

Promotion of Healthfoods in a Hospital Dietary Department

BY

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A THESIS SUBMITTED TO THE AVINASHILINGAM INSTITUTE FOR HOME SCIENCE
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MASTER OF SCIENCE IN FOOD SERVICE MANAGEMENT AND DIETETICS

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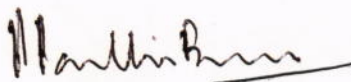
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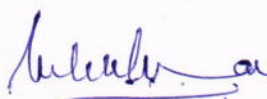
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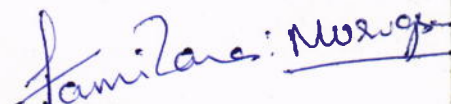
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Certified as Bonafide Research Work


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Contents

CONTENTS

Table No.	Title	Page No.
	LIST OF TABLE	
	LIST OF PLATES	
	LIST OF FIGURES	
	LIST OF APPENDICES	
I	INTRODUCTION	1
II	REVIEW OF LITERATURE	6
	A. Importance of Health and Health Foods	6
	B. Dietetics in Indian Hospitals	7
	C. Food Service in Health Care Services	9
	D. Role of Diet in Diseases	10
	E. Health Promotion	12
III	METHODOLOGY	15
	A. Selectino of Area	15
	B. Selection of Samples	15
	C. Selection of Tools	16
	D. Conduct of Study	17
IV	RESULTS AND DISCUSSION	19
	A. Functioning of the Dietary Department	19
	B. Opinion of the Diet Served in the Hospital	23
	C. Assessment of the Nutritional Adequancy of the Selected Diets	25
	D. Diet Counselling and Its Impact	37
V	SUMMARY AND CONCLUSION	52
	BIBLIOGRAPHY	
	APPENDICES	

LIST OF TABLES

Table No.	Title	Page No.
I.	TOTAL NUMBER OF PATIENTS IN EACH DISEASE CONDITIONS	23
II.	PATIENTS OPINION ABOUT THE DIET SERVED IN THE HOSPITAL	24
III.	FOOD COMPOSITION OF THE SAMPLE DIABETIC DIET	27
IV.	NUTRIENT CONTENT OF THE SAMPLE DIABETIC DIET	27
V.	FOOD COMPOSITION OF SAMPLE RENAL DIET	29
VI.	NUTRIENT CONTENTS OF SAMPLE RENAL DIET	30
VII.	FOOD COMPOSITION OF SELECTED DIABETIC DIET	31
VIII.	NUTRIENT CONTENT OF THE DIET CONSUMED BY SELECTED DIABETICS	32
IX.	FOOD COMPOSITION OF SELECTED RENAL PATIENTS DIET	35
X.	NUTRIENT CONTENT OF THE DIETS CONSUMED BY SELECTED RENAL PATIENTS	36
XI.	DISTRIBUTION OF DIABETICS AMONG DIFFERENT AGE GROUPS AND SEX IN THE SELECTED PATIENT	38
XII.	SYMPTOMS THAT PROMPTED MEDICAL SERVICE	39
XIII.	NUTRIENT CONTENT OF SELECTED DIABETICS CONSUMING 1800 KCal AND 1500 KCal	42
XIV.	NUTRIENT CONTENT OF SELECTED DIABETICS CONSUMING 1500 KCal	43
XV.	AGE AND SEX WISE DISTRIBUTION OF RENAL DISEASE	45
XVI.	SYMPTOMS THAT PROMPTED MEDICAL SERVICE	46
XVII.	NUTRIENT CONTENT OF 60g PROTEIN RESTRICTED DIET	49
XVIII.	NUTRIENT CONTENT 40g PROTEIN RESTRICTED DIET	50

LIST OF FIGURE

Figure No.	Title	Page No.
I.	FLOW OF ORGANISATION SET UP	19a
II.	NUTRIENT CONTENT OF 1800 KCal DIABETIC DIET	
III.	NUTRIENT CONTENT OF 1500 KCal DIABETIC DIET	
IV.	NUTRIENT CONTENT OF 60g PROTEIN RESTRICTED DIET	
V.	NUTRIENT CONTENT OF 40 g PROTEIN RESTRICTED DIET	

LIST OF PLATE

Plate No.	Title	Page No.
I.	CHART USED FOR DIET COUNSELLING	18a
II.	AIDS USED FOR DIET COUNSELLING	18a
III.	ASSESSING THE NUTRITIONAL AWARENESS OF PATIENT	18a
IV.	LUNCH FOR 1500 KCal DIABETIC DIET	
V.	LUNCH FOR 60 g PROTEIN RESTRICTION DIET	

LIST OF APPENDICES

Appendix No.	Title
I.	QUESTIONNAIRE TO ELICIT INFORMATION REGARDING THE FUNCTIONING OF THE DIETARY DEPARTMENT
II.	CHECK LIST TO FIND OUT THE OPINION OF THE PATIENTS ABOUT THEIR DIET
III.	QUESTIONNAIRE TO CHECK NUTRITIONAL AWARENESS AMONG SELECTED PATIENTS BEFORE AND AFTER COUNSELLING
IV.	MEAL PATTERN OF SELECTED DIABETICS CONSUMING 1800 KCals
V.	MEAL PATTERN OF SELECTED DIABETICS CONSUMING 1500 KCals
VI.	MEAL PATTERN OF SELECTED RENAL PATIENTS CONSUMING 60G PROTEIN RESTRICTION DIET
VII.	MEAL PATTERN OF SELECTED RENAL PATIENTS CONSUMING 40 G PROTEIN RESTRICTION DIET
VIII.	MENU PATTERN OF DIABETIC DIET SERVED IN THE HOSPITAL
IX.	MENU PATTERN OF RENAL DIET SERVED IN THE HOSPITAL

Introduction

INTRODUCTION

Health is a state of complete, physical, mental and social well being and not merely the absence of disease or infirmity (WHO). Health is a major determinant of happiness. Unless we eat a healthy diet we cannot achieve the dynamic condition to have a productive and satisfying life. Health promotion is the science and art that helps people to change their life style to move towards optimal health (David, 1990).

Nowadays the field of diet-therapy is gaining increasing importance. Manipulation of diet to several nutrition related disease is considered to be essential for clinical management of diseases both for reducing drug dosages and to arrest disease progress (Rao, 1988).

Today's hospitals comprise a large group of institutions whose food services are so important as to meet special considerations. In this group some are operated by federal government, other by state, large number are privately owned and also some are maintained by religious orders.

Little or no attempt was made in early times to provide a therapeutic diet for hospital cases. The crimean war was a beginning made towards the establishment of the dietetics as

one of the hospital service. Dietitians should honour and revere Florence Nightingale as through her effort was a diet kitchen started in 1865 to feed the wounded soldiers.

Dietetics has yet to find its rightful place in Indian therapeutics. An important factor which has contributed to the unsatisfactory position of dietetics in India today is the lack of well qualified dietitians and lack of authoritative information useful to the physicians and nurses in the prescription of therapeutic diets (Rao, 1990).

Hospital dietary department is responsible for providing nourishing foods for all the patients. People in hospitals are in different states of health, have different nutrition needs prefer different foods. Supporting their health by way of diet is a complex and challenging task (Cataldo, 1986). Modified diet is a basic nutritious diet that emphasizes a variety of foods, it is tailored by adjusting the consistency, the level of individual nutrients, energy of fluids, number of meals, or by eliminating certain foods. Thus the different task of providing food to patients is carried out by a dietitian. (Dale, 1988). Meeting the patients nutritional needs involves the core team of physicians nurses and dietitians. Dietitians are professionals who by education and experience are well qualified to provide therapeutic diet for patients.

(Mahen, 1986). Physician prescribes the diet and give patient some information about their modified diet. The dietitian translates physicians written order to practicability in terms of food, assess and evaluates patients nutritional status, counsels the patient and family regarding dietary modification.

Good food well served is more likely to be found in small number of hospitals. The requirements of ordinary diets are seldom estimated in relation to the nutritional needs of patients.

Malnutrition remains a largely unrecognised problem in hospitals and highlights the need for education on clinical nutrition (Smith, 1995). A study of the nutrient content of hospital meals shows that energy intake is less below recommended. The average plate waste represented about forty percent of meal cost and patients get outside food to fill a long gap between early supper and next day's breakfast (Shoshan, 1992).

Before formulating the diet, information on patients food acceptance, psychological and emotional factors are to be considered. Factors, like appetite, aroma, taste, presentation, temperature, efficiency of serving, speed and friendliness of persons who serve must be considered (Torrado, 1991).

4

All foods can contribute to health if used as a part of mixed diet, conversely all foods can cause ill health if consumed universally. There is no human society that deals with food in its environment that eats accordingly to the availability, edibility and nutritional value alone (Hilde, 1994).

Common disorders found nowadays are due to maladaptation to new environment and changing to western dietary habits. Thus because of filling wrong fuel in the tank we suffer from various disorders. (Burkertt and Eaton, 1987). Enormous number of patients attend the outpatient ward daily and go with little or no dietary advice. Good counselling about health foods can reduce severity of disease if not help in curing (Geervani, 1991).

It is being increasingly realised that the alarming problem posed by clinical disorder cannot be kept under control through hospitals and curative institutions. In the quest for a long and healthy life many people fear recent reports of a chronic disease epidemic and look forward nutrition as a cure (Pasricha, 1991).

Thus health promotion programmes that enable people to change their life style in lengthening their lives and reducing the incidence of illness should be implemented.

"Health for all by 2000 AD" will materialize into reality only if an awareness about healthy eating in-disease prevention and treatment is created. Amongst all the first step is to assess the nutritional status of the patients in hospital, create awareness on their health state and the importance of nutritional health foods in achieving total health. Thus keeping this in mind the objectives of the present study on 'Promotion of health foods in a hospital dietary department' has been framed to

- Study the functioning of a selected hospital dietary department.
- Understand the patients acceptability of the diets served in the hospital.
- Assess the nutritional adequacy of the selected diets provided in the hospital and assess the actual intake of the selected patients.
- Impart diet counselling to the selected patients and assess its impact.

Review of Literature

II. REVIEW OF LITERATURE

The Review of literature pertaining to "Promotion of health foods in a hospital dietary department" is classified under the following heads,

- A. Importance of Health and Health Foods
 - B. Dietetics in Indian Hospitals
 - C. Food Service in Health Care Services.
 - D. Role of Diet in Diseases.
 - E. Health Promotion
- A. Importance of Health and Health Foods

Health is a term that has gained wide spread popularity in recent years. Community health programs are springing up around the country and people in general are becoming more and more aware of and interested in their own health and wellness (Mullen, 1990). Health has been defined by different people as it is a life long interaction of our physical, social, intellectual spiritual strength and limitations as they function to achieve a productive and satisfying life (Payne, 1986).

According to Karter (1991) health is a dynamic status that results from an interaction between our hereditary, potential, environmental influences and life style selections. Health is viewed as freedom from disease and it means being sound in body mind and spirit (Hales, 1991).

Anspaugh (1991) states health as a dynamic condition affected by what we eat, what we do, our attitudes our thought pattern and choices we make.

Day today's health is important and we must keep in mind that what we do today have an impact on tomorrow (Karter, 1991). Health foods are an integral component currently overtaking rational practices (Virginia, 1992). Martin (1987), states that benefits of eating health foods rather than processed foods are debatable health foods cost more but tastes better and nutritious. We need to eat a variety of food and be careful to avoid any of the major nutrient group if we want to give our bodies an adequate diet.

According to Daniel (1989) the top ten health concerns are staying free of disease, avoiding smoking, living in an environment with clean air and water, having some one to love, having a positive attitude on life, having supportive friends and family, knowing how to cope with medical emergencies, avoiding drinking, eating a balanced diet and getting regular concern.

B. Dietetics in Indian Hospitals

Dietetics in Indian hospitals do not enjoy the rightfull place it deserves. The reasons for the unsatisfactory state of affairs are lack of adequate trained

dietitian, inadequate physical facilities, lack of appreciation on the part of hospital administration (Pasricha, 1990). Baghi (1991) states that even large hospitals set up in India consist of one or two dietitians and their supporting staff necessary for food distribution. It is obvious that with such an infrastructure hospital dietitians can do nothing more than taking charge of diet preparation and distribution. In last forty years, the position of dietetics in India has remained unchanged with a few embryonic dietetics department.

Mammen (1990) says that the demands on a hospital dietetics department are complex because of the type of clientele, treatment regimens, medications, infections and type of disease required. The conflict between maintaining the quality of hospital food and keeping it within a restrictive budget is one that every hospital faces.

Government and other hospital administration authorities should ensure that all dietitians are fully recognised as indispensable part of the hospital technical resources and fully utilised for understanding the responsibilities enumerated earlier (Baghi, 1990). Martinez et al. (1990) says that increased involvement of registered dietitians and other trained professional of health team is needed in the development and implementation of nutrition plans.

C. Food Service in Health Care Centres

Different reports have confirmed a high frequency of malnutrition in hospitalised patients (Martinez et al., 1990; Tramosch, 1987; Chauder, 1993). Physicians are often unaware that patients are at nutritional risk and make no attempt to arrest further nutritional decline until a dramatic deterioration had occurred (Preto et al., 1981). Energy and nutrient intakes influence the nutritional status of hospitalised patients.

Because of the difficulty to state overall energy value in hospital diet suggestions were made to which value would be taken as a basis and how special requirement can be managed (Rottka et al., 1990).

Hospital menus consisted of diet in which most of the energy was from fat and a low proportion from unrefined carbohydrate and provide enough calcium iron and thiamine but less vitamin C and folic acid (Woike et al., 1993; Pasricha 1991; Woolway Mc and Nelson 1986). Study conducted by Chauder et al. (1993), to check whether the guidelines for nutrition care being implemented shows that only seven percent of hospitals were aware of nutritional guidelines. He also states that standard diet provided by hospitals should confirm with dietary recommendation for general population, along with nutritional guidelines.

Within the recent years, almost all hospital offers high fibre breakfast cereals, reduction in proportion of fat and use of polyunsaturated margarine along with this nutrition education message has also increased (Dunn and William, 1995 and Okutomi, 1992).

In health care facilities individuals from different cultural backgrounds often encountered foods and cooking methods that are unfamiliar to them. Ethnic factors strongly influence a persons overall eating pattern and food preparation method, so opportunities for effective dietary counseling are lost if dietitian fall to meet the food needs of people from a variety of cultures (Samolsky et al., 1990).

D. Role of Diet in Diseases

Diet plays an important part in preventing or treating many disorders. For some disorders, diet therapy is crucial, for other condition diet is a small part of the total treatment plan (Cataldo and Whitney, 1986). Main aim of diet is to maintain a healthy person in a state of nutritive sufficiency. It should provide adequate of amount energy, protein, vitamins and minerals to meet the needs of individual at a particular stage (American dietetic Association charter, 1991). A well designed meal plan is an important cornerstone in the management of diabetes. The aim

is to provide wide fluctuations in blood glucose during feed and fasting states and this is achieved by taking into consideration the following factors, total calories, their deviation from proximate principles of diet, fibre content and glyceamic index.

Seshiah (1991) suggests the distribution of calories in the diabetic diet as carbohydrate 60-65 %, protein 10-20 % and fat 15-25 %. Fat should comprise of saturated fat ten % cent, poly unsaturated fat ten %, monounsaturated fat 15 % and cholestrol less than 3 mg/day. He also estimated 20 KCal/kg for overweight, 30 KCals/kg for ideal weight and 40 KCal/kg for underweight. The mean dietary intake among adult population is 11.1 g/day. Women consume more dietary fibre 6.5g/day than men who consume 5.5g/day.

In obese, dietary fibre may aid in weight reduction by decreasing calorie density of the diet. It delays absorption of carbohydrate from small intestine lowering of lipid and cholesterol by binding property (Anderson J. Bryant CA, 1987; Divisaode, 1995; Madar, 1987). Lanza et al. (1987) indicated that the use of tenugreek and soya bean decreases blood sugar level and among vegetables high content of dietary fibre, cellulose, hemicellulose were in green beans. Highest value in fruits were for apples. The diabetic patients are recommended to use the whole fruit rather than canned fruit

juice because of a belief that addition of sucrose to canned fruit and removal of dietary fibre to make fruit juice may increase blood sugar responses (Chohens et al., 1993). Oat and semolina Porridge may be useful in the dietary treatment of diabetes as the amount of viscous fibre is higher (Anderson and Lia, 1994).

The Dietary treatment is one form of management for the renal patient in which protein and mineral content of the diet has to be modified says Joshi, (1995). Excess dietary proteins for a long periods cause change in renal function. Restricting dietary Protein 0.6g/kg/day seems to slow rate of loss of renal function (Junger, 1991). Smith (1988) proved that a quality assurance audit made to evaluate the accuracy of Prescribed sodium restricted diet received by patients calculated sodium intake as $\pm 10\%$ than recommended.

Relle (1993) says that the most common factor affecting dietary intake was a loss of interest in food and cooking. Sweet foods, vegetables, red meats, fish and poultry were less pleasant to renal patients.

E. Health Promotion

Health Programming is a relatively new innovative approach to health care. This approach relies on disease

prevention in addition to treatment of disease (Mullen, 1990).

According to David (1990) health promotion is the science and art that help people change their life style to move towards optimal health. Dale and Payne (1986) defines health promotion as a movement in which knowledge and practices are transmitted to people for their use in lengthening their lives and reducing the incidence of illness. Health promotion and disease prevention have become key phrases in the current delivery of health care.

To meet the objective of healthy people by 2000AD healthy life style message was given to people and it has decreased the risk of chronic diseases and has improved patients compliance about nutrition and health care. (Hoxter, 1993). A food festival conducted by American dietetic association provided consumers with information about low fat, low cholesterol foods through programmes held in supermarkets. (David et al., 1991). Frost et al. (1991) has proved that the introduction of new health policy did not deleteriously affect energy intake among consumers. According to Wood et al. (1989) the group that has attended hospital based education programme reported better compliance for all self care behaviours than did the group that did not attend.

Because health professionals have been proclaiming what the consumer should eat and industry has been introducing without a doubt, the greatest changes had occurred in foods over the past decades. The reason for sales of the health food is because consumers are demanding foods that they perceive to be healthful (Stillings et al., 1994).

Flanel et al. (1995) says that driven by financial incentives and substantial variations in practice patterns, powerful forces are fundamentally changing the healthcare system. As health care reform battle heats up, the abilities to measure and improve the quality of patient care will be pivotal to success Samolskey (1990) adds that health promotion programs including those with a nutrition component must consider the social, economical, educational, cultural environment within a community. Consideration must be given to barriers of communication difficulties such as illiteracy, cultural beliefs. Dietitian must understand how a patients culture can influence dietary intake to assist in modifying their diet in ways that are healthful and culturally acceptable.

As the nation is challenged to provide the best health care at a reasonable cost, dietitians should actively promote themselves as vital partners in the quest for health promotion and disease prevention, says (Wheeler et al., 1993).

Methodology

III. METHODOLOGY

The study pertaining to "promotion of health foods in a hospital dietary department" was carried out under the following heads :

- A. Selection of Area,
- B. Selection of Samples,
- C. Selection of Tools and
- D. Conduct of Study.

A. Selection of Area

Kovai Medical Centre and Hospital Limited was selected to conduct the study since it is a super speciality hospital with 250 beds. The people in the dietary department extended their complete co-operation to the investigator. Moreover the hospital adheres to a strict rule that the patients should take food only from the dietary department.

B. Selection of Samples

The senior most dietitian was interviewed to collect information about the functioning of the dietary department. To elicit information about the acceptability of the hospital diet among the patients, fifty patients irrespective of their diseased conditions were selected randomly. Since a large number of patients with diabetes and real disease were admitted in the hospital during the period of study as diet plays an important role in the treatment of

diabetes and renal disease, these two diets were selected for the study. Ten patients each of diabetes and renal disease were selected to assess their nutritional adequacy of the diet served in the hospital to check the nutritional awareness, to impart diet counselling and to study the impact of it.

C. Selection of Tools

Interview schedule is a proforma containing a set of question filled by the interviewer, record the replies from the interviewee in the space meant for in the same proforma (Kothari, 1995). With the help of an interview schedule shown in the appendix I information regarding the functioning of the dietary department like origin, organisation, types of diet offered, purchasing, storing, issuing policies, cost of the meal served and information on diet-counselling were collected from the chief dietitian. By means of observation method using a check list shown in the appendix II patients opinion about the presentation, taste, and temperature of the food served were collected. The check list was filled in by the investigator. The main advantage of the direct observation method is that subjective bias is eliminated and observation is done accurately (Kothari, 1995). The actual intake of the food by the diabetics and renal patients were assessed by means of observation method.

Interview schedule III shown in appendix was framed to find out the nutritional awareness among the selected patients and to study the impact of dietary counselling.

D. Conduct of Study

Study of the functioning of the dietary department :

The study of the functioning of the dietary department was done by eliciting information from the senior most dietitian by means of an interview schedule I. Details regarding the origin, organisation setup, occupancy rate, details on number of personnel employed in the dietary department, their qualification, method of diet prescription, type of diets provided, mode of purchasing, receiving, storing, issuing polices, type of serving, cost of meals served and details on diet counselling were collected.

Patient's opinion about the hospital diet

Patients opinion about the hospital diet was elicited by means of a check list. Patients were enquired whether they like the hospital diet with regard to the taste temperature, cleanliness and attractiveness of food served and friendliness of person who serve the food and also patient's opinion about the cost of the diet served were collected.

Plate I

CHARTS USED FOR DIET COUNSELLING

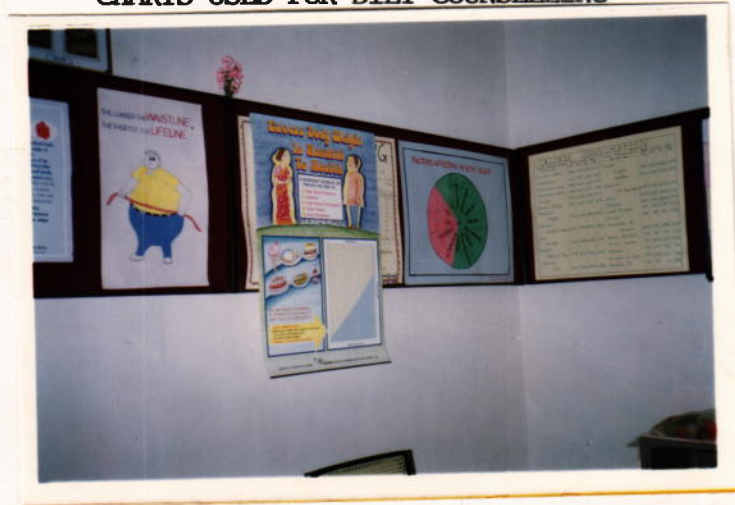


Plate II

AIDS USED FOR DIET COUNSELLING



Plate III

ASSESSING THE NUTRITIONAL AWARENESS OF PATIENT



Assessment of the nutritional adequacy of the selected diets

The nutritional adequacy of the sample diet framed in the hospital dietary department for the diabetics and renal patients were assessed by means of menu pattern, food composition and nutrient content of the diet. As the hospital offers food based on the preferences of the patients, the actual intake and the nutritional adequacy of ten selected patients in each condition such as diabetes and renal disorder were calculated by means of direct observation method.

Diet counselling

Diet counselling was given to the selected diabetics and renal patients after identifying their nutritional knowledge. The counselling was aimed to make the patients aware of their nutritional status, steps to be taken to improve their health, foods to be included and excluded, food exchange list to be followed, ill effect of alcohol and smoking and the importance of weight maintenance with the help of visual aids such as posters, charts, by distributing diet sheets, displaying, the foods, standard cups and spoons as shown in the (Plates I, II, III). This counselling was for a period of two consecutive days. The impact of diet counselling on the patients was evaluated by using the same interview schedule III before and after counselling.

Results and Discussion

IV. RESULTS AND DISCUSSION

The data obtained in the study entitled "Promotion of health foods in a hospital dietary department" was analysed and discussed under the following heads :

- A. Functioning of the Dietary Department,
- B. Opinion of the Patients About the Diet Served in the Hospital,
- C. Assessment of the Nutritional Adequacy of the Selected Diets and
- D. Diet Counselling and its Impact.

A. Functioning of the Dietary Department

The dietary department of Kovai Medical Centre and Hospital limited was inaugurated along with the hospital on 24th June 1990. The total number of beds in the hospital was 250 and the occupancy rate was 90 %.

Position of the staff

The organisation structure of the dietary department was line type organisation in which the level of authority flows from higher to lowest authority systematically.

The organisation chart indicates the authority responsibility relationship of the personnel in the selected dietary department. A schematic illustration of the organisation chart and the number of personnel in the dietary department is presented in Figure 1 and discussed.

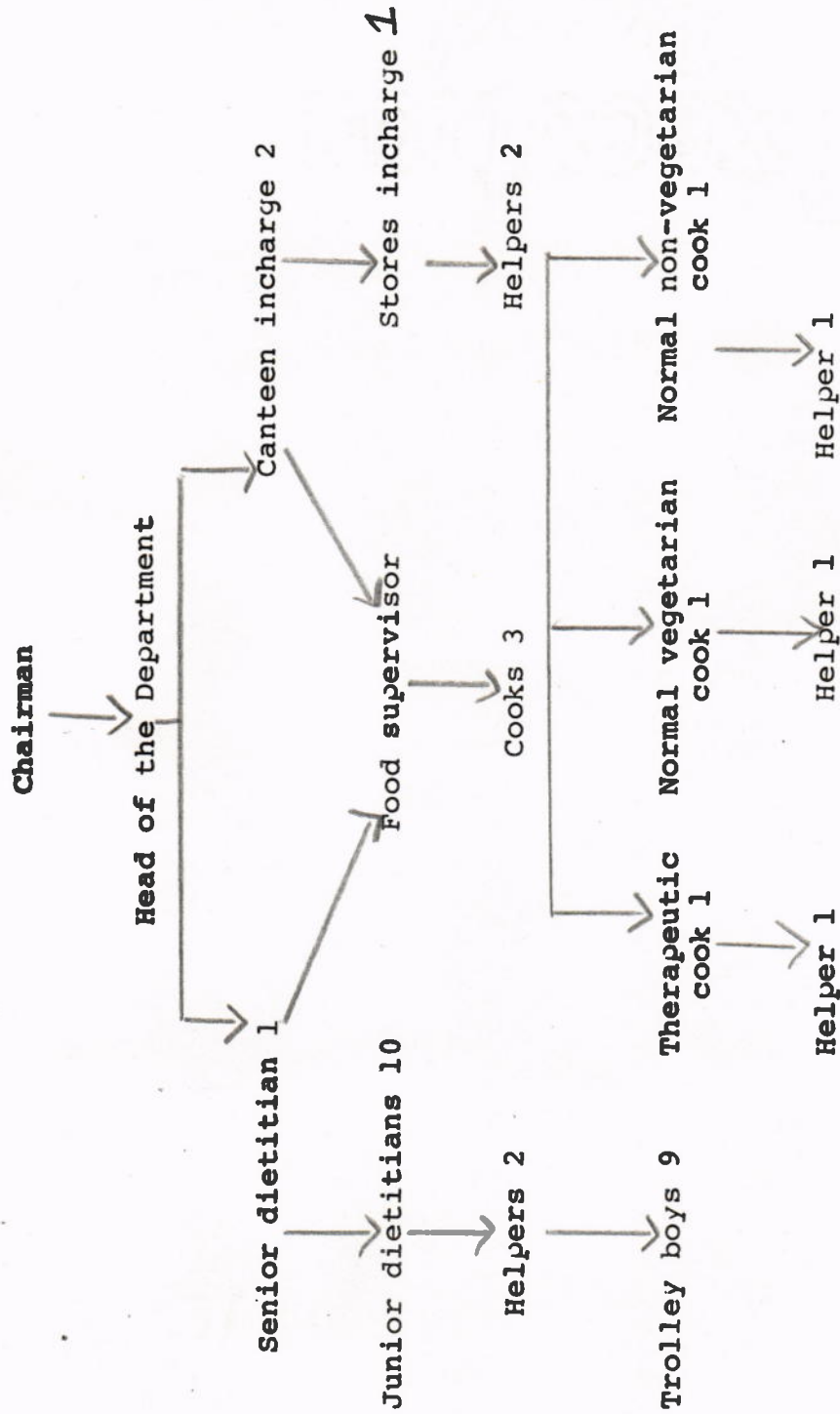


Figure 1.

ORGANISATION SET-UP

There were about ten junior dietitians working under the senior dietitian who was the only post-graduate in Food Science and Nutrition. Out of the ten junior dietitians, nine were graduates of Home Science in which five were specialised in Nutrition and Dietetics and one was a postgraduate diploma holder in Nutrition and Dietetics. The senior dietitian, supervised food preparation and food distribution, trained the personnel and supervised the departmental sanitation. He was also responsible for modification of the diet based on the prescription of the physician to meet the needs of individual patient and to counsel the in-patient as well as out-patients. The food supervisor worked under both the canteen in-charge and the senior dietitian while the store keeper came under the charge of canteen in-charge. The junior dietitians were responsible for taking menu orders, serving of food in trays and were responsible for proper distribution to the respective wards. The Food supervisor supervised the food preparation, writes the requisition of needed ingredients for the preparation while the store keeper was responsible for purchasing, receiving, issuing, maintaining records and inspecting stores. Based on the number of diet and menus given by the dietitian, cooks prepared the food systematically. Delivery of foods to the patients and removal of soiled trays were done by trolley boys.

Menu

The hospital made use of seven days cyclic menu for the normal diet and benefitted the advantage of short cycle menu as pointed out by Campbell (1987) that shorter menu cycle allows for a high quality menu and takes less time for training personnel.

Cost and type of diets

The cost of the diet was fixed according to the type of serving. Patients who asked for food in hot cases paid Rs. 70/= day while patients who were served food in trays paid Rs. 50/= day. If patients ask for more amount they were charged according to their demands. The hospital can have a serving policy as suggested by William (1995) that meal serve sizes can be flexible and appropriate to each patient's need. The patients were specially instructed to have the food from the dietary department and thus 100 per cent of the patients were catered by the dietary department. Both normal and therapeutic diets were prepared in the hospital and during the period of study the normal diet was provided approximately to 60 per cent while therapeutic diets were provided to 40 per cent.

Purchasing, receiving, storing and issuing

Competitive bidding and contract method of purchasing were followed and ingredients were purchased by store keeper under the supervision of food supervisor. All perishables

were bought twice a week as they had facilities like walk-in cooler, freezers and refrigerator to store the foods. Milk was purchased twice a day and the non-perishables were purchased once in a month and stored in well ventilated rooms. The ingredients were issued daily in the morning for lunch, tea and dinner and in the evening for breakfast. The ingredients received and issued were recorded and store was checked by store keeper to prevent pilferage.

Food preparation

There were three separate sections for the preparation of therapeutic diet, normal vegetarian diet and normal non-vegetarian diet with the help of cooks and helpers. The various fuel used in the production unit were steam, LPG, electricity and coal.

Service

Centralised service was followed. Food was delivered at each meal time in hot cases and in trays assembled in non-insulated trolleys by the trolley boys under the supervision of junior dietitians.

Diet counselling

Diet counselling is for the rehabilitation of patients to effect improvement in the dietary habits. Easwaran (1987) stressed that health care and diet counselling services for health problems should be such that the patients do not come

back to hospital with same illness. The senior dietitian was solely responsible for counselling both in patient as well as out-patient with the help of charts, diet sheets, and model of raw foods. A diet sheet with foods to be included and excluded and exchange list quantity to be consumed was given to patients for use at home situation.

Opinion of the patients on the acceptability of the diet provided in the dietary department

Opinion of the patients about the acceptability of the diet served in the hospital dietary department was elicited from fifty patients irrespective of their disease condition. The patients who are suffering from diabetes, Kidney disorders, trauma fever Cardiovascular disorders and those who are in pre and post-operative conditions. The total number of patients in each disease condition is given in Table I.

TABLE I

TOTAL NUMBER OF PATIENTS IN EACH DISEASE CONDITION

Disease condition	Number N : 50
Diabetes	18
Renal disorders	12
Cardiovascular disorders	9
Pre and post-operative condition	9
Trauma	1
Fever	1
Total	50

The acceptability of the diet served in the hospital is influenced by a number of factors like appetite of patient, aroma of food, taste, presentation and temperature of food, variety offered, efficiency, speed and friendliness of persons serving the food (Burkett, 1989).

Patients opinion about the diet served in the hospital is given in Table II.

TABLE II
OPINION OF THE PATIENTS ON THE DIET SERVED IN THE HOSPITAL

S.No.	Opinions	Number of patients	Percentage
1.	Satisfaction about the diet	28	56
2.	Presentation of food	39	78
3.	Taste	12	24
4.	Preference	4	8
5.	Monotony	5	10
6.	High cost	2	4
7.	Incorrect temperature	13	26
9.	Unhygienic preparation	4	8
8.	Delay in delivery	3	6

Out of selected fifty patients, 56 per cent of patients were satisfied about the diet served in the hospital and 78 per cent of patients appreciated the presentation of food while serving. A minority of the patients (24 %) reported that the food was not tasty, due to hard texture particularly of Iddlies, hot and sweet taste of sambar, cold state of coffee and tea. About ten per cent of the renal patients taking salt-restricted diet reported that the

incorrect temperature of food makes them feel miserably difficult to consume adequate amount of food. Heated trolleys could be used to carry the food to different floors which would help to serve the foods at correct temperature eight per cent of patients reported that the dietary department never considered the preferences of food. The dietitian should take responsibility to counsel the patients on the type and quantity of food to be consumed and supervise the delivery of foods in time. And also eight per cent and five per cent of the patients felt that the food was prepared in an unhygienic way and the cost of the food was very high respectively.

Assessment of nutritional adequacy of the selected diets

Diet is central for success in the management of any disease with special reference to diabetes and renal disease (Hales, 1991). During the period of study, it was found that a large number of patients admitted in the hospital were suffering from diabetes and renal disorder. Diet is the sheet anchor in the treatment of diabetes and kidney disorders (Madras, 1987). Hence the diets served for these two conditions in the dietary department of the hospital were selected to assess their nutritional adequacy.

The Diet Prescriptions were made by the Physician after assessing the nutrient requirements of individual patient and these prescriptions were translated into practical diets

by the dietitian. A sample menu to provide 1500 KCal and 1800 KCal diet for diabetic and 60g and 40g protein restriction diet for renal patients were framed in advance by the dietitian. Normal diet was also planned by the dietitian everyday by finding out the preference of the patients and the availability of seasonal foods without altering the cost of the meals.

Diabetic diet

Diet plays an important role in the management of non-insulin dependent diabetes mellitus. In no other disease does the dietary management plays an effective role as in NIDDM (Virginia, 1990). Hence the sample menu for the diet 1500 and 1800 KCal framed in the dietary department was selected to assess the adequacy of the diet. The menupattern, is shown in the appendix VIII and food composition and nutrient content of the sample diet were indicated in the following Tables III, IV.

It is understood from the above table that both the 1500 and 1800 KCal diet included the same type of food stuff and only variation seen were an increase in the number of iddlies and dosai in the breakfast and an extra amount of milk and fruit juices in 1800 KCal diet.

Table. III depicts the food composition of the sample diabetic diet served in the hospital.

TABLE III
FOOD COMPOSITION OF SAMPLE DIABETIC DIET

Food stuff	1800 KCal diet in g	1500 KCal diet in g
Cereals	200	175
Pulses	75	75
Veg A	300	300
Veg B	200	200
Fruit	300	100
Milk	700 m	500
Oil	30	20

From the table it is clear that there is a variation in the quantity of foods included in the diets. The quantity of cereals, fruits and milk included were more in 1800 KCal diet. The additional amount of 25g of cereals was included by providing one extra iddli or one dosai and 200g of fruits as juice and 200 ml of milk as milkshake in order to meet the 1800 KCal requirement.

The nutrient content such as carbohydrate, protein, fat fibre and energy of the selected diabetic diet were calculated and presented in the Table IV.

TABLE IV
NUTRIENT CONTENT OF THE SAMPLE DIABETIC DIET

Nutrients (g)	1800 KCal diet	1500 KCal diet
Carbohydrate	280	235
Protein	55	47
Fat	38	30
Fibre	13	11
Energy KCal	1682	1398

According to Anderson (1993) a diet providing 15-20% protein, 55-60 per cent carbohydrate, 20 per cent fat and 50g of fibre have the greatest potential for long term use in the NIDDM treatment. It was also stressed by Anderson and Lia (1994) that a high fibre intake 13g/1000 KCal is a powerful modulator in decreasing blood sugar level. But the distribution of calories in the sample diabetic diet of the selected hospital consists of 60-65% of carbohydrate, 15-20 per cent of protein, 20 percent of fat and 13 and 11 grams of fibre for 1800 KCals and 1500 KCals respectively.

Renal diet

Diet is now considered as a major weapon against renal disease (Carper, 1993). Nutritional support in the form of early protein restriction improves the prognosis of hypercatabolic forms of renal disease. The 60g and 40g protein restricted diet were assessed in terms of meal pattern, is shown in the appendix IX and food composition and nutrient content and discussed in the Table V, VI.

The Appendix IX indicates that in both the 60g and 40g protein restricted diets, no difference was found in the usage of food stuffs in and the way of preparation. Additional amount of protein was provided in 60g protein restricted diet by means of giving an extra amount of dhal, curd and 25g of rice and 25g of sundal.

The food composition of the sample renal diet is given in the Table V.

TABLE V
FOOD COMPOSITION OF SAMPLE RENAL DIET

Food stuff g or ml	60 g protein restricted diet	40 g protein restricted diet
Cereals	250	225
Pulses	75	37.5
Non-veg items	65	65
Veg A	300	300
Veg B	100	100
Milk	500	400
Oil	20	20

It is noted from the table V that 60g protein restricted diet includes 25g of cereals in the form of rice preparation, 37.5g of pulses by including dhal preparation and sundal and 100g of milk in the form of curd more than that of 40g protein restricted diet. Only to the malnourished patients consuming both 60g and 40g protein restriction diets were given 65g of non-vegetarian items to reduce the risk of malnutrition.

The protein, fat, carbohydrate, energy, sodium and potassium contents of both the 60g and 40g protein restricted diets were calculated and given in the Table VI.

TABLE VI
NUTRIENT CONTENTS OF SAMPLE RENAL DIET

Nutrients	60 g protein restricted diet	40 g protein restricted diet
Protein g	58	42
Fat g	35	25
Carbohydrate g	300	225
Energy Kcals	1750	1400
Sodium mg	1000	750
Potassium mg	2000	1500

It is evident from the above table that the sample menu framed by the dietary department strictly adheres to the protein restriction and provided exact quantity of protein. In both the 60g and 40g of protein restricted diet the energy was restricted to 1800 and 1500 KCals respectively. And it was also clear that care was taken to restrict the sodium contents of the diet.

Food Consumption Pattern Of The Selected Patients

Ten diabetics and ten renal patients who consumed the diets from the dietary department were selected randomly to assess the actual food intake of the patients. Their food intake was assessed by means of direct observation method.

Diabetic diet

Five Patients each consuming 1800 KCal and 1500 KCal diet were selected to assess their food intake. The menu pattern of the selected diabetics consuming 1800 KCal is given in Appendix IV and V. Table VII, VIII depicts the food

TABLE VIII
NUTRIENT CONTENT OF THE DIET CONSUMED BY SELECTED PATIENTS

Samples	1800 Kcals diet				1500 kcal diet					
	Energy kcal	CHO g	PRO y	Fat y	Fibre g	Energy kcal	CHO g	PRO g	Fat g	Fibre g
I	1534	279	46	26	4.8	1272	214	34	30	4.9
II	2122	401	80	22	11	1690	240	80	35	6.2
III	1832	273	95	40	11	1603	286	61	21	4.2
IV	1953	312	87	25	8	1428	234	70	23	3.5
V	1937	345	77	27	8.5	1484	231	63	34	6.4

According to Robinson et al. (1986) the distribution of Calorie in the diabetic diet consists of carbohydrate 55-65 per cent, protein 12-15 per cent and fat 20 per cent which permits the inclusion of 280g of carbohydrate, 55g of protein, 38g of fat in 1800 KCal diet. But the above table indicates that among the five patients consuming 1800 KCal diet except two samples the rest were all consuming higher amount of carbohydrates. Even the protein consumption was also higher among four samples whereas fat intake was found to be below the required in four patients. On an average the crude fibre content of all the diets were found to be 8.6 g.

The fibre content of the diet could be increased by the inclusion of raw fruits, vegetables, whole cereals and grams which are important sources of dietary fibre and should be consumed daily.

The dietary assessment of the 1500 KCal diet revealed that in three of the diets the carbohydrate intake and in four of the diets protein content were above the recommendation while the fat intake of all the diets were satisfactory.

The crude fibre content of all the diets on an average was 5.1g but Vinik and Jenkins (1988) pointed out that the fibre intake of 25g/100 KCal will be beneficial for the treatment of NIDDM.

Food Consumption Pattern Of Ten Selected Renal Patients:

Ten patients of acute kidney disorder, five consuming 60g protein restricted diet and five consuming 40g protein restricted diet were selected to assess their adequacy as the patients in the selected hospital were given food according to their food preference.

The menupattern of the selected patients consuming 60 g and 40 g protein restriction diet is shown in the appendix XIII, XIV.

Table IX, X depicts the food composition and nutrient content of the diets consumed by the selected patients.

In both the 60g protein restriction and 40g protein restriction diet, the sample menu was modified according to the patients preferences. A variety of items have been included based on the choice of the patient. There was also no restriction in the quantity provided as they give first priority to patients satisfaction. Hence dietary counselling should be given to patients as soon as they get admitted in the hospital so that they will follow the same dietary pattern at home situation also.

TABLE IX
 FOOD COMPOSITION OF SELECTED RENAL DIETS

Samples	60 g protein restriction					40 g protein restriction				
	Cereal	Pulses	Veg	Fruit	Milk	Cereal	Pulses	Veg	Fruit	Milk
I	275	-	-	200	600	250	75	10	200	500
II	300	75	100	100	600	275	75	100	100	700
III	225	50	-	-	600	250	50	-	200	400
IV	225	25	-	400	400	275	50	100	100	400
V	225	50	-	400	200	250	50	100	100	600

Non-veg Non-veg Non-veg

Sugar Oil Sugar Oil Sugar Oil

30 20 30 20 30 20 30 20 30 20

200 200 200 200 200 200 200 200 200 200

65 65 65 65 65 65 65 65 65 65

100 100 100 100 100 100 100 100 100 100

75 75 75 75 75 75 75 75 75 75

100 100 100 100 100 100 100 100 100 100

200 200 200 200 200 200 200 200 200 200

500 500 500 500 500 500 500 500 500 500

In case of 60g protein restriction diet, three of the samples were the cereal intake higher normal while 40g protein restriction diet in all the diets the cereal intake was higher. In case of 60g protein restriction, three samples consumed pulses below the recommended while in 40g protein restriction, all the samples consumed higher amount of pulses. In both the diets, consumption of vegetable was low while fruit consumption was found to be high which had restricted. Three of the patients in 60g and one patient in 40g protein restriction diet consumed non-vegetarian items to reduce the risk of malnutrition.

Nutrient content

Table X shows the nutrient content of the diet consumed by selected patients.

Joshi (1995) stated that early protein restriction retards the progression of Kidney disorders. But in case of 60g protein restricted diet in four of the diets the protein content was found to be above required amounts whereas the fat content of the four diets were below normal. The carbohydrate content of three of the diets were above normal. The sodium and potassium content of the diets were under control.

In case of 40g protein restriction diet the carbohydrate content of three of the diets were above the requirement while the fat intake was lower than the required amount in three of the diets. The sodium and potassium levels of 40g protein restricted diet were well balanced.

Diet Counselling And Its Impact

The selected ten patients of each diabetes and renal disease were interviewed to find out the awareness of dietary knowledge and management. Information on age, sex, occupation, actual weight, foods to be included and avoided, frequency of meals and dietary pattern were elicited before and after counselling by using interview schedule three and discussed below.

.Diabetes Mellitus

Ten diabetic patients were five consuming 1500 KCal and five consuming 1800 KCal were selected to impart dietary counselling.

Age and Sex wise distribution of selected diabetics

The Table XI below depicts the age and sex wise distribution of the selected diabetics.

TABLE XI

DISTRIBUTION OF DIABETICS AMONG DIFFERENT AGE GROUPS AND SEX

25-35 yrs	35-45yrs		45-55 yrs		55-65 yrs		above 65 years	
	M	F	M	F	M	F	M	F
	1	1	1	1	2	3	-	1

From the table it is clear that six of the diabetics were females. The incidence of diabetes was greater between the age group of 55-65yrs and no diabetics were found between age of 25-35yrs.

Occupational Status of Diabetics

Out of the ten diabetics, all the six females were housewives doing moderate work while two of the males were farmers, one was doing business and one was a retired officer.

Details regarding the weight of selected diabetics

Obesity is a danger signal for diabetes among middle aged woman. Six of the selected diabetic women were obese. Among men one was obese and one was of normal weight while two were underweight. Tinkler 1994, states that .60 % of women with upperbody obesity are at risk for developing NIDDM.

Duration

Out of selected ten patients, five of them had the disease for a period of less than five years. Two of them between six to ten years while three patients had the disease for a period of more than ten years.

Symptoms that prompted medical service

The various symptoms that prompted the medical service among the diabetics are given in the Table XII.

TABLE XII
SYMPTOMS THAT PROMPTED MEDICAL SERVICE

Symptoms	Number of patients
Polyphagia, polyuria, polydypsia	7
Delayed wound healing, skin infections	3
Weight reduction, fatigue	2

From the table it is evident that the most commonest symptom that prompted medical attention among seven of the diabetics were polyphagia, polyuria and polydypsia.

Type of food

It was observed that before dietary counselling seven patients were non vegetarians while after counselling, the patients realised the importance of vegetarian diet and agreed to decrease the consumption of non-vegetarian foods.

Frequency of meal consumption

Jenkin et al. (1992) confines that more frequent meals five or more servings benefit patients with NIDDM in reducing the rapid rise of blood sugar level.

Initially only five patients took 5-6 meals a day while after counselling all patients understood the importance of taking 5-6 meals a day.

Items consumed between meals

Before diet counselling, patients to counteract hunger, had the habit of taking beverages, snacks and fruits such as bajji, chips, biscuits, sweets. But after counselling all the patients learned the importance of avoiding fried foods and fatty foods.

A question was posed to the selected patients on the foods to be included and excluded during diabetics seven of the patients were able to answer that sweets, roots and tubers should be avoided while after counselling all the ten patients were able to list the foods to be avoided.

Regarding the foods to be included, four patients were able to say green leafy vegetables to be taken liberally initially while after counselling all the patients were able to say vegetables salads, raw vegetables and skimmed butter milk and limejuice with salt to prevent exhaustion in between meals.

Role of exercise

Regular exercise should be encouraged in diabetic patients to maintain normal weight and blood sugar level. Nutall (1994) states that exercised should be integral part of treatment in NIDDM. Initially three patients felt the benefit of exercising in maintaining normal health and after counselling all could answer the above mentioned benefits.

Dietary pattern of selected diabetics after counselling

The nutritional adequacy of the selected diabetics were assessed before and after counselling and is furnished in the Table XIII and XIV.

TABLE XIII
NUTRIENT CONTENT OF SELECTED DIABETICS CONSUMING 1800 KCalS DIET

Sample	Calorie (Kcal)		Protein g		Fat g		Carbohydrate g		Fibre g	
	A	B	A	B	A	B	A	B	A	B
I	1534	1652	46	56	26	44	279	258	4.8	8.5
II	2122	1777	80	59	22	48	401	278	11	11.6
III	1832	1756	95	59	40	46	273	274	11	13
IV	1953	1712	87	85	25	38	312	256	8	12.8
V	1937	1830	77	91	27	40	345	274	8.5	6.5
Normal Values	1800		55	38			315			45

(Source: Viniks and Jenkins, 1988)

B - Before counselling
 A - After counselling

TABLE XIV
 NUTRIENT CONTENT OF SELECTED DIABETICS CONSUMING 1500 Kcals BEFORE AND AFTER COUNSELLING

Sample	Calorie (Kcal)		Protein g		Fat g		Carbohydrate g		Fibre g	
	A	B	A	B	A	B	A	B	A	B
I	1272	1640	34	82	30	36	214	246	4.9	9.5
II	1690	1485	80	50	35	39	240	238	6.2	12.4
III	1603	1514	61	51	21	40	286	236	4.2	9.2
IV	1428	1598	70	53	23	42	234	249	3.5	11.2
V	1484	1444	63	48	34	38	231	225	6.4	12.0
Normal values	1500		56		25		263		38	

(Source: Viniks and Jenkins, 1988)

B - Before counselling
 A - After counselling

The energy intake was not met according to the days requirement in four patients before counselling 1800 KCal diet. This improved after counselling with four patients each meeting the prescription of 1800 KCal and 1500 KCal respectively.

The protein intake was more compared to the diet prescription in four patients each is 1800 and 1500 KCal diet before counselling. From the table it is clear that except two and one patients from 1800 and 1500 KCal diet respectively. All the other consumed approximately the needed quantity after counselling by reducing the amount of foods especially the breakfast and tea items.

After counselling the patients increased the dietary fibre slightly in the diet though not to the prescribed value by including green leafy vegetables, vegetable salads and ragi.

In general though all the patients understood the importance of the foods and the quantities to be consumed, regarding the diet consumption in the hospital the diet did not show prominent importance with fat, carbohydrate before and after counselling. From this it is clear that the counselling should be a continuous process from the time the patient is admitted in the hospital till the discharge.

Renal patients

Incidence of renal disease among different age group and sex were given in the Table below.

TABLE XV

AGE AND SEX WISE DISTRIBUTION OF SELECTED RENAL PATIENTS

below 25 yrs		25-35 yrs		35-45yrs		45-55 yrs		55-65 yrs		above 65 yrs	
M	F	M	F	M	F	M	F	M	F	M	F
1	-	1	-	1	2	2	1	1	-	1	-

It is clear from the above table that a majority of seven renal patients. It is understood that six patients fell under the age group of 35-55 years.

Occupation

Among the selected renal male patients three were business men, two were farmers and three were government official. While all the selected three females were housewives.

Details regarding weight of selected patients

Under nutrition remains a common problem in renal diseases says (Dobell, 1994). Thus six patients including one female were underweight and one female was obese. The rest three patients were of normal weight.

Duration of disease

All the selected renal patients had been diagnosed as renal patients recently within the time span of one year.

Symptoms that prompted medical service among the renal patients is given in the below able XVI.

TABLE XVI
SYMPTOMS THAT PROMPTED MEDICAL SERVICE

Symptoms	Number
Difficulty in urination, abdominal pain	6
Hypertension	4
Haematuria	3

It is evident from the above table that in six patients the symptom such difficulty in urination and abdominal pain prompted medical service. The while four patients were diagnosed as renal patients because of hypertension.

Type of food

The information collected revealed that only five of the patients were vegetarian while after counselling all the patients except four patients who were severely malnourished agreed to take vegetarian food as vegetarian diet deaccelerates the progression of kidney disorders (Junger, 1991).

Frequency of meals

Before dietary counselling four patients consumed 5-6 meals a day regularly while after counselling all consumed 5-6 meals a day except two patients whose disease condition was likely to preclude food. Fine (1987) stated that eating 5 servings a day with a high carbohydrate and moderate protein intake will reduce the risk of chronic disease the patients.

Items consumed in-between the meals

Initially eight patients were found to consume snacks and beverages between meals while after counselling, all the patients accepted to take high calorie snacks and also agreed to give up coffee, tea, fruits and fruit juices in-between meals.

Foods to be included and excluded

When the selected patients were posed a question about the foods to be included, initially only a few patients were able to say that rice and sugar could be included in any amount while after counselling all the ten patients were able to list rice, sago, arrowroot, potato, gourd varieties and sugar as harmless foods which could be included in large quantity.

Regarding the restriction of foods during this condition before diet counselling only a few patients were able to say that non-vegetarian food to be restricted while

after counselling all the patients were able to identify pulses, dhals, nuts and non-vegetarian foods as foods to be restricted.

Exercise

It was found out that before counselling four of the patients had the habit of doing exercises while after counselling all the patients agreed to do moderate exercises as advised by the physician.

Dietary assessment after counselling

The selected ten renal patients five consuming 40 g protein restriction and five consuming 60 g protein restriction were found their impact of dietary counselling by assessing their dietary intake.

The Table XVII and XVIII depicts the nutrient content of the selected renal patients consuming 60 g and 40 g protein restriction diets.

TABLE XVII
 NUTRIENT CONTENT OF 60 g PROTEIN RESTRICTION DIET AFTER COUNSELLING

Sample	Calorie (Kcal)		Protein g		Fat g		Carbohydrate g		Sodium mg		Potassium mg	
	A	B	A	B	A	B	A	B	A	B	A	B
I	1836	1750	78	54	25	46	316	280	149	100	1396	1564
II	1730	1598	74	50	26	38	300	264	165	362	1370	704
III	1754	1890	58	66	29	42	316	212	230	234	465	573
IV	1753	1853	84	61	21	33	307	328	105	262	1860	512
V	2274	1646	93	52	38	46	383	256	175	360	2131	636
Normal value	1800		60		35		300		1000		2000	

(Source: Robinson, 1987).

TABLE XVIII
NUTRIENT CONTENT OF 40 g PROTEIN RESTRICTION DIET AFTER COUNSELLING

Sample	Calorie (Kcal)		Protein g		Fat g		Carbohydrate g		Sodium mg		Potassium mg	
	A	B	A	B	A	B	A	B	A	B	A	B
I	1448	1588	30	46	16	44	296	252	126	196	491	880
II	2054	1493	62	38	34	43	375	240	173	351	286	1838
III	1696	1464	58	34	35	32	267	260	201	178	512	748
IV	1744	1448	22	44	11	36	173	238	196	108	1046	1227
V	746	1573	28	50	22	37	109	260	169	136	1480	363
Normal value	1500		42		25		225		750		1500	

(Source: Robinson, 1987).

It is evident from the above table that after dietary counselling, the protein in the diet was adequate in both 60 g and 40 g protein restriction diets by reducing the intake of pulses, milk and milk products. In 60 g protein restriction diet, in three of the patients were taken more amount of fat than the required quantity as against two patients in 40 g protein restriction diet. The carbohydrate content of all the diets were within the required amount in all the samples. Whereas the sodium content which was found to be low in the diet was made adequate by providing measured quantity of table salt/day.

Summary and Conclusion

V. SUMMARY AND CONCLUSION

The present investigation was carried out in Kovai Medical Centre and Hospital Limited in Coimbatore City. The main objective of this study is to Promote health foods in a hospital dietary department in treating as well as in reducing the reoccurrence of diseases among hospital patients. To achieve this objective the study was conducted in the selected hospital.

A study of the functioning of the hospital dietary department was carried out by means of eliciting information from the senior dietitian by means of an interview schedule. The information collected were as follows. The dietary department of the Kovai Medical Centre and Hospital was started along with the hospital on June 24th 1990. It is a 250 bedded hospital with 90 per cent occupancy rate. The patients were strictly instructed to take food only from the dietary department. The organisation structure of the hospital was linetype in which authority flows from higher level to lower level.

The hospital had one senior dietitian with ten Junior dietitians. The senior dietitian supervises food preparation, food distribution, trained the personnels and counseled the inpatients as well as outpatients. The junior

dietitians were responsible for taking menu orders and serving the foods in trays. The dietary department had one food supervisor to supervise food preparation and was also incharge of purchasing while the store keeper along with supervisor was responsible for purchasing, receiving, storage of ingredients and issuing of ingredients. The various fuel used in the preparation unit were steam, LPG and coal. The food prepared by the cook is served to the patients by means of centralised service by trolley boys. The cost of the diets were fixed according to the type of serving.

Fifty patients were asked their opinion about the acceptability of the hospital diet by using a checklist. The checklist included details on the following aspects like taste of the food, temperature, cleanliness, presentation, delivery time, varieties offered and cost. Fifty six per cent of the patients were satisfied with the hospital diet while 70 per cent of the patients were satisfied with the presentation of the diet. Seventy six per cent reported about the tasty foods while 74 per cent appreciated the correct temperature in which food was served. Ninety six per cent of the patients were satisfied about the unhygienic in preparation. A minority of patients reported about monotony in preparation, delay in delivery and a high cost of the diet.

As a large number of patients were suffering from diabetes and kidney disorders during the period of study, the nutritional adequacy of the sample diet framed by the dietitian for diabetic and renal disease were studied. The diets selected for study were 1800 KCal and 1500 KCal diabetic diets and 60 g and 40 g protein restricted diets. In the diabetic diet the distribution of nutrients was 60-65 per cent carbohydrate, 12 - 15 per cent protein and 20 per cent fat. The 1800 kcal diet supplied 280g of carbohydrate, 55 g of protein, 38 g of fat and 13 g of fiber whereas the 1500 kcal diet was subsumptive of 235 g of carbohydrate, 47 g of protein, 30 g of fat and 11 g of fibre.

The 60 g protein restricted diet supplied 1800 KCals, which included 58 g of protein, 35 g of fat and 300 g of carbohydrate while 40 g protein restricted diet included 1500 KCals, 42 g of protein, 25 g of fat and 225 g of carbohydrate. Thus the diet framed by the hospital supplied all the major nutrients in right proportions.

Since the hospital provided diet according to patients preference, ten diabetics and ten renal patients were selected randomly to assess the actual food intake of the patients. Their intake was assessed by means of direct observation method. In case of diabetic diet, out of ten patients three patients consumed adequate calories,

carbohydrate, fat and protein. With regard to renal patients, none of the patients met the adequate requirements. Protein content of all the samples were either below or above the requirements.

The selected diabetic and renal patients were checked nutritional awareness by means of an interview schedule. The interview schedule elicited background information like prevalence of the disease among different age group and sex, occupation, weight and awareness about the dietary practices like their dietary modification, regularity and frequency of meals, foods to be included and excluded. Details regarding personal habits like smoking, alcoholism, exercising were also collected. Then the selected patients were given diet counselling to make them understand the reason for their diet therapy, risks encountered if they fail to follow the diet modification. A variety of charts showing spectrum of diabetic and renal diet therapy like do's and dont's, foods to be included and excluded were shown. Advice about portion size using aids like measuring jars, spoons, cups and illeffects of alcoholism, smoking were highlighted. A followup was made to reinforce teaching and to find impact of counselling.

The dietary pattern of the selected diabetics was significantly changed after counselling. In all the samples,

a marginal level below or above was overlooked. The fibre content of all the diets increased to a considerable level after counselling. The change in the dietary pattern of renal patients was found to be encouraging after counselling. The protein content of the diets were all slightly above or below required.

Thus the main aim, promotion of health food in the selected hospital dietary department was encouraged to a great extent by this study.

Limitations and Suggestions

1. Diet counselling for inpatients should be given as soon as they get admitted in the hospital so that they will prepare themselves to use those dietary advices at home situation.
2. Dietitians should be well recognised and encouraged as noble professionals as they are responsible for building a healthy community.
3. Government should take steps to start dietary department in each and every hospital and all the hospitals should have well qualified dietitians.

Appendices

APPENDIX I

**QUESTIONNAIRE TO ELICIT INFORMATION REGARDING THE FUNCTIONING OF THE
DIETARY DEPARTMENT**

1. Name :
2. Job Designation :
3. Qualification :
4. How long is it since you started the dietary department?
5. How many beds do you have in your hospital and what's the occupancy rate ?
6. Who is the over all in charge for your dietary department
7. Give the organisation structure with job description
8. Do you plan your menus in advance or when needed ?

Menu

9. What are diets you provide in your dietary department
10. Who plan menus and how do you plan menus
11. Do you have any standard menu pattern that you follow
Yes No
12. Is it a cyclic menu Yes No
13. If yes specify time period and type of cycle menu

Purchase and storage of ingrediens

14. Specify the buying procedure
 - a. Formal
 - b. Informal
 - a. Contract purchase method
 - b. Negotiated buying method
 - c. Standing order method
 - d. Future contract method
15. Items Frequency of purchase Storage Duration of storage

Receiving procedure

16. Do you have separate personnel to receive goods ?

17. Receiving procedure

Blind receiving method

Contract method

Blank cheque receiving method

18. Issuing :

Who is incharge of issuing the ingredient from the stores to kitchen

19. What's the procedure for transfer of ingredients ?

20. Is issuing done on a daily basis ?

21. When is the using of ingredients done ?

Preparation

22. How many cooks do you have ?

23. How many hours in advance do you cook ?

24. What's the type of service followed ?

25. How is the temperature of the food maintained

26. What's the cost of menu ?

27. How do you cost the extra items ?

Dietary counselling

28. Who is responsible for counselling ?

29. What's the fees for counselling ?

30. What's the procedure for counselling ?

31. What are the aids used in counselling ?

APPENDIX II

CHECKLIST TO FIND OUT THE OPINION OF THE PATIENTS ABOUT THEIR DIET

Patients Name :

Room No.

Nature of diet :

Days stayed

Yes / No

1. **Do you know the type of diet prescribed to you**
2. **Do you like the diet provided to you**
3. **Do you like the taste of the food**
4. **Is the food coming in proper time**
5. **Are you given what you ask for**
6. **Are you satisfied with the temperature of the food**
7. **Are you contented with the type of serving**
8. **Are you satisfied with the varieties provided**
9. **Are you satisfied with the cleanliness in food preparation**
10. **Are you satisfied with the cost of the diet**
11. **Is the food served attractively**

Any other suggestions :

APPENDIX III

QUESTIONNAIRE TO CHECK AWARENESS AMONG DIABETIC PATIENTS

Before Counselling

Name : Address :
Sex : Actual weight :
Occupation : Height :

1. How long are you suffering from this disease
2. What are the symptoms that prompted medical service dietary practice
3. Are you a vegetarian or non-vegetarian
4. Do you eat at regular times
5. How many meals do you eat per day
6. List of the items you take between meals
 - a. Fried foods
 - b. Biscuits
 - c. Chocolates
 - d. Sweets
 - e. Beverages
 - f. Fruits
7. When suddenly feel hungry how will you by taking
 - a. Snacks/b. Beverages/c. Water/d. Fruits
8. Do you the know the type of diet prescribed to you Yes/No
9. If yes, list the foods you should include
 - a.
 - b.
 - c.
 - d.
10. Do you exercise ? Yes/No
11. Type of exercise
 - a. Walking/b. Jogging/c. Swimming/d. Cycling

After Counselling

12. Do you adhere to the diet prescription given by the dietician
13. If so, how closely is it followed
 - a. Always/b. Sometimes/c. Rarely/d. Never
14. Do you know the type of diet prescribed to you
15. Do you eat at regular times ? How many meals are eaten per day
16. If yes list the foods you should
include exclude
17. List any four foods you will take to increase fibre in your diet

QUESTIONNAIRE TO CHECK AWARENESS AMONG RENAL PATIENTS

Before Diet Counselling

Name	:	Address	:
Sex	:	Actual weight	:
Age	:	Height	:
Occupation	:		

1. How long are you suffering from this disease
2. What are the symptoms that prompted medical service
3. Dietary practice
Are you a vegetarian or non-vegetarian
4. Do you eat at regular times
5. How many meals do you eat per day
6. List of the items you take between meals
 - a. Fried foodš
 - b. Biscuits
 - c. Chocolates
 - d. Sweets
 - e. Beverages
 - f. Fruits

7. When suddenly feel hungry how will you counteract by taking
 a. Snacks/b. Beverages/c. Water/d. Fruits
8. Do you know the type of diet prescribed to you Yes/No
9. If yes, list the foods you should

include

exclude

- a.
 b.
 c.
 d.

- a.
 b.
 c.
 d.

10. Do you exercise ? Yes/No

After Counselling

11. Do you adhere to the diet prescription given by the dietician
12. If so, how close is it followed
 a. Always/b. Sometimes/c. Rarely/d. Never
13. Do you know the type of diet prescribed to you ?
14. Do you eat at regular times ? How many meals are eaten per day
15. If yes list the foods you should

include

exclude

16. Do you exercise

APPENDIX IV

MENU PATTERN OF SELECTED DIABETICS CONSUMING 1800 KCALs

Meal Timing	Sample I Coffee without sugar	Qty 200ml	Sample II	Qty	Sample III Tea without sugar	Qty 200ml	Sample IV	Qty	Sample V Milk without sugar	Qty 200ml
Early morning	Uttappam	3	Idlies	5	Dosa	3	Uttappam	3	Idly	4
Breakfast	Sambar	100 ml	Sambar Chutney	100 ml 40 g	Idly Chutney	2 40 g	Sambar	200 ml	Dosa Chutney	1 40 g
Mid morning	Coffee	200 ml	Apple juice	200 ml	Oranges	200 g	Coffe	200 ml	Apple Juice	200 ml
Lunch	Rice Green gram sambar	75 g 100 ml	Lemon rice Curd rice	50 g 50 g	Rice Chicken	75 g 65 g	Rice Green gram sambar	100 g 100 ml	Rice Green gram sambar	100 g 100 g
	Snake gourd kuttu Bitter gourd porial Curd	100 g 100 g 100 g	Egg curry Butter milk	65 g 200 ml	Snake gourd kuttu Bitter gourd porial Curd	100 g 100 g 100 ml	Snake gourd kuttu Bitter gourd porial Curd	100 g 100 g 100 ml	Snake gourd kuttu Bitter gour porial	100 g 100 g 100 g
Mid afternoon	-	-	-	-	-	-	-	-	-	-
Evening	Coffee without sugar	200 ml	Coffee without sugar Bred slices	200 ml 3	Tea without sugar	200 ml	Coffee without sugar Sunda	200 ml 25 g	Milk without sugar	200 ml
Night	Idli Sambar	4 100 ml	Uppuma Dosa Sambar	75 g 1 100 ml	Idly Sambar	5 100 ml	Chappathi Tomato masala	4 200 ml	Raya uppuma Sambar	75 g 100 ml
Bed time	Milk without sugar	200 ml	-	-	Milk	200 ml	-	-	Milk	200 ml

APPENDIX V

MEAL PATTERN OF SELECTED DIABETICS CONSUMING 1500 KCAL DIET

Meal Timing	Sample I Milk without sugar	Qty 200ml	Sample II Milk without sugar	Qty 200 ml	Sample III Tea without sugar	Qty 200ml	Sample IV Milk without sugar	Qty	Sample V Milk without sugar	Qty
Early morning										
Breakfast	Idlies	5	Ragi kanji	200 ml	Idly	4	Dosa	4	Chappathi	4
	Sambar	100 ml	Milk	100 ml	Sambar	100 ml	Sambar	100 ml	Tomato masala	100 ml
	Chutney	40 g								
Mid morning	Orange juice	200 ml	Apple juice	200 ml	Oranges	200 g	Apple juice	200 ml		
Lunch	Chappathi	4	Rice mashed	100 g	Rice	100 g	Rice	75 g	Curd rice	50 g
	Tomato masala	200 ml			Green gram sambar	100 ml	Lemon rice	25 g	Lemon rice	50 g
	Snake gourd	100 g			Snake gourd	100 g	Pickle	5 g	Snake gourd	100 g
	kuttu				kuttu		kuttu		kuttu	
	Curd	100 ml			Bitter gourd	100 g	Curd	100 ml	Bitter gour	100 g
					porial				porial	
					Curd	100 ml			Butter milk	200 ml
Evening	Milk	200 ml	Milk with complian	200 ml	Tea	200 ml	Milk without sugar	200 ml	Tea without sugar	200 ml
Night	Rava uppuma	75 g	Idiapam	75 g	Idiapam	75 g	Uppuma	100 g	Rava uppuma	100 g
	Tomato chutney	40 g	Sugar	10 g	Sugar	10 g	Sambar	100 ml	Sambar	100 ml
Bed time			Milk with complian	200 ml	Milk without sugar	200 ml				

APPENDIX VI

MENU PATTERN SELECTED RENAL PATIENTS CONSUMING 60 g PROTEIN RESTRICTED DIET

	Sample I	Qty	Sample II	Qty	Sample III	Qty	Sample IV	Qty	Sample V	Qty
Meal Timing	Sample I	Qty	Sample II	Qty	Sample III	Qty	Sample IV	Qty	Sample V	Qty
Early morning										
	Uttappam	100 ml	4 Idly	40 g	Idly	5	Chappathi	3	Pongal	100 g
Breakfast	Sambar		Chutney		Sambar	100 ml	Sambar	100 ml	Sambar	100 ml
					Chutney	40 g				
	Coffee	200 ml	Tea	200 ml	Apple juice	200 g	Apple juice	200 ml		
Mid morning										
	Rice	100 g	Rice	100 g	Rice	100 g	Rice	100 g	Curd rice	100 g
Lunch	Sambar	100 ml	Sambar	100 ml	Sambar	100 ml	Fish curry	65 g	Egg curry	65 g
	Snake goura	100 g	Snake gour	100 g	Snake gourd	100 g	Snake gourd	100 g	Cucumber	100 g
	kuttu		kuttu		kuttu		kuttu		saled	
	Bitter gourd	100 g	Bitter gourd	100 g	Bitter gourd	100 g	Curd	100 ml		
	porial		porial		porial					
	Cura	100 ml	Cura	100 ml	Cura	100 ml				
Evening										
	Coffee	200 ml	Milk	200 ml	Milk	200 ml	Tea	200 ml	Milk	200 ml
	Sundal	25 g	Sundal	25 g	Sundal	25 g				
Night										
	Chappathi	4	Uppuma	4	Chappathi	4	Uppuma	4	Idly	4
	Tomato masala	100 ml	Sambar	100 ml	Tomato masala	100 ml	Sambar	100 ml	Sambar	100 ml

APPENDIX VII

MENU PATTERN SELECTED RENAL PATIENTS CONSUMING 40 g PROTEIN RESTRICTED DIET

Meal Timing	Sample I	Qty	Sample II	Qty	Sample III	Qty	Sample IV	Qty	Sample V	Qty
Early morning	Milk with complan	200 ml	Tea	200 ml	Milk	200 ml	Milk	200 ml	Milk	200 ml
Breakfast	Ragi kanji	75 g	Igily Sambar Chutney	4 100 ml 40 g	Dosa Sambar	4 100 ml	Rice kanji	200 ml	Rice kanji	100 ml
Mid morning	Apple juice	200 ml	Tea	200 ml			Apple juice	200 g	Apple juice	200 ml
Lunch	Rice mashed Butter milk kuttu	200 ml 200 ml	Rice Sambar Snake gourd kuttu Bitter gourd porial	100 g 100 ml 100 g 100 g	Rice Fish curry Snake gourd kuttu	100 g 65 g 100 g	Rice kanji	200 ml	Rice kanji	200 ml
Evening	Rasam	100 ml								
	Milk with complan	200 ml	Tea	200 ml	Milk	200 ml	Orange juice	200 ml	Orange juice	200 ml
Night	Idiappam Sugar	100 g 10 g	Idiappam Sugar	100 g 10 g	Uppuma Sambar	100 g 100 ml	Mashed rice Milk	100 ml 200 ml	Rice kanji	200 ml
Bed time	Milk	200 ml			Milk	200 ml				

APPENDIX VIII

MEAL PATTERN OF THE DIABETIC DIET PROVIDED IN THE HOSPITAL

Meal pattern	1800 kal diet		1500 kcal diet	
	Milk or coffee or tea	200 ml	Milk or coffee or tea	200 ml
Early morning				
Breakfast	Idlies	3	Idlies	2
	or Dosa	3	or Dosa	2
	or Uppma	75 g	or Uppuma	50 g
	or Chappathi	3	or Chappathi	2
	Chutney	40 g	Chutney	40 g
	Sambar	100 ml	Sambar	100 ml
Mid morning	Milk shake	200 ml	Fruit or Fruit juice	200 ml
Lunch	Rice	75 g	Rice	75 g
	Veg A	100 g	Veg A	100 g
	Veg B	100 g	Veg B	100 g
	Dhal	40 g	Dhal	40 g
	Sambar	100 ml	Sambar	100 ml
	Rasam	100 ml	Rasam	100 ml
	Curd	100 ml	Curd	100 ml
Mid After noon	Fruit or Fruit juice	200 ml		
Evening	Sundal	25 g	Sundal	25 g
	Milk, Coffee or Tea	200 ml	Milk, Coffee or Tea	200 ml
Night	Idlies	3	Idlies	3
	Dosa	3	Dosa	3
	Chappathi	3	Chappathi	3
	Sambar	100 ml	Sambar	100 ml
	Chutney	40 g	Chutney	40 g

APPENDIX IX

MEAL PATTERN FOR SAMPLE RENAL DIET

	60 g protein restricted diet	40 g protein restricted diet
Meal pattern	Milk or coffee or tea	Milk or coffee or tea
Early morning	200 ml	200 ml
Breakfast		
	Idlies	Idlies
	Chappathi	Chappathi
	Dosa	Dosa
	Ragi roti	Ragi roti
	Sambar	Sambar
	Chutney	Chutney
		100 ml
		40 g
Lunch		
	Rice	Rice
	Veg A	Veg A
	Veg B	Veg B
	Dhal	Dhal
	Sambar	Sambar
	Curd	Butter milk
		100 ml
		100 ml
		75 g
		100 g
		100 g
Tiffin		
	Milk	Milk
	Sundal	Toasted bred or biscuits
		200 ml
		25 g
Dinner		
	Idlies	Idlies
	Chappathis	Chappathis
	Dosa	Dosa
	Uppuma	Uppuma
	Sambar	Sambar
	Chutney	Chutney
		75 g
		100 ml
		40 g

Plate IV

LUNCH FOR 1500 KCal DIABETIC DIET



Plate V

LUNCH FOR 60g PROTEIN RESTRICTED DIET



Fig. 2. NUTRIENT CONTENT OF 1800 KCal DIABETIC DIET

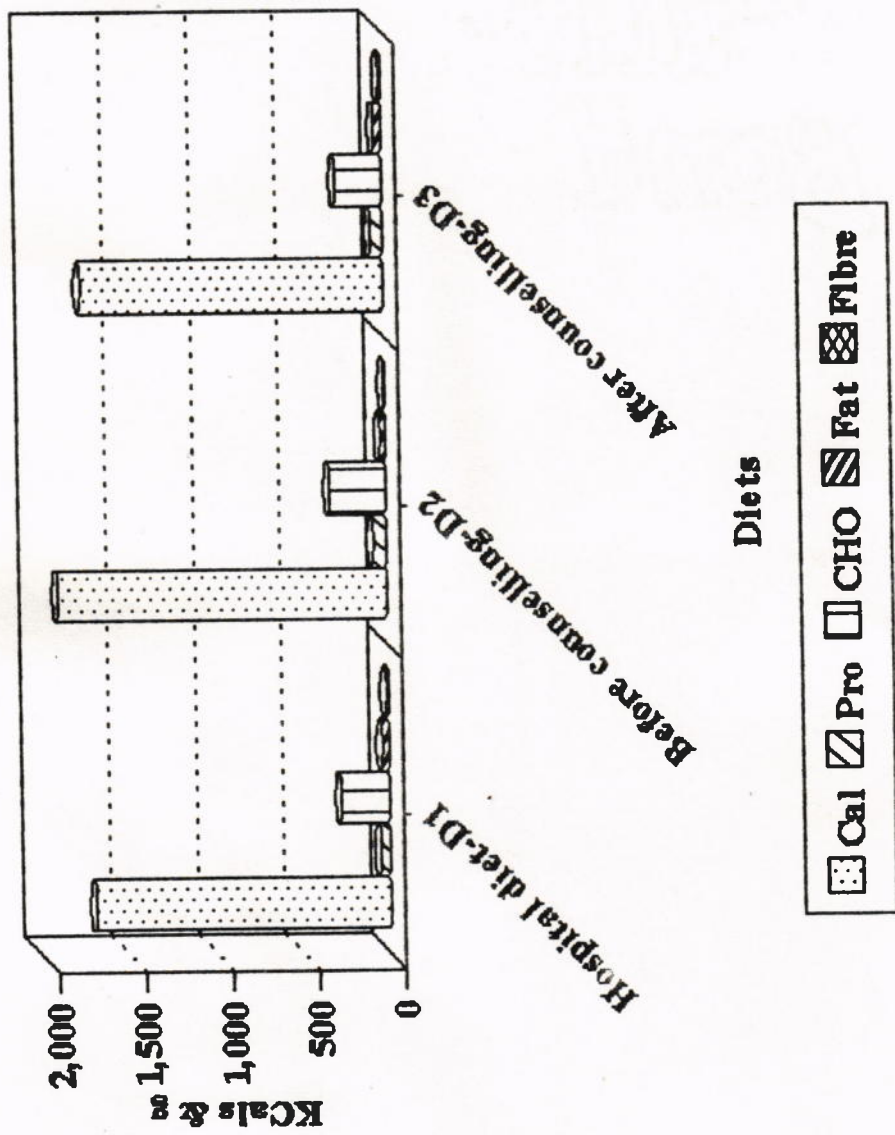


Fig. 3. NUTRIENT CONTENT OF 1500 KCal DIABETIC DIET

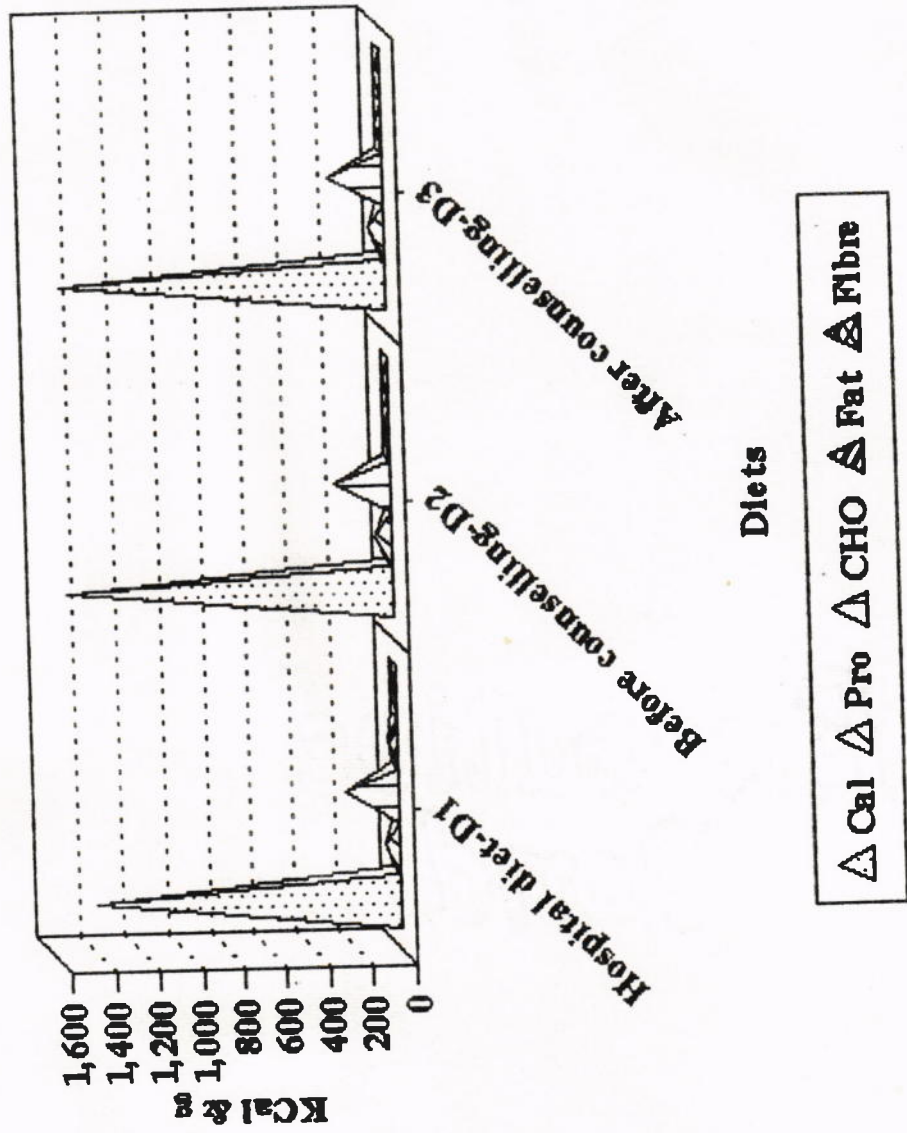


Fig. 4. NUTRIENT CONTENT OF 60 g PROTEIN RESTRICTION DIET

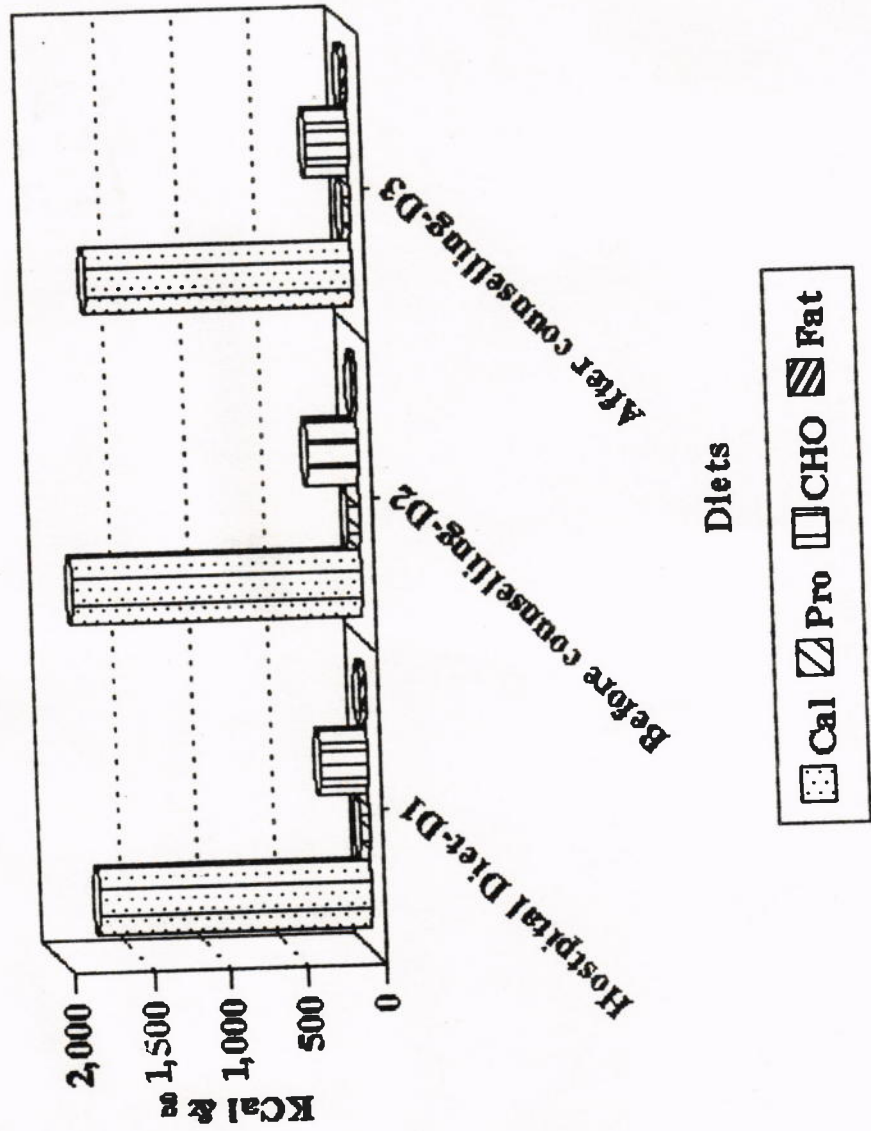
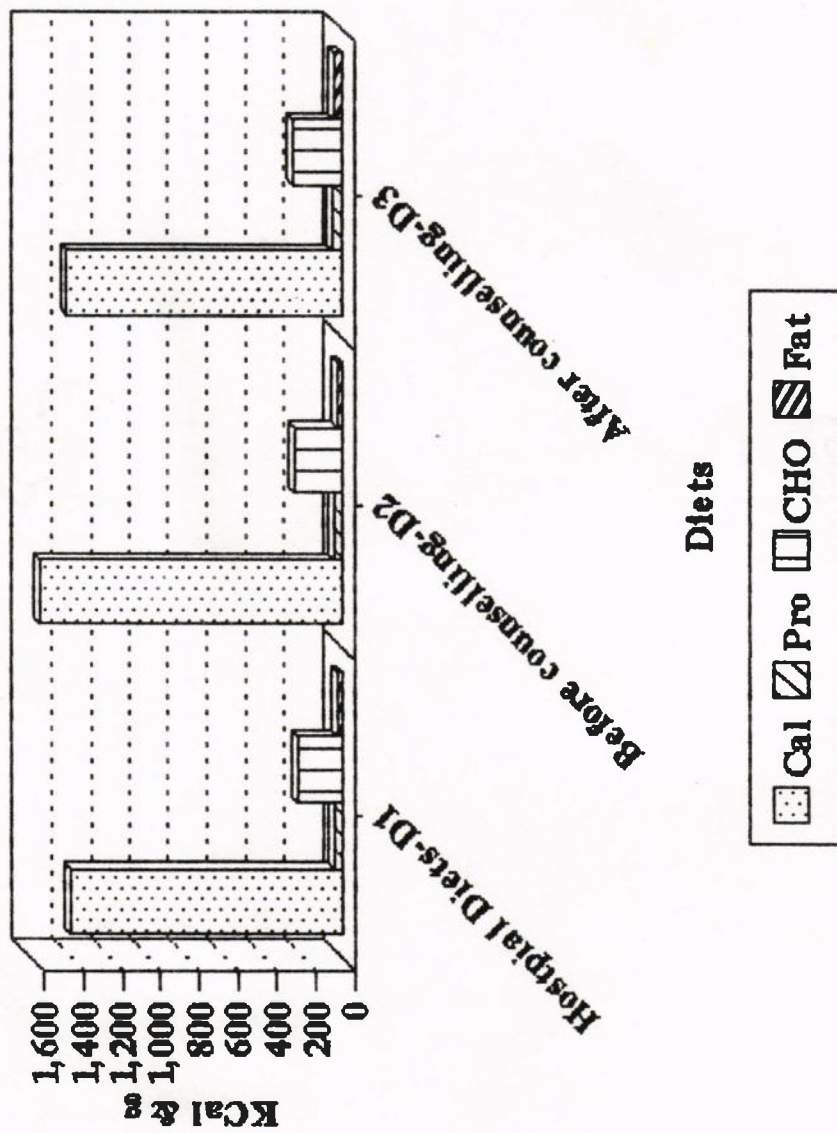


Fig. 5. NUTRIENT CONTENT OF 40 g PROTEIN RESTRICTION DIET



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