

Dietary and Fluid Restriction Behavior among admitted Patients with Chronic Kidney Disease in Bangladesh

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Abstract:

Background: Chronic Kidney Disease (CKD) is a global threat to health in general and for developing countries in particular, because therapy is expensive and life-long. Dietary and fluid regimen for CKD patients is complicated and identifying characteristics and reasons of those most likely to experience difficulty in adhering to dietary restrictions is important. **Objective:** The objective of this study was to find out the pattern of the dietary and fluid restriction behavior among admitted patients with chronic kidney disease in Bangladesh. **Methods:** The descriptive study design was conducted among 100 admitted patient from NIKDU, Dhaka, by using purposive sampling technique. Data was collected by self-administered questionnaires. (1) Demographic Data Assessment Questionnaire, (2) Fluid restricted and (3) Diet Restriction Related Questionnaire. Pearson's correlation (r), T-Test (t) and ANOVA was used for data analysis. **Results:** The mean score of fluid restriction behavior is 2.04 ± 0.32 and diet restriction behavior is $2.28 (\pm 0.41)$. A significant relationship between fluid restriction behavior with age ($p = .018$) and Nutritional education ($p = .01$). There is also another significant relationship between diet restriction behavior and nutritional education ($p = .006$). **Conclusion:** Patients with Chronic Kidney Disease who have behavior with age and nutritional education, showed significantly higher fluid and diet restrictions behavior. Hospital can considered those characteristics to guide Patients with Chronic Kidney Disease by nurses.

Keywords: Fluid restriction, Awareness, Diet restriction, Chronic kidney disease

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I. Introduction

Chronic Kidney Disease (CKD) is a slow, progressive irreversible deterioration in renal function and the prevalence is estimated at 8-16% around the worldwide (Jha, Garcia-Garcia, Iseki, & Li, 2013). In the United States of America, 30 million people suffering from chronic kidney disease. Kidney disease is the ninth leading cause of death in the United States. Approximately 19 million United States adults have chronic kidney disease, and an estimated 80,000 persons have chronic kidney failure diagnosed annually is a global threat to health in general and for developing countries in particular, because therapy is expensive and life-long. Over 1 million people worldwide are alive on dialysis or with a functioning graft (Kidney Disease Statistics for the United States, 2016).

Chronic kidney disease is rapidly growing disease in Bangladesh. Results of the study conducted by Jabur, 2016, also demonstrated that most of the CKD patients had type 1 diabetes (39.02%) and type 2 diabetes (41.46%) mellitus. Only 5% of the CKD patients had undergone nephro -surgery. Around 24.30% of the CKD patients had hypertension (Jabur, 2016).

Preventing progression from earlier stages of CKD to end-stage of kidney disease and minimizing the risk for cardiovascular events and other complications is central to the management of CKD. Patients' active participation in their own care is critical, but may be limited by their lack of awareness and understanding of CKD (Lopez-Vargas, P. A., Tong, A., Howell, M., & Craig, J. C. (2016). Dietary counseling and nutritional interventions are essential components in the management of CKD patients, including those who receive dialysis therapy. Poor diet can have serious consequences for patients, including impaired physical abilities, depression, acute pulmonary edema, congestive heart failure, and death. A poor dietary habit is associated with low quality of life, morbidity and mortality of patients on dialysis. Further, malnutrition and inflammation increase cardiovascular risk and mortality in patients on hemodialysis. Both dietitians and nephrologists often impose a number of dietary restrictions on their patients related to dietary phosphorus, potassium, sodium, fluid

intake, and macronutrients including carbohydrate and fat. Dietitians also emphasize the importance of high dietary protein intake in dialysis patients, while they may also recommend weight loss efforts in patients with morbid obesity (Streja et al., 2011).

Fluid restriction is considered the most difficult to accomplish and this remains a major clinical problem in individuals with CKD (Lindberg, 2010). Contributing to severe complications include intradialytic cramping and hypotensive episodes, treatment related fatigue and dizziness, lower extremity oedema, ascites, left ventricular hypertrophy and congestive heart failure, hypertension, shortness of breath, and pulmonary vascular congestion or acute pulmonary oedema (Lindberg, 2010, Machek et al., 2009).

CKD impairs the proper function of kidney for removal of waste substances from the body. Due to CKD a person's diet must be changed to the maximum of the remaining normal kidney function (Castren, 2017). In the early stage of kidney disease for normal functioning of the kidneys restriction of dietary protein, sodium, phosphate, potassium and fluid can be helpful for the patient. Fluid and dietary management like as restriction of sodium intake is important to reduce kidney disease, more sodium in the diet can cause kidney disease more quickly (Castren, 2017 as cited from Sachs- Svetkey-Vollmer 2001; Scottish Intercollegiate Guidelines Network 2008). In the early stage of the disease dietary protein restriction is not required and could even result in a decline in the patient's nutritional status and overall fitness, but can be implemented in later stages of the disease. In the progression of the kidney disease and kidney declines function and the nutritional status typically deteriorates (Castren, 2017 as cited from Scottish Intercollegiate Guidelines Network 2008).

The dietary restriction is also vital to maintain optimal health for the chronic renal failure (CRF) patients, because certain substances present in the foods and drinks, when taken in excess, damaged kidney may not be able to remove the waste, which are harmful to the body. So avoid the foods and drinks which containing those substances. Dietary protein restriction represents an important new development in treatment of chronic renal disease for the last 10 years (Agarwal & Srivastava, 2009). Dietary restrictions also prevent other opportunistic diseases such as hyperkalemia and hyperphosphatemia that are common in patients with chronic kidney disease. The key factors of maintaining quality of life weight management along with increased physical activity are key factors (Castren, 2017 as cited from National Institute for Health and Care Excellence 2008).

However, CKD is a progressive disease that cannot be reversed and can lead to kidney failure or end-stage renal disease (ESRD) if it is not detected and treated early (Centers for Disease Control and Prevention [CDC], 2012). Because of its chronic nature and potentially serious complications, individuals suffering from CKD experience poor quality of life, financial burden, and significant life changes affect their families (Nagelkerk, Reick, & Meengs, 2006). CKD require dialysis or transplant at younger ages than any other group. These disparities in incidence and prevalence have been proven to be a function of high levels of CKD risk factors in African Americans, including diabetes, hypertension, and obesity (Bruce, et. al, 2010). CKD patients face a complex treatment regimen and many of them have difficulty to manage fluid and diet restrictions, which is associated with high risk of mortality and the increase of health care budgets. Nephrology nurses help patients with CKD to manage their treatment, advising them about self-care measures related to changes in their health. To understand how patients, deal with treatment and what are the most effective self-care measures to manage fluid and diet restrictions in renal patients under HD, can contribute to a better nursing advice. This study aims to describe the fluid and dietary restriction behavior among admitted patients with chronic kidney disease in Bangladesh.

General Objective:

To describe the fluid and dietary restriction behavior among admitted patients with chronic kidney disease.

Specific Objectives:

To describe socio-demographic characteristics among patients with chronic kidney disease.

To assess fluid and dietary restriction behavior among patients with chronic kidney disease.

To examine the relationship between socio-demographic characteristics of fluid and dietary restriction behavior among patients with chronic kidney disease.

II. Material and Methods

1. Study design:

An exploratory study design was used to describe the socio-demographic characteristics and fluid and dietary restriction behavior among CKD patients in Bangladesh. The study was conducted from July 2018 to June 2019 at the National Institute of Kidney Diseases and Urology Hospital (NIKDU), Dhaka, Bangladesh.

2. Study participants:

The target population in this study was patients with CKD who visited the in-patient department at the National Institute of Kidney Diseases and Urology Hospital (NIKDU), Dhaka, Bangladesh. The NIKDU is the

only one specialized tertiary care hospital in Bangladesh for treatment of all types of kidney patients. The hospital was established in 2001. The hospital has two parts: academic and clinical services. On the clinical part there are treated and managed all Acute and chronic kidney diseases, Renal stone diseases, Obstructive uropathy and Genito-urinary malignancies are the major diseases and all forms of renal replacement therapy including kidney transplantation. The NIKDU has 150 beds for inpatient department, and also OPD treatment facilities. A large number of patients came to the hospital to the OPD and dialysis center. On the academic part it provides postgraduate courses like MD (Nephrology), MS (Urology), and conducting a number of community based research works for early detection and prevention of kidney diseases. In the year 2017, a total of 5636 CKD patients were admitted at this hospital (Health Bulletin, 2018). Sample size was estimated by using G Power analysis. The estimated sample size calculated for an acceptable medium level of significant (α) 0.05 and acceptable power of 0.90 (1- β) and effect size 0.3 (Y). The sample size was 106 with 20% attrition rate. Due to missing data 6 data was cleaned. Finally, the sample size was 100.

3. Instruments:

Based on the literature review questionnaire was developed by researcher. The data collection instrument that was employed in this study was consisted of two self-administered questionnaires.

Part I: Socio-Demographic Data Assessment Questionnaire (DDAQ)

Part II: Fluid and Diet Restriction Related Questionnaire (FDRRQ)

Part - I: Socio-Demographic Data Assessment Questionnaire (DDAQ) – Consist of 13 (thirteen) items. Such as (Age; Gender; Religion; Marital status; Educational Background; Employment status; Number of Family member; Monthly family income; BMI; Years of treatment for CKD in Months; Smoking history; Co-morbidity history and Nutritional education.

Part - II: Fluid restricted Related Questionnaire (FRRQ): This question comprises on 30 items related to fluid restriction and 19 items related to dietary restriction behavior related questionnaire. Questionnaires were 5-point Likert scale: 1= almost Never do it (Zero days per week), 2= rarely do it (once in a week), 3= Sometimes do it (2-3 times in a week), 4= moderately do it (4-6 times in a week), 5= All most always do it (7 days a week). Fluid related items, such as avoid eating spicy food, avoid foods with plenty of water, avoid to exceed the amount of liquid daily allowed, avoid eat thick soup, reduce soup consumption, drinking only half a glass or cup half, avoid drink cold liquids, drink only at meals, distributing the allowed volume of fluids day along, use small glass or cup to drink, gargle with water without swallowing, fill a bottle with the allowed liquid volume for the whole day, estimate the amount of fluid you can drink daily, eat a piece of fruit to reduce thirst, control the fluid amount by symptoms, sucking lemon slice, rinse the mouth with warm water, drinking warm water, adjust the amount of liquid according diuresis, record the amount of daily fluid intake, avoid instant food, avoid ketchup, avoid fast food, avoid pre-prepared sauces, avoid salt at the table, reduce salt when cooking, avoid sausage/smoked food, use unsalted butter or margarine, check the amount of salt on product labels. Diet related items, such as- avoid dried fruits, avoid cooking vegetables or potatoes using microwave or pressure cooker, avoid pulses, avoid food with contain potassium, avoid eating more than two pieces of fruit per day, peel the potatoes before baking, reduce the consumption of raw vegetables, reduce the consumption of pulse, Avoid eating more than one piece of raw fruit per day, eat rice or pasta, cook vegetables and potatoes twice, reducing the consumption of bread and toasts etc.

4. Data collection:

Data was collected after obtaining approval from the Institutional Review Board (IRB) of National Institute of Advanced Nursing Education and Research (NIANER), Mugda, Dhaka, the Institutional Review Board (IRB) of Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh (IRB approval (IRB No.EXP.NIA-S 2018-46) and permission was received from the Director and Nursing Superintendent of selected specialized hospital in Dhaka, Bangladesh. The researcher highly considered about the human rights of the participants of this study. The researcher explains the purpose of the study, the procedure, the possible benefits, and risks of the study to the participants. The researcher informed the participants that they had right to choose whether they were willing to participate or not and that they can withdraw from the research at any time after consenting to participate in the study. The researcher explained all the instruments in Bangla language. If the agreement to participate was approved verbally, they have further asked to sign the informed consent form and return it to the researcher. Subjects' autonomy and confidentiality was strictly maintained and participation was voluntary. The anonymity of participants was strictly maintained.

The researcher read the questionnaire to subjects, explain details repeatedly until the subject understood, and ensured time that was appropriate for each subject to answer the questionnaire. Then the researcher checked the questionnaires to ensure that it was completed properly.

5. Data Analysis

The collected data were processed using SPSS 23 version for analysis including descriptive statistics and inferential statistics. Descriptive statistics consisting of frequency, percentage, range, mean, and standard deviation were used to analyze the subjects' socio-demographic characteristics, fluid and dietary restrictions. Inferential statistics were used to find out the relationship between socio-demographic and fluid restriction & dietary restriction among CKD patients. Data were analyzed by using independent t test (t), correlation (r), and ANOVA (F). A significance level of $p < 0.05$ was considered as a statistically significant.

III. Result

The descriptive study was designed to explore fluid and dietary restriction behavior among admitted patients with chronic kidney disease. The subjects in this study consisted of one hundred CKD patients who were admitted in the inpatient department at the NIKDU and met the inclusion criteria. The results and discussion of this study are presented under the following headings:

Distribution of socio demographic characteristics:

This table showed the distribution of socio-demographic characteristics of the participants. The average age was 44.20 ± 13.04 years with an age range from 20-60 years. 61.0% were male, 95.0% were Islam among the participants 88% were married. For the educational background of the participant, 38.0% were illiterate and only 1% was post-graduate. Among participants, 54% of participants were unemployed and 74% of participants who had family member 5 or more. An annual income of family ranges from 12000-35000 taka and mean was 22710 takas. Maximum participants were normal BMI (59%) with the mean of 24 and pattern of treatment range were 36% in month. More than 50% of participants were smoker. Whereas more than participants' comorbidity history was absent. Only 11% of respondents had received nutritional education.

Table no 1: Distributions Socio-Demographic characteristics among CKD Patients (N=100)

Variables	n(%)	M(SD)
Age		44.20±13.04
Gender	Male	61(61)
	Female	39(39)
Religion	Islam	95(95)
	Hindu	05(05)
Marital status	Single	12 (12)
	Married	88 (88)
	Illiterate	38(38)
Educational Background	High School	34(34)
	Under Graduate	27(27)
	Post Graduate	01(01)
Employment status	Un-employed	54(54)
	Employed	46(46)
Number of Family member	≤4	26(26)
	≥5	74(74)
Monthly family income	≤23000	50(50)
	≥ 250000	50(50)
BMI		24 ±13.00
BMI	Under Weight	03(03)
	Normal	59(59)
	Over Weight	38(38)
Years of treatment for CKD in Months	≤9	31(31)
	10-14	36(36)
	≥15	33(33)
Smoking history	Smoker	51(51)
	Non-Smoker	49(49)
Co-morbidity history	Absent	59(59)
	Hypertension	39(39)
Nutritional education	DM	02(02)
	Yes	11(11)
	No	89(89)

Distribution of fluid restriction behavior related characteristics:

This table shows the mean scores of fluid restriction behavior related characteristics. The mean score of fluid restriction related behavior among the participants was 2.04. The most common behavior of fluid restriction related actions were: drinking warm water (3.32); use unsalted butter or margarine (3.25) and rinse the mouth with warm water (3.16). Among the frequent measures we found: avoid eating spicy food (1.29); record the amount of daily fluid intake (1.24) and check the amount of salt on product labels (1.23)

Table 2: Distribution of Fluid Restriction Behavior Related characteristics(N=100)

Variables	Almost Never do it	rarely do it	Sometimes do it	moderately do it	All most always do it	M(SD)
	n(%)	n(%)	n(%)	n(%)	n(%)	
Avoid eating spicy food	72	27	01	--	--	1.29 (±.47)
Avoid foods with plenty of water	57	37	06	--	--	1.49(±.61)
Avoid to exceed the amount of liquid daily allowed	19	22	26	29	04	2.77(±1.17)
Eat thick soup	04	09	73	11	03	3.00(±.69)
Reduce soup consumption	10	12	71	07	--	2.75(±.73)
Drinking only half a glass or cup half	27	47	23	03	--	2.02(±.79)
Drink cold liquids	05	09	75	11	--	2.92(±.63)
Drink only at meals	29	61	08	02	--	1.85(±.73)
Distributing the allowed volume of fluids day along	42	52	06	--	--	1.64(±.59)
Use small glass or cup to drink	29	48	21	02	--	1.96(±.76)
Gargle with water without swallowing	11	15	64	09	01	2.74(±.81)
Fill a bottle with the allowed liquid volume for the whole day	50	42	07	01	--	1.59(±.66)
Estimate the amount of fluid you can drink daily	54	43	03	--	--	1.49(±.55)
Eat a piece of fruit to reduce thirst	11	22	55	12	--	2.68(±.82)
Control the fluid amount by symptoms	53	41	06	--	--	1.53(±.61)
Sucking lemon slice	07	18	63	12	--	2.80(±.73)
Rinse the mouth with warm water	07	04	58	03	--	3.16(±.83)
Drinking warm water	06	04	43	46	01	3.32(±.82)
Adjust the amount of liquid according diuresis	75	24	01	--	--	1.34(±.06)
Record the amount of daily fluid intake	76	24	--	--	--	1.24(±.42)
Avoid instant food	64	33	03	--	--	1.39(±.54)
Avoid ketchup	32	50	18	--	--	1.86(±.69)
Avoid fast food	37	19	41	02	01	2.11(±.97)
Avoid pre-prepared sauces	57	39	04	--	--	1.47(±.57)
Avoid salt at the table	65	33	02	--	--	1.37(±.52)
Reduce salt when cooking	59	41	--	--	--	1.41(±.49)
Avoid sausage/smoked food	43	50	05	02	--	1.68(±.75)
Avoid using meat or fish broth to cook	47	36	09	08	--	1.78(±.91)
Use unsalted butter or margarine	13	09	19	58	01	3.25(±1.08)
Check the amount of salt on product labels	82	15	01	02	--	1.23(±.56)
Total						2.04(±.32)

Distribution of dietary restriction behavior:

This table present the mean scores to measures of the dietary restrictions behavior. The mean score of dietary restriction related behavior characteristics was of 2.58. The most common measures of dietary restriction behavior related characteristics actions were: Cook vegetables and potatoes twice (3.62); reduce the consumption of raw vegetables (3.30), Avoid pulses (2.92) and reduce salt when cooking (2.63). Among the frequent measures we found: Avoid food with high containing potassium (1.37); avoid eating more than two pieces of fruit per day (1.48) and reducing the consumption of bread and toasts (1.43)

Table 3: Distribution of Dietary Restriction Behavior Related Characteristics(N=100)

Variables	Almost Never do it	rarely do it	Sometimes do it	moderately do it	All most always do it	M(SD)
	n(%)	n(%)	n(%)	n(%)	n(%)	
Avoid dried fruits	33	47	19	01	--	1.88(±.74)
Avoid cooking vegetables or potatoes using pressure cooker	20	47	23	09	01	2.24(±.91)
Avoid pulses	17	25	14	37	07	2.92(±1.26)

Variables	Almost Never do it	rarely do it	Sometimes do it	moderately do it	All most always do it	M(SD)
	n(%)	n(%)	n(%)	n(%)	n(%)	
Avoid food with high containing potassium	70	26	02	01	01	1.37(±.67)
Avoid eating more than two piece of fruit per day	58	37	04	01	--	1.48(±.62)
Peel the potatoes before baking	37	47	09	07	--	1.86(±.85)
Reduce the consumption of raw vegetables	16	05	13	65	01	3.30(±1.14)
Reduce salt when cooking	17	14	58	11	--	2.63(±.89)
Avoid sausage/smoked food	16	10	67	07	--	2.01(±.74)
Soaking potatoes and vegetables before cooking	14	21	55	08	02	2.52(±1.06)
Cook vegetables and potatoes twice	25	51	22	02	--	3.62(±1.00)
Eating baked fruit	11	55	09	21	04	3.72(±.86)
Avoid eating viscera	24	68	08	--	--	1.84(±.54)
Avoid oilseeds and wholegrain products	43	50	07	--	--	1.64(±.61)
Avoid milk flour	58	38	04	--	--	1.46(±.57)
Avoid chocolate/cocoa	12	25	63	--	--	2.51(±.70)
Eat small amounts of meat or fish with meals	35	53	10	02	--	1.79(±.70)
Reducing the consumption of milk products	44	53	03	--	--	1.59(±.55)
Reducing the consumption of bread and toasts	58	41	01	--	--	1.43(±.51)
Total						2.28(±.41)

Distribution of the relationship between demographic characteristic and fluid and dietary restriction behavior related characteristics:

This table showed the relationship between demographic characteristic and fluid and dietary restriction behavior related characteristics. Those who had age trend to have higher management of fluid restriction related characteristics compared to measures to control fluid intake($r=.23$), they were statistically different ($p=.03$). Those who have received nutritional education trend to have significantly more measures to control fluid intake compared to those who did not receive ($t=2.72$), but there was highly statistically significant ($p=.004$). Other variables had no significant relationship.

Table 4: Relationship between Socio-Demographic Characteristic and Fluid and Diet Restriction Behavior Related characteristics (N=100).

Variables	Fluid restriction		Dietary restriction	
	M±SD	t/F/r(p)	M±SD	t/F/r(p)
Age		.23(.018)		.13(.18)
20-40	1.96 ±.33		2.23 ±.41	
40-60	2.10 ±.31	-2.17(.03)	2.31 ±.42	-928(.35)
Gender				
Male	2.05 ±.34		2.26 (.45)	
Female	2.04 ±.29	-.167(.86)	2.31 (.36)	-.561 (.57)
Religion				
Islam	2.05±.31		2.28±.41	
Hindu	1.91±.53	.587(.58)	2.24±.55	-.152(.88)
Marital status				
Single	1.88±.35		2.12±.46	
Married	2.07±.31	1.75(.10)	2.30±.40	.125(.23)
Educational Background				
Primary/ bellow	2.11±.05	.94(.44)	2.35±.43	1.14(.34)
Under Graduate	2.03±.07		2.29±.38	
Employment status				
Un-employed	2.05±.30	.361(.71)	2.31±.41	.689(.49)
Employed	2.03±.35		2.25±.42	
Family member				
≤4	1.96±.32		2.22±.40	
≥5	2.07±.32	-1.60(.11)	2.30±.42	.773(.44)
Income				
≤25000	2.04±.31	.61(.54)	2.28±.38	.37(.71)
≥ 25000	2.06±.38	.256(.80)	2.25±.52	-.201(.84)
BMI				
≤23	2.08±.32	.11(.27)	2.26±.41	.00(.95)
≥23	1.99±.33	-.132(.18)	2.29±.42	-.314(.75)
≤9	1.96±.36		2.27±.48	
Years of treatment for CKD in Months				
10-14	2.09±.29		2.32±.33	
≥15	2.08±.31	1.6(.20)	2.23±.43	.41(.66)
Non-Smoker	2.07±.29		2.32±.33	
Co-morbidity history				
Absent	2.23±.35	.85(.19)	2.36±.21	.65(.23)

	Hypertension	2.35±.41		2.31±.25	
	DM	2.21±.52		2.38±.35	
Nutritional education	Yes	2.25±.26	2.72(.01)	2.49±.21	3.04(.006)
	No	2.02±.32		2.25±.26	

IV. Discussion:

The aim of this study was to describe the fluid and dietary restriction behavior among admitted patients with chronic kidney disease in Bangladesh patients were male. This study focused on describing the socio-demographic characteristics, fluid and dietary restrictions behavior among admitted patients with CKD in Bangladesh are presented are as follows:

Socio-demographic characteristics

Among the socio-demographic characteristics of the participants one hundred CKD patients were recruited in this study. The average age was 44.20 ±13.04 years with an age range from 20-60 years. This was nearly similar to the studies conducted by BeerendraKumar, N., Ramamoorthy, L., & Haridasan, S. (2018) in South India and Rashid, H., U., 2014, at the ESRD in Bangladesh (Beerendra Kumar, N., Ramamoorthy, L., & Haridasan, S. (2018); Rashid, H., U., (2014). The findings are nearly similar by Chironda and Bhengu, 2016 where the mean age of CKD patients was 45.6 years, and the age range was 21 to 61 years, and the male participants was 58.89% (Chironda and Bhengu,2016). It may be the reason the country situation are same. Most (61.0%) of the participants were male. It was nearly similar result found among the study conducted by Beerendrakumar et al. (2018). They found that 73% was male. Most (95.0%) of the were muslim among the participants 88% were married. For the educational background of the participant, 38.0% were illiterate and only 1% was post-graduate. *More than 54%* of the participants were unemployed. It was nearly similar to the study conducted by Beerendrakumar, et al. (2018). Annual income of family ranges from 12000-35000 taka and mean was 22710 takas. Financial status effect on patients treatment cost. Need to support for the treatment. Maximum participants were normal BMI (59%) with the mean of 24 and pattern of treatment range were 36% in month. More than 50% of participants were smoker and only 1% of the respondents was consumed alcohol. Whereas more than participants' comorbidity history was absent. Only 11% of respondents had received nutritional education.

Fluid Resrestriction Behavior

Among the fluidrestriction behavior participants avoid eating spicy food; record the amount of daily fluid intake and check the amount of salt on product labels. The measures most commonly used to control fluid intake are restrictive, revealing a strong adaptive effort of patients. The mean score of fluid restriction related behavior among the participants was 2.04. This is nearly same as the study conducted by Beerappa& Chandrababu (2019) among the patients undergoing hemodialysis on a adherence to dietary and fluid restrictions (Beerappa& Chandrababu (2019). Patients seem to be aware of the importance of avoiding spicy foods and candy, conditions that cause thirst. They also seem to respect the need to not exceed the daily amount of fluids allowed, attentive to use unsalted butter or margarine, rinse the mouth with warm water and to reduce soup consumption. Weight control, estimate the amount of fluid daily intake and adjust the fluid intake according to diuresis, they were less used measures, perhaps because they are complex and impractical actions. Sucking ice temporarily relieves thirst, but may increase the water intake if used very often (Cristovao, 2015).

Restrictive measures prevail among actions to reduce salt, stressing the limitations imposed by disease and by treatment. It is possible that patients are avoiding Asian food and fast food due to nutritional habits of Portuguese elderly people. High scores regarding avoid salt at table and when cooking, and avoiding smoked and salty food, suggest that patients are aware and make some effort to prevent thirst. Patients may also rarely check the salt content on labels due to visual problems, due to poor food diversification, or because labels do not always provide clear information. These results suggest that subjects perceive the importance of salt restriction to reduce thirst (Cristovao, 2015), Tomson, 2001&Porcu et al., 2007).

Dietary Restriction Behavior Related Characteristics

The mean score of dietary restriction was 2.58. The most common dietary restriction related actions were: Cook vegetables and potatoes twice; reduce the consumption of raw vegetables, avoid pulses and Reduce salt when cooking. Among the frequent measures we found: Avoid food with high containing potassium; avoid eating more than two piece of fruit per day and reducing the consumption of bread and toasts. In order to reduce potassium from diet, patients can avoid dried fruits so often because they are mainly consumed during festive seasons. Patients show their commitment to restrict potassium in the diet when implementing so often those restrictive measures. However, it seems they follow less often recommendations as vegetables and potatoes twice and reduce the consumption of raw vegetables. It is possible that those are impractical measures. Patients also can eat more bread and milk, because they are common and inexpensive food, and being well tolerated by

people. Eat less meat or fish meal may be due to the weak economic power of elderly people. Oilseeds consumption also can be less common because it is mainly consumed (Cristovao, 2015).

Dietary restriction in CKD forms part of the management of the condition and its goal is to minimize uremic and anemia symptoms, reduce the incidence of fluid, electrolyte and acid base imbalances, decrease patient's vulnerability to infections and limit catabolism (Morton & Fontaine, 2009). Yet diet plays a pivotal role in the effective management of CKD as it lowers morbidity, improve survival and clinical outcomes (Carman, Adams et al., 2013)

As mentioned by Fitzsimons, "the sensation of thirst is basic to our very existence. Its gratification is universally held to be one of the pleasures of life; it cannot be ignored, and if water be lacking, the sensation comes to dominate our thoughts and behavior". So, fighting against this vital instinct might be really arduous and stressful. In our sample, younger participants and the ones with higher BMI > 23 kg/m² perceived even more difficult to control fluid intake. It was found that Dialysis Thirst Inventory score was directly correlated with BMI and inversely with age (Bellomo, Coccetta, Pasticci, Rossi & Selvi, 2015). In this study, those who have 40 years or more, they can't management of fluid restriction behavior compare to dietary restriction behavior. They require nutritional education as well.

The present study revealed that, most of participants had poor nutrition knowledge. Although only 11 % of the participants had basic nutrition education from different hospital setting and majority didn't have. That's why current study found gaps in their nutrition-related knowledge. The knowledge level of healthcare workers was found to be higher (Adeline E. Monomial author, Beatrice W. Mugendi, Onesmo A. Kisanga and George O. Otieno, 2015) due to the nutrition education received and higher level of professionalism in the application of their knowledge.

V. Conclusion

The exploratory study design was used to explore the pattern of the dietary and fluid restriction behavior among admitted patients with chronic kidney disease in Bangladesh. For the relationship between demographic characteristic and management of fluid and dietary restriction behavior related characteristics intake among admitted patients with CKD who had age trend to have higher management of fluid restriction related characteristics compared to measures to control fluid intake ($r=.23$), they were statistically different ($p=.03$) and who have received nutritional education trend to have significantly more measures to control fluid intake compared to those who did not receive ($t=2.72$), but there was highly statistically significant ($p=.004$). Other variables had no significant relationship.

For the Relationship between Demographic characteristic and total Fluid and Dietary Restriction Related behavior of participants who had age trend to have higher behavior ($r=.19$), they were statistically different ($p=.05$) and who have received nutritional education trend to have significantly more behavior about fluid and diet restriction ($t=2.27$), but there was highly statistically significant ($p=.03$).

This study explored statistically significance between demographic characteristic and management of fluid and dietary restriction related characteristics intake among admitted patients with CKD who have had higher age and nutritional education, showed significantly higher fluid and diet restrictions behavior. Hospital can consider those characteristics to guide Patients with Chronic Kidney Disease.

Limitations of the Study:

The study was conducted in only specialized hospital in Dhaka city which doesn't represent the whole characteristics of patients with CKD in Bangladesh.

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