, 1976). Insulin is injected under the skin. The most convenient sites for injection are, the sides of the thighs, the upper arms, the lower abdomen (belly) and the upper outer surfaces of the buttocks. The insulin dependent diabetics in addition are expected to keep to the foods generally recommended for diabetic patients. (See section under diet).

Exercise

Planned physical activity according to the age of the patient and physical status is considered a useful part of treatment for obese diabetics (Reitman, 1989).

Exercise makes the muscle cells more permeable to glucose thus lowering blood glucose levels and sparing the beta cells from overwork. It has been shown to enhance insulin action in the body of patients (Edington and Edgerton, 1976; WHO, 1985).

Complications of Diabetes Mellitus

Progressive damage to the blood vessels and nerves are responsible for the major complications of diabetes. These complications may be grouped under

a. Short-term or Acute

b. Longterm or Chronic Complications (Adetuyibi, 1976).

a) Shortterm (Acute) complications include recurrent infections such as crops of boils, urinary tract infection, chest infection, and impairment of consciousness (coma) may be associated with severe uncontrolled diabetes (Adetuyibi, 1976).

b) Chronic (Longterm) complications involve degenerative changes in the lens of the eye (cataract). Degenerative changes in blood vessels of the retina, (retinopathy). Degenerative changes in the capillaries in the kidney - (nephropathy). Degenerative changes in the nerves (neuropathy) leading to numbness and uncomfortable peppery burning or tingling sensation in the hands and feet. Changes

resulting in sexual impotence, disorders of function of the urinary bladder, and the rectum whose nerve supply may be affected. Other complications include Hypertension, Atherosclerosis, chronic foot ulceration, gangrene (death of a tissue) which may necessitate its surgical removal, and growth retardation in children.

Inspite of the shortened life expectancy, especially in diabetes diagnosed early in life, a number of these patients survive for forty to fifty years after the onset (Marble et al 1971). Factors associated with this Longevity include low prevalence of manifestations of atherosclerosis, kidney disease, low insulin dose and self-care regimen necessary for diabetic patients to observe.

Recent studies on diabetic management have focussed on the further purification of insulins for control of diabetes end the use of insulin infusion pumps with the hope that it will be of wide spread benefit. Most importantly the ability of diabetic patients to measure their blood glucose, and the need for improved efforts to educate people with diabetes is being considered (Ward 1984).

Conceptual Framework

Some health education theories and models that would be applied in explaining management of diabetes by diabetic patients are presented. These are Lawrence Green's behavioural antecedent model; the health belief model; Herbert C Kelman theory of compliance; Indentification and Internalization; Carl Rogers theory base for influencing change; Abraham H Maslow hierarchy of needs; and Kurt Lewin's force - field theory.

According to Lawrence Green (Ross & Mico 1980), three factors have potential for affecting health behaviour: predisposing, enabling and reinforcing factors. With diabetes mellitus in mind, predisposing factors are the patient's knowledge of diabetes, hie beliefs, attitudes, values, feelings and perceptions of diabetes that may facilitate or hinder personal motivation for change. Enabling factors are the resources that may facilitate or inhibit action; money (to purchase insulin, diabetic drugs), time, transport, skill (required to test urine or give self insulin), facilities, community resources. Enabling factors allow a motivation or aspiration to be realized. Reinforcing factors are the behaviours, attitudes and beliefs of significant others (friends, family, co-workers, peers, health workers) the result of which may either encourage or discourage behavioural change.

The second model is the health belief model (Kasl & Cobb 1966) which is essentially a model for preventive actions and analysis an individual's motivation to act, as a function of the expectancy of goal attainment. It considers.

1. The individual's psychological readiness, based upon cultural perception of causation, stigma to take action relative to a particular health condition (a diabetic going to the hospital to seek treatment from the doctor with respect to his condition), which is determined by both the person's perceived vulnerability to a particular condition (i.e. continued polyuria, polydipsia, and polyphagia) and by his perception of severity of the consequences of contracting the condition (coma or early health).
2. The individual's evaluation of the advocated health action (keeping to diet regimen; buying and keeping to diabetic medication regimen; testing urine and regular attendance at the clinic) in terms of its feasibility (i.e. his estimate of the action's potential benefits in reducing actual or perceived susceptibility and/or severity weighed against his perceptions of psychological and other "barriers" or "costs" of the proposed action {money spent in buying diabetic medication, social separation from

family, foregoing other social activities and committments).

Furthermore, a stimulus either 'internal' (perception of bodily states or diabetic symptoms (i.e. present body weight compared to supposed ideal body weight, dizziness, blurred vision)) or 'external' (interpersonal interactions, massmedia, communication, personal knowledge of someone affected by the condition, (examples books read on diabetes, other diabetic patients met at the clinic)) must occur to trigger the appropriate health behaviour, this is termed the "cue to action."

The health belief model which has recently been revised to include general health motivation, distinguishes illness behaviour and sick-role behaviour from health behaviour (Ross and Mico 1980). According to them health behaviour is any activity undertaken by persons who believe themselves to be healthy for the purpose of detecting and preventing disease in any asymptomatic stage. (In some ways management of chronic illness approaches health behaviour, this is because when diabetes is controlled diabetics are healthy).

Illness behaviour is defined as any activity undertaken by persons who feel ill to discover what is wrong and what can be done about it. While sick-role behaviour is any activity undertaken by persons who consider

themselves to be ill for the purpose of getting well (this applies to behaviours diabetics took when they went to the hospital to seek care and adhered to recommended regimen

The sick-role behaviour tends to involve longer contact with a health professional; or with a treatment setting, and a partial or total withdrawal from one's usual social roles and obligations (diabetics restricting their eating habits and curtailing some of their social activities). Furthermore with sick-role behaviour, individual has to stay in treatment and comply with treatment regimen in order to bring about reduction in risk or symptoms. Using diabetes as an example the sick-role behaviours in this case applies to behaviours that would be expected of chronic illness patients.

With behaviour related to chronic illness, this deals with seeking medical attention in the presence of symptoms, especially referral behaviour (i.e. "new" signs and symptoms revealed at examination); it deals with compliance with medical regimen; staying in treatment; and modification of life style habits to reduce risk.

Another theory of attitude change that would also be used in explaining management of diabetes by the patients is Herbert C Kelman processes of social change: Compliance, Identification, and Internalization

(Kelman, 1961). Kelman's theory is said to be social influence arising from persuasive communication. Compliance is said to occur when a person accept influence from another person or group because he hopes to achieve a favourable reaction from the other. With compliance a person adopts a change not because he believes in it but because he hopes to achieve something positive (this relates more to sick-role behaviour). For example attaining some specific reward or avoiding certain specific punishments. Initially diabetics may adopt recommended behaviours because they wish to control polyuria, polydipsia, polyphagia.

Identification: this is said to occur when an individual adopts a behaviour derived from another person or a group because this behaviour is associated with a satisfying self defining relationship to this person or group (diabetics adopt behaviours of respected and admired diabetic patients).

Internalization occurs when individual accepts influence because the induced behaviour is congruent with or homophilous with his value system. The content of the induced behaviour is intrinsically rewarding and he adopts because he finds it useful for the solution of a problem.

Behaviour adopted in this fashion tends to be integrated with the individual'a existing values. With internalization diabetics adopts recommended behaviours because they find it useful in controlling diabetic symptoms. Diabetics accepts influence because the recommended bohaviours are congruent with their value system. Behaviours adopted due to internalization are long lasting.

Carl Rogers (Roas and Nico 1980) offers a theory baas for influencing change at the individual level. "Self" he states refers to how the individual perceive themselves in terms of 'identity' 'esteem' and 'effectiveness' or in terms of 'knowing' 'doing', 'achieving' and 'being'. It includes how they interpret experiences and events, and bow experiences are reinforced or changed, how individual develop consistency and continuity of purpose (once diabetes is dagnosed diabetic patients heve to redefine their idea of self and what they are/ will be capable of doing). Rogers belicvs that the individual's personality develops from 'experience' (the experience that adhering to diabetic medication and diet would lead to control of diabetic symptoms), and this he defines as everything that is accessible to the organism's awareness (knowledge of cause, treatment, management of

diabetes; learned skills in giving self insulin, and tasting urine). Rogers believes that individuals naturally tend to move towards growth and wholeness so that when their ambiguous experiences are clarified for them, they will choose a path towards self maintenance, self enhancement and self-actualization.

Abraham H. Maslow (Ross & Mico 1980) hierarchy of needs and theory of self actualization developed two kinds of needs namely:

i. Basic needs which relate to survival, and include life sustainers such as food, water, oxygen, sleep satisfying sexual stress (problem of polyuria, polydipsia, polyphagia normally force diabetics to seek care in the hospital).

ii. Meta-needs: These are abstract needs; such as goodness, beauty, justice, order, unity (examples of meta-needs problems which force diabetics to seek care in the hospital include weakness, loss of weight which in our Nigerian environment has social implication. That is the big man socially is expected to be of comparable physical proportions (Osuntokun, 1971; Adetuyibi, 1976).

The basic needs take precedence over the mate-needs and must be met before an individual can feel fulfilled. Self actualization stresses the development of inherited

potentials placing great emphasis on the need for an appropriate environment to provide the opportunity for these potentials to express themselves. Individuals establish a satisfactory relationship with the environment as they steadily advance towards meeting their needs. With self actualization, there is need for respect, identification to be like the other person or group.

The sixth theory is Kurt Lewin's (Ross & Nico 1980) force - field analysis, which is applied to an understanding of group behaviour. Lewin suggest that the ongoing forces within a group situation influences individual behaviour. That behaviour is a result of two sets of forces which are working constantly against each other either in the individual or in the interdependent situation. Change forces produce pressure to move toward a desired goal; resisting forces produce pressure to resist the driving forces.

That at any point in time a person's behaviour is a joint function of his own desires, goals and abilities and pressures, constraints the person perceives in the environment. With respect to diabetes, patients desiros, goals, abilities may be identified as the wish to control symptoms of diabetes; become well again, the skills he

learned that would enable him give self insulin at home and test urine to detect sugar. Pressures, constraints may be identified to be lack of funds to purchase recommended medication.

Lewin explains further, that when driving forces are strong and resisting forces weak, behaviour will be toward attaining the goal. When driving forces are weak and restraining forces strong, behaviour toward goal attainment will be blocked. When driving and restraining forces have equal weight, the individual or situation becomes immobilized and no action is possible. Lewin's unfreezing-to-refreezing theory covers five phases of learning and change: unfreezing, problem diagnosis, goal setting, new behaviour and refreezing.

Lewin (Sampson & Hartbes, 1977) in his group process analysis states that individual attitudes and habits do not exist in isolation but rather are related to the attitudes and habits of significant groups to which a person belongs (e.g. the Diabetic Association). That when behaviours of individuals fit with the norms and guidelines of the group to which they belong/diabetic association) they are rewarded with acceptance and a sense of sharing a common view of things (for example members

meeting regularly to discuss better ways to manage diabetes; look for avenues for government and social organization to assist diabetic patients).

Diabetic Core

There is need for health care services to be planned for diabetics in every community. Pertinent to this planning and provision of the health services is the need to take into account the behavioural, environmental, social, political factors as well as the economic structures of the community - behavioural factors with respect to the knowledge, beliefs, attitudes of the people in the community; environmental factors with respect to the climate of the community; social factors which include education, transport, communication, health services available in the community.
Political factors include power distribution in the community, interest groups and religion.
Economic structures in terms of industries available in the community that bring in financial resources to the community.

Diabetic control programmes at the community level should emphasize care at the following levels.

1. Health promotion and prevention
2. Prompt treatment
3. Rehabilitation

i. Health Promotion and Prevention

Under this level, care should emphasize.

a. Identification of high risk factors in the community and provision of public health education aimed at prevention.

b. Prevention of diabetic complications.

c. Opportunities for educating members of the community on nature and causes of diabetes.

d. continous education of professional health care providers.

ii. Prompt treatment

a. This level will involve early diagnosis of diabetes and treatment.

b. Early recognition and treatment of complications of diabetes.

iii. Rehabilitation will involve health education of diabetic patients and family members on self-care management of diabetes at home, school, work place and during emergencies (WHO, 1985).

The community control programmes for the diabetics could utilise primary health care approach which would involve i) Management of diabetes by the patients (self-care, and ii) Care of diabetics at the community level

(that is care of diabetics at school, and work place).

In the control programmes for diabetic patients, the primary health care approach will emphasize the three levels of care already mentioned above (WHO 1985).

Self-Care

According to Fonaroff and Levin (1977), care of chronic diseases requires a high proportion of lay (individual and family) care relative to professional care. From the report of a scientific consultation on Health Education in self-care possibilities and limitation (1983), Self-Care in health refers to the activities individuals, families, and communities undertake with the intention of enhancing health, preventing disease, limiting illness, and restoring health. These activities are derived from knowledge and skills from the pool of both professional and lay experiences. They are undertaken by lay people on their own behalf, either separately or in particular collaboration with professionals. Fonaroff and Levin (1977) claim self-care to be as old as human history, although some societies may have assigned several functions to specialized community resources (like physicians and nurses), individuals and families still self administer most of their health and medical care.

According to Levin (1980) the orientation in self-care has always been and continues to be lowering of dependency on the health care provider. The objective of self-care practice in chronic disease is focussed on its role in the reduction and control of disability and dependency on the physician and other health care providers. It provides opportunities for lay persons to develop self-care skills and the relevance of keeping to the self-care skills regimen (Levin et al 1976). With diabetes mellitus, patients who learnt and practised the relevant skills of injecting themselves with insulin, testing urine to detect glucose, engage in regular physical activities would also have learnt to depend on themselves for control of their chronic condition and less on the health care providers.

To maintain active productive life end avoid complications, diabetics must adhere to the following self-care regimen.

i. Weight control.

ii. Daily attention to dietary regulation.

iii. Urine and/or blood testing to detect levels of glucose and maintaining a personal medical record for urine/blood test results.

iv. Skin and foot care; shoes should be worn outside the house always.

v. Planned physical exercise for patients who require them. Such exercises should include: riding bicycle, swimming, running, jogging and reclining (Weller and Boylan 1967).

vi. Give self insulin injection before meals and meals should not be delayed for long after wards.

vii. Oral hypoglycaemic agents for non-insulin dependent diabetics who require them.

viii. Join diabetic association and participate actively in their activities.

ix. Diabetics should carry identity cards with them at all times stating name, address, nature and dose of their insulin or oral hypoglycaemic agents.

x. Learn the symptoms of hypoglycaemia and hyperglycaemia and what to do when symptoms appear.

Self-care regimen should be maintained regardless of presence or absence of diabetic symptoms (Green & Roter 1976; Macleod, 1982).

Educating Patients with Diabetes Mellitus

New advances for the control of diabetes mellitus are of limited value if patients do not understand what it is all about. The knowledge patients have about their condition and attitudes of health care providers are important features in the management of diabetes

(Ward 1984). According to the Joint Committee on Health Education Terminology (1973), patient education has been defined as "those health experience designed to influence learning which occur as a person receives preventive, diagnostic, therapeutic and/or rehabilitative services, including experiences which arise from coping with symptoms, referral to source of information, preventive, diagnosis and care and contacts with health institutions, health personnel, family, and other patients". The purpose of patient education according to Levin (1980) is to teach patients those ideas and skills that will help them to cope with their immediate medical problems and maintain health and avoid diseases. The goal of patient education is voluntary behaviour change, based on informed choice. Therefore members of the health care team must be aware and supportive of the rights of patients in making decisions about their health and life styles.

Organizing Patient Education Programme

The purpose of patient education is not only to provide patients with information and have them understand it, but also to change individual patient's behaviour from acts that have a detrimental effect on

health to those that are conducive to present and future health.

Planned educational oxperiences provide opportunities for active participation by the patient, enable him understand alternative actions available at his disposal based on the state of his health and the potential consequences of actions taken. Educational programmes should encourage patients to assume individual responsibility as much as possible and learn to take actions that will promote good health.

For successful implementation of the programme, the patient educator should study the characteristics of the patients to enhance a successful patient education. Such characteristics should include the psychological and demographic features of patients: the socio-economic status of the patients, their educational level, age, sex, religion, marital status, work situation, social obligations, the patients relevant experiences, and attitude towards their condition. Also for effective education, the patient educator need to take into account the initial knowledge of the patient with regards to his disease, attitudes and skills of the patient and members of the family. These characteristics enable the patient educator determine the learning needs that will

be appropriate for each of the patient and the family (Deeds, Herbert, Welle 1979).

The patient education programme should be composed of the following:

i) Patient involvement in planning programme for self-care.
ii) Objectives of patient education programme.
iii) The patients' needs, interest, problems and knowledge.
iv) Health instruction on cause and treatment of diebetes.
v) Development of relevant skills and behaviours for adequate control of diabetes by patients.
vi) Methods and Materials in patient education.
vii) Follow-up visits to the hospital.
viii) Evaluation of the Programme.

i) Patient - involvement in Planning Programme for Self-Care

The people for whom programme nre being designed should take part in the planning from the beginning, thus ensuring planning with rather than for the people. The involvement of the people concerned in planning ensures their cooperation and participation in all the programmes to be conaidered (Tiglao and Keyes, 1958; Idemudia, 1970[8]).

ii) Objectives of Patient Eudcation Programme

For any Patient education programme to be effective, it must be based on clear, attainable objectives. Educators are advised to define objectives in behavioural terms. Education objectives are a guide to the selection of content, learning opportunities, material resources and teaching aids to mention a few (Tiglao and Keyes, 1958; Ademuwagun, 1970[A]).

iii) The Patients Needs, Interest, Problems and Knowledge

Planners of Patient education programmes should ensure that programmes they embark on focus on the immediate health needs, interest and problems of the patients. Furthermore the patient educator needs to determine the knowledge of the patient as well as the family related to the patient's condition. This assesament helps the educator to determine the learning needs of the patient (and the family) (Ademuwagun, 1970[A]; Deeds, 1979).

iv) Health Instruction on Cause and Treatment of Diabetes

Patients need appropriate knowledge on the causes and treatment of diabetes; hypo/hyperglycaemia, their characteristics and how they manifest; the implication

of each condition has for health, for instance patients should know that doing nothing during a hypoglycaemia episode can lead to coma and death (Strowing 1982).

The diabetic patient needs information on what to do about control of diabetes and how to do it. He needs to know types of food to eat, how to measure the quantity of food, determine the number of calorie in each quantity; should know and understand reasons for controlling diet, and the rationale for each self-care behaviour; the need to maintain normal level of glucose in blood/urine; know what to do when hyperglycaemia reappears, know what is responsible and avoid its reoccurrence.

Patients should understand the complications that may result if hyperglycaemia is not controlled. That for a satisfactory self-care behaviour, patients need relevant motor and congnitive skills. Information presented to patients regarding diabetes and self-care behaviour, should be rehearsed mentally by patients so as to ensure retention.

v) Development of Relevant Skills and Behaviours for Control of Diabetes by Patients

The relevant skills and behaviours for diabetics have been discussed under self-care on pages. 33-35.

vi) Methods and Materials in Patient Education

Equally important is the need to consider the materials and methods of instruction. The planner should plan for a variety of methods, since no single educational intervention can have a lasting effect on health behaviour. Methods should include individual instruction, individual counselling, Group teaching, film, use of handouts, posters etc. With the individual instruction/counselling emphasis should be on the specific needs, aspirations, problems of the patient (Cronbach, 1957; Miller 1979).

vii) Follow-up Visits to the Hospital

There is need for patients to be educated on the importance of follow-up visits to the hospitals. This procedure helps in reducing broken appointments for follow-up care, non-adherance to recommended regimen, unnecessary use of emergency services because of reappearance of diabetic symptoms, and unnecessary admissions for complication that could have been prevented (Green, 1976).

viii) Evaluation of the Programme

Another important aspect of the patient education programme is careful planning for evaluation. Evaluation of patient education

programme should include investigation of how well the programme has met its stated objectives; systematic review of data on patient behaviour change on issues such as:

- Indices that measure changes in knowledge.
- Measure of day to day control of blood/urine glucose value.
- Frequency of acute complications.
- Frequency of hospitalization.
- The rate of school and work absenteeism.
- Present weight against ideal weight.
- Economic productivity.
- Indices measuring patient satisfaction can also be used to evaluate programme (Graber et al 1977).

Behavioural conditions that should be considered when planning patient education programme

The following conditions should be taken into consideration when planning educational programmes for patients for effective control of diabetes.

1. Belief

The belief patients have about themselves, the self-care regimen and the disease can affect their attitude and the decisions they take

regarding their problems. Patients should believe that carrying out self-care behaviours will lead to blood sugar control and may decrease likelihood of longterm complications. That self-care will be helpful only when patients believe that they are competent to carry out the behaviours because perceiving oneself as incompetent may hinder one's ability to carryout self-care.

ii. Motivation

There is need to provide certain incentives to patients for satisfactory self-care behaviours. Motivation can either be internal or external. Internal or self induced incentives include patient knowledge of diabetes, patient attributing satisfactory performance of self care behaviour to their own efforts. External incentives include members of the family, health care providers and significant others, who also have knowledge of diabetes and the required self-care behaviours. Participation by members of the family in the patient education programmes help in enhancing self-care behaviours.

Self-satisfaction is contingent upon achievement of goals, as a result setting of goals and achieving such goals have a motivational function. Patient educators should assist patients to set their goals; assist them determine behaviours that would lead to achievement of the set goals; assist them in measuring success or failure of their action which will in turn help them recognize the consequences of their action.

iii. Stigma

This is defined as a social discrepancy between virtual and actual social identity (Goffman 1963). Sick people espacially those with chronic diseases feel stigmatized by their disease, are embarrased about having it, and are afraid that others will find out and treat them differently. Patient educators when designing patient education programmes should take into consideration not only the medical aspects of a disease, but also the patient self-esteem and psychological status. One way of achieving this, is the need for members of the family of patients to be included in patient

education programmes to help them understand the physical malady and its effects, and develop productive ways of dealing with it and supporting the patient (Walsh, 1982).

Compliance with Management Regimen

Compliance with a prescribed treatment regimen is an essential aspect of the control of many diseases and disabilities. Major variables affecting compliance include:

i. Characteristics of Patient

According to Green and Roter (1976) age has some association predictive of compliance; that the older the age at onset of diabetes the greater the compliance. Shroeder, (1973); Rosenzweig and Folman, (1974) suggested that patients who do not adhere to medication regimen are the young, the less educated, and those that belong to the lower socio-economic class. Carpenter and Davis (1976) also suggested that diabetics who have the support of a spouse, reported greater compliance with medication regimen than did unmarried patients.

King (1962) suggested that the culture the patient is born into imposes a great influence on the patient for better or worse; that he

sees, feels and does things from the perspective of his own cultural background. According to Adewuwagun (1972) the personal beliefs, family responsibility, influence of reference group are other variables affecting compliance to treatment regimen.

ii. Characteristics of the Regimen

Studies have shown that the type of regimen a patient is asked to follow affects compliance. According to Osuntokun (1971) good control of diabetes as measured by absence of glycosuria, coma, hypoglycaemia episodes and hyper-glycaemia, and regular attendance of diabetic clinic, the defaulting rate was higher among patients on oral hypoglycaemic agents. Brieger (1983) states that complicated drug regimen, coupled with side effects, unfamiliar and untasty diets, inconvenient activity schedules more often than not affect compliance.

iii. Characteristics of the Patient - Provider Relationship

Review of compliance literature (Green and Roter, 1976) has concluded that perhaps the most promising variables for investigation of

compliance is an aspect of the patient-provider. Open communication with patient, establishing a patient - oriented atmosphere have been studied and found to be positively associated with compliance (Williams, 1967). Williams and Omishakin (1983-1984) stated that the growing lack of sensitivity of Nigerian health care providers to the health problems and health needs of the patients, disinterest in patients and lack of understanding and appreciation of cultural impact on therapeutic processes are some factors affecting compliance with medication regimen by patients.

Impediments to Health Practice

Certain variables may hinder the adoption of health practice.

These variables include:

i. Planning defects

ii. Personnel problem

iii. Economic problem

1) Planning defects:

A defect in the planning may hinder health practice by the consumer. Some instances include: if planning does not take place within the context

of clearly defined objectives; if planning does not reflect the human and material needs it will not be functional; if planning does not take the target groups' actual needs, interest and problems into consideration, the cooperation and participation of the consumer would not be sustained (Ademuwagun, 1970[B]).

ii) Personnel Problem:

Shortage of qualified personnel and lack of effective health personnel will hinder health action by the consumer. This is because the efficient implementation of services depends on the quality and number of personnel (Ademuwagun, 1970[B]).

iii) Economic Problem:

In Nigeria every patient needs financial resources to make use of available health services. Financial problems such as transport fare, high cost of prescribed medicine, and recommended diet but expensive may prevent the consumer from adhering to a health action.

Self-help Groups

In recent years, people have become aware of the help they can render to one another than was the case in the past. In matters concerning health, sick

people are being encouraged all over the world to form self-help groups with the aim of meeting the needs of the people with specific problem who would not obtain tho support, help or advica they require from the health/social services or other official bodies. The essence of the group is mutual self care.

Williamson and Danaher (1973) considers the development of self-help group to be one of tho most significant advances in Western medicine. Jones (1980) defines a health group as providing services for their members, giving mutual support, sharing similar problems, and endeavouring to change the attitudes of the society. These groups are often administered wholly or largely by their members. One very important reason responaible for the growth of self-help groups is the disillusion people havo about western medicine. For instance, consumers feel abandoned by their doctors ond other health workers particularly coneumers who have conditions that cannot be amendable to medical treatment.

Benefits are derived by membera when they join self-help groups. A person in need of aupport joins this self-help group because he is able to identify

with others who are in a similar position, can share experience and problems. Robinson and Henry (1977) has confirmed that there is considerable relief in sharing difficulties with other people.

All self-help groups provide technical advice to members to allow them deal with every day difficulties. Usually information is disseminated by meetings, pamphlets, teaching, counselling, film-shows, handouts and personal visits.

Members who feel socially isolated because of their problems are assisted by the group to cope with feelings of loneliness, depression, worthlessness, ridicule and rejection by friends and relatives. Members are encouraged to feel they have a place in the world, and by changing the stigmatized self image, a person can be allowed to approach life in a more positive way.

The group attempts to inform the public via the media of the difficulties that individual problems pose in the social sense and to enlighten the public about the disease to ensure better understanding on their part and solicit their support.

Summary

From the review of Literature it can be seen that there is a tremendous rise in the frequency of

chronic disease in both industrialized nations and developing countries. Chronic diseases require longterm treatment, therefore there is a need to shift medical intervention from "cure" to "care".

Diabetes mellitus the chronic disease on which this study is based requires several changes in basic behaviours on the part of the affected person. It has been pointed out that the treatment of diabetes should be self based; this orientation helps in lowering dependency on health care providers. For effective self care of diabetes, there is need for a planned patient education programme.

Another important aspect of self-care is the need to ensure reinforcement of actions in form of motivation from spouse, family, and health care providers. For compliance with management regimen, a host of variables have been identified, these include:

i. The characteristics of the patient;
ii. Characteristics of the regimen;
iii. Characteristics of patient - provider relationship; and
iv. Diabetic Patient Association - Group Therapy.

CHAPTER THREE

MATERIALS AND METHODS

Brief Statement of Problem:

Diabetes mellitus is a chronic disease that cannot be cured but only cared for. It requires that the affected person assumes greater responsibility for self-care and relies less on the health care providers. Studies on management of diabetes have revealed that patients who are well informed about diabetes, have relevant skills and put these into practice will manage it effectively (Whitman et al 1985; WHO 1985). This study therefore seeks to determine whether diabetic patients at the University College Hospital have adequate knowledge of diabetes, skills and resources to manage it; as well as determine factors which promote regular and irregular attendance of diabetic associations meetings.

Scope and Significance of Study

This in-depth case study of diabetic patients at the medical out-patient department, University College Hospital, focused on patient's characteristics such as age, sex, educational and economic status; the

relationship between these factors; their knowledge, perception of diabetes and self management skills.

The study was limited to the clinic setting. Detailed information was obtained at one contact. Patients were the main focus, patient-provider interaction was observed, but no formal standardized information was gathered regarding provider perceptions except data on clinic procedure.

It is hoped that the result of the study would be useful for improving inefficient self-help and educational activities for diabetics and others suffering from chronic ailments. Furthermore the understanding of the function of the support structure for the diabetic patients would be useful in setting up similar support groups for patients suffering from other chronic ailments who would benefit equally from the formation of such groups.

Objective of the Study

The broad objective of the study wae to determine the nature and extent of patients knowledge of cause, prevention and treatment of diabetes; to relate their skills to knowledge, social and educational status, as well as attendance of association meetings.

The specific objectives were to determine:

i) The nature of the existing health education programme organized for diabetic patients.

ii) The nature and extent of diabetic patients' knowledge about the cause, management, and complications of diabetes and the relationship of the above to demographic and socio-economic characteristic of the patients.

iii) Fatients' perception of diabetes.

iv) The organization and function of the Diabetic Association and its role in self management.

v) Fatients' perception of the usefulness of the Association.

Study design, Study area and Population

This exploratory, descriptive study employed a case study design. The investigator was interested in an indepth study into the background, current status, socio-economic characteristics of the diabetic patients at the medical outpatient department, University College Hospital, Ibadan, and to determine whether these characteristics affect management of diabetes. The University College Hospital, Ibadan opened November 20th 1957 was chosen because as the

premier and leading teaching hospital in the country, its data could be relied on. From past records there have always been large number of diabetic patients seen at the hospital. The hospital was also chosen because of its convenience for the investigator.

The study was restricted to the medical out-patient department where diabetic clinics are held every Monday during the morning and afternoon hours.

The personnel involved in the running of the Monday clinics include consultant physicians, senior medical registrars, medical registrars, a professional health educator, a dietitian, nursing siaters, staff nurses, medical aids, and record clerks.

The consultant physicians see new patients with suspected diabetes and patients with diabetic compli-cations. Out of the total number of 700 patients registered at the medical outpatient department as having diabetes as of December 1985, an estimate number of 340 patients visited the hospital between January and December 1985. This was calculated using the total attendances for 1985 i.e. 3,405 and the average appointments of ten per patient for the same year.

Again the arrangement of the clinic, the available space, and the general environment of the hospital and clinic were all conducive for the study. Being a

case study the instruments for collecting data were observation and interviewing.

It took approximately three months to gather data on one hundred and fifty diabetic patients who comprise nearly 44% of the diabetic patient population. Indepth, detailed information was gathered with the aid of open ended interview guide and participant observation.

Sampling Procedure

Diabetic patients interviewed were selected using systematic random sampling method. Each clinic day an average of 60 diabetic patients were treated by the physicians. Names of respondents were selected from all the case files of diabetic patients present at the clinic for the day. Every kth name was taken: "K" was five and an average of 12 patients were interviewed each clinic day. After each interview a mark was made on the case files of patients (respondents) already interviewed to prevent repeat interview on another clinic day.

To ensure that patients chosen for the interview did not leave the clinic before time, they were requested not to leave the clinic until after the interview.

Instrument for Data Collection

The two instruments used in the collection of data were observation and interview, using an interview guide.

Observation

The information that were collected through observation were as follows:

i. Demonstration on how urine is tested for sugar/glucose and the interpretation of the result.

ii. How syringes and needles are sterilized.

iii. Measurement of insulin into the syringe.

iv. Sites for injecting insulin.

Other general observations on the setting and functioning of clinic, and patient - provider interaction were made.

Interview

The interview guide used open ended questions to allow for free response. The following information gathered through interview were cross-checked by going through casenotes, patients hospital cards (blue cards), prescriptions to help obtain reliable information: these included nature of treatment of

diabetes, insulin and drug dosage, appointment schedule at the clinic, compliance and non-compliance at the clinic.

Information on the demographic characteristics of the respondents were sought: these included their age, sex, marital status, occupation, religion, monthly income, educational background and transport fare. The knowledge of respondents about causes, prevention, perception of diabetes, skills, attitude and practice concerning diabetic management were sought with questions like, when and how their diabetes was diagnosed, what causes diabetes, whether diabetes can be prevented, what were the complications of diabetes mellitus, what the different treatment for diabetes are. Another question was what changes they had had in their life styles due to diabetes.

Furthermore respondents were asked how diabetes could be controlled; who taught them how to perform diabetic skills; whether there had been a change in their body weight since diabetes was diagnosed and what brought about the change, also whether patients tested their urine at home and the technique involved.

Patients on insulin who injected themselves with insulin were observed on how this skill was performed; also observed was how patients measured insulin into

the syringe. They were asked their insulin dosage, where insulin was stored at home and how much was spent on insulin weekly.

Patients on drugs were asked to state the name of the drug, the dosage and how much was spent on buying drugs weekly. The respondents knowledge of food diabetics should and should not eat were sought as well as the reasons why some food are recommended and others prohibited.

Whether respondents knew of the presence of the health educator and dietitian at the medical out-patient department, whether patients had met them and what their functions were. Further information sought was whether respondents had heard of the University College Hospital diabetic association; whether they were members; and number of times they had attended the meetings in a period of six months; why they attend or do not attend meetings. What the purpose of the association was, which of their activities patients found helpful, which were not helpful.

Respondents were asked to suggest ways to improve the services provided by the hospital, and the diabetic association. Each interview took approximately forty minutes. Only one educated patient preferred to write

out the answer to the interview. For the rest the interviewers noted down answers in the words of the respondents. (For interview guide see appendix seven).

Reliability and Validity

The instruments that were used in the collection of data were tested for reliability and validity. To ensure that the interview guide measured what it was intended to measure, it was first drawn in English and then translated into Yoruba and later this Yoruba version was retranslated into English. The interview schedule had both the English language and the Yoruba versions (Yoruba language is the medium of communication in Ibadan and its environs). This measure ensured that all the interviewers asked uniform questions. Methods of cross-checking (Mentioned under the heading interview) were built into the interview guide to help obtain reliable information.

A pretest of the interview guide was conducted at Adooyo State Hospital, Ibadan, on twenty (20) diabetic patients: male, female, young and old patients. The instrument was then clarified and corrected on the basis of these results.

Four indigenes of the community, 2 men and 2 women in their early twenties (3 school leavers and one under graduate student) were trained as interviewers. The researcher accompanied toe interviewers and ensured that instructions to fill in all answers in the respondents own words carried out. Interview data was received each day.

Method of Analysis

Based on the information gathered data were presented in a descriptive manner as examples and case studies. Descriptive statistics were used to buttress these. Chi squared test (X^2) and Z test were used to verify statistical association between variables. An analysis of the results will be presented in the next chapter.

Limitation of the Study

Limitation of finance, time and human resources prevented the investigator from carrying out the study on patients home environment, which would have given better enlightenment on how diabetes as a long-term disease was managed (a disease whose management demanded dependency on self and less on physician and other health care providers).

More indepth interviews might have yielded richer information, but informant fatigue, and the non-feasibility of repeat interviews precluded this. Although the clinic setting was the most convenient for the study, it was perhaps not the most conducive environment for finding out personal beliefs and perceptions.

CHAPTER FOUR

RESULTS

In all 150 diabetic patients were interviewed. The results of the study fall into eight broad sections:

1. Organization of diabetic clinic
2. Demographic profile of respondents
3. Nature and type of diabetes;
4. Patients knowledge of the cause, prevention and treatment of diabetes.
5. Management skills of diabetic patients with respect to weight maintenance, injection of insulin, drug therapy and testing of urine.
6. Problems encountered by diabetics and support mechanism;
7. The functions of the diabetic association as a support structure; functions of the health educator and dietitian are discussed from the patients' viewpoint; respondents suggestions concerning methods for improving services provided by the hospital and diabetic association are considered.
8. Finally four case studies provide comprehensive illustration.

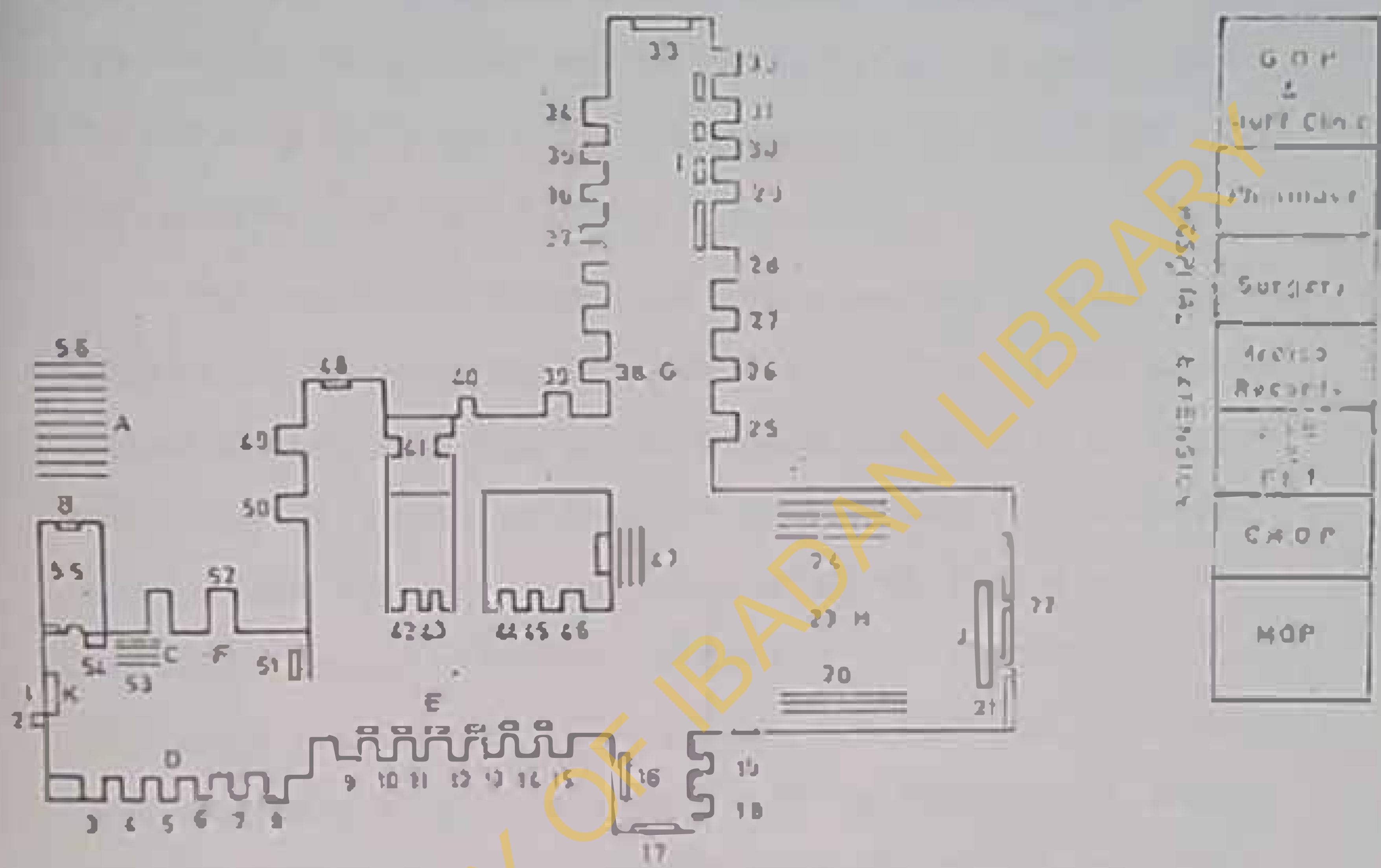
Organization of Diabetic Clinic

The medical outpatient department (MOP) is the last of the new outpatient departments in the hospital extension. It is situated next to the children outpatient department (CHOP). This spacious and modern clinic was opened in June 1982.

When patients arrive at the medical outpatient (Monday being diabetics special clinic day) they sit on one of the benches at location A after dropping their blue hospital cards with the record clerks at location B (see figure I). Between 8.00a.m. and 8.30a.m. when patients case notes have been brought out from the records' room, patients are then called in through door K to sit on the benches located at C. Here they sit according to bow they were called and are later called in for weighing, measuring of height and testing of urine and blood at location D.

After this patients go out to location A again to wait until about 9.00 - 9.30a.m. when doctors start arriving and patients are called in, in batches to avoid confusion and congestion to location E to see the doctor they are assigned. Each batch of patients also occupy the bench in front of their doctor's examination room. There are usually between four to five consulting rooms allocated to diabetic clinic. After examination and treatment, new diabetic patients are provided with health educator and dietitian consultation forms for counselling and teaching. The two different locations are F for dietitian and G for health educator. After all consultations patients

FIGURE ONE
SKETCH PLAN OF MOP



(1) Door opened
(2) Security
(3) Urine testing
(4) Toilet
(5) Weighing & Measuring
(6) Medical Social Worker
(7) Sister's Office
(8) Senior Nursing Sister's office
(9) Exam Consult 1
(10) Exam Consult 2
(11) Exam Consult 3
(12) Exam Consult 4
(13) Exam Consult 5
(14) Exam Consult 6
(15) Exam Consult 7
(16) Bench
(17) Door closed
(18) Medical Emergency room
(19) Exam Consult 8
(20) Benches
(21) Injection table for diabetics (Daily routine)
(22) Windows
(23) Diabetic Association meeting
(24) Benches
(25) Aseptic treatment room
(26) Dark room
(27) Septic treatment room
(28) Clinical room
(29) Exam Consult 10
(30) Exam Consult 11
(31) Exam Consult 12
(32) Exam Consult 13
(33) Door closed
(34) Store
(35) Social worker for [illegible]
(36) Hostels & [illegible]
(37) Laboratory
(38) Health Education (MOP)
(39) [illegible]
(40) Nurses rest room
(41) [illegible]
(42) [illegible] toilet
(43) Female toilet
(44) Male toilet
(45) Female toilet
(46) [illegible]
(47) Benches for meeting [illegible]
(48) Door closed
(49) Dirty utility
(50) Clean utility
(51) Nurses table
(52) Dietician
(53) Benches
(54) Counter
(55) MOP Records [illegible] and Reception
(56) [illegible]

go back to location B to the clerk in charge of appointments to book for their next appointment with the clinic and after which patients would go to the University College Hospital pharmacy to purchase the prescribed medication.

On the first Monday of every month, clinic for diabetics is usually delayed for about an hour to allow members of the diabetic association hold their meetings at location H after which diabetic patients are called for weighing, measuring at location D and doctors' consultation at location E. Diabetic patients who cannot give themselves insulin at home for one reason or the other come to the clinic daily and on Saturdays and Sundays they go to the general outpetient department (GOP) for insulin injection. They present their injection cards at location J and are then given the injection by one or two staff nurses and sometimes by student nurse assigned to MOP.

On alternate Friday mornings, there is a general clinic for the following categories of patients: diabetics, chest and neurology.

Looking at the sketch map (figure I) one is able to conclude that the medical outpatient

department has an excellent set up that ensures proper patient flow and discourages congestion.

Procedure at the Pharmacy

At the pharmacy the security guard on duty collects prescriptions from a batch of patients at a time and hands them over to the pharmacist incharge of assessing which of the drugs prescribed are available and how much should be paid for such drugs.

After the assessment, the security guard takes the prescription back to the owners after which patients go to the fee collector to make payment for the drugs. Then patients submit their prescriptions again, attached is the receipt of payment for the drugs and then wait for collection of the drugs. It takes more than an hour thirty minutes and sometimes up to two hours before a patient collects his/her drugs.

Drugs purchased at the University College Hospital pharmacy are heavily subsidized but because of shortage of these drugs and injections patients do not obtain enough medication to last them till their next visit to the follow-up clinic. This is also supported by Adetuyibi's (1976[A]) finding.

Diabetic Clinic Personnel: Duties and Functions

1. Doctors (6)

   Three consultant physicians
   One Senior Medical Registrar
   Two Medical Registrars

2. Nursing Staff (6)

   One Senior Nursing Sister
   One Nursing Sister

   Four Staff Nurses

3. Health Educator (1)
4. Dietitian (1)
5. Social Worker (3)
6. Recording Staff (7)

   One Supervisor
   Six Recording Clerks

7. Medical Aids (7)
8. Other personnel

   One Security Guard
   Four Porters

Doctors (6)

Two of the consultant physicians were on sabbatical leave at the time of the study, although one of them was due back in October 1986. The doctors diagnose patients problems at the department after thorough medical history taking and examinations.

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Two of the consultant physicians were on sabbatical leave at the time of the study, although one of them was due back in October 1986. The doctors diagnose patients problems at the department after thorough medical history taking and examinations.

They prescribe medication for patients; and determine follow up procedures. In addition they decide which patients need to consult the health educator and/dietitian.

Nursing Staff (7)

a) Senior nursing sister (1): She is the head of the nursing staff at medical outpatient department. She supervises the work of the nurses.

b) Nursing sister (1): The senior nursing sister and nursing sister are responsible for sorting out case-notes for doctors. The nursing sister does the work of the senior nursing sister when she is absent.

c) Staff nurses (4): They are in charge of weighing, measuring heights of patients; dressing wounds; testing urine and blood, giving patients injection, and preparing examination rooms for doctors consultation.

The Health Educator (1)

She educates and counsels patients with the following categories of diseases: Hypertension Tuberculosis, Epilepsy, Cancer, Sickle cell Anemic, Psychiatric, dermatological, diabetic and patients

with endemic parasitic diseases. She educates them on the nature of the diseases, causes, treatment and management. The health educator counsel individual patients, members of the families of patients, visits homes of patients who have been absent from the clinic for a long time.

With respect to diabetes mellitus, newly diagnosed diabetic patients are educated on the factors associated with diabetes. She educates patients on the different forms of treatment for diabetes viz: diet alone, diet and insulin, and diet and oral hypoglycaemic agents. Depending on which is recommended the health educator emphasizes on the need for compliance with diet, insulin and oral agents' regimen.

Patients are educated on how to test urine and the interpretation of the results; how results of urine tests should be recorded in an exercise book, and the importance of bringing the exercise book to show doctor and health educator on clinic days. Illiterate patients are educated on the use of coloured pencils (crayons) to record results of urine tests. If patient is insulin dependent he is taught the technique of injecting self with insulin

and this teaching continues for a period of time until the health educator is quite satisfied that the patient can practice the skill at home on his/her own.

The health educator also counsels diabetic patients who had defaulted from clinic appointments and medication regimen. Usually she makes an attempt to find out reasons for defaulting; if financial, patients are referred to the social worker; if connected with family, members of the family are invited for counselling, but if otherwise the educator counsels and educates defaulters on the importance of control of diabetic symptoms.

Also under the programme of activities; the health educator emphasizes the symptoms of hypo/hyperglycaemia; what to do to avoid such symptoms and what to do when these symptoms appear. She gives literate patients a small book on diabetes and its management to read and study at home and to bring issues not clear to them for clarification. The diabetic books were donated to the diabetic clinic.

Dietitian (1)

She is incharge of educating and constructing special diets for patients who need them. Hypertensive and diabetic patients are few examples of

people for whom the dietitian provides special diet sheets. Illiterate respondents have food items on the sheet read out to them by the dietitian. These patients are then made to repeat these food items for better retention.

Social Worker (3)

One of the social workers is in-charge of psychiatric patients while the remaining two are incharge of other groups of patients at M.O.P. They cater for the social problems of patients. The social worker purchasee medication for patients who cannot afford to buy them.

Recording Staff (7)

The supervisor is incharge of this unit. The recording (registration) clerks are incharge of sorting out patients case notes. One recording clerk is responsible for booking patients for their next appointment with the clinic.

The Medical Aids (7)

The medical aids assist staff nurses in weighing and measuring of heights. They interpret for patients and doctors; fill and issue out investigation, X-rays, blood and urine test forms for patients.

Security Guard (1)

The guard stands or sits at the main entrance of the department at location "K". He sees to the safety of all present at the department. He directs patients and gives them information when they require.

Porters (4)

Porters are responsible for cleaning the medical outpatient department. They go on errands for the health care providers at the medical outpatient department.

Patients Perception of Health Care Providers

Patients admitted that the doctors and nurses do excellent jobs. But wanted the nursing staff to send them always to the same doctor each time they have appointment with the clinic, except when their own doctors are on leave.

The health educator, the patients said, is suitable for the job because she has the interest in her work, has Good human relation, is interested in all her patients and sometimes assist them financially.

In their opinion, the dietitian also has good human relation, does her job well and takes the pain to explain recommended diet to patients.

With respect to the medical aids, patients said that although they do their work, some of them shout at patients who do not know their right from their left and are in the hospital for the first time. That medical aids do not take the pain to explain necessary procedure but would scold patients when they go to a different place to pass urine or place bottles of urine where they were not directed.

With the recording clerks patients said they do their work very well but sometimes delay in producing thoir casenotes.

Investigator's Observation of the Provider-Patient Interaction

The interaction between providers and patients with respect to doctors, nurses, dietitian, health educator is quite cordial. But nurses inchargc of injecting patients with insulin fail to educate patients on the importance of ensuring that the label on the insulin bottle is intact all the time. Some of the patients because of this ignorance of the importance of the label on the insulin bottle become careless so that long before the insulin is exhausted the label on it would have come off therefore making it impossible for the nurse to rightly ascertain the content of the bottle and the strength of the insulin.

Regarding the medical aids, they do a good job but are not humble and polite enough towards patients especially illiterate and ignorant ones coming to the clinic for the first time and who cannot read signs or directions whether written in English or in Yoruba. They scold patients when they do not follow direction given.

The professional health educator has very good human relation with her patients. She is rarely impatient with any of them but because she is alone she is not able to do more than talk with patients, counsel them and teach them the skills required for management of diabetes mellitus.

The recording clerks also do excellent work but they fail sometimes to explain to patients when they are unable to lay their hands on their casenotes and appeal to them to exercise patience.

The Support Structure for the Diabetic Patients at the University College Hospital, Ibadan

Diabetic patients utilizing the services of the diabetic clinic at the University College Hospital, Ibadan formed a diabetic association in 1971 but it folded up because of financial misunderatanding among members. Secondly the fact that the non-insulin

dependent diabetics believed that the association was mainly for the insulin dependent diabetics because they were the only category of patients that received free treatment from the hospital. The association was relaunched in 1982 and has been functioning since then.

The following are the aims of the association:

1. To provide medication for its members at reduced cost.
2. To facilitate discussion on financial, social and cultural problems affecting diabetic patients with respect to management of diabetes.
3. To serve as a vehicle for support from the government and social organizations.
4. To educate members on self-care procedures.
5. To form a support mechanism that would encourage better participation by members of the families of patients in all management programmes.

A professional health educator is incharge of the activities of the diabetic association. She is stationed at the medical out-patient department.

Members of the diabetic association are expected to pay fifty (50) kobo during their monthly meetings. To make sure that there is no cheating there is a register and this is used to tick names of members

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Members of the diabetic association are expected to pay fifty (50) kobo during their monthly meetings. To make sure that there is no cheating there is a register and this is used to tick names of members

who pay each month. This monthly contribution enables the association to purchase drugs, insulin, clinitest tablets, and these are sold to members at a moderate cost (members who pay their fifty (50) kobo regularly have first priority).

Demographic Profile of Respondents

The sample for this study was selected among the diabetic patients utilizing the services of the medical outpatient department University College Hospital, Ibadan.

The 150 respondents, were almost equally divided between the sexes. The males (54%) forming a slightly larger Group then females (46%). Majority of the respondents (61.3%) were above 40 years of age and almost half (49.3%) the total respondents were between 40 - 59 years of age. The sex distribution amongst the age groups was almost even (Table 1). Almost all the respondents (90%) were married (Table 2), and there was not much difference between the sexes.

Both Christians (52.7%) and Muslims (47.3%) were well represented in the sample. Of the total Christians (79) majority 73.4% were Orthodox Protestants, 11.4% were Evangelical Protestants and 15.2% were Catholics (Table 3).

Table 4 shows age and educational distribution; amongst the 67 (44.6%) who were illiterate, 92.5% were above 40 years of age. In that age group over half were illiterate while those under 40 years were predominantly literate (85.3%). Literacy was higher amongst males 60.5% as compared to 49.3% amongst females, but there was no statistical association between sex and education (Table 5).

Table 6 shows that the proportion of IDDM who were literates (62.7%) was slightly higher than 50.2% for the NIDDM. Almost half (49.5%) of NIDDM were illiterates. The association between education and nature of diabetes was not significant.

As noted earlier there was an almost equal number of Christians and Muslims in the sample. Christians tended to be more literate (69.6%) than the Muslims. The association between education and religion was significant as shown in Table 3.

Of the 150 respondents 88% resided within Ibadan, while the remeining 12% resided outside Ibadan.

Of all the respondents 36.0% were traders and a large percent 22% were unemployed. 8.6% were involved in professions such as teaching, journalism, surveying, writing etc. 6% were farmers.

As expected illiterate respondents were mainly traders (46.3%) and farmers (8.9%). Literate respondents constituted all the (13) professionals. Petty traders amongst them were 27.7% and pensioners were 9.6%. A large percentage of literates (19.3%) were unemployed, only slightly less than the percentage (25.4%) amongst the illiterate.

One third (32.6%) of the respondents had no income; 28.6% respondents who reported their income claimed it to be ₦100.00 per month only 17 (11.3%) claimed a monthly income of ₦300.00 and above (Table 7).

Table 8 shows the distribution by sex and duration of diagnosed diabetes. More than half of the male (67.9%) and female (63.8%) respondents had diabetes diagnosed within ten years preceeding this study. There was no statistical association between sex and duration of diagnosed diabetes. The association between age and duration of diagnosed diabetes was not significant as shown in Table 9.

The study sample consisted of male and female; young and old respondents; Christians and Muslims; illiterates and literates; Married and Single. With respect to occupation many of them were either petty traders or unemployed.

TABLE 1

DISTRIBUTION OF RESPONDENTS BY SEX AND AGE

Age	Sex				Total	
	Male	%	Female	%		%
10 - 19	7	8.6	7	10.1	14	9.3
20 - 29	8	9.9	7	10.1	15	10.0
30 - 39	15	18.5	14	20.3	29	19.3
40 - 49	23	28.4	18	26.1	41	27.3
50 - 59	17	21.0	16	23.2	33	22.0
60 - 69	10	12.3	6	8.7	16	10.7
70+	1	1.3	1	1.5	2	1.4
Total	81	100.0%	69	100.0%	150	100%

TABLE 2

DISTRIBUTION OF RESPONDENTS BY MARITAL STATUS AND SEX

Marital Status	Sex				Total	
	Male	%	Female	%		%
Single	7	8.6	8	11.6	15	10
Married	74	91.4	61	88.4	135	90
Total	81	100%	69	100%	150	100%

TABLE 3

DISTRIBUTION OF RESPONDENTS BY LEVEL OF EDUCATION AND RELIGION

Education	Christians	%	Moslems	%	Total	%
Illiterates	24	30.4	43	60.6	67	44.7
Literates	55	69.6	28	39.4	83	55.3
Total	79	100%	71	100%	150	100%

X^2 = 13.7919 df = 1 P $\angle$ .01

TABLE 4

DISTRIBUTION OF RESPONDENTS BY LEVEL OF EDUCATION AND PRESENT AGE

Education	Age				Total	
	14-39yrs.	%	40-75yrs	%		
Illiterate	5	14.7	62	53.4	67	44.7
Literate	29	85.3	54	46.6	83	55.3
Total	34	100%	116	100%	150	100%

X^2 = 15.9779 df = 1 P $\angle$ .01

TABLE 5

DISTRIBUTION OF RESPONDENTS BY LEVEL OF EDUCATION AND SEX

Education	Sex				Total	
	Male	%	Female	%		%
Illiterate	32	39.5	35	50.7	67	44.7
Literate	49	60.5	34	49.3	83	55.3
Total	81	100%	69	100%	150	100%

x^2 = 1.897 df = 1 P < .20

TABLE 6

PROPORTION OF IDDM AND NIDDM WHO ARE LITERATE AND ILLITERATE

Education	IDDM	%	NIDDM	%	Total	%
Illiterate	22	37.3	45	49.5	67	44.7
Literate	37	62.7	46	50.5	83	55.3
Total	59	100%	91	100%	150	100%

x^2 = 2.1389 df = 1 P < .15

KEY:

IDDM - Insulin Dependent Diabetes Mellitus

NIDDM - Non-Insulin Dependent Diabetes Mellitus

TABLE 7

DISTRIBUTION OF RESPONDENTS BY REPORTED MONTHLY INCOME

Reported income	No	%
Below ₦100	43	28.7%
100 - 149	10	6.7%
150 - 199	12	8.0%
200 - 249	14	9.3%
250 - 299	5	3.3%
300 - 349	7	4.6%
350+	10	6.7%
None	49	32.7%
Total	150	100%

TABLE 8

DISTRIBUTION OF RESPONDENTS BY SEX AND DURATION OF DIAGNOSED DIABETES

Duration of diagnosed diabetes	Sex					
	Male	%	Female	%	Total	%
Less than a year	11	13.6	8	11.6	19	12.7
1 - 10years	55	67.9	44	63.8	99	66%
11+	15	18.5	17	24.6	32	21.3
Total	81	100%	69	100%	150	100%

x^2 = C.8665 df = 2 P / .70

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Total	150	100%

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1 - 10years	55	67.9	44	63.8	99	66%
11+	15	18.5	17	24.6	32	21.3
Total	81	100%	69	100%	150	100%

x^2 = C.8665 df = 2 P ⟋ .70

TABLE 9

DISTRIBUTION OF RESPONDENTS BY AGE AND DURATION OF DIABETES

Duration of diabetes	14-39yrs.	%	40-75yrs.	%	Total	%
less than a year	6	17.6	13	11.2	19	12.7
1 - 10 years	24	70.6	75	64.7	99	66.0
11+	4	11.8	28	24.1	32	21.3
Total	34	100%	116	100%	150	100%

$X^2 = 2.8915$ $df = 2$ $P > .30$

Nature and type of Diabetes

There are two known types of diabetes: Insulin-dependent and non-insulin dependent. Among the 150 respondents: 60.7% were non-insulin dependent and 39.3% were dependent on direct insulin intake for controlling diabetes. The sex distribution and treatment of diabetes among the non-insulin dependent respondents was almost even. Majority were on drugs and controlled diet. 6 Males and 2 females controlled the disease by maintaining the prescribed diet. (see Table 10).

A variety of symptoms which led respondents to seek care is shown in Table 11. One hundred and eleven (111) respondents 83.9% males and 62.3% females presented with polyuria, thirst, polydipsia; this difference was significant. Females presented with a great variety of symptoms including itching of the genital organs, big babies, miscarriages, diabetes diagnosed during regular progancy checkup. More of the females (17.4%) presented with loss of weight compared to males (8.6%).

Majority (37.3%) of the insulin dependent respondents (IDDM) had between 5 and 6 appointments in the clinic in a period of six months while non-insulin dependent respondents (NIDDM) (45.0%) had

between 3 and 4 appointments within the same period. For the IDDM respondents average clinic appointment was 4.75 while for NIDDM it was 4.25 (Table 12).

A little more than half (52%) of the 150 respondents, 42 males and 36 females were admitted to the hospital during the course of their illness earlier. Patients were admitted on the average of 0.80 times. There was an equal distribution of male (48.1%) and female (47.8%) respondents who had never been admitted into the hospital (Table 13).

Considering the nature of diabetes and admission to hospital due to complications related to the disease, 74.6% of the 59 IDDM respondents had been admitted at least once Table 14. Majority 62.6% of the NIDDM respondents had never been admitted. Insulin dependent respondents were admitted on the average of 1.27 times compared to 0.50 times for non-insulin dependent.

With respect to compliance with clinic appointment; amongst the 67 illiterates 80.6% did not miss any of the appointments given within a six months period. Amongst the literates 74.7% complied with all the appointments. Only 13 (15.3%) illiterates and 21 (25.3%) literates missed some of their clinic

appointments. The association between education and compliance with clinics appointment was not significant. Thirty four respondents who failed to comply with all appointments enumerated the following reasons: travelled on day of appointment; no transport fare; forgot day of appointment; had no complaint; involved with family affair; no money for medication; waste time in the hospital; patronized a herbalist.

On the whole the IDDM respondents had more admissions in the hospital than the NIDDM.

Knowledge of Cause, Prevention and Treatment of Diabetes

Patients with longterm ailments because treatment is also life long need to have the knowledge of the cause, treatment and prevention of its numerous complications.

Of the one hundred and fifty respondents (150) 64.6% had no idea what people generally think causes diabetes; 14.6% said people have the general conception that it was caused by too much sugar in the blood and urine; 8% believed it to be a contagious disease; 2.6% mentioned inheritance; 2% stated that people think it was caused by ... enemies; 1.3%

TABLE 10

TREATMENT OF DIABETES ACCORDING TO SEX DISTRIBUTION

Type of treatment	Sex				Total	
	Male	%	Female	%		%
Insulin and diet	33	40.7	26	37.7	59	39.3%
Oral agent & diet	42	51.9	41	59.4	83	55.3%
Diet alone	6	7.4	2	2.9	8	5.4%
Total	81	100%	69	100%	150	100%

*Combined for analysis

TABLE 11

DISTRIBUTION OF RESPONDENTS BY SEX AND SYMPTOMS WHICH LED THEM TO SEEK CARE

Symptoms	Male	%	Female	%	Total	%
Polyuria, thirst,[1] Polydipsia	68	83.9%	43	62.3%	111	74.0%
Loss of weight[2]	7	8.6%	12	17.4%	19	12.7%
Ants invading urine voided in open space	-		3	4.3%	3	2.0%
Diabetic coma	2	2.4%	1	1.4%	3	2.0%
Itching of genital organs	-		2	2.8%	2	1.3%
Big baby	-		2	2.8%	2	1.3%
During regular pregnancy check up	-		2	2.8%	2	1.3%
Miscarriage	-		1	1.4%	1	0.7%
Referred from Ophthalmology clinic	3	3.7%	4	5.7%	7	4.7%
*Other problems	4	4.9%	2	2.8%	6	4.0%
N	81		69		150	

[1] $z = 3.0398$ $P < .002$

[2] $z = 1.5926$ $P < .11$

*Other problems = Tuberculosis, hypertension, toothache, swollen leg

TABLE 12

DISTRIBUTION BETWEEN APPOINTMENT WITH THE DIABETIC CLINIC AND NATURE OF DIABETES (IDDM & NIDDM)

No of clinic appointment within 6 months period	IDDM	%	NIDDM	%	Total	%
1 - 2	7	11.8%	15	16.5%	22	14.7
3 - 4	21	35.6%	41	45.0%	62	41.3
5 - 6	22	37.3%	26	28.6%	48	32%
7 - 8	5	8.5%	4	4.4%	9	6%
9 - 10	4	6.8%	5	5.5%	9	6%
Total	59	100%	91	100%	150	100%
$\bar{x}$ appointment	$\frac{280.5}{59}$ = 4.75		$\frac{386.5}{91}$ = 4.25		$\frac{667}{150}$ = 4.45	

KEY:

IDDM - Insulin Dependent Diabetes Mellitus

NIDDM - Non-insulin Dependent Diabetes Mellitus

TABLE 13

DISTRIBUTION OF RESPONDENTS BY SEX AND TIMES ADMITTED IN THE HOSPITAL

Times admitted in hospital	Male	%	Female	%	Total	%
Never	39	48.1%	33	47.8%	72	48%
Once	30	37.0%	22	31.9%	52	34.7%
Twice	5	6.2%	8	11.6%	13	8.7%
Thrice	5	6.2%	4	5.8%	9	6.0%
Four times	2	2.5%	2	2.9%	4	2.6%
Total	81	100%	69	100%	150	100%

$$\bar{x} = \frac{121}{78} = 0.80$$

TABLE 14

DISTRIBUTION OF RESPONDENTS BY TYPE OF DIABETES AND TIMES ADMITTED IN THE HOSPITAL

Times admitted in hospital	IDDM	%	NIDDM	%	Total	%
Never	15	25.4%	57	62.6%	72	48%
Once	24	40.7%	28	30.8%	52	34.7%
Twice	11	18.6%	2	2.2%	13	8.7%
Thrice	7	11.9%	2	2.2%	9	6%
Four times	2	3.4%	2	2.2%	4	2.6%
Total	59	100%	91	100%	150	100%
$\bar{x}$ times admitted	$\frac{25}{59} = 1.27$		$\frac{46}{91} = 0.50$			

$$\chi^2 = 4.8912 \qquad P < .0001$$

TABLE 13

DISTRIBUTION OF RESPONDENTS BY SEX AND TIMES ADMITTED IN THE HOSPITAL

Times admitted in hospital	Male	%	Female	%	Total	%
Never	39	48.1%	33	47.8%	72	48.0
Once	30	37.0%	22	31.9%	52	34.7%
Twice	5	6.2%	8	11.5%	13	8.7%
Thrice	5	6.2%	4	5.8%	9	6.0%
Four times	2	2.5%	2	2.9%	4	2.6%
Total	81	100%	69	100%	150	100%

$$\bar{x} = \frac{121}{78} = 0.80$$

TABLE 14

DISTRIBUTION OF RESPONDENTS BY TYPE OF DIABETES AND TIMES ADMITTED IN THE HOSPITAL

Times admitted in hospital	IDDM	%	NIDDM	%	Total	%
Never[1]	15	25.4%	57	62.6%	72	48.0
Once	24	40.7%	28	30.8%	52	34.7%
Twice	11	18.6%	2	2.2%	13	8.7%
Thrice	7	11.9%	2	2.2%	9	6%
Four times	2	3.4%	2	2.2%	4	2.6%
Total	59	100%	91	100%	150	100%
$\bar{x}$ times admitted	$\frac{25}{59} = 1.27$		$\frac{46}{91} = 0.50$			

[1] $z = 4.8912$ $P < .0001$

said every one had it in the blood; another 1.3% claimed it occured naturally while 6.6% did not respond to the question.

Table 15 shows a comparison of responses between the male (81) and female (69) respondents on their own knowledge of causes of diabetes. 3.7% males and 2.9% females identified the cause to be attributed to diseased pancreas; 3.7% males and 4.3% females stated it was an inherited condition; surprisingly only 1.2% male identified over-weight as a cause of diabetes. The most common opinion was "No idea" with (69.3%) consumption of sugar was (16%) and carbohydrate was (7.3%). Although slightly more women mentioned too much sugar in the body, there was no significant difference between males and females.

8.8% respondents below the age of 40 years stated that diabetes was an inherited condition compared to (2.6%) respondents above 40 years of age; the difference was not significant (Table 16). 5.9% of respondents below 40 years of age identified diseased pancreas to be cause of diabetes as compared to 2.6% respondents above 40 years of age but these absolute numbers for each response were very small.

Equal proportion of respondents below 40 years (70.6%), and above 40 years (69.0%) claimed they had no idea of the causes of diabetes.

Three fourths (77.6%) of illiterate respondents stated they had no idea of the cause of diabetes as compared to 62.7% literates (Table 17). This difference was statistically significant. Literates also gave a variety of responses as causes of diabetes - inherited (7.2%); diseased pancreas (6.0%); unhygienic environment (2.4%); overweight (1.2%) as compared to illiterates.

Table 18 shows distribution of age and knowledge of prevention of diabetes. Half of the respondents (52.9%) in the age group (14-39 years) said diabetes could not be prevented. Slightly larger number of respondents (52.0%) in the age group 40-75 years claimed diabetes could be prevented. The association between age and knowledge of prevention of diabetes was not significant.

The same trend occured in the distribution of respondents by sex and knowledge of prevention, where more than half the males (53.1%) stated that diabetes could not be prevented while more females 33.3% claimed that diabetes could be prevented.

Table 19 shows that there was no association between respondents sex and knowledge of prevention. Table 20 also show that the association between education and knowledge of prevention was not significent.

More than four fifths (88.7%) of the respondents identified insulin and diet to be one or the treatment for diabetes; almost all the respondents 96% mentioned oral therapy and diet while only 11.3% had the knowledge that diabetes could also be treated with diet alone. 1.3% also claimed that diabetes could be treated with herbs.

Tables 18, 19 and 20 shows that 47 respondents claimed diabetes could be prevented: 80.9% of them cited compliance with prescribed medication as a means of preventing diabetes; 34.6% claimed adhering to dietary regimen; 4.3% said keeping off tedious jobs; 4.3% said keeping off starchy and sugary foods.

Table 21 shows that almost all illiterates (91.0%) identified death as a complication of diabetes. Blindness was cited by 26.5% literates compared to 17.9% illiterates. Again more literates 4.8% identified sexual impotence as a complication of diabetes compared to only 1.5% amongst the illiterates. The association between level of education and the respondents' belief that diabetes

could lead to early death if not controlled as one complication was statistically significant.

Both males (96.3%) and females (86.9%) perceived diabetes mellitus as a very serious disease. About the same proportion of males (22.2%) and females (20.3%) perceived it as an expensive, life long disease (Table 22).

A 52 year old woman with diabetes of one year duration and non-insulin dependent diabetic. Her treatment consisted of only dietary regulation. She perceived diabetes as a serious disease especially if management was not properly organized and adhered to. She identified the following as its complications; glaucoma (from which she is suffering), cataract, blindness, gangrene, coma and early death.

Although majority of the respondents did not know the causes of diabetes, many of them had the knowledge of the different treatment available for diabetes and its complications. Patients perceived diabetes to be serious and its treatment very expensive.

Management of Diabetes

To control diabetes patients have to adopt new behaviours which include regular insulin and drug taking; testing urine and modify deeply held

TABLE 15

DISTRIBUTION OF RESPONDENTS BY SEX AND THEIR KNOWLEDGE OF CAUSE OF DIABETES

Knowledge of cause of diabetes	Male	%	Female	%	Total	%
Too much sugar in the body	11	13.6%	13	18.8%	24	16%
Eating too much of carbohydrate	6	7.4%	5	7.2%	11	7.3%
Inherited	3	3.7%	3	4.3%	6	4.0%
Diseased pancreas	3	3.7%	2	2.9%	5	3.3%
Unhygienic environment	1	1.2%	1	1.4%	2	1.3%
Overweight	1	1.2%	0		1	0.7%
Witches	1	1.2%	0		1	0.7%
No idea	57	70.4%	47	68.1%	104	69.3%
N	81		69		150	

I_2 = 0.8689 P/ .12

TABLE 16

DISTRIBUTION OF RESPONDENTS BY AGE AND THEIR KNOWLEDGE OF CAUSE OF DIABETES

Knowledge of cause of diabetes	Age 14-39 yrs	%	40-75 yrs	%	Total	%
Too much sugar in the body	5	14.7%	19	16.4%	24	16%
Inherited[1]	3	8.8%	3	2.6%	6	4%
Eating too much of carbohydrate	2	5.9%	9	7.8%	11	7.3%
Diseased pancreas	2	5.9%	3	2.6%	5	3.3%
Unhygienic environment	1	2.9%	1	0.9%	2	1.3%
Overweight	0		1	0.9%	1	0.7%
Witches	0		1	0.9%	1	0.7%
No idea	24	70.6%	80	69.0%	104	69.3%
N	34		116		150	

$^{1}\chi = 1.2280$ $P < .23$

TABLE 17

DISTRIBUTION OF RESPONDENTS BY LEVEL OF EDUCATION AND THEIR KNOWLEDGE OF CAUSE OF DIABETES

Knowledge of cause of diabetes	Education				Total	
	Illiterate	%	Literate	%		
Too much sugar in the body	11	16.4%	13	15.7%	24	16%
Eating too much of carbohydrate	4	6.0%	7	8.4%	11	7.3%
Inherited	0		6	7.2%	6	4.0%
Diseased pancreas	0		5	6.0%	5	3.3%
Unhygienic environment	0		2	2.4%	2	1.3%
Overweight	0		1	1.2%	1	0.7%
Witches	0		1	1.2%	1	0.7%
No idea[1]	52	77.6%	52	62.7%	104	69.3%
N	67		83		150	

χ^2 = 2.0245

PL 0.04

TABLE 18

DISTRIBUTION OF RESPONDENTS BY AGE AND KNOWLEDGE OF PREVENTION OF DIABETES

Knowledge of Prevention of diabetes	Age 14-39yrs	%	40-75yrs	%	Total	%
Can be prevented	10	29.4%	37	32.0%	47	31.3%
Cannot be prevented	18	52.9%	54	46.5%	72	48.0%
No idea	6	17.7%	25	21.5%	31	20.7%
Total	34	100%	116	100%	150	100%

$x^2 = 0.4693$ df = 2 P $\angle$ .80

TABLE 19

DISTRIBUTION OF RESPONDENTS BY SEX AND KNOWLEDGE OF PREVENTION OF DIABETES

Knowledge of Prevention of diabetes	Sex				Total	
	Male	%	Female	%		
Can be prevented	24	29.6%	23	33.33%	47	31.3%
Cannot be prevented	43	53.1%	29	42.03%	72	48%
No idea	14	17.3%	17	24.64%	31	20.7%
Total	81	100%	69	100%	150	100%

$x^2 = 2.0862$ df = 2 P / .50

TABLE 20

DISTRIBUTION OF RESPONDENTS BY EDUCATIONAL LEVEL AND KNOWLEDGE OF PREVENTION

Knowledge of Prevention of diabetes	Education				Total	
	Illiterate	%	Literate	%		
Can be prevented	18	26.9%	29	34.9%	47	31.3%
Cannot be prevented	32	47.7%	40	48.2%	72	48%
No idea	17	25.4%	14	16.9%	31	20.7%
Total	67	100%	83	100%	150	100%

$x^2 = 2.0733$ df = 2 P / .50

TABLE 19

DISTRIBUTION OF RESPONDENTS BY SEX AND KNOWLEDGE OF PREVENTION OF DIABETES

Knowledge of Prevention of diabetes	Sex Male	%	Female	%	Total	%
Can be prevented	24	29.6%	23	33.3%	47	31.3%
Cannot be prevented	43	53.1%	29	42.0%	72	48%
No idea	14	17.3%	17	24.6%	31	20.7%
Total	81	100%	69	100%	150	100%

X^2 = 2.0862 df = 2 P / .50

TABLE 20

DISTRIBUTION OF RESPONDENTS BY EDUCATIONAL LEVEL AND KNOWLEDGE OF PREVENTION

Knowledge of Prevention of diabetes	Education Illiterate	%	Literate	%	Total	%
Can be prevented	18	26.9%	29	34.9%	47	31.3%
Cannot be prevented	32	47.7%	40	48.2%	72	48%
No idea	17	25.4%	14	16.9%	31	20.7%
Total	67	100%	83	100%	150	100%

X^2 = 2.0733 df = 2 P / .50

TABLE 21

DISTRIBUTION OF RESPONDENTS BY EDUCATIONAL LEVEL AND KNOWLEDGE OF DIABETIC COMPLICATIONS

Knowledge of complications	Illiterate	%	Literates	%	Total	%
Death[1]	61	91.0%	66	79.5%	127	84.7%
Blindness	12	17.9%	22	26.5%	34	22.7%
Hypertension	8	11.9%	10	12.0%	18	12%
Leg Ulcers	4	5.9%	4	4.8%	8	5.3%
Coma	3	4.5%	3	3.6%	6	4.0%
Cramps	2	2.9%	3	3.6%	5	3.3%
Visual problem	1	1.5%	1	1.2%	2	1.3%
Sexual impotence	1	1.5%	4	4.8%	5	3.3%
Still birth	1	1.5%	2	2.4%	3	2.0%
Kidney problem	0		1	1.2%	1	0.7%
Cataract & glucoma	0		2	2.4%	2	1.3%
Miscarriage	0		2	2.4%	2	1.3%
No idea	2	3.0%	2	2.4%	4	2.7%
Total	95		122		150	
X	67		83			
R	1.42		1.47			

$^1_2$ = 2.037 $P < .04$

TABLE 22

DISTRIBUTION OF RESPONDENTS BY SEX AND PERCEPTION OF DIABETES MELLITUS

Perception of diabetes	Sex: Male	%	Female	%	Total	%
Serious disease	78	96.3%	60	86.9%	138	92%
Expensive, life long disease	18	22.2%	14	20.3%	32	21.3%
Not a disease but something inherited from parents	2	2.5%	0		2	1.3%
Not a serious disease	0		3	4.3%	3	2%
N	81		69		150	

practices such as diet and exercise.

Majority of the respondents 82% claimed that their body weight had altered since diabetes was diagnosed; 44 (29.3%) stated that it altered because they adhered to the medication regimen; while 26 (17.3%) identified adherence to recommended diet. See table 23 for details.

Of the fifty nine (59) insulin dependent diabetics (IDDM), 50 (84.7%) gave themselves insulin at home. The educational distribution amongst IDDM shows that more than four-fifths (89.2%) of the literates gave themselves insulin compared to 77.3% illiterates (Table 24). The thighs, upper arms, belly were the convenient injection sites mentioned by respondents who gave themselves insulin. Patients who did not inject themselves relied on family members and the nurses in the hospital.

Storage of heat sensitive injections presents a problem in tropical areas: Respondents reported use of their own or neighbour's refridgerator, cupboard, under clay waterpot, and on a table. 37 (74%) out of the fifty (50) insulin dependent diabetics who gave themselves insulin used the appropriate and recommended technology for storing insulin (i.e. refridgerator and under clay waterpot),

The 50 (84.7%) insulin dependent diabetics who gave themselves insulin claimed that newly acquired glass syringes and needles are boiled to make them sterile and are cleaned subsequently with methylated spirit daily before use. Of the above 50 respondents, 13 of 33 (39.4%) literates could adequately measure insulin into the syringe, and 7 out of 17 (14.2%) illiterates did the same. 60% of total respondents could not accurately measure insulin dosage. There was no association between education and accurate measuring of insulin into syringe (Table 25).

Almost all 96% of the insulin dependent respondents gave themselves insulin daily the remaining 4% only injected themselves four times a week. Those who use disposable syringes and needles throw them away, after using them once to five times. Respondents using glass syringes continue to reuse them.

Of the fifty IDDM respondents who gave themselves insulin, equal proportion of illiterates (58.8%) and literates (54.5%) knew their insulin dosage. Table 26 shows that there was no association between education and knowledge of insulin dosage.

88.1% of the insulin dependent diabetics buy their insulin while the remaining 11.9% are provided

with free insulin at the hospital because they can afford to come to the hospital daily to be injected with insulin provided by the hospital. Hospital pharmacy, diabetic association and chemist shops are places where insulin is usually purchased. An average of ₦9.12 is spent on insulin weekly by respondents.

A 60 year old married man with diabetes of two years duration, was insulin dependent and on 52 units IZS (lente) daily. He was an illiterate, Muslim, and petty trader by occupation. He made a profit of less than ₦100.00 per month from the sale of his goods in the market.

He identified testing of urine and giving self insulin as measures he adopted to control diabetes, which he learnt from the health educator and the nurses in the hospital. It was interesting to note that the patient did not know the right quantity of urine and water to use when testing urine for sugar. He stated that he normally used few drops of urine, few drops of water and a clinitest tablet; instead of 10 drops of water, 5 drops of urine and a clinitest tablet.

Furthermore it was discovered that although he knew his insulin dosage (52 units) he did not know how to measure these 52 units of insulin into the syringe when asked to demonstrate.

Of the 91 non-insulin dependent diabetics, 91.2% were on oral hypoglycaemic agents compared to 8.8% on diet alone. About half (45.8%) of the 83 respondents who took drugs were presented 2 types. Oral agents were obtained from the same sources as insulin. An average of ₦10.06 was spent weekly on drugs by affected respondents.

Almost all the respondents (91.3%) reported that their diet consisted of beans; 54% mentioned yam; 46.0% rice; 42.7% mentioned amala (prepared from yam and plantain); and 32.0% mentioned Eko.

On the question of why the above food items were eaten, 59.3% stated that the foods helped in controlling diabetes; 30.7% said that the foods do not contain much sugar; 5.3% respondents claimed they were not told why such food items should be eaten and 4.7% stated that the foods helped in controlling sugar in the urine. The distribution of respondents income and reasons why certain food items are recommended is shown in Table 27.

Respondents of various income groups gave more or less the same reasons in the same proportions. Out of the 10 who had no idea of the reason for adhering to this diet, 9 belonged to the no-income category.

Table 28 shows detail of food eaten for breakfast, lunch and supper. The most prominent foods for breakfast were pap, eko, "Akara", beans and "moin-moin". For lunch, the prominent diet were Vegetable, "Amala", Pounded Yam, Yam, etc; for supper were "Eko", Vegetable, Beans, "Moin-moin", Rice etc. "Eko", Beans and "moin-moin" were mostly for breakfast and supper.

Majority of the respondents 98.6% identified cassava as the main food item to be avoided. Examples of food prepared from cassava included "Lafun", "Ebu" and "Fufu". 44.0% respondents mentioned beverages i.e. bournvita, milo, ovaltine as food items to be avoided; 10.0% mentioned sweet bread; while 1.3% claimed they were not informed of the kind of food to avoid; 10.0% mentioned alcoholic drinks and 14% mentioned minerals.

Of the 150 respondents, 90% test their urine regularly at home; 8% depended on the nurses and 2% do not test their urine at all. Amongst respondents who test their own urine (135) of them, 87.4%

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Of the 150 respondents, 90% test their urine regularly at home; 8% depended on the nurses and 2% do not test their urine at all. Amongst respondents who test their own urine (135) of them, 87.4% apply the right technique by using

i) five drops of urine, ten drops of water with one clinitest reagent tablet; or

ii) drops of urine with reagent strip dipped into the urine. 12.6% respondents used incorrect drops of urine/water or used their tongue.

There was no statistical association between respondents skill in testing urine and education. See Table 29.

Table 30 shows that slightly larger percentage of the insulin dependent diabetics)90.9%) used the right technique to test urine compared to non-insulin dependent diabetics (85%). But there was no association between the nature of diabetes and ability to test urine.

Among the 135 respondents who tested their urine; 57.8% did not record results of test because test for sugar was always negative. 22.9% recorded results in an exercise book and showed it to the doctor/health educator on every appointment with the clinic. 11.1% comit all results to memory and inform the doctor/health educator on their next appointment with the clinic. 6.7% did not record results but reported at the hospital immediately the result of test indicated presence of sugar. 1.2% recorded

results of urine tests regularly in an exercise book and showed the doctor only when test results indicate presence of sugar in the urine.

Respondents reported various actions to control diabetes. 90% adhered to medication regimen. 56% complied with recommended diet; 15.3% attended clinic regularly for doctors' treatment and prescription. 9.3% tested their urine regularly and 3.3% refrained from alcoholic drinks. The literates (63.9%) were more apt to mention dietary regulation as a measure than illiterates (46.3%). There was a significant association between education and practice of dietary regulation (See Table 31).

Diabetic patients realise the importance of compliance with medical regimen and maintained regulated diet. Some however do not know the correct dosage of insulin. Most of them test their urine using the correct method but do not record the results.

Problems Encountered and Support Mechanism

Diabetic patients need the support of their families, peers, and other association to overcome the array of problems they face.

TABLE 23

METHOD ADOPTED TO CONTROL BODY WEIGHT AFTER ONSET OF DIABETES AMONG RESPONDENTS

Method adopted	No.	%
Kept to the medication regimen	44	29.3%
Nothing	39	26%
Frequent urination and lack of sleep made me lose weight	32	21.3%
Kept to the diet recommended	26	17.3%
No weight change	22	14.7%
Stopped eating carbohydrate food all the time	13	8.7%
Gained weight when insulin injection regimen was adhered to	3	2%
Performed physical exercise	2	1.3%
No idea	5	3.3%
N	150	

TABLE 24

DISTRIBUTION OF INSULIN DEPENDENT RESPONDENTS BY LEVEL OF EDUCATION AND THOSE WHO GIVE SELVES INSULIN

Give self insulin	Illiterate	%	Literate	%	Total	%
Give self insulin	17	77.3%	33	89.2%	50	84.7%
Does not give self insulin	5	22.7%	4	10.8%	9	15.3%
Total	22	100%	37	100%	59	100%

$x^2 = 1.5074$ df = 1 $P > .30$

TABLE 25

DISTRIBUTION OF INSULIN DEPENDENT RESPONDENTS BY LEVEL OF EDUCATION AND MEASURING OF INSULIN INTO SYRINGE

Measuring of insulin	Illiterate	%	Literate	%	Total	%
Can measure insulin into syringe	7	41.2%	13	39.4%	20	40%
Cannot measure insulin into syringe	10	58.8%	20	60.6%	30	60%
Total	17	100%	33	100%	50	100%

$X^2 = 0.01485$ df = 1 P / .95

30 out of 59 insulin dependent respondents give themselves insulin

TABLE 26

DISTRIBUTION OF INSULIN DEPENDENT RESPONDENTS BY LEVEL OF EDUCATION AND KNOWLEDGE OF INSULIN DOSAGE

Knowledge of insulin dosage	Illiterate	%	Literate	%	Total	%
Knows insulin dosage	10	58.8%	18	54.5%	28	56%
Does not know insulin dosage	7	41.2%	15	45.5%	22	44%
Total	17	100%	33	100%	50	100%

$X^2 = 0.00334$ df = 1 P/ .80

TABLE XI

DISTRIBUTION OF RESPONDENTS BY INCOME AND KNOWLEDGE OF WHY CERTAIN FOODS ARE RECOMMENDED

Reason	Below N100	N100 - N299	N300 - N350	No Income	Total
Good for control of diabetes	28 65.1	25 61.0%	11 64.7%	24 49.0%	88 58.7%
Do not contain much sugar or carbohydrate	14 32.6	13 31.7%	5 29.4%	13 26.5%	45 30.0%
Good for control of sugar in urine	1 2.3%	2 4.9%	1 5.9%	3 6.1%	7 4.7%
No idea	0	1 2.4%	0	9 18.4%	10 6.6%
Total	43 100%	41 100%	17 100%	49 100%	150 100%

TABLE 28

FOOD EATEN FOR BREAKFAST, LUNCH AND SUPPER

Type of Food	Breakfast	Lunch	Supper
Pap	49	1	14
Eko	45	9	42
Akara	45	-	14
Beans	24	13	29
Moin-moin	21	1	23
Rice	18	14	21
Bread	17	3	13
Tea	14	-	4
Yam	9	16	12
Egg	5	1	-
Yam Porridge	-	2	-
Amala	-	57	10
Vegetable	-	88	38
Yam flour	-	30	12
Plantain (unripe)	-	-	1
Oka	-	4	1
Dodo	-	2	3
Semovita	-	-	1

TABLE 29

DISTRIBUTION OF RESPONDENTS BY EDUCATION AND TECHNIQUE IN TESTING URINE

Technique used	Illiterate	%	Literate	%	Total	%
Right technique used for testing urine	48	82.8%	70	90.9%	118	87.4%
Wrong technique used	10	17.2%	7	9.1%	17	12.6%
Total	58	100%	77	100%	135*	100%

χ^2 = 1.9965 df = 1 P $\angle$ .20

*135 respondents test urine at home

TABLE 30

DISTRIBUTION OF RESPONDENTS BY NATURE OF DIABETES AND TECHNIQUE IN TESTING URINE

Technique used	IDDM		NIDDM	%	Total	%
Used right technique	50	90.9%	68	85.0%	118	87.4%
Used wrong technique	5	9.1%	12	15.0%	17	12.6%
Total	55	100%	80	100%	135*	100%

χ^2 = 1.0302 df = 1 P $\angle$ .30

TABLE 31

DISTRIBUTION OF RESPONDENTS BY LEVEL OF EDUCATION AND METHODS OF DIABETES CONTROL

Methods of Controlling diabetes	Illiterate	%	Literate	%	Total	%
Adhere to recommended Medication	58	86.6%	77	92.8%	135	90%
Keep to recommended diet	31	46.3%	53	63.9%	84	56%
Attend clinic regularly	10	14.9%	13	15.7%	23	15.3
Test urine regularly	6	8.9%	8	9.6%	14	9.3
Refrain from alcohol	1	1.5%	4	4.8%	5	3.3
Perform physical exercises	0		1	1.2%	1	0.7
No idea	3	4.5%	3	3.6%	6	4%
Total	109		159			
M	67		83			
X	1.63		1.92			

$Z = 2.184$ $P < .03$

On the change in their lives because of diabetes, more non-insulin dependent respondents (36.3%) than insulin dependent (27.1%) claimed diabetes had made it impossible for them to work for a long period of time. 30.5% insulin dependent respondents had to curtail their social activities compared to 21.9% non-insulin dependent respondents. 29.7% non-insulin and 16.9% insulin dependent diabetics had not experienced any change (Table 32).

A 45 year old married woman with diabetes of one year duration was non-insulin dependent. She was placed on Metformin 500mg twice daily. She was a petty trader by occupation and made an average gain of ₦100.00 per month from the sale of her goods. She depended on her husband and children to support her financially. The respondent stated that she was quite strong, hardworking and traded in all sorts of goods before onset of diabetes, all of which she had to forgo for something less tedious after diabetes was diagnosed. Therefore she makes less gain from her sale of goods compared to gain made before diabetes.

Table 33 shows that both males 92.6%) and females (97.1%) complained of financial difficulties because of the expensive treatment required for

diabetes. The proportion of females (65.2%) who complained of tiredness, weakness, depression and loss of weight was almost double that of male respondents (38.3%) who complained of the same problems. There was a significant association between sex and problems of tiredness, weakness, depression and loss of weight.

With respect to social support; 49.5% non-insulin dependent diabetics claimed they received support from their children compared to only 18.4% for the insulin dependents. There was parental support for 16.9% insulin dependent and none for the non-insulin diabetics. Again more insulin dependent respondents (33.9%) stated that they received no support from anybody compared to 24.2% for the non-insulin. There was an association between children being the primary source of support and insulin dependent/non-insulin dependent respondents. (See Table 34).

As to the nature of support provided. Financial assistance topped the list with 83.3%; moral support came second with 28.7%; third was medication with 11.1%; fourth was conveying them to the hospital with 7.4%; and donation of food items came fifth with 2.7%.

TABLE 32

MANNER OF CHANGE IN LIFE DUE TO DIABETES AMONG IDDM and NIDDM RESPONDENTS

Manner of change	IDDM	%	NIDDM	%	Total	%
Curtailed social activities	18	30.5	20	21.9	38	25.3
Cannot work for a long period without getting tired	16	27.1	33	36.3	49	32.7
Left a well paid job	10	16.9	12	13.2	22	14.7
No change	10	16.9	27	29.7	37	24.7
Prevents from eating food from carbohydrate rich products	8	13.6	10	10.9	18	12%
Lost job	5	8.5	5	5.5	10	6.7
Left school to search for a job	2	3.4	0		2	1.3
Sexually impotent	0		6	6.6	6	4.0
Blind	0		4	4.4	4	2.7
Unable to conceive	0		1	1.1	1	0.7
N	59		91		150	

TABLE 33

DISTRIBUTION OF RESPONDENTS BY SEX AND PROBLEMS ENCOUNTERED RESULTING FROM DIABETES

Problems encountered	Male	%	Female	%	Total	%
Lack money	75	92.6	69	97.1	142	94
Tired, weakness, depression, loss of weight	31	38.3	45	65.2	76	50.6
Visual problem	6	7.4	2	2.9	8	5.3
Left previous job	4	4.9	2	2.9	6	4.0
No problem	4	4.9	3	4.3	7	4.6
Difficulty in adjusting to new diet	3	3.7	3	4.3	6	4.0
Seperated from spouse	1	1.2	1	1.4	2	1.3
Gets to school late on clinic days	1	1.2	0		1	0.7
Has Tuberculosis in addition to diabetes	0		1	1.4	1	0.7
No idea	7	8.6	2	2.9	9	6.0
Total	132		128			
N	81		69			
$\bar{X}$	1.63		1.86			

$$Z = 3.42 \qquad P < .006$$

TABLE 34

NUMBER OF SOCIAL SUPPORT FOR RESPONDENTS

Support	IDDM	%	NIDDM	%	Total	%
Children[I]	11	18.4	45	49.5	56	37.3
Parents	10	16.9	0		10	6.7
Relatives/friends	8	13.5	5	5.5	13	8.7
Spouse	8	13.6	22	24.2	30	20.0
Hospital	5	8.5	9	9.9	14	9.3
Social Welfare	1	1.7	1	1.1	2	1.3
Church/Mosque	1	1.7	2	2.2	3	2%
Nobody	20	33.9	22	24.2	42	28
N:	59		91		150	

I χ^2 = 4.278 P < .00006

KEY

IDDM - Insulin - Dependent Diabetes Mellitus

NIDDM - Non-insulin dependent Diabetes Mellitus

Although almost all the patients had financial difficulties because of the expensive treatment for diabetes, many of them received support from their children. Patients curtailed those activities that impede control of diabetes.

The Diabetic Association as a Support Structure

Diabetics because their disease is life long, need to share experiences and problems with other patients and therefore be in a position to deal with everyday difficulties.

Majority of respondents, 90% (135) had heard of the diabetic association; three fourths 115 (76.7%) of respondents were members of the association, the remaining 35 (23.3%) who were not members identified the following reasons; not aware of its existence; had no excuse for not becoming member; not resident within Ibadan; had no time to attend meetings; too old to attend meetings; did not understand the local language spoken during meetings; just learnt of the existence of the association.

Among the 59 insulin dependent respondents 88.1% (52) were members of the diabetic association; while among the 91 non-insulin dependent respondents 69.2% (63) were members. There was a significant association between nature of diabetes mullitus

and membership of the diabetic association. (See Table 35).

With respect to attendance at diabetic association meetings by the 115 respondents: more than half (55.6%) of respondents in the 14-39 years age group attended between once to three times while about the same proportion of respondents (51.1%) within the 40-75 age group attended meetings between four to six times. (The period under review was six months with meetings held once every month). There was no statistical association between age and attendance at association meetings. (Table 36). Table 37 shows that there was hardly any, among the male/female respondents and attendance at diabetic association meetings.

Of the one hundred and forty two (142) respondents who depended on drugs and insulin for treatment of diabetes, 83 (72.2%) of them who were members of the association had access to drugs and insulin from the association. With non members of the association only 11.1% respondents had access to drugs and insulin. Table 38 shows that there was a significant association between access to drugs/ insulin and membership of diabetic association.

Respondents identified several reasons for attending association meetings held every first Monday of the month. These included: to acquire more knowledge about the causes of diabetes; know more about treatment, control and selfcare of diabetes; be priviledged to purchase medication cheaply from the association; meeting day fell on clinic day; wished to gain support from association and experience from patients who have had diabetics for a long time.

Reasons given for not attending association meetings included: lack of time; lack of transport fare to venue of meetings; lack of interest in the meeting; not provided with free drugs like the patients on insulin; diabetes has been newly diagnosed; no idea of the existence of the Association; meeting days not convenient; resident outside Ibadan; had been ill; never remember day of meeting; had other pressing commitments on day of meeting; occupation involve travelling; often away on meeting days; student, no time for meeting; blind nobody to convey to hospital on meeting days.

Among the 150 respondents, 40.3% illiterates and 44.6% literates considered providing support for respondents to be one of the purpose of the

Association. The same proportion of illiterates 26.9% and literates 28.9% identified lecturing patients on treatment and control of diabetes to be the purpose of diabetic association. Slightly larger number of the illiterate respondents (14.9%) wanted the Association to be a vehicle for government support. Table 39 shows that there was no association between level of education and the association being vehicle for government support.

The age distribution of respondents and purpose of the diabetic association showed that the proportion of the respondents in the 40-75 years old age group (14.7%) who wanted support from the government was very much greater than those in the 14-39 years old age group. This association was significent as shown in Table 40.

Of the one hundred and fifteen members of the association, 70.9% literates and 66.0% illiterates considered providing medication for members at reduced cost to be the most important activity of the association. More illiterates (19.1%) than literates (6.5%) considered seeking aid from Government and social organization as one of the important activities of the Association. Furthermore 11.3% literates identified teaching new members to test

urine to be another activity of the Association as against 3.8% by the illiterates. There was no association between level of education and respondents seeking aid from government and social organization as shown in Table 41.

Respondents admitted that the above activities helped them in controlling diabetes; reduce respondents anxieties; purchase medication at moderate cost; and encouraged them to join the Diabetic Association.

Majority (82%) of the 150 respondents had met the health educator. With distribution of age and knowledge of function of the health educator, almost half of the respondents (48.0%) stated that the health educator taught them how to test urine. Other functions included educating patients on the importance of attending clinic, controlling diet, and management of cuts and wounds. A greater number of respondents (20.6%) in the age group 14-39 years claimed the health educator taught them to inject themselves with insulin than the older age group (6%). The association between age and the health educator teaching respondents how to give insulin injection was significant (See Table 42).

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Responses did not vary much according to literacy as seen in Table 45. A slightly larger proportion of illiterates cited testing of urine and care of wounds than literates who emphasized education on diet.

More than four fifths (88.7%) of the respondents had met the dietitian and they claimed she had given them list of foods that should be eaten; those to avoid and the quantity for breakfast, lunch and supper.

With respect to how services provided by diabetic association could be improved: 13.0% respondents identified embarking on meaningful procedures of procuring medication for patients on regular basis; 12.2% respondents wanted the government to provide free medication for patients; 11.3% of them wanted the association to encourage more patients to join the diabetic association. 2.6% wanted the government to provide less expensive drugs and insulin for patients; 1.7% wanted the social welfare department to help poor patients obtain free medication. About half the respondents (52.1%) did not respond or had no suggestions and ideas.

For the improvement of services provided by the hospital; 23.3% respondents wished the hospital to provide drugs and insulin to patients on regular basis; 10.7% identified providing patients with free medication; 10% identified improving the educational programmes for patients on causes and treatment of diabetes. 9.3% respondents wanted doctors to treat patients on time on clinic days; 7.3% wanted the hospital to carry out research on locally available materials that could be used for making drugs and injections; 3.3% wanted an increase in the number of doctors, nurses seeing to the welfare of diabetic patients; 4.0% wanted health personnel seeing to the welfare of patients to treat them cordially when they come to the clinic; 3.3% wanted the hospital to lecture the public that diabetes is not a contagious disease.

Many of the respondents are members of the diabetic association. They derive such benefits as being able to purchase their medication at moderate cost from the association; share similar problems and give mutual support. They want the association to encourage other diabetic patients to join the group. They also want the hospital to provide patients' medication on regular basis.

TABLE 35

COMPARISON OF DIABETIC ASSOCIATION MEMBERSHIP AMONG IDDM AND NIDDM RESPONDENTS

Membership of the association	IDDM	%	NIDDM	%	Total	%
Member of the association	52	88.1	63	69.2	115	76.7
Not a member of the association	7	11.9	28	30.8	35	23.3
Total	59	100%	91	100%	150	100%

x^2 = 7.1576 df = 1 P < .01

TABLE 36

DISTRIBUTION OF RESPONDENTS BY AGE AND ATTENDANCE AT DIABETIC ASSOCIATION MEETINGS

Number of times attended	Age 11-39yrs.	%	40-75yrs.	%	Total	%
1 - 3 times	15	55.5%	37	42.1%	52	45.2%
4 - 6 times	8	29.6%	45	51.1%	53	46.1%
Never	4	14.8%	6	6.8%	10	8.7%
Total	27	100%	88	100%	115*	100%

x^2 = [illegible] df 2 P< .05

*115 respondents are members of the association

TABLE 37

DISTRIBUTION OF RESPONDENTS BY SEX AND ATTENDANCE AT DIABETIC ASSOCIATION MEETINGS

Number of times attended	Sex: Male	%	Female	%	Total	%
1 - 3 times	26	44.1%	26	46.43%	52	45.2%
4 - 6 times	28	47.4%	25	44.64%	53	46.1%
Never attended	5	8.5%	5	8.93%	10	8.7%
Total	59	100%	56	100%	115*	100%

χ^2 = 0.0914 df = 2 P/ .98

*115 respondents are members of the association

TABLE 38

COMPARISON OF RESPONDENTS WHO ARE MEMBERS/NON MEMBERS OF THE DIABETIC ASSOCIATION AND ACCESS TO DRUGS/INSULIN

Access to drugs and Insulin	Member of the association %	Non member of the association %	Total	%
Has access to drugs and insulin	83	72.2%	3	11.1%	86	60.6%
Has no access to drugs and insulin	32	27.8%	24	88.9%	56	39.4%
Total	115	100%	27	100%	142*	100%

χ^2 = 34.1237 df = 1 p <.0005

*142 respondents who are on drugs and insulin
8 respondents depend on diet alone for treatment of diabetes.

TABLE 39

DISTRIBUTION OF RESPONDENTS BY LEVEL OF EDUCATION AND PURPOSE OF THE DIABETIC ASSOCIATION

Purpose of association	Illiterate	%	Literate	%	Total	%
Provide support for patients	27	40.3%	37	44.6%	64	42.7%
Lecture patients on treatment and control of diabetes.	18	26.9%	24	28.9%	42	28%
Provide opportunities for patients to live a healthy life.	13	19.4%	16	19.2%	29	19.3%
Association seen as a vehicle for government support.I	10	14.9%	8	9.6%	18	12%
Lecture patients on selfcare	6	8.9%	9	10.8%	15	10%
Wish to learn from other patients.	5	7.5%	8	9.6%	13	8.7%
Lecture patients on cause of diabetes.	2	2.9%	4	4.8%	6	4%
No idea	18	26.9%	18	21.7%	36	24%
N	67		83		150	

I

$z = 0.9815$ $P > .36$

TABLE 40

DISTRIBUTION OF RESPONDENTS BY AGE AND PURPOSE OF THE DIABETIC ASSOCIATION

Purpose of Association	11-39yrs. %	40-75yrs. %	Total %
Provide support for patients.	16 47.0%	48 41.4%	64 42.7%
Lecture patients on treatment and control of diabetes	12 35.3%	30 25.9%	42 28.0%
Provide opportunities for patients to live a healthy life.	5 14.7%	24 20.7%	29 19.3%
Lecture patients on selfcare.	5 14.7%	10 8.6%	15 10.0%
Men to learn from older patients.	5 14.7%	8 6.9%	13 8.7%
Lecture patients on cause of diabetes.	2 5.9%	4 3.4%	6 4%
Association seen as a vehicle for Government support	1 2.9%	17 14.7%	18 12%
No idea	8 23.5%	28 24.1%	36 24%
N	34	116	150

66

$I_z = 2.7000$ $P < 0.007$

TABLE 41

DISTRIBUTION OF RESPONDENTS BY LEVEL OF EDUCATION AND KNOWLEDGE OF ACTIVITIES OF THE DIABETIC ASSOCIATION

Knowledge of activities	Illiterate	%	Literate	%	Total	%
Providing medication for patients at reduced cost	35	66.0%	44	70.9%	79	68.7%
Sharing experiences	19	35.8%	25	40.3%	44	38.3%
Health talks	9	16.9%	14	22.6%	23	20.0%
Seek aid from government and social organization[1]	8	15.1%	4	6.5%	12	10.4%
Hold meetings to discuss issues pertinent to members of association	3	5.7%	1	1.6%	4	3.5%
New members are taught how to test urine	2	3.8%	7	11.3%	9	7.8
No idea	5	9.4%	2	3.2%	7	6.1%
N	53		62		115	

1

$Z = 1.475$ $P < .16$

TABLE 42

DISTRIBUTION OF RESPONDENTS BY AGE AND KNOWLEDGE OF FUNCTIONS OF THE HEALTH EDUCATOR

Function of health educator	14-39yrs.	%	40-75yrs.	%	Total	%
Taught me how to test urine.	15	44.1%	57	49.1%	72	48%
Counselled me on the importance of the diabetic clinic	15	44.1%	46	39.7%	61	40.7%
Educated me on foods to eat.	12	35.3%	30	25.9%	42	28%
Taught me how to care for wounds, infections, hands and feet	8	23.5%	20	17.2%	28	18.7%
Taught me how to give self insulin injection i.	7	20.6%	7	6.0%	14	9.3%
Told me the causes of diabetes.	4	11.8%	7	6.0%	11	7.3%
Sold drugs/insulin to me.	1	2.9%	4	3.4%	5	3.3%
Told me about the importance of the diabetic association	1	2.9%	2	1.7%	3	2.0%
No idea	5	14.7%	21	18.1%	26	17.3%
Total	68		194			
N	34		116			
$\bar{X}$	2		1.67			

$Z = 2.00$ $P < .04$

TABLE 43

DISTRIBUTION OF RESPONDENTS BY LEVEL OF EDUCATION AND KNOWLEDGE OF FUNCTIONS OF THE HEALTH EDUCATOR

Function of Health educator	Illiterate	%	Literate	%	Total	%
Taught me how to test urine	37	55.2%	35	42.2%	72	48%
Counselled me on the importance of the diabetic clinic	27	40.3%	34	40.9%	61	40.7%
Educated me on foods to eat	15	22.4%	27	32.5%	42	28%
Taught me how to care for wounds; infections, hands and feet.	15	22.4%	13	15.7%	28	18.7%
Taught me how to give self insulin	4	5.9%	10	12.0%	14	9.3%
Told me the causes of diabetes	4	5.9%	7	8.4%	11	7.3%
Sold drugs/insulin to me.	1	1.5%	4	4.8%	5	3.3%
Told me about the importance of the diabetic association	-		3	3.6%	3	2.0%
No idea	13	19.4%	13	15.7%	26	17.3%
N	67		83		150	

$\chi^2 = 1.597$ $P < .13$

Conclusion

The results showed that majority of the respondents were either involved in petty trading which attracted very poor earning or were unemployed. Only a few were farmers; few professionals, pensioners and students.

Health problems which led respondents to seek for care in hospital included frequent urination, persistent thirst, increased appetite, itching of the female genital organs among several other problems.

Findings revealed that majority of the respondents did not have the knowledge of the cause of the diabetes but had the knowledge of its treatments and the different complications associated with the disease. They perceived diabetes to be serious and treatment expensive.

Several management behaviours adopted by respondents for the control of diabetes included Giving themselves insulin, testing urine for sugar, taking recommended oral agents and dietary restriction. Beans, "Eko", "Moin-moin", Vegetables, "Kpala", Yam were prominent among respondents' diet while all products from cassava were minimised or non-existing in their diet.

Findings showed that almost all the respondents had financial difficulties. Majority of them had the fortune of being supported by family members, the social welfare department or even the hospital.

A good percentage of the respondents were registered members of the diabetic association with the health educator organizing its activities. Members of this association had access to drugs and insulin whenever these were available and benefited from other activities organized by the association.

Apart from doctors and nurses respondents had been counselled by the health educator and the dietitian who taught them how to test urine for sugar, give insulin and counselled on the need to comply with clinic appointments. The dietitian gave them a list of food items that should make up their diet.

The respondents, amongst other things wanted the association to encourage other diabetic patients to join the association; and the hospital to provide drugs and insulin to patients on regular basis; improve the educational programmes organized for patients and to carry out research on locally available materials that could be used for making drugs and insulin for patients and so reduce the present cost.

Illustration of Cases

Case I

A 15 year old female diabetic, single, unemployed, moslem by faith, with primary six education is supported solely by her parents. She is insulin dependent diabetic and there is a family history of diabetes, her mother is diabetic.

Three years ago, she had problems with her teeth, several of them were found to be shaking. At the dental clinic where she went to seek for care, history taken by the dentist showed that the patient woke up several times at night to drink water and pass urine. From here she was referred to medical out-Patient department, University College Hospital where urinalysis indicated glucose in urine and diabetes was diagnosed. She has been admitted once in the hospital since the onset of her diabetes.

The patient claimed she had no idea of what people generally think causes diabetes but she thinks it is due to too much of sugar y foods. She had no idea whether diabetes could be prevented or cured. She identified loss of weight, and weakness of the body to be her problems resulting from diabetes. She also believes that diabetes could result in early death if not properly controlled. Her treatment

consists of 52 units of insulin (IZS) lente daily. 40 units in the morning and 12 units in the evening.

She controls her diabetes by adhering strictly to the recommended diet, giving self insulin daily and frequent testing of urine. She knows the right quantities of water and urine to use when testing urine for glucose. The patient records results of urine tests in an exercise book and reports at the hospital when test indicate presence of glucose in the urine.

She injects herself with insulin on her arms and thighs. She stores insulin in her parents refridgerator; she knows her insulin dosage and can measure insulin into the syringe. She pays between ₦6.00 and ₦10.00, for one insulin bottle which she uses for seven days. Her diet consists of "Amala", Beans, Rice, "Eko" and Yam, chosen because they are good for the control of diabetes. "Eba", "Fufu", "Amala lafun" prepared from cassava, fried plantain are prohibited foods because they contain plenty of sugar.

The patient admitted that although she had heard about the diabetic association she is not a member and had no idea of the purpose of the association.

She has been counselled by the health educator who taught her how to test urine and record the result; and give self insulin. She had never been counselled by the dietitian, when asked how she know what food to eat she said she eats the same thing with the mother since she is also diabetic. Her appointment with the clinic is once in four weeks. She spends ₦3.00 as transport fare to the hospital and back on clinic days.

The patient stated that diabetes has changed her life because she is forced to discontinue with her education because her parents cannot cope with her treatment expenses and at the same time be able to pay for her schooling. Furthermore she has had to curtail her eating habits by excluding most of the carbohydrate foods she used to enjoy eating.

Case 2

A 50 year old married man, an illiterate, moslem by faith and a petty trader by occupation makes a t[illegible]n of ₦100.00 per month from his sales and is supported financially and morally by his wife.

Three years ago, the patient had problems of dizziness, persistent thirst, frequent urination especially at night which led him to seek for care at the hospital. He had never been admitted in the

hospital as a result of diabetes and he is insulin dependent. On the knowledge of diabetes, he said people generally think it is caused by ones enamies. He had no idea of the causes of diabetes nor whether diabetes could be prevented or cured. His problems resulting from diabetes included tiredness, inability to put in many hours of work, and dependence on wife for financial support to enable him purchase insulin regularly. He said diabetes could result in early death if care was not taken. That because of diabetes he is sexually impotent and cannot make love to wife.

His treatment consist of 40 units of insulin (I2S) lente daily. He manages diabetes by adhering to the recommended diet; injecting self with insulin and testing urine regularly. He does not know the right quantity of water and urine to use when testing urine for sugar. He does not record results of urine tests. According to him, initially he depended on his educated children to record results of urine tests for him but now he does not bother because tests always show absence of sugar in urine.

The patient injects himself with insulin at home administered on his arms and thighs. He does not know his insulin dosage by memory but knows the quantity of insulin to measure into the syringe.

He stores the insulin in an aluminium bowl with cover and places this on top of a cupboard. He boils the syringe and needle once every week and cleans with methylated spirit and cotton wool on other days before use. He spends between ₦7.00 and ₦10.00 on insulin for seven days.

His diet consists of mostly unripe plantain, beans, "akara" (i.e. bean cake), moin-moin, chosen because they were recommended by the dietitian and are good for the control of diabetes. "Iafun" 'gari', 'fufu' are prohibited because they contain too much starch and sugar.

Although he admitted that he had heard about the diabetic association he is not a member because he has no time to attend meetings. He has been counselled by the health educator on the technique of testing urine and recording results. He has also been counselled by the dietitian who gave him a list of what foods to eat and reasons why these were chosen.

He defaulted from his clinic appointment; daily insulin injection and frequent urine testing for six months. When asked why he defaulted, he claimed that he had serious financial difficulties. During this period he experienced the reappearance of his diabetic symptoms (severe loss of weight, blindness, frequent

urination, thirst and blurred vision). Since he returned, he had been complying with recommended behaviours.

He spends forty kobo to get to the hospital and back home on his clinic days. Presently his appointment with the clinic is once in two weeks and from records he has been complying.

Case 3

A 65 year old married man, unemployed because of old age is not educated and he is a moslem by faith. He is supported by his children and other members of his family.

At the age of 62 years, the patient suffered from persistent thirst, frequent urination especially at night and drastic loss of weight. This led him to seek for care at the University College Hospital where after series of examination and tests the condition was diagnosed to be diabetes. Fortunately he has never been admitted in the hospital as a result of diabetes. He said people generally, believe that everybody has diabetes in the blood and become manifested when the body can no longer control it. He had no idea of the causes of diabetes or whether it could be prevented.

He identified the following to be his problems resulting from diabetes: financial difficulties; weakness and inability to sleep well at night. His treatment consist of chlopropamide (Diabenese) 500mg three times daily; Metformin (glucophage) 500mg three times daily. For the management of diabetes, he adheres to his drug regimen (finacial problems not withstanding); adheres to recommended diet and tests urine frequently. The patient knows the quantity of water and urine to use when testing urine for sugar. He does not record the result of any of the urine tests but commits them to his memory. He knows that when the colour of the urine test shows blue then it means diabetes is under control, that all other colours means there is sugar in the urine.

For the purchase of chloproamide and metformin the patient spends between ₦10.00 and ₦12.00 for one week's treatment. His diet consist of yam flour, "pap", beans, rice, yam and "amala" chosen because they contain loss sugar and are good for controlling sugar in the urine. "Fufu", ovaltine, cassava products are discouraged because they contain too much sugar.

The patient claims that although he is a member of the diabetic association, he attended only two out

of six meetings in six months because he attends when ever the meeting falls on his clinic day. He thinks the purpose of the association is to help members, by educating them on treatment and management of diabetes and making medication available to members at moderate cost.

He has been counselled by the health educator who taught him how to take care of himself and to keep to all the recommended regimens. He has spoken with the dietitian who counselled him on the types of food to eat for breakfast, lunch and supper and those to avoid.

He spends eighty (80) kobo on transport fare from his home to the hospital and back on clinic days. His appointment with the clinic is once in four weeks.

Case 4

A 50 year old married woman with no education, a moslem by faith and a petty trader by occupation, makes between ₦45.00 and ₦50.00 a month as gain from selling "moin-moin".

Ten years ago, she suffered from drastic increase in appetite and subsequent loss of weight, frequent urination, persistent thirst, weakness and dizziness.

This led her to come to the hospital to seek for care. Her condition was later diagnosed to be diabetes. She has never been admitted in the hospital for diabetes.

She said people generally believe diabetes to be contracted through sexual intercourse. She has no idea what causes diabetes. She identified the following to be her problems resulting from diabetes: headache; financial difficulties and weakness. To make ends meet she relies on her children to provide her food and buy her insulin regularly. Her treatment consist of 38 units of insulin (I2S) lente daily. She controls the symptoms of diabetes by keeping to recommended diet; injecting herself with insulin and testing urine regularly. She knows the right quantity of water and urine to use for the test. She does not keep a record of the results of the urine tests because her diabetes was under control (i.e. all the results of her urine test is always blue). The patient claims that diabetes has changed her life because of constant tiredness; and inability to work for many hours without stopping to rest.

The patient injects herself with insulin at home, on her arms and thighs. She cannot recite her insulin dosage and does not know how to measure 38

units of insulin into the syringe. She stores her insulin in a neighbour's refridgerator; boils syringe and needle once a week before use and uses methylated spirit and cotton wool to clean syringe and needle on other days. She spends between ₦6.00 and ₦10.00 for the purchase of one bottle of insulin which lasts for one week.

Her diet consists of beans, "moin-moin", Eko, and "Amala" (yam flour) chosen because they are good for controlling sugar in the body, but "Eba", "Lafun", "Fufu" are prohibited because they increase the level of sugar in the body. She is a member of the diabetic association and attended six meetings in six months. She claims she attends meetings regularly because she is able to purchase insulin and clinitest tablets at reduced price. That the purpose of the association is to assist members in all aspects of diabetic management.

She has been taught by the health educator on how to test urine for sugar and record the results. She has been taught how to give herself insulin injection; counselled on the importance of compliance with the recommended diet and the need for good personal hygiene. She has been counselled by the

dietitian and was given a list of food to choose from and those she should avoid all the time.

Her appointment with the clinic is once in ten weeks. She spends N1.00 on transport fare from her home to the hospital and back on clinic days.

CHAPTER FIVE

DISCUSSION

The discussion will be grouped under the following headings: demographic profile; nature and type of diabetes; patients knowledge of cause; prevention and treatment of diabetes; management skills of diabetic patients; problems encountered and support mechanism; the diabetic association as a support structure; organisation of services at HCP and Patient - provider interaction.

Demographic Profile of Respondents

Demographic characteristics like sex, age, education, religion, income influenced respondents behaviour as it would be explained.

There was no significant difference in the sex distribution of respondents. The male respondents were 54% and the females 46%. Although the review of literature on factors affecting diabetes mellitus states that male to female ratio is 1:2 in the older age group (Weller, 1967 and Macleod, 1982), findings from this study showed that the male to female ratio in the older age group is 1.2:1 among the respondents. The male preponderance extended in both the age groups (15-39 years and 40-75 years). Cruickshank (1971)

explains this discrepancy by noting that in Nigeria and most other parts of Africa, males come to hospital more readily than do females.

The proportion of the younger (18-39 years) respondents to elderly (40-75 years) showed that 61.3% of them were in the latter age group (Table 1); with many (49.3%) of the respondents in the age group 40-59 years. Macleod (1982) in his review of literature explains that diabetes is principally a disease of the middle aged and elderly although it may appear at any age.

From table 3, the result showed that there were as many Christian respondents 52.6% as there were Moslem 47.3%. Thus religion did not appear to be an inhibiting factor with respect to respondents utilising hospital services. On the other hand, there was a significant association between education and religious affiliation. Findings showed that there were almost the same proportion of illiterate Moslems (60.5%) as there were literate Christians (69.6%). This may be due to the fact that there are more educational opportunities for Christians, which are attached to churches and missions.

Of the 150 respondents, 88% reside within Ibadan while 12% reside outside Ibadan. Discussion with respondents who travelled down to Ibadan for treatment revealed that they were referred to the University College Hospital, Ibadan to have their diagnosis established or because their diabetes proved difficult to control. The 12% respondents resident outside Ibadan pay up to ₦20.00 as transport fare and incur more expenses as compared to their counterparts residing within Ibadan. Although transport fare as an enabling factor was a problem for respondents resident outside Ibadan they still kept to their clinic appointments.

About one third (32.7%) of the respondents did not report their monthly income because they were unemployed, housewives and students. Some petty traders could not make categorical statement about how much they made per week or month because sales in the markets are usually unpredictable. There may be a considerable under-reporting of income as only 11.5% reported an income of ₦300.00 and above.

Nature and Type of Diabetes

Regarding the number of years respondents have had their diabetes diagnosed. 99 (66%) have had diabetes between one and ten years; 26 (17.3%) between

eleven and twenty years; and 6 (4%) respondents have had diabetes for more than twenty one years. Chronic disease as the name implies is a life long condition and so is the treatment as against acute ailment in which treatment is for a short period. With chronic disease, good health education coupled with modified life style would ensure prolonged life despite diabetes (Viney, 1984 and WHO 1985).

The health belief model which is a model for preventive actions analyses an individual's motivation to act as a function of the expectancy of goal attainment. The respondents who have had diabetes from one up to even twenty one years had evaluated the advocated health action (i.e. keeping to diet and medication regimen, testing urine and regular attendance at the clinic) and found it feasible when they found that the estimated actions benefits (control of sugar in urine) far out-weighed costs of the proposed health actions (i.e. spending money purchasing diabetic medication).

This behaviour fits into Kelman's processes of social influence arising from persuasive communication with respect to 'Compliance' and 'Internalization'. It is assumed that respondents who have had diabetes up to the period of 21 years, initially complied with all the recommended regimens, modified their life style

habits to reduce risk because they hoped to achieve something positive (i.e. stopping polyuria and polydipsia) but when the content of these behaviours became rewarding and useful in solving their problems, these behaviours became internalized. The health behaviours adopted by respondents reflected the sick-role behaviour because their care of diabetes showed that they had long contact with treatment setting and partial or total withdrawal from their social activities.

Marble, et al (1971) in their review of literature states that diabetic patients have survived for forty to fifty years after the onset inspite of the shortened life expectancy. Factors associated with this longevity include low prevalence of manifestations of kidney disease, low insulin dose and self-care regimen.

With the use of diet alone for the treatment of diabetes mellitus, only 5.3% patients were on dietary restriction. 55.3% on diet and oral hypoglycaemic agents and 39.5% were on diet and insulin. Findings revealed that many more non-insulin dependent diabetics were not placed on restricted diets because experience show that using diet alone as the sole means of treatment in Nigerian diabetic patients had been very

disappointing (Kinnear, 1963; Osuntokun, 1971 and Adetuyibi, 1976). Furthermore most of the respondents belong to the low income class based on their reported income and cannot afford anything more than the cheapest, diet, which is very high in carbohydrate and low in protein. This may be responsible for the increase in the number of NIDDM patients treated with oral hypoglycaemic agents and diet as compared with NIDDM patients whose treatment would have been dietary restriction alone.

With regards to patients compliance with clinic appointment, findings showed that although there was a slight difference in favour of the illiterate respondents, this did not reach a significant level. From observation it was discovered that Nigerian diabetics share their drugs and insulin with diabetic patients who cannot afford to buy. This affirms Osuntokun's (1971) statement that the over generous culture of Nigerian people encouraged defaulting in a disease which demands life long attendance at followup clinics. Some patients on the other hand who can afford to buy drugs and insulin obtained them from local drug stores and therefore tended to stay away from the clinic. Another reason why patients may default, is the mild nature of diabetes in many of

the cases which allow patients to default from diabetic clinic appointments for several months without getting into serious trouble (Kinnear, 1963). 15.2% illiterate and 25.3% literate respondents defaulted from the diabetic clinic.

Respondents actions in going to the hospital to seek care when diabetic symptoms (polyuria, polydipsia etc) appeared fits into Maslow's hierarchy of needs. According to him, basic needs relates to survival and include life sustainer such as food, water, oxygen, sleep and satisfying sexual stress. Using this to explain respondents behaviour, it is assumed that the persistent thirst, frequent urination especially at night when they were supposed to be sleeping forced them to seek care in the hospital and have their basic needs met as was the case before the onset of the symptoms.

Patients Knowledge of Cause, Prevention and Treatment of Diabetes

People's belief concerning the cause of diabetes may affect patients care. Findings disclosed the following as beliefs of people regarding the causes of diabetes: (i.e. caused by too much sugar in the blood and urine; inherited; a natural disease; contagious; caused by ones enemies; and that everyone had it in the blood). These beliefs of people may

also influence patients and members of families' concept of the causes of diabetes; it may inhibit members of the families from giving patients the support they so require for the care of their illness; it may also affect the interaction of patients with their peers, workmates, members of the society and even members of their family.

With respect to respondents knowledge of the causes of diabetes, results showed that only 7.3% illiterates and 16.7% literates had some knowledge of its causes (i.e. too much sugar in the body; inherited; diseased pancreas; and overweight). See Table 15. The lack of knowledge of cause of diabetes by 76% of the respondents is due to the poor emphasis on the causes of diabetes under the organized educational programmes for patients at the diabetic clinic. The health educator identified illiteracy and semi-illiteracy of majority of the respondents to be responsible for the exclusion of the causes of diabetes in their educational programmes. From observation, the educational programmes organized for patients at the clinic concentrate mostly on management technique.

On prevention of diabetes, findings revealed that 31.5% respondents claimed it could be prevented. Interventions provided included: avoiding

tedious jobs; restricting consumption of starchy and sugary foods; using drugs and insulin prescribed by the doctors; and dietary restriction. The above responses show that some respondents have the erroneous idea that diabetes could be prevented. On the other hand it may be explained that these respondents are confusing "prevention" with "control" as some of their answers indicate: restricting consumptions of starchy and sugary foods; using prescribed medication regularly and dietary restriction (See tables 16, 17 and 18).

On the knowledge of cause, prevention of diabetes, a 59 year old female diabetic stated that she had no idea of the causes of diabetes; and that diabetes could be prevented by following doctors orders in the use of medication and adhering to recommended diet.

On the knowledge of treatment of diabetes, a high proportion of responcents 88.7% icentified insulin and diet as its treatment; and 96% also identified oral hypoglycaemic agents and diet. The reasons for respondents adequate knowledge of treatment of diabetes may be due to the fact that almost every newly diagnosed elderly diabetic patient is tired with drugs and diet first and when controlled, enlightened educated patients are later placed on diet alone. If not controlled treatment is usually changed

to insulin and diet. Very few respondents 11.2%, had knowledge of diet alone as treatment for diabetes probably because, dietary restriction as the sole treatment is rarely suggested for patients. This may therefore explain the lack of knowledge of diet alone as treatment for diabetes by the respondents.

97.3% respondents had knowledge of complications of diabetes. This knowledge may be due to the fact that respondents suffered from them. Complications respondents had contracted included hypertension, sexual impotence, stillbirths, miscarriage, blindness, coma, neuropathy (tingling sensation in the hands and feet), and surgical amputation of gangrenous foot. According to Adetuyibi (1976[A]) and Marble (1971) review of cases had shown that poor control of diabetes, is not solely to blame for the appearance of diabetic complications: age of onset, severity of diabetes, unstable nature of the illness, insulin reaction etc. are involved in the problems of complications. Marble (1971) also states that many patients tend to see the appearance of a complication as evidence of their own personal failure in diabetic management. This therefore shows the need for the health personnel involved in the management of patients with diabetes to educate them on the potential hazards (complication) whether

diabetes is properly managed or not. Emphasis should be on the fact that new modes of adaptation would be called forth when such complications finally appear.

With respect to perception of diabetes, most of the respondents 92%, believed diabetes to be a serious disease which they claimed could result in acute and longterm complications. Patients also believed diabetes to be a serious disease because of the treatment being lifelong and expensive. The health belief model suggests that a given behaviour may be determined by the person's perceived vulnerability to a particular condition (continued polyuria, polydipsia and polyphagia in case of diabetes) and by his perception of severity of the consequences of contracting the condition (coma, early death and premature manifestation of complications). The perception of diabetes as a serious and dangerous disease by respondents may be said to be responsible for their high compliance with diabetic clinic and their methods of control of diabetes as shown in table 31.

Management Skills of Diabetic Patients

Fonaroff and Levin (1977) state that care of chronic diseases require a high proportion of care by the individual affected relative to professional care and that there was need for lay (individual and

family) person to develop self care skills and comply with the regimen mandatory for management of chronic ailments. Some of these self-care skills required for management of diabetes as earlier mentioned include urine testing; measurement of insulin into syringe and self administration of insulin if insulin dependent.

From observation all capable insulin dependent diabetics are educated on how to measure their insulin dosage into the syringe by the health educator and the nurses. Although findings revealed that 84.7% respondents performed the act of giving themselves insulin at home, only 40% of them knew how to measure their dosage of insulin into the syringe. This may be because as many as 44.6% of the respondents were illiterates and this could have been responsible for patients lack of skill for measuring insulin into the syringe. Furthermore patients may not know the most recent prescribed dosage and therefore adhere to previously recommended amount; or the high cost of insulin may make patients to adhere to previous low insulin dosage than the most recent one that states an increase in the dosage; others could not state what their dosage was but could show how much insulin they were required to draw into the syringe.

Among the insulin dependent diabetics was a 60 year old male respondent with diabetes of one year duration who, though had been taught the technique of drawing insulin into the syringe could not adequately measure 52 units of insulin into the syringe when asked to demonstrate.

Findings from the study showed that insulin and drugs were supplied at the hospital pharmacy at heavily subsidized prices, and from the diabetic association at moderate prices to the patients. The subsidized sale of drugs and insulin served as an enabling factor which encouraged respondents to comply with their medication regimen. Although finance (enabling factor) was claimed by many of the respondents to be a problem, they went on a tight budget and made money available to purchase their medication and urine testing instruments.

Findings from the study also showed that although majority of the respondents belonged to the low socio-economic class, their diet consisted of both proteinous foods and carbohydrate foods.

A 70 year old married woman with diabetes of 20 years duration was insulin dependent and on 70 units LMS (lente) daily. She had always purchased her insulin from the hospital pharmacy and diabetic

association and this may have been responsible for her successful management of diabetes and survival, 20 years after onset of diabetes. She had no occupation and therefore no income because she was too old to work. She depended solely on her children. Despite her financial problem, her diet consisted of "Eko", beans, pounded yam and "Oka".

With respect to testing of urine, although 90% of the respondents tested their urine for glucose at home, 87.4% tested same using the right quantities of water and urine (i.e. (i) 5 drops of urine, 10 of water and a clinitest tablets or (ii) drops of urine with reagent strip).

The regular testing of urine by some of the respondents (87.4%) represents conformity with Lawrence Green's theory on enabling factors which he defines as resources that may facilitate action or may allow aspiration to be realized.

Findings of the study revealed that many respondents did not record urine test results, although some of them stated that they always remembered the results without having to record them. The illiterates, because they would require to ask other people to record results for them, may not comply and may only take the result seriously if it showed presence of

sugar. A few respondents who kept record moy have done so because of the importance they placed on their disease condition especially the newly diagnosed diabetics.

A significant change respondents adopted since onset of diabetes was the fact that they curtailed some of their social activities. Rogers in his theory believed that personality develops from experience, which he defines as everything that is accessible to the organism's awareness. Diabetic patients valued long life just like every other person, liked to keep their diets and lifestyles all of which they had been used to, but because the dietitian and health educator showed them the relationship between their former lifestyles and present state of health, respondents might have decided to adopt a different lifestyle and curtail some of their social activities.

The "cue to action" according to the health belief model is the stimulus (internal or external) which must occur to trigger the appropriate health behaviour. With respect to the diabetic patients, the cue to action was the recognition of diabetic symptoms (polyuria, polydipsia, loss of weight, dizziness, blurred vision and development of complications if

diabetes was not controlled. These were the cues that prompted respondents to adopt the recommended actions.

Other changes in the lives of respondents since the onset of diabetes included sexual impotence, blindness, losing well paid job, sterility and having to leave school. It was interesting to note that social stigma is attached to any illness involving a loss of consciousness or confusion in which affected patient is either labelled an epileptic or a psychotic. Such illnesses are erroneously assumed to be infectious (Adetuyibi 1976). This may therefore account for some respondents losing their jobs.

Problems Encountered and Support Mechanism

Of all the problems that had impact on the lives of diabetics the most significant was the financial position of respondents, most of whom belonged to the low socio-economic class. Because people believed diabetes to be contagious, some married couples became separated. Studies have also shown that believing diabetes to be contagious has led to divorce among couples; wives were chased out of matrimonial homes; and wives deserted husbands (Famuyiwa, 1986). Generally patients were embarrased because people treated them differently.

According to Green's reinforcing factor, the role of other aignificant persons (exeoples family members, peers and health workers) in encouraging or discouraging behaviour is stressed. Findings showed that some respondents had problems with their marriages since onset of diabetics and because this meant that there was no support forth coming from the spouse it may account for some respondents having problems complying with recommended behaviours.

A 55 years old married woman but separated from her husband has had diabetes for 12 years. She was insulin dependent and on 50 units of insulin IZS (lente) daily. She was a petty trader by occupation and depended on her children for additional financial assistance to make ends meet. With respect to her problems resulting from diabetes, she stated that she was seperated from her husband because he believed diabetes to be contegious and that she contracted it from another man. Initially, according to her she experienced lots of omotional problems, (i.e. finding it difficult to accept her problem) but she is optimistic, now that she had survived for 12 years after the onset of diabetes.

With respect to support rendered to respondents, 72% of them stated that other people helped them financially, morally, provided food items, and purchased medication. Respondents were forced to rely on other people for their upkeep because many of them were unemployed or lacked well paid jobs especially the illiterate respondents. Green's reinforcing factors emphasized the role of significant others who may encourage or discourage peoples' behaviour. Findings show that respondents experienced financial difficulties which would have hindered adherance to regimen. However the generosity and support of their children, parents, relatives, friends, spouse, hospital, social welfare and religious organization enabled them adhere to recommended behaviours. It appeared that supports rendered to respondents were responsible for compliance with recommended behaviour patterns among them. 77.3% respondents complied with all their clinic appointments.

The Diabetic Association as a Support Structure

The result of the study showed that majority of the respondents 135 (90%) had heard of the diabetic association University College Hospital branch. 76.7% of them were members. Findings revealed that patients were given the option of either becoming

member of the association or not. It was further discovered that more (88.1%) of the insulin - dependent respondents were members compared to 69.2% non-insulin dependents. The reason for this may be because whenever the University College Hospital pharmacy have sufficient quantity of medication, patients whose treatment of diabetes depended on insulin are normally provided free, whereas those patients on oral hypoglycaemic agents usually pay some amount of money for agents obtained at the pharmacy. The free insulin acts as a form of motivation for more insulin dependent respondents to become members of the diabetic association.

Some theories that would provide insight to the relevance of the diabetic association are presented. First is that the diabetic association acts as a reinforcing factor to the diabetic patients. This is because with the help of the diabetic association members are able to meet regularly and discuss issues of importance to them, share experiences and learn from one another. With the monthly dues paid by members, the association regularly purchase medication and sell to members at moderate prices so that they would find it less difficult to comply with medication regimen.

As a Group the patient can muster financial help. For example the Lioness Club of Ibadan, in 1985 donated a refridgerator to the association. With this donation the ascociation has been able to purchase large quantities of insulin cheaply and store in the refridgerator therefore ensuring its potency.

Maslow in his hierarchy of needs defines meta-needs as abstract needs such as goodness, beauty, unity, ordor and justice. Diobetic patients became members of the diabetic association and attended meetings because as a Group they felt better abled to manage their chronic condition and accept their problem. Members also wanted to find out from others who had had diabetes for a longer period how they have been managing and so take a cue from them.

Kurt Lewin's Group process theory states that an individual attitudes and habits do not exist in insolation but rather are related to the attitudes and habits of significant Groups to which a person belongs. Individuals who make up the diabetic association are motivated to comply with all the recommended behaviours so as to conform with the Group norms. Here they can begin to move from mere compliance, to higher levels of internalization. Successful diabetic patients serve as role models for other new members or members with problem to

identify with.

In the association, it is the duty of every member to maintain his or her health and be able to live a healthy life despite diabetes. As it had been explained earlier, the monthly dues paid by members enable the association provide them with regular supply of drugs, insulin and clinitest tablets and therefore ensure compliance with recommended behaviours.

A 30 year old male journalist has had diabetes for two years. He has the insulin dependent type of diabetes and is on 40 units IZS (lente) daily. He was retrenched from work the previous year and presently depend on his wife and mother for his livelihood. He joined the diabetic association when his diabetes was diagnosed and attends the association meetings whenever it falls on his clinic day. He identified the following as the activities of the association beneficial to him. (i) Being able to purchase insulin at moderate price compared to the price sold in chemist shops; (ii) sharing views and experiences with other patients; (iii) health education on how to live a healthy and happy life despite diabetes.

A statistically significant association was found between membership of the diabetic association and access to drugs and insulin. Respondents who were members of the association had better access to drugs and insulin than non-members of the association. As members, respondents derived the benefit of being able to purchase drugs and insulin from the association and at moderate price when available. Whereas non-members only rely on chemist shops for their purchase especially when the University College Hospital Pharmacy cannot supply patients with diabetic medications.

One reasonable excuse why some respondents claimed they could not become members of the association was because of language barrier. The Yoruba language is the only medium of communication during meetings. The purposes and activities of the diabetic association by respondents showed that the objectives of the association are geared towards better management of diabetes by the respondents.

It was found out that majority of the respondents 82% knew about the existence of the health educator at the medical out-patient department and have had opportunities of talking with her. 83.7% respondents had spoken with the departmental dietitian. Functions respondents claimed these health care providers

performed included counselling them and members of the family on how to manage diabetes and the need for compliance with recommended behaviours.

Levin (1980) in his review of Literature on patient education states that its purpose is to teach patients those ideas and skills that will help them to cope with their immediate medical problems and maintain health and avoid disease. Respondents reaction to the functions of the health educator and dietitian revealed that all their efforts are geared towards good management of diabetes by repondents. These health care providers are also reinforcing factors to the diabetic patients because they are always at hand at the clinic any time of the day, five days in a week to give moral support, counsel patients whenever patients need reassurance or reinforcement.

Organization of Services at the Medical Out-patient Department

The services for the diabetic patients are well organized at the medical out-patient department with adequate number of doctors, nurses, dietitian and medical aids to see to patients welfare. With respect to the health educator, although the hospital recognizes her importance in the care of long-term diseases, the health educator assigned to the medical

out-patient is inadequate because of several reasons: (i) she is not only in-charge of diabetic patients but also all the other categories of patients utilizing the services at the medical out-patient.

Care of diseases require first and foremost, counselling of individual patients. The health educator being the only one, cannot counsel patients, as well as have time to do other duties and functions like the group teaching. The hospital authority have not recognized the importance of making funds, vehicle, and supporting staff available to the health education unit. These inadequacies makes it impossible for the unit to incorporate home visiting into their programme of activities.

The nurses incharge of giving diabetic patients insulin do not know that part of their duties is to educate new patients on the need to ensure the potency of the insulin by storing them in a cool environment, and that all new patients should be educated on the importance of the labels on the insulin bottle which should be intact all the time so that the content and strength of the insulin bottle would never be in doubt.

Patient - Provider Interaction

The doctor - patient interaction is very cordial but because of the number of patients doctors are required to examine and treat on every clinic day, they are forced to delegate some of their duties to the dietitian, health educator, nurses and the medical aids. Sometimes for one reason or the other, these duties may not be implemented. For instance when the doctor delegates certain responsibility to the nurse such as informing patients on the change in their insulin dosage because nurses are incharge of giving patients injection, the nurse inturn may direct the patient to the health educator for the instruction. In the long run the function may not be carried out because of pressure of work on the part of the health educator.

It has also been observed that the health educator is the only health care provider incharge of educating the patients. It is important for the hospital authority to assign other health personnel to assist her in her duties and functions.

Conclusion

In the preceding chapters attempts were made to assess management knowledge and skills of some diabetic patients utilizing services provided by the Medical

Out-patient Department, University College Hospital, Ibadan. Areas where patients had sufficient knowledge and skills were identified: These areas included knowledge and skill in testing urine; knowledge and practice of recommended diet; practice in the control of diabetes and injecting self with insulin. Also identified were areas where respondents lacked knowledge and skills: these included knowledge of cause of diabetes, skill in measuring insulin into the syringe and respondents insulin dosage. Factors that appeared to be associated with these deficiencies included respondents ignorance; inadequate educational programmes; belief respondents have about the causes of diabetes; inadequate number of health educators assigned to the Medical Out-patient Department and attitudes of some health care providers.

To improve management knowledge and skills of diabetic patients, efforts should be made to plan for and implement programmes that would ensure better control of diabetes and acceptance of the disease by patients and family; better awareness by the public of the causes, treatment and control of diabetes and improved patient-provider relationship at the clinic.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

CONCLUSION

This chapter presents the conclusion and highlights the recommendation.

Reviewing the results of the study, more than half of the respondents had been admitted at least once in the hospital since the onset of their diabetes and more than three fourths of the respondents complied with their appointments with the clinic.

Findings showed that respondents had knowledge of the diet for diabetics, and adhered to dietary regulation. Respondents tested their urine regularly for sugar and many insulin dependent respondents gave themselves insulin at home. Respondents perceived diabetes to be a serious disease; had knowledge of its complications; and how diabetes could be controlled. Areas where respondents lacked adequate knowledge included technique of measuring insulin into the syringe; insulin dosage; knowledge of the causes of diabetes; and all of them (except two respondents) did not know the importance of exercise in the management of diabetes.

Although almost all the respondents experienced financial difficulties; social problems such as seperation from spouse, sexual impotence and dietary restriction, responses showed that there were more burden on the insulin dependent diabetics. They had more appointments with the clinic and more admissions in the hospital since the onset of diabetes. They also had less social support from members of their families. Findings therefore support the view that insulin - dependent diabetics would benefit from more health instruction and counselling of family members.

Diabetes management programmes are organized for patients and members of their families, by the health educator, dietitian and nurses at the medical out-patient department. Those health care providers not only educate, counsel patients but sometimes assist them financially. The personnel provide them with information to enable them tackle their daily problems. The insulin dependent respondents spend an average of ₦9.12 on insulin weekly and the non-insulin dependent respondents an average of ₦10.06 on oral hypoglycaemic agents weekly.

To overcome the social and psychological difficulties perculiar to diabetics, these patients formed and became members of a diabetic association, University

College Hospital, Ibadan branch. Three fourths of these respondents are registered as members of the association. The association provides an avenue where diabetics come together to share experiences, problems and provide technical advice to members to allow them deal with everyday problems and solicit for public support.

In the areas where respondents lacked adequate knowledge of diabetes and its management, improved educational programmes will modify the patients perception of diabetes, ensure better control of diabetes and compliance with recommended regimens. Furthermore the education of the public on the causes and treatment of diabetes would remove some of the erroneous ideas people have about diabetes and ensure better understanding by the public of patients disease condition.

RECOMMENDATIONS

In the light of the findings the following recommendations are suggested.

Federal Government:

1. The federal Government should fund hospital and community based research on the use of locally available materials for the manufacture of diabetic drugs and insulin to reduce present

cost of imported medication.

2. The federal government should subsidize cost of drugs for diabetes as is the case for other chronic diseases, like in other countries.

3. The federal government should encourage local manufacturers to manufacture diabetic medication and the government should provide them with the necessary resources and incentives.

The State Ministry of Health

4. The state public health departments should educate the public on the causes and treatment of diabetes to ensure public understanding of the disease and solicit for their support. The target population should be the middle aged, elderly and the high risk group (i.e. those people with a family history of diabetes). The methods of education should be through Radio and Television programmes. These public health departments should organize short training courses for suitable health workers (e.g. primary health workers) who would then be qualified to educate the public in the hospitals, health centres, schools, town halls and churches/mosques.

5. The public health departments should place more emphasis on the contributing factors of diabetes and the need to take adequate steps to postpone the onset especially amongst the high risk group.

The University College Hospital

6. The hospital should assign another health educator to the medical out-patient department to assist the only health educator there presently to ensure wider coverage of the health education programmes and to promote better interaction between the health educator and the patient.

7. The hospital authority should provide the health education unit with a vehicle to enable them incorporate home visiting into their programme of activities.

The Health Education Unit

8. The health education unit should train nurses and medical aids at the medical outpatient department in the health education component of their normal duties.

9. The health education unit should devote sufficient time to educate patients, their parents and spouses, on the causes, treatment and control of diabetes. All educational programmes should take into consideration patients' age, felt needs and culture.

10. The health educator should also devote adequate time to help patients restructure their daily routines to accomodate the recommended regimen.

11. There should be frequent demonstrations of skills with the help of audio-visual aids by the health educator and other health care providers incharge of patients and return demonstrations by patients to foster better retention of skills learnt.

12. There should be periodic evaluation of changed learned skills for diabetics especially for insulin dependent patients each time there is a change in their insulin dosage. Evaluation should involve return demonstration on the management skills imparted.

13. The health educator should educate diabetic patients on the importance of maintaining a record for all urine tests. Education sessions should take into consideration the educational level of the patients.

Physiotherapy Department

14. Exercise therapy should be organized at the physiotherapy department for diabetic patients who are obese and they should be educated on its importance.

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APPENDIX ONE

DISTRIBUTION OF CHRISTIAN RESPONDENTS BY DENOMINATION

Denomination	No	%
Orthodox Protestants	58	73.4%
Evangelical Protestants	9	11.4%
Catholics	12	15.2%
Total	79*	100%

79* Christian respondents

APPENDIX TWO

DISTRIBUTION OF RESPONDENTS BY OCCUPATION AND EDUCATIONAL LEVEL

Occupation	Illiterate	%	Literate		Total	%
Petty trader	31	46.3%	23	27.7%	54	36%
Unemployed	17	25.4%	16	19.3%	33	22%
Farmer	6	9.0%	3	3.6%	9	6%
Artisan	4	5.9%	4	4.8%	8	5.3%
House wife	3	4.5%	2	2.4%	5	3.3%
Driver	2	2.9%	2	2.4%	4	2.7%
Businessman	1	1.5%	2	2.4%	3	2%
Prophet	1	1.5%	1	1.2%	2	1.3%
Soldier	1	1.5%	1	1.2%	2	1.3%
Civil Servant	1	1.5%	1	1.2%	2	1.3%
Professional	0		13	15.7%	13	8.7%
Pensioner	0		8	9.6%	8	5.3%
Student	0		7	8.4%	7	4.7%
Total	67	100%	83	100%	150	100%

APPENDIX THREE

DETAILS OF TREATMENT OF DIABETES MELLITUS AMONG THE RESPONDENTS

Medication	Male	%	Female	%	Total	%
Insulin dependent	33	40.7%	26	37.7%	59	39.3%
∠ 40 units daily	5		6		11	
40 - 49 units daily	17		13		30	
50 - 59 " "	7		4		11	
60 - 69 " "	3		2		5	
70 units and above	1		1		2	
Oral hypoglycaemic agents	42	51.9%	41	59.4%	83	55.3%
Glucophage	3		8		11	
Daonil	8		6		14	
Diabenese	12		8		20	
Glucophage & Daonil	8		10		18	
Glucophage & Dia-micron	2		-		2	
Diabenese & Glucophage	9		9		18	
Diet alone	6	7.4%	2	2.9%	8	5.3%
Total	81		69		150	100%

APPENDIX FOUR

KNOWLEDGE OF DIET OF THE RESPONDENTS

Diet	No	%
Beans	137	91.3%
Yam	81	54.0%
Rice	69	46.0%
Amala (Yam, Plantain)	64	42.7%
Eko	48	32.0%
Meat, fish	44	29.3%
Vegetable	41	27.3%
Pap	37	24.7%
Yam flour	29	19.3%
Eggs	21	14.0%
Unripe plantain	18	12.0%
Bread	11	7.3%
Fruits	9	6.0%
Aba	1	0.7%
No idea	2	1.3%

APPENDIX FIVE

DISTRIBUTION OF RESPONDENTS BY EDUCATION AND REASONS WHY CERTAIN FOODS ARE RECOMMENDED FOR PATIENTS

Reasons	Illiterate	%	Literate	%	Total	%
Good for control of diabetes	40	59.7%	48	57.8%	88	58.7%
Does not contain much sugar or carbohydrate	17	25.3%	28	33.7%	45	30.0%
Good for control of sugar in the urine	5	7.5%	2	2.4%	7	4.6%
No idea	5	7.5%	5	6.1%	10	6.7%
Total	67	100%	83	100%	150	100%

APPENDIX SIX

WAYS TO IMPROVE SERVICES PROVIDED BY THE DIABETIC ASSOCIATION, UNIVERSITY COLLEGE HOSPITAL BRANCH

Services to be improved	NO	%
Should embark on meanginful procedure of procuring medication for patients on regular basis.	15	13.0%
Association to get government to provide free medication for patients.	14	12.2%
Encourage more patients to join the diabetic association.	13	11.3%
Knowledgeable diabetic patients should be incharge of the association.	4	3.5%
Members of the association should organize programmes that would educate the public on the causes and control of diabetes.	4	3.5%
Government to provide less expensive medication for patients.	3	2.6%
Association to get social welfare to help poor diabetic patients.	2	1.7%
No suggestion, association has been doing very well.	22	19.1%
No idea	38	33.04%

[illegible] respondents are members of the association

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Government to provide less expensive medication for patients.	3	2.6%
Association to get social welfare to help poor diabetic patients.	2	1.7%
No suggestion, association has been doing very well.	22	19.1%
No idea	38	33.04%

*115 respondents are members of the association

APPENDIX SEVEN

INTERVIEW SCHEDULE FOR PATIENT WITH DIABETES MELLITUS

A. DEMOGRAPHIC FEATURES

1. Name of Respondent
Oruko Oludahun

2. Hospital card number
No Kadi ile-iwosan

3a. Home address/town
No ibiti e ti le ri leta gba

3b. How much is the transport fare from your home to the hospital and back home?
Elo ni owo oko alo ati abo lati ile re gi ile-iwosan

4. Age: Omo odun melo ni o Sex - Male/Female
Okurin tabi Obinrin

5. Marital status

6. If married, are you still married to the same man/woman as when your diabetes was diagnosed?
Ti o ba je okolaya tabi abileko se o si tun nse okolaya obinrin/okunrin nigbati o di mimo pe o ni aisan atogbe
(Yes / No)
Beeni Beeko

7. If seperated/Divorced is it because of your diabetes
Ti o ba je pe eti pinya tabi ko ara yin sile, se nitori aisan atogbe yi ni (Yes No)
(Beeni Beeko)

8. What is your present occupation?
Iru ise wo lo nse lowo bayi ?

9. Was your occupation before your diabetes was diagnosed different from the present one ?
Nje ise ro nisinsinyi yato si ti atehinwa nigbati o di mimo pe o ni aisan sugbe ?

10. If yes what was the reason for the change?
Ti o ba je bani, kini idi re ti o fi yi ise re pada?

11. Religion - Esin re

12. Specify denomination if Christian
Oruko egbe na gan ti o ba je Igbagbo.

13. Approximate monthly income
Elo ni o nwole fun o lo so 'so

14. If no income how do you support yourself ?
Ti o ba je pe owo ko ki nwole fun o, bawo ni o se nri owo toju ara re nipa jije, ninu ati inawo pepere miran ?

15. Educational level - Iwe melo lo ka ?

16. When was your diabetes diagnosed in years ?
Igba wo lo ti mimo pe o ni aisan sugbe (Can.) ?

17. Any member of your family with diabetes?
Nje enikeni ninu awon obi re ni aisan sugbe?
Yes No

18. If Yes
Who (Relationship) Ti o ba je beeni
Eeni (Ibatan)

19. What medicine do you use in treating your diabetes?
Iru ogun wo lo nlo lati kapa aisan sugbe yi?

20. What is the daily dosage of your treatment?
Ogun melo ni o nlo lojojumo?

*Check card/case note to see whether it is different from doctor's prescription. If it is, note it down.

21. Have you been admitted in the hospital since diabetes was diagnosed?
Nje won ti da o duro ni ile-iwosan nitori atogbe?

Yes No

22. If 'yes' how many times?
Ti o ba je 'beeni' igba melo?

23. How often are you expected to see the doctor?
Bawo lo se ye ki o maa ri dokita deede si?

24. How many appointments were you given by the doctor during the past 6 months? (Check card)
E me lo lo yo ki o ri Dokita re larin osu mefa sehin? (Ye kedi wo)

25. How many appointments did you miss ?
Igba melo lo ti kuna lati ri dokita?

*Check case note/blue card for appointment compliance or verification.

26. Why were appointments missed?
Kini o fa ti o fi kuna lati ri dokita?

Why do you need to see the doctor often?
Kini o fa ti o fi ye lati maa ri dokita nigbagbogbo?

B. Knowledge of diabetes mellitus: Mimo nipa aisan atogbe yi

27. How did you first know you had diabetes? (State the problem)
Bawo ni o se koko mo pe o ri arun atogbe?

28. What do people generally think causes diabetes?
Kini awon eniyan ro pe o nfa atogbe?

29. What do you think causes diabetes?
Kini iwo gan ro pe o nfa atogbe?

30. Do you think diabetes can be prevented?
Nje o ro pe a lo ee idena fun aisan atogbe ki o ma baa de odo wa?
Yes No

31. If yes how can you prevent diabetes?
Ti o ba je beeni bawo ni a se le gbogun ti arun atogbe?

32. How do you perceive this disease diabetes?
Kini e woye nipa arun atogbe?

33. What are the different types of treatment for diabetes?
Orisi itoju melo lo wa fun aisan atogbe?
Daruko won.

34. What are some of the (1) Health, (2) Social and (3) Financial problems diabetic patients have
Iru awon isoro wo ni alaisan atogbe le ni nipa (1) Ilera (2) Ibegbe pepo tabi (3) Inawo

35. What can diabetes lead to? (State problem that is be specific)
Kini aisan atogbe le yori si?

36. What precaution should diabetic patient take regarding their hands, feet, infection or wounds?
Kini akiyesi tabi ifura ti o ye ki ose gege bi alaisan atogbe nipa owo re, ese re, akoran tabi ifarapa?

37. Has diabetes changed your life?
Nje aisan yi ti mu ayi pada ba ajo re?
Yes No (Beeni Beeko)

38. How did it change your life?
Bawo lo se yi aye re pada?

C. Diabetic skills - Imo lori arun atogbe

39. How can you control diabetes?
Bawo lo se le kapae aisan atogbe?

40. Who taught you to perform diabetic skills?
Ta lo ko e lati le ma toju ara re ninu ile?
Nips atogbe yi?

41. Does anybody help you generally because of diabetes ?
Nje eni keni ran o lowo lori aisan atogbe yi?
Yes No

42. If yes, who helps you? Ti o ba je beeni teani?

43. What kind of help? Iru iran lowo wo?

D. Weight control:

44. Do you know whether there is any association between diabetes and weight?
Nje o mo boya afijo wa pelu atogbe ati ki eniyan tobi? (Se alaye)

45. Has your weight changed due to diabetes?
Nje osunwon re yipada ni pase atogbe yi?
Yes No

46. If yes how do you know? Ti o ba je beeni bawo lo se mo?

47. What did you do to change it?
Kini o se lati se atunse lori re?

E. Urine testing - Ayewo ito

48. Do you test your urine at home by yourself?
Se o ye ito re wo ni ile re fun raa re?
Yes No

If 'yes' how do you do it? Ti o ba je pe beeni bawo lo se ye ito re wo? (Se alaye)

49. If 'no' who does the testing for you?
Ti o ba je beeko, tani o se aycwo nwa fun o?

50. What colours indicate that there is sugar in your urine?
Iru awo wo lo fi han pe sugar wa ninu ito re?

51. What does each colour indicate?
Kini awon awo kokan won yi tumo si?

52. What colour indicate that your diabetes is under control?
Iru awo wo lo fi hen pe won ti kepa aisan atogbe yi?

53. What do you do with the result of your urine test?
Kini o ma se pelu abajade aycwo ito re?

F. Insulin Injection - Abere aje suga Insulin

54. Do you inject yourself with insulin at home?
Njo o ngun abere Insulin ni ile fun ra re?
Yes No

55. If 'yes' where do you inject yourself?
Ti o ba je beeni, dede ibo ni o ti nas nEun?

56. If 'no' who does it for you?
Ti ki iba se be, tani o ba o Gun?
Why? - Kini idi ?

57. Where do you otoro the insulin at home?
Nibo lo ma ko abere Insulin si ni ile?

i) Refridgerator - A mu nkan tutu
ii) Table - Tabili
iii) Cupboard - Apoti
iv) Waterpot - Ehin Amu

58. Tell me the steps you take before injection?
Awon nkan wo lo Gbode ayki to to Gun abere?

If 'yes' how do you do it? Ti o ba je pe beeni bawo lo se ye ito re wo? (Se alaye)

49. If 'no' who does the testing for you?
Ti o ba je beeko, tani o ao ayewo nua fun o?

50. What colours indicate that there is sugar in your urine?
Iru awo wo lo fi han pe sugar wa ninu ito re?

51. What does each colour indicate?
Kini awon awo kokan won yi tumo si?

52. What colour indicate that your diabetes is under control?
Iru awo wo lo fi han pe won ti kapa aisan atogbe yi?

53. What do you do with the result of your urine test?
Kini o ma se pelu abajade ayewo ito re?

F. <u>Insulin Injection - Abere aje sora Insulin</u>

54. Do you inject yourself with insulin at home?
Njo o ngun abere Insulin ni ile fun ra re?

Yes No

55. If 'yes' where do you inject yourself?
Ti o ba je beeni, dede ibo ni o ti mae ngun?

56. If 'no' who does it for you?
Ti ki iba se be, tani o ba o gun?

Why? - Kini idi ?

57. Where do you store the insulin at home?
Nibo lo ma ko abere Insulin si ni ile?

i)	Refridgerator	-	A mu nkan tutu
ii)	Table	-	Tabili
iii)	Cupboard	-	Apoti
iv)	Waterpot	-	Ehin Amu

58. Tell me the steps you take before injection?
Awon nkan wo lo ... ki to to gun abere?

59. How often do you inject yourself in one week?
Nigba melo lo ma gun abere lose kan?

60. What is your insulin dosage? (Cross check with hospital Card)
Melo ni abere Insulin ti o lo? (Ye kadi wo)

61. How long is the needle used before you discard it?
E melo ni o ma lo abere kan ki oto so nu?

62. Where do you obtain your insulin?
Nibo ni o ti ngba Insulin ti o nlo?

63. Do you pay any amount of money for the insulin?
Nje o san owo kankan fun Insulin?

Yes	No
Beeni	Beeko

64. If 'yes' how much do you spend on Insulin per week/month?
Ti o ba je beeni, elo ni o ma na ni ose tabi osu kan?

C. Drug Therapy

65. Do you take drugs to control your diabetes?
Nje o nlo ogun loti kapa aisan atogbe?

Yes	No

66. If yes, what is the drug called and what is the dosage?
Ti o ba je beeni, kini oruko ogun na ati lilo re?

67. Where do you obtain the drugs?
Nibo lo ti ngba awon ogun wonyi?

68. Do you pay for the drugs?
Njo o nsan owo kankan lori ogun yi?

69. If yes, how much do you spend on the drugs for a week or month?
Ti o ba je beeni, elo lo na loti ra ogun atogbe ni ose tabi osun kan?

E. Diet - Jije

70. What foods should diabetic patient eat?
Iru ounje wo lo ye ki alaisan atoɛbe ma a je?

Why - kini idi ?

71. How many times did you eat yesterday?
E melo ni o jeun ni ana?

72. What did you have for (a) Breakfast (b) Lunch (c) Supper
Kini lo je - aaro, osan ati ale.

73. List some of the foods you should not eat?
So awon die ninu ounje ti ko ye ki o ma je?

Why? - Kini idi ?

I. Diabetic Assaciation - Egbe alatogbe

74. Have you heard of the diabetic association? Yes No
Nje o ti gbo nipa awon egbe alatogbe?

75. Are you a member of the Association? Yes No
Nje o je okan kera awon agbe won?

76. If 'no' why? Ti o ba je pe beeko, kini idi?

77. If 'yes' how many times did you attend the meeting the past 6 months?
Ti o ba je beeni, igbu melo lo ti lo si ibi ipade egbe leti bi osu mefa (6) sehin?

78. Why do you attend the meeting?
Kini idi ti o fi nlo si ipade won?

79. Why don't you attend? Kini idi ti o ko fi lo?

80. What is the purpose of the diabetic Association?
Kini idi pataki ti egbe alatogbe se wa?

81. Who do you discuss your diabetic problems with?
Toni o so awon iaoro alaisan atogbe wonyi fun?

Name of person The sort of problem

82. What are the activities of diabetic Association?
Kini awon akitiyan egbe alatogbe?

83. Which of these activities do you find helpful?
Ewo ninu awon akitiyan wonyi lo ri pe o wulo?

84. Why - Kini idi

85. Which of these activities are not helpful?
Ewo ninu awon akitiyan wonyi ni ko wulo?

86. Why are you told to carry your diabetic Association membership card anywbere you go?
Kini idi ti won fi so fun o lati maa mu kadi omo egbe elatogbe lowo nigbakugba ati nibikibi ti o ba nlo?

87. Suggest ways to improve services provided by the diabetic Association and the hospital?
Da aba awon ona miran ti se ti awan omo egbe alatogbe ati ile iwosan nse fi le dara si?

88. Have you met tho health educator?
Nje o ti se alabapade oluko eto ilera?

89. What did she do for you? Kini o se fun o?

90. Have you met the dietitian?
Nje o ti se alabapade ojogbon ounje?

91. What did she do for you? Kini o se fun o?

GLOSSARY OF FOOD ITEMS

Akara	-	Fried bean cake
Amala	-	Flour from yam, or plantain
Amala (Lafun)	-	Flour from cassave
Dodo	-	Fried ripe plantain chips
Eba	-	Flour from cassava
Eko	-	Starch from maize
Fufu	-	Starch from cassava
Moinmoin	-	Steamed beancake
Pap	-	Starch from maize
Oka	-	Same as Amala lafun

GLOSSARY OF HEALTH EDUCATION TERMS

Compliance	-	Acting in accordance with a request or command.
Counselling	-	Professional advice to a patient for the purpose of modifying patterns of behaviour.
Defaulters	-	Patients who had dropped out from hospital clinic attendance and treatment regimen.
Illiterate	-	Unable to read or write in any language.
Literate	-	Able to read and write.
Management	-	The ability to control diabetes mellitus condition or skillful treatment of diabetes.
Regimen	-	This is systemmatic plan to improve and maintain health.

Self-care - Self-care in health refers to the activities individuals, families, and communities undertake with the intention of enhancing health, preventing disease, limiting illness, and restoring health.

GLOSSARY OF MEDICAL TERMS

Chronic disease - Is a condition that lasts for a long time.

Diabetic coma - The casualty is quiet and appears to be asleep, and his breath may smell of acetone.

Diabetes - A term derived from a Greek word meaning "to pass through". Medically it applies to the passage from the kidney to the urine of sugar from the blood.

Gangrene - This is death of a tissue due to failure of the arterial blood supply from disease or injury.

Hyperglycaemia - An excessive amount of sugar in the blood.

Hypoglycaemia - Deficiency of sugar in the blood.

Insulin - A hormone manufactured in the pancreas by little areas of tissues called the islets of Langerhens and then secreted into the blood where it controls the digestion of carbohydrate.

IDDM - Insulin dependent diabetes mellitus.

MRDM - Malnutrition related diabetes mellitus.

NIDDM - Non-insulin dependent diabetes mellitus.

IZS - Insulin Zinc Suspensions.

Polydipsia - Abnormal thirst, such as occurs in those suffering with untreated diabetes.

Polyphagia - Excessive eating.

Polyuria - The passing of an excessive amount of urine.

Polyunsaturated Fat - Fats from vegetables oils such as corn, cottonseed, sunflower, and Soy beans oils. Oils high in Polyunsaturated fats tend to lower the level of cholesterel in the blood.

Saturated Fat - Fat that is often hard at room temperature, primarily from animal food products (like butter, ~~lard~~, meat fats). Saturated fat tends to raise the level of cholesterol in the blood.

Glycosuria - Presence of sugar in urine/Urinary excretion of carbohydrate.

Diabetic ketosis, Ketoacidosis, or coma - means a situation in which the blood sugar is very high. This condition may develop if one takes less insulin than he needs.