



A PROJECT REPORT

on

Assessment of Nutrition Knowledge and Practice among the Healthcare Workers
in Chronic Kidney Disease (CKD) Patients Management at Ibrahim Medical
Collage Hospital.

Submitted to

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Date of submission: 18/12/2018

LETTER OF ACCEPTANCE

Date: 18 December, 2018

To

Professor Dr.Md. Bellal Hossain

Department of Nutrition and Food Engineering (NFE)

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Subject: Submission of Project Report.

Dear Sir,

I would like to take this opportunity to thank you for the guidance and support you have provided me during the course of this report. Without your help, this report would have been impossible to complete.

To prepare the report I collected what I believe to be most relevant information to make this report as analytical and reliable as possible. I have concentrated my best effort to achieve the objective of the report and hope that my endeavour will serve the purpose. The practical knowledge and experience I have gathered during preparation report will immeasurably help in my future professional life. I request you to excuse me for any mistake that may occur in the report despite of my best effort.

I would really appreciate it you enlighten me with your thoughts and views regarding the report. Also, if you wish to enquire about an aspect of my report, I would gladly answer your queries.

Thank you again for your support and patience.

Jamila Ferdous Lamia

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DEDICATION

This research work is dedicated to my beloved father **Md. Golam Faruk** and mother **Umma Salma** who gave me the support and courage to fulfil this work successfully.

LETTER OF RECOMMENDATION

This is to certify that the project report entitled “*An Assessment of Nutrition Knowledge and its’ Practice among the Healthcare Workers in Chronic Kidney Disease (CKD) patients management at Ibrahim Medical Collage Hospital.*” submitted for assessment to the examination committee by **Ms. Jamila Ferdouse Lamia** bearing ID: 143-34-336 a students of Department of Nutrition and Food Engineering. I am pleased to declared that this report is entirely written by the author and the all the related research work have been conducted by the researcher under my strong supervision and observation. This is a piece of original work and has neither been submitted to nor been published anywhere before for any other purpose.

I strongly recommend the approval of the report by the authority and by the same token, I also recommend a positive and fare evaluation of the work.

I wish every success in her life.

Yours Sincerely

Dr. Amir Ahmed

Associate Head

Department of Nutrition and Food Engineering

Daffodil International University

ACKNOWLEDGEMENT

Firstly of all my gratitude and thanks almighty Allah, the most merciful and kindness has made this work successful. I would like to say thanks to the honourable Vice Chancellor DIU for extending me this opportunity to fulfil my B.Sc. Degree on Nutrition and Food Engineering.

My deep gratitude and sincere thanks to the honourable Head, Department of Nutrition and Food Engineering, **Professor Dr. Bellal Hossain**, for this kind cooperation and encouragement to accept this degree.

My deep and sincere appreciation to **Dr. Amir Ahmed**, Associate Head of Department Nutrition and food Engineering for his constructing suggestions and guidance at this work which has helped me to do it successfully.

I am also thankful to my great teachers **Dr. Md Rezaul Karim**, Assistant Professor, **Fouzia Akter**, Senior Lecturer and, **Tasmia Tasnim**, Senior Lecturer, **Nasima Akter Mukta**, Lecturer, **Effat Ara Jahan**, Lecturer and **Najia Kamrul**, Lecturer for their countless inspiration and encouragement during my student life.

My gratitude goes to entire NFE Department of Daffodil International University for arranging this research opportunity and facilitating the work throughout.

My warmest thanks to our Coordination Officer, **Emran Hossain**, Assistant Technical Officer, **Reaz Mahmood** and Assistant Technical Officer, Elahi Box as well as Lab Technician **Imdad Hossain**.

ABSTRACT

Nutrition management of Chronic Kidney Disease (CKD) is real challenge for nephrologist due to poor understanding of patients about different dietary restrictions. Communication gap between the doctor, nurses and patients plus their caregiver assumed to a be cause of this mismanagement which exert negative impact on disease condition and overall improvement. This study aims to determine disease-specific nutrition knowledge of healthcare workers and understanding level of CKD patients about dietary recommendation of OPD and hospitalised patients at the Nephrology department of the selected hospital. At the same time, it has also investigated the approach and practice of knowledge dissemination to the patients of CKD by healthcare workers. In addition, it will also explore the factors that positively and negatively affect the nutrition information dissemination process from doctor to patients. Data has been collected from 10 healthcare professional and 16 CKD patients by using 2 semi-structured questionnaires through in depth interview. It has been revealed that most of the healthcare workers have moderate disease-specific knowledge and received several in-house training of dietary management of CKD patients. However, significant gap has been detected in the information dissemination process from doctor to patients where nurses have vital role to play. Nutrition management of in-patients is relatively better as it has been governed by professional nutritionist. On the other hand, approach and practice advising OPD patients is found severely hampered due to excessive patients' flow against time-pressed schedule, lack of appropriate tools and technics to make patients understand nutrition management protocols and to some extent motivation of both nurses and patients about the significance of dietary management in kidney diseases. Interview data and observational information both reveals the fact that although patients understand what to eat and what not but to great extent the suffers from a clear understand about how much to eat a prescribed diet. The study recommends that patients serving time by nurses at OPD needs to be increased with effective information dissemination process about nutrition management of CKD patients at this hospital.

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Abbreviations:

CKD: Chronic Kidney Disease

CVD: Cardiovascular disease

DD: Dietary Diversity

DHO: District Health Officer

FAO: Food Agriculture Organisation

GFR: Glomerular Filtration Rate

IDDS: Individual Dietary Diversity Score

MER: Maintenance energy requirements

OPD: Out Patient Department

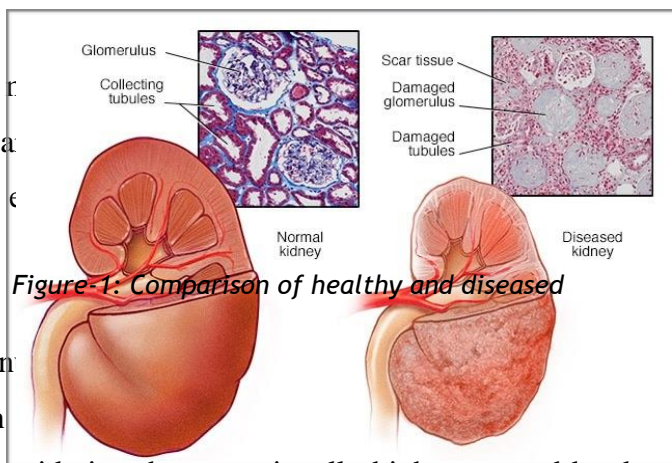
WHO: World Health Organisation

1.INTRODUCTION:

Chronic kidney disease (CKD), also called chronic kidney failure, is a clinical condition which describes the gradual loss of kidney function. This damage can cause waste to build up in the body and lead to other health problems, including cardiovascular disease (CVD), anemia, and bone disease. In animals kidneys filter wastes and excess fluids from your blood, which are then excreted in your urine. When chronic kidney disease reaches an advanced stage, dangerous levels of fluid, electrolytes and wastes can build up in your body. In the early stages of chronic kidney disease, patients usually have few signs or symptoms. Chronic kidney disease may not become apparent until kidney function is significantly impaired. Treatment for chronic kidney disease focuses on slowing the progression of the kidney damage, usually by controlling the underlying cause. Chronic kidney disease can progress to end-stage kidney failure, which is fatal without artificial filtering (dialysis) or a kidney transplant.

1.1 Normal kidney vs. diseased kidney:

CKD affects more than 20 million people (ie, 1 in 10 older in the US (CDCP, 2010). People with early CKD. One way to detect CKD is through a blood test to check for kidney damage. Diabetes is a strong risk factor for developing CKD. It is possible, though not yet unequivocally proved, that management of CKD is independent of uraemia management. Given the prevalence of CKD worldwide has chronic kidney disease and considering the exceptionally high costs and burden of maintenance dialysis therapy and kidney transplantation, dietary interventions may be increasingly chosen as a management strategy for chronic kidney disease. This review considers several aspects of the nutritional management of chronic kidney disease in adults.



There are five stages of CKD, Stage-1 to Stage-5. This depends on the individual's level of kidney function or damage e.g. protein or blood present in the urine. A blood or urine test is a good way to pick up on early stages of CKD. People can move between stages one and four but unfortunately cannot usually improve once the kidney function has declined to level five.

Table-1: Stages of CKD and GFR Level

Source:

1.2 CKD Patients in Bangladesh:

About 1 in 10 people have some degree of CKD. It can develop at any age and various conditions can lead to CKD (National Kidney Foundation, 2011). Kidney disease can affect people of all ages and races. African Americans, Hispanics, American Indians and people of South Asian origin (those from India, Bangladesh, Sri Lanka or Pakistan) have a higher risk of

Stage	Description	GFR Level
Normal Kidney Function	Healthy Kidneys	90mL/min or more
Stage 1	Kidney damage with normal or high GFR	90ml/min or more
Stage 2	Kidney damage and mild decrease in GFR	60 to 89mL/min
Stage 3	Moderate decrease in GFR	30 to 59mL/min
Stage 4	Severe decrease in GFR	15 to 29 mL/min
Stage 5 (ESRD)	Established kidney failure	Less than 15mL/min or on dialysis

people in the country has been suffering from kidney diseases and 40,000 die of longtime kidney failures annually, experts told a convention arranged by kidney foundation of Bangladesh. They said about two core people are now somehow suffering from kidney ailments which was about one core 10 years ago. The rate of chronic kidney disease has now increased to 18 percent from nine percent during the period. If the present rate of the disease continues it will rise to 28-30 percent in next 10 years turning the situation alarming.

Figure-2: Prevalence of CKD in Asian Population

1.3

Diet:

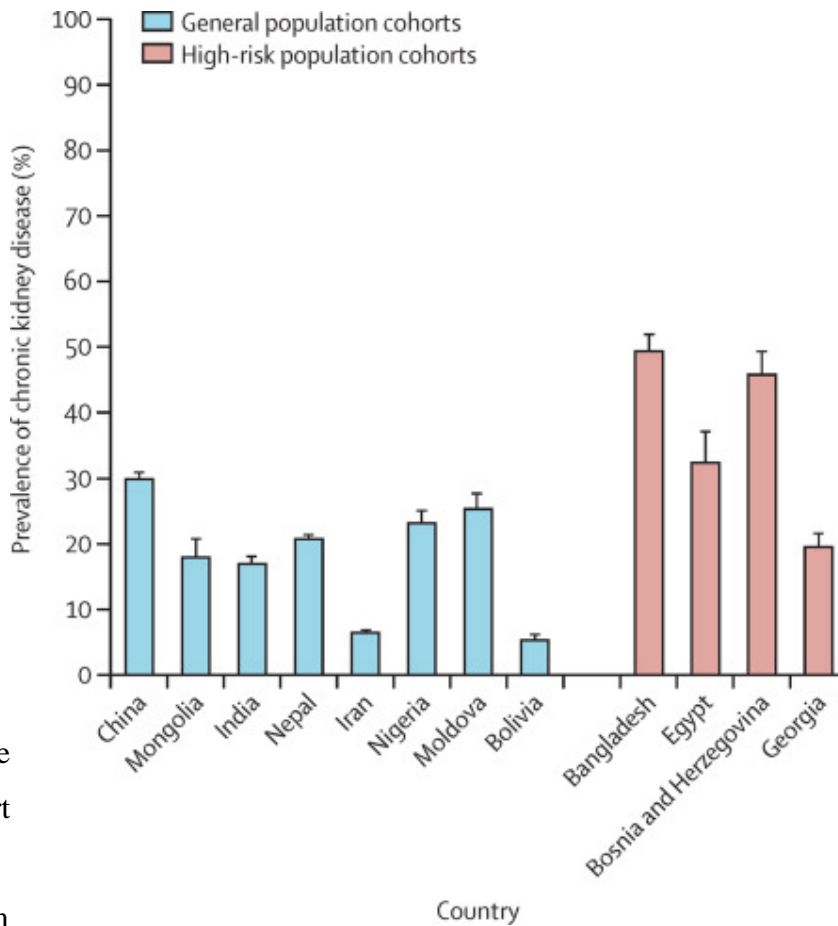
When

can be
in part

system

nutrients may not be excreted as effectively, so you need to limit them in your diet. Some also lose extra protein in the urine and others can develop a decrease in appetite which can lead to protein malnutrition.

Diet plays an important role in patients with end-stage renal disease (ESRD) and a slight increase in any component of diet can make a major difference in pathogenesis of disease. Despite rapid progress in the science and technology of renal replacement therapy (RRT), the mortality rate of patients with ESRD remains high (USRDS, 2006). Dietary interventions are essential in individuals with kidney diseases and nutritional recommendations vary depending on each patient's stage of progression, cause of disease, medications and other treatment methods.



Source:

The Relationship between CKD and

both the kidney function
slowly, nutritional status
greatly affected. This is
due to the fact that the
kidneys are the filtering
in our bodies. Some

During the past few years, the effect of diet in ESRD has been focused on in reasonably small studies. Protein-calorie malnutrition (PCM) is considered one of the most important risk factors among others that adversely affect outcomes in patients. During progression of chronic kidney disease (CKD), the requirements and utilisation of different nutrients change significantly. In addition, the presence of PCM is an important predictor for poor outcomes in these patients (Kopple, 1994). Understanding the applicable nutritional principles and the available methods for improving the nutritional status of these patients is important. These changes ultimately place kidney disease patients at higher risk for PCM. In this review, I try to define the outcome of nutrition on ESRD patients. It focuses on the possible mechanisms that promote or cause poor nutritional status in ESRD patients. The treatment modalities and nutritional status are different depending upon on the risk factors relevant to each patient (Chen, et al. 2009).

1.4 Ideal-diet recommendations:

In the table-2 the nutritional restriction at different stages of CKD is shown which indicates that protein intake restoration gradually increases from stage 1 to stage 5 renal failure.

Table-2: Nutritional restriction and different stages of renal failure:

1.5 Knowledge gap about nutritional information of CKD patients and caregiver:

Unfortunately, it has been observed and reported by many physicians that due to the nutritional knowledge gap in CKD patients and caregiver especially the nurses in both in hospital and out patients department (OPD) the recovery rate of CKD patients affects significantly (Devita, 2011). It is also found in some studies that patients and caregiver’s educational status is also related with the recovery rate in terms of maintaining dietary restrictions. In other words,

Chronic kidney disease	Protein	Energy	Phosphorus	Sodium
Stage 1–3 (GFR >30 mL/min)	No restriction	No restriction	600–800 mg/day	<2 g/day
Stage 3–5 (GFR <30 mL/min)	0.60–0.75 g/kg/day	35 kcal/kg/day	600–800 mg/day	<2 g/day
End-Stage Renal Disease	>1.2 g/kg/day	35 kcal/kg/day	600–800 mg/day	<2 g/day
Hemodialysis	>1.3 g/kg/day	35 kcal/kg/day	600–800 mg/day	<2 g/day
Peritoneal Dialysis	1.0–1.2 g/kg/day	35 kcal/kg/day	600–800 mg/day	<2 g/day
Acute renal failure	1.0–1.2 g/kg/day	35 kcal/kg/day	600–800 mg/day	<2 g/day

maintain the same effectively resulting a quicker recovery. Conversely, patient's with less educational understanding suffers from a clear understanding of nutritional advised given by physicians leading to mismanagement of dietary restriction (Mandayam and Mitch, 2006).

However, presumptive data and speculation by some physicians at the selected hospital argues that the nutritional information and restriction advised by the doctor to the patients of CKD has not been disseminating effective through the healthcare worker (nurses). This problem is being prevalent in many hospitals in the country where CKD patients are being treated. The underling cause of the communication gap is found a two way system which accounts for knowledge gap of the healthcare worker in terms of CKD diet coupled with a lack of enthusiasm to disseminate the dietary advise understandably to the patients and caregiver relatives.

Thus, this study aims to assess the nutritional knowledge of the healthcare professionals at the selected hospital and also measures the level of practice of giving correct nutritional information to the patients and relatives by the hospital nurses. At the same time, this study will also tries to explore different factors that may affect a seamless communication between the nurses and the patients including his/her relatives.

1.6 Significance of the study:

Health worker (nurses) are the important personnel in the health sector. They play a vital role in the treatment of CKD patients. Basically, treatment of CKD patients are prescribed by the doctor but the message/advised regarding the treatment are disseminated trough the health worker especially nurses and ward boys. They have the direct link with the CKD patients. If the health worker have not sufficient knowledge of CKD, dietary management of CKD, method of feeding, frequency of feeding, restrictions of diet, ways of dissemination of treatment related knowledge, the proper treatment/management of CKD patients is not possible. This study tried to evaluate the nutritional knowledge of health worker and the ways of dissemination of the nutrition knowledge to the CKD patients. It also attempted to find-out the amount of nutritional knowledge of CKD patients are provided with by health workers and also the communication gap between the health worker and the CKD patients. This study will significantly add value to the integrated treatment of CKD patients by reducing hospital stay time and overall quicker recovery.

2. LITERATURE REVIEW:

Over the period of time, there are several number of studies regarding the dietary management of CKD but there is no specific study about the nutritional knowledge and its practices among the healthcare worker in the management of Chronic kidney disease. (CKD). Several studies have been found relevant to nutritional management of CKD patients which are given bellow:

The rate of renal failure progression depends on a range of factors, and among them, nutritional status disorders (NSD) have the important prognostic value (USRDS, 2010). The process information dissemination from doctors to patients includes some intermediaries including nurses and clinical dieticians who plays vital role in CKD patients management (Kopple, 1994). It was found that the mortality rate of dialysis patients is inversely related to the amount of protein intake (protein quota), body mass index, and serum albumin in may cases this results from patients ignorance and negligence about protein uptake quantity (Chen, et al. 2009). Uncontrolled intake of nutrients and proteins favors the onset of metabolic and clinical alterations of the uremic status. More specifically, an excess of sodium and water is responsible for the onset of arterial hypertension, edema and heart failure as well as an increase in oxidative stress (Bradbury et al. 2007). In and study .Bradbury et al., claims that patients understanding, motivation and effective communication with dietician improves GFR by 23.23% of among 17 patients in 50 studied cases. In his study he also found significant contribution of dietician in renal diet management.

3. OBJECTIVE:

3.1 General objective:

This exploratory study aims to determine the level of nutrition knowledge of healthcare workers in CKD patients management at the Nephrology department of the selected hospital. At the same time, it will also investigate the approach, appropriateness and practice of dietary information dissemination to the patients of CKD by the healthcare workers (nurses). In addition, it will also explore the factors that positively and negatively

affects the information dissemination process from doctor to nurse to patients / family caregiver in terms of dietary dos and don'ts.

3.2 Specific Objective:

- i) To evaluate the disease specific nutritional knowledge of healthcare worker.
- ii) To analyse the understanding level of CKD patients about dietary restriction.
- iii) To investigate the approach, appropriateness and practice of nutrition knowledge dissemination towards the CKD patients by healthcare workers (nurses).
- iv) To find out the factors that positively and negatively affect the process of nutritional information dissemination as written in the doctors' prescription.

4. METHODOLOGY:

This is an exploratory type research incorporated both quantitative and qualitative measures. However, qualitative measures are found strong significance. The study involves following methods:

4.1 Design

This study is based on primary and secondary data collated by the researcher from doctors, nurses, patients and their relatives or caregiver in close contact with patients and has strong influence on patients' diet. The study to a great extent rely on researcher's own observational data.

4.2 Sampling

Population:

- Nurses and Word Attendants of Nephrology Department (Ward+OPD) of BIRDEM Hospital.
- CKD Patients admitted in Nephrology Ward
- Relatives (direct caregiver to the patients)
- CKD Patients served at OPD Nephrology Department

Techniques:

- Simple Random Sampling (SRS) was employed for interview with Nurses and Word Attendants
- Purposive Sampling was adapted for interview with Patients and their direct caregivers
- A heterogenous group was chosen based on preset criteria and suggestion from the doctors.

Sample Inclusion Criteria:

- In this study, purposive sampling was used for selecting patients or their representatives. Purposive sampling allows a researcher to choose participants to be included in the study based on knowledge of specific characteristics of the sample that would best represent the population (Berg, 2004). This method of sampling also enables a researcher to use their own judgment to select cases that will assist in answering the research question and meet the objectives. The sample selected is usually small but informative in relation to the cases in the study (Neuman, 2000).

Size:

- 08 Nurses and 02 Word Attendants (N=10)
- 06 Male Patients and 6 Female Patients, 2 Male caregiver and 2 Female caregiver (N=16)
- In this study, a total of 10 health worker were sampled. They were chosen based on the length of service delivered to the CKD patients. Than a total of 16 CKD patients / relatives were sampled who received the service by that health worker. All 16 patients has diabetes along with CKD.

4.3 Data Collection Method:

Method:

- Personal Interview

- Observation

Instruments:

- Semistructured Questionnaires

-Two semi-structured questionnaires (appendix I and II) had been developed for the data collection, one for healthcare workers(nurses and ward attendants) of both WARD and OPD of BIRDEM hospital and the another was for the CKD patients or their caregiver relatives. Both the questionnaires were translated into theirnative language (Bangla) to ensure consistency in the way the questions were asked to them. The other questionnaire was administered to the patients whose are under the supervision of that nurses.

4.4 Variables Measured:

Below are the variables that were measured using this questionnaire.

4.4.1 Demographic characteristics: All the health worker and CKD patients were asked about their age, marital status, and educational qualification. The health workers also asked about health related education level.

4.4.2 Personal Medical History: The CKD patients were asked about their blood pressure, blood creatinine, random blood sugar and time of sufferings of CKD. The CKD patients were asked about some of their clinical conditions such as weight, blood pressure, creatinine level and blood sugar level.

4.4.3 Knowledge about Basic Medical term: The health workers were asked about basic medical term such as meaning of CKD, GFR, types of CKD, ways of diagnosis of CKD.

4.4.4 Nutrition Knowledge:The health worker and CKD patients were assessed on their eating patterns and nutrition knowledge respectively. Patients were asked about their general eating patterns and a detailed 24 hour dietary recall. Healthcare workers ad CKD patients were also asked about dietary restriction of different types of food such as protein, carbohydrate, dietary salt, potassium, phosphorus, and calcium and water intake amount.

5. FINDINGS (Healthcare Workers):

Following findings are primarily based of interview data obtained from the Nurses and Word Attendants working in both in Hospital and OPD of Nephrology Department. In the following analysis the observational data by the researcher has also been incorporated.

5.1 Dietary restriction of CKD patients (standard):

Although a CKD diet involves general principles, each patient requires an individualized diet prescription based on the stage of the disease and the patient's weight, symptoms, activity level, other medical problems, and goals. The general diet focuses on limiting fluids; eating a low-protein diet; restricting sodium, potassium, phosphorous, and other electrolytes; and getting enough calories if unintended weight loss is a problem. The expertise of an RD specializing in renal disease is necessary to individualize the diet to each patient's unique medical situation. General guidelines are described below but should not be utilized as a substitute for professional advice.

5.1.1. Calories: The number of calories prescribed is aimed at keeping the patient at a healthy weight, typically between 30 and 35 kcals/kg of body weight. Patients with diabetes or obesity may need a different amount of calories.

5.1.2. Protein: The human body needs protein every day for growth, building muscles, and tissue repair. In patients with wounds, increasing the amount of protein in the diet is routinely recommended. Patients with CKD may need to reduce the amount of protein consumed to avoid a buildup of urea in the body. Protein is usually not restricted until stage 3 or 4 CKD. Recommendations vary, but typically range from 0.6 g/kg–0.75 g/kg of body weight. For comparison, the protein recommendation for healthy adults is 0.8 g/kg of body weight, and that is often increased to 1.2–1.5 g/kg for patients with chronic wounds.

5.1.3. Sodium: High-sodium foods may increase blood pressure and cause fluid retention. High blood pressure is one of the major causes of kidney diseases, so it is important to achieve and maintain blood pressure goals. A combination of medications and dietary intervention usually is prescribed. Patients should be instructed to avoid the following high-sodium foods: salt, bacon, ham, corned beef, pepperoni, sausage, pizza, Chinese food, fast food, pickles, cheese, soy sauce, canned soups, potato chips, and corn chips.

5.1.4. Potassium: Potassium plays a role in keeping a steady heartbeat and proper muscle function. Although healthy kidneys keep the right amount of potassium in the body, patients with CKD may have to limit the amount of potassium in their diet. If potassium levels become too high, the patient may experience weakness, numbness, and tingling; at extreme levels, it can cause an irregular heartbeat or a heart attack. Learning which foods are high and low in potassium is critical. Techniques such as leaching can reduce the amount of potassium in certain vegetables. The following commonly consumed foods are high in potassium: bananas, oranges, orange juice, milk, prunes, prune juice, tomato juice, tomato sauce, nuts, chocolate, and dried peas and beans, and salt substitutes.

5.1.5. Phosphorus: Phosphorus is a mineral found in almost all foods. Normal kidneys will balance the amount of phosphorus in the body. When the kidneys fail to eliminate phosphorus in the urine, phosphorus increases in the blood. Extra phosphorus causes body changes that pull calcium out of the bones, making them weak. High phosphorus and calcium levels also lead to dangerous calcium deposits in blood vessels, lungs, eyes, and heart. This may begin as early as stage 3 CKD. When this occurs, it becomes necessary to limit and/or avoid high-phosphorus foods. In addition to dietary intervention, many patients are prescribed phosphate binders, taken with meals, to bind the phosphorus in the food and eliminate it in the stool. Some high-phosphorus foods to eliminate include: milk (all kinds), beans (red, black, and white), black-eyed peas, lima beans, nuts, chocolate, yogurt, cheese, liver, sardines, colas, and desserts made with milk.

5.1.6. Fluids: In the early stages of CKD, patients usually are allowed to consume normal amounts of fluids. However, this must be individualized based on edema, urine output, and overall condition.

5.1.7. Vitamins and minerals: Vitamin supplements may be prescribed for patients with CKD for a variety of reasons. CKD changes the body's ability to make some vitamins, such as vitamin D. The waste products that build up in the body each day can change the way the body uses vitamins and minerals as can certain medications. It is also possible that by simply following the CKD diet, the patient may miss some vitamins and minerals by eliminating certain foods. CKD patients have greater requirements for some water-soluble vitamins. Special renal vitamins are usually prescribed to patients to provide the extra water soluble vitamins needed. Renal vitamins

contain vitamins B₁, B₂, B₆, B₁₂, folic acid, niacin, pantothenic acid, biotin, and a small dose of vitamin C.⁴ Vitamin C supplements are recommended in a 60–100 mg dose. There is concern that taking high doses of vitamin C can cause a buildup of oxalate, which can be deposited in the bones and soft tissues in patients with CKD.

Table -3: Demographics of Healthcare Worker

Sl	Item	Male Mean	Female Mean
1	Age Male (N=2) Female (N=8)	33.25	31.60
2	Education	Diploma	BSc
3	Specialized Training	Yes	Yes

Mean age of the nurses and word attendants have been given in table-3. Mean education of the workers found, Male respondents have diploma with HSC and Female respondents with HSC followed by BSc in Nursing. However, most of them have received different types of training during the tenure of their employment.

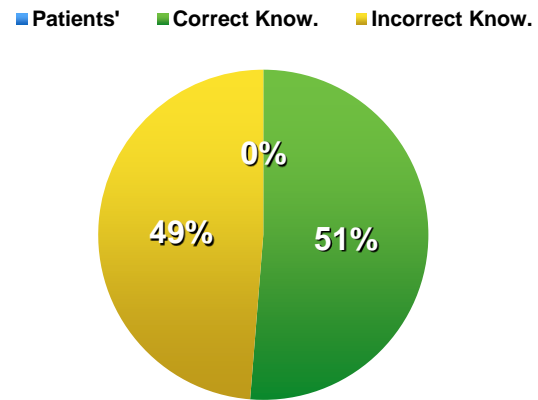
Table-4: Knowledge level (Disease specific) of Nurses

Sl	Description	True	False
1	How many types of CKD exist?	9	1
2	Which Patients need dialysis?	6	4
3	How much water intake day is recommended for CKD Patients litters /day?	7	3
4	Should you restrict dietary salt intake for CKD patients?	9	1
5	Which test is used to diagnosis CKD?	3	7
6	CKD patients should restrict sweet potato, spinach and tomato sauce intake	6	4
7	Do you suggest caloric restriction under the management of an appropriately qualified dietitian?	9	1
8	Do you suggest patients consuming a diet rich in dietary	9	1
9	Do you encourage patients of CKD to under take regular physical exercise?	10	0

5.2.2 Nutritional knowledge:

Table-0.0 represents the disease specific nutritional knowledge of the respondents. It is found that knowledge about CKD patients management especially dietary management is satisfactory among the responders. Most of them have received training and work under a qualified cynical dietician.








However, in some cases it is also revealed that their knowledge about CKD patient management is not precise to serve individual patient specific need. Knowledge about CKD and renal diet is general. In many cases respondents also reported that they feel to undergo more specific professional training to correctly understand about renal diet management.



5.2.3 Knowledge dissemination practice:

Analysis of interview data:

Respondents invariably reported that they usually disseminate nutritional guideline given to the patient by the doctor. This nutritional guideline or diet plan has been made easy to understand for the patients and the direct caregiver. A sample nutritional advise has been given in table-0.0. This particular diet char shows the authority tries to make things easily understandable. It was also reported by many respondents that patients usually give less importance to the supplied documents that describes the dietary restrictions. Patients have tendency to rely more on verbal instruction given to the them by doctors or nurses. Respondents also informed that while CKD patients are being treated in the ward (hospital) there is not much to do with nutritional restriction as the diet usually being supplied from the hospital. Giving a proper guideline to the OPD patients is more important as they are out of controls once the prescription is done. Nurses and word attendants repeatedly argued that for OPD patients of CKD and other renal condition they get less time to communicate exact dietary information which a clinical dietician recommended. On the other hand patients serving time at OPD is also very limed which doesn't allow a nurse to make the patients educate properly about nutritional plan or dietary restrictions.

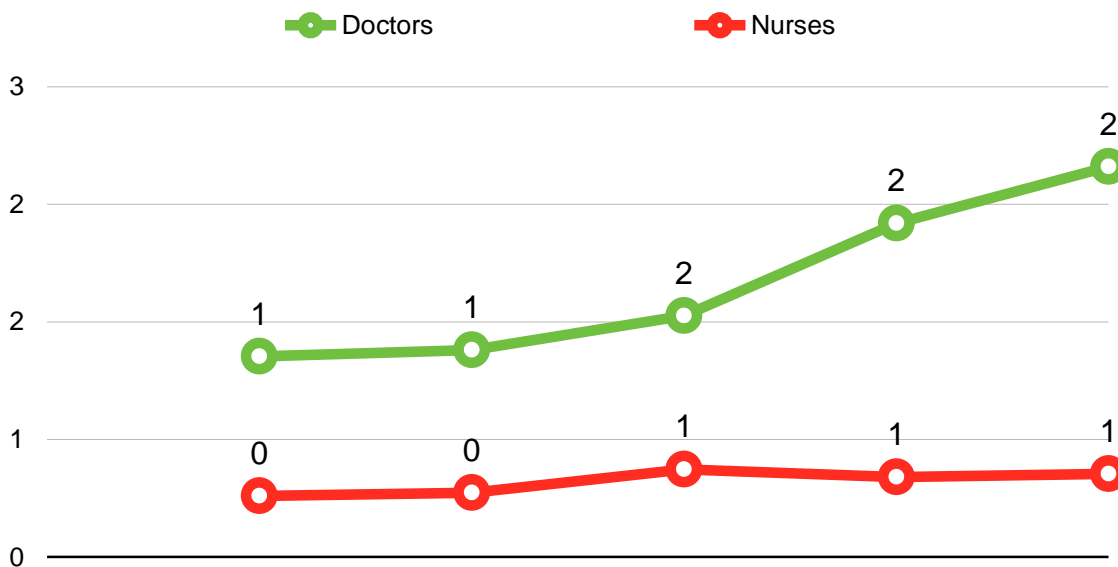
	Fruits and Vegetables	1/2 cup fresh	 tennis ball
	Bread (roti etc.)	2/3 sliced	 size of bread
	Rice and cereals	1/2 cup cooked	 fist
	Chicken, Fish, Meat	3 ounces	 size of a palm
I e i i c r A	Cheese and dairy items (Sweets, Chocolates, Haluwa)	1 ounce	 4 dice stacked
	Potato	1 small (3-ounce) baked potato or 1/2 cup mashed potatoes	 size of potato
	Salads, fresh fruit (apple), salad dressing, lassi, drinks)	1 tea spoon	

It shows how clinical dietetics department of BIR tries to communicate nutrition to the patients with ver, both

It is found that most of the nurses working in the hospital ward do not talk much about dietary restriction as the patients under hospital treatment receives 3 meals from the hospital. This meals are cooked on site and the hospital authority has specific menu and recipe for the patients. A clinical dietician usually intervene occasionally for patients with critical care. However, it is observed that admitted patients in many occasions consumed food brought to them from home. There is not much restriction found in place about outside or home cooked foods in the hospital. Patients with CKD and other disease conditions under critical care usually advised special meal plan which is usually managed by a clinical dietician. CKD patients under critical care receives home cooked food as per the instruction given to the caregiver by the dietician and being monitored by the nurses.

Figure-4: Graphical comparison of patients serving time at OPD by doctors and nurses.

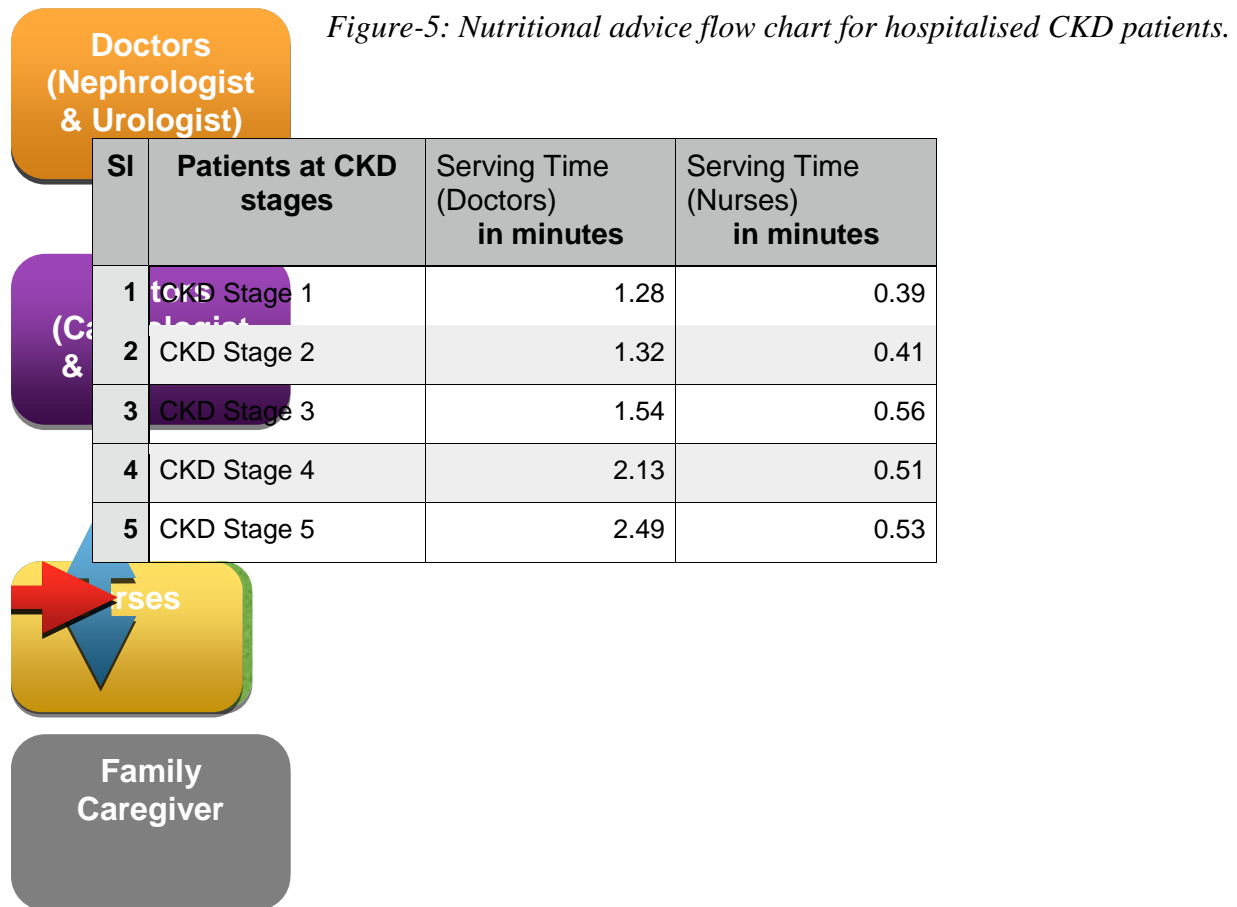
On the other hand OPD patients receives nutritional indigation and advise including dietary restriction initially from the doctors and later from the nurses of OPD. At this point it is observed



that while a potent is being prescribed special renal dietary restriction the nurses disseminate this information to the patents and relatives. However, it is also observed that the time usually spent behind a OPD patient for advising them about nutritional advised given by the physician is less than 60 seconds. table-0.0 shows the comparison of 5 (five) CDK patients serving time at OPD. It is found that patients serving time by doctors with higher CKD stage and other associated

diseases have greater serving time compared to lower stage of CKD and less associated diseases. However, this serving time by the nurses for giving dietary recommendation and other clinical advised is found almost same for all the patients. Observational data conclude that nurses at OPD either not enough motivated to disseminate nutritional advise to the patients in a manner that patients can understand clearly or they do not get enough time to serve the properly due to pressure created by a huge number of patients in waiting line.

Table-5: Comparison of patients serving time at OPD by doctors and nurses.



6. FINDINGS (Patients & Caregiver):

Following findings are primarily based of interview data obtained from the Nurses and Word Attendants working in both in Hospital and OPD of Nephrology Department. In the following analysis the observational data by the researcher has also been incorporated.

6.1 Patients' Demographic Profiles and Clinical Information:

Demographic profile in table-5 shows that the mean age of the respondents was around 50 years. having equal number of male and female patients purposively. Around 75% are married and at least completed HSC. Greater percentage of the CKD patients have been suffering from last 3 years. Mean body weight was found around 85kg which is slightly overweight that standard. Most of the patients were found with multiple complication including diabetes and high blood pressure which common in CKD.

Table-5: Demographic and Clinical Condition

6.2 CKD Patients' nutritional restrictions and practice:

Findings reveals that protein restriction has not been maintained properly where as fat and water intake were maintained in more than 70% patients. Although, caloric restriction was in force but

Sl	Description	Mean	Yes	No
1	Age	53.37		
2	Sex		1/2	1/2
3	Marital status		13	3
4	Education	HSC		
5	Time of sufferings from CKD (in years)	2.78		
6	Body weight (kg)	83.92		
7	Hight (ft)	5.12		
8	Blood pressure (mm Hg) Systolic Diastolic	140.6 90.15		
9	Random Blood Sugar	7.03		
10	Blood Creatinine Level	11.78		

most of them found overweight. In somewhat 80% cases restriction potassium and phosphorus was not managed adequately. The reasons behind this scenario is lack of understanding about the quantity of food they take. Although, repeated instructions have been given patients reported that they do not able to correctly measure the recommended doses.

Table-6: Patients' clinical profile with dietary restriction.

Table-7: A sample of recommended protein intake of CKD (stage-4&5) patients.

Sl	Description	Yes (N=16)	No (N=16)	Mean
1	Do you understand the diet restriction explained by the nurses	11	5	-
2	Which type of CKD you have sufferings from (1-5)	-	-	4
3	Do you need dialysis	13	3	-
4	Frequency of dialysis (per week)	-	-	1.37
5	Should you restrict dietary salt intake?	4	12	-
6	Have you been prescribed any caloric restriction under the management of an appropriately qualified dietitian?	3	12	-
7	Have you been prescribed a diet rich in dietary fiber?	8	5	-
8	Are you encouraged to undertake regular physical exercise	11	4	-
9	How much water do you drink daily?.....litres/day			
10	Have you been advised to minimize the intake of cola beverages to a maximum of one glass(250ml) or less of cola per day	9	6	-
11	Have you been restricted to intake extra salt (table salt):	4	12	-
12	Did you drink cola beverage in last 3 days	11	4	-

Table-8

SI No	Meat	Amount	Fish	Amount
1	Chicken (farm)	2-3 small piece	Big Fish	1-2 medium piece
2	Chicken (local)	1/4 pice	Small Fish	8-10 small piece
3	Beef	4-5 small piece	Hilsha	No
4	Mutton	2-3 small piece	Prawn	2-3 large 5-6 medium
5	Others duck, turkey	2-3 small piece	Others big fish	1-2 medium piece

SI No	Fruites	Amount	Vegetable	Amount
1	Banana	No	Spinach	No
2	Orange	No	Cucumber (small)	1
3	Apple	1	Cauliflower	Yes
4	Grape Small	6-7	Poteto	Less
5	Guava Medium	1	Beans	No
6	Kamranga	No	Other green vegetables	Yes

Table-9: Comparison of dietary intake and dietary allocation of patients (sample).

Meal type	Food eaten	Amount Taken (approximate)	Amount Recommended
Breakfast + Morning Snacks	Carbohydrate Protein Fat Minerals Fluid		
Launch	Carbohydrate Protein Fat Minerals Fluid		
Dinner	Carbohydrate Protein Fat Minerals Fluid		
Snacks in between meal	Carbohydrate Protein Fat Minerals Fluid		

* Hourly recall data (24 hours)

7. CONCLUSION:

CKD is usually irreversible and progressive; if it is not treated, over time it can lead to kidney failure, also called end-stage renal disease (ESRD). Once detected, CKD can be managed through medication and lifestyle changes to slow down the disease progression and to prevent or delay the onset of kidney failure. However, the only treatment options for kidney failure are dialysis or a kidney transplant. For registered dietitians (RDs), some of the most challenging patients are those with CKD, because the lifestyle modification involves teaching the patient multiple dietary changes. CKD patients are primarily exposed to the nurses in terms of nutritional management while being treated at hospital care. Management of nutritional restriction is relatively easier for admitted patients because meals are usually supplied from the hospital dining facilities. Nutritional intake has been monitored on a regular basis and intervention of nurses and staffs ensure limited meal manipulation by the patients and family members.

7.1 Healthcare Professional:

However, nutritional management for CKD patients who receive dialysis at BIRDEM hospital (also considered as OPD) and the patients who receive treatment at OPD is considerably very difficult as the scope of intervention in meal management is impossible. In this study it has been revealed that disease-specific nutritional knowledge of the nurses are moderate. Years of experience and supplement training have given them some advantages to manage dietary restrictions given to the patients admitted in the hospital. Continuous monitoring by the clinical nutritionist is an added advantage for them which limit their personal intervention in the meal management. However, it has been also found that many of the respondents have critical information gap in terms of disease specific dietary prerequisites.

On the other hand, it has also been also been revealed that nurses while working at OPD are somewhat reluctant about disseminating nutritional advices in a precise or understandable manner to the patients. This in turn exert a negative impact on the overall heal welding of the CKD patients treated at OPD. Although, the department have developed different types of takeaway information materials such as food chart. Visual representation of restricted and unrestricted food items etc. but many uneducated CKD patients seems hardly understand these information pack provided with prescription. It is found that most of the patients studied under the research have multiple complication such as CKD with diabetes and high blood pressure etc.

In such complex clinical condition appropriate nutritional management is a real challenge. Cooperation between patients, caregiver and nurses (who advise the patients) plays a vital role in disease condition improvement. Undoubtedly, patients with relatively lesser educational qualification understand less about the advise given to them. This found a critical challenge for the nurses and doctors to deal with.

7.2 CKD patients and caregiver:

However, iterating facts have been reviled while the patients are examined in terms nutritional restriction and meal plan. More than 50% patients do not understand exactly what to eat and what not. The amount set by the physician and advised by the nurses are hardly maintained. Patients and caregiver mostly use their own assumption while the select of amount food intake even they have reported that they understood the advices. Although, fluid intake remains satisfactory but intake of carbohydrate and protein are found unmatched with the prescription. OPD patients are who are under treatment for more than 3 months are found in significant meal mismanagement. Around 70% OPD patients did not correctly answered about the nutritional restriction given to them. Patients and caregiver expressed that they were advised a hurry by the nurses or they have not understand different terms used by the healthcare professionals. Observational data also support the fact that information about meal management given by the nurses at OPD and OPD Dialysis unit are not precisely disseminated. This leaves a room for misunderstanding leading to unmatched dietary intake especially protein and minerals.

8.0 RECOMMENDATIONS:

The following are the recommendations being made based on the findings from the study:

1. Nurses and ward attendants need disease specific truing for patients' nutritional management.
2. Clinical nutrition department needs effective monitoring system in place and practice needs to ensure at every stages.
3. It is suggested that the information pack given to the patients about nutrition management along with prescription needs to be modified in a manner that is easily understandable. More pictorial demonstration of food restriction needs to be incorporated.

4. Effectiveness of information dissemination at OPD by the nurses needs to improved with periodic intervention of the doctors and clinical nutritionists. Service time for CKD patients by the nurses needs to increased too.
5. It needs to be ensured that patients of CKD and their direct caregiver needs more motivation for dietary management. One to one or group counselling needs to be implemented at OPD.

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