Analytical Studies on Chronic Kidney Disease and Associated Lifestyle Risk Factors among the Patients of Different Hospital in Dhaka City

Abstract

The chronic kidney disease (CKD) is a significant aspect of chronic non-communicable diseases, which have reached pandemic levels and are leading causes of morbidity and mortality globally. This systematic review evaluates the burden of chronic kidney disease in the general population of Dhaka city, focusing on lifestyle risk factors. Conducted over six months from November 2019 to June 2020, the study involved participants aged 20 to 70 from various backgrounds. Data was collected through face-to-face interviews conducted in Bengali; alongside anthropometric measurements taken by the researchers. Additionally, the latest blood pressure and glucose levels, as well as lipid profiles and biochemical test results, were obtained from hospital records. The connection between chronic kidney disease (CKD) and additional risk factors, including obesity, tobacco use, diabetes, and hypertension, is highly significant. The most common risk factors for CKD, specifically diabetes mellitus (DM) and hypertension (HTN), are notably elevated and are clearly contributing to the increasing prevalence of chronic kidney disease. Among the respondents, 85.2% people where hypertensive 12.1% people were in normal condition 18.38% people were under peritoneal dialysis and 11.2% people were under hemodialysis. Among the respondents, 78.2% of people had their creatinine, and albuminuria high level. It was evidenced that for those with established renal disease, proteinuria could be an important predictor of the risk of progression and mortality, these all indicate a close relationship with chronic kidney disease. Early identification of CKD risk factors, prompt referrals to kidney specialists, effective management of high blood pressure, diabetes, glomerulonephritis, and other associated risks, along with lifestyle modifications particularly reducing salt intake, increasing physical activity, and avoiding tobacco can help slow the advancement of kidney disease to more severe stages.

Introduction

We have made significant advances in medical care worldwide in recent decades. People are living longer lives than ever before. However, epidemiologic trends in acute infectious diseases have shifted to noncommunicable diseases (NCDs) [1]. According to World Health Organization data, the most common NCDs are cardiovascular disease, cancer, respiratory disorders, and diabetes. Furthermore, chronic kidney disease (CKD) is a frequent condition. It is quickly rising in prevalence and incidence, and is a diverse range of disorders caused by a variety of risk factors and concomitant conditions [2]. Although CKD patients share a common pathophysiology involved in renal disease progression, the course and speed of CKD progression, as well as related consequences, vary depending on the underlying reasons. As a result, in the KDIGO (kidney disease: Improving global outcomes) guidelines, the origin of CKD is regarded as one of the significant determinants of outcome, along with other variables such as the glomerular filtration rate category, the albuminuria category, and other concomitant disorders. Nearly 850 million people are thought to have renal disease and globally, the prevalence of CKD is almost 11%, accounting for nearly 2.4 million deaths [3-4].

In Asia, the mortality rate of infection linked with acute kidney injury (AKI) was 52%, according to statistics obtained from the International Society of Nephrology as part of its 0 by 25 effort. Additionally, 7% to 16% of patients developed chronic renal failure, and 11% to 19% had reduced kidney function despite being cured of the infection. Infections contribute to the development and progression of CKD yet go unnoticed, complicating the course of patients who already have CKD. They are more severe, are discovered later, and are more difficult to manage; they raise the expense of CKD care; and they contribute to mortality and morbidity [5].

The World Health Assembly advocated the Global Action Plan for the Prevention and Control of Non-Communicable Diseases 2013-2020. One of its targets is to reduce premature mortality from chronic diseases by 25% in 2025. These actions have the potential to make a significant impact on the burden of chronic kidney disease (CKD). Unfortunately, the chronic kidney disease (CKD) problem remains underestimated on the entire continent due to a lack of epidemiological information from different countries. So, we can hypothesize that chronic kidney diseases are related to lifestyle risk factors like smoking, extra salt intake, uncontrolled diabetes, uncontrolled hypertension Obesity, imbalance diet & improper nutrition. Therefore, the primary focus of the research was on the prevalence of chronic

kidney disease (CKD) and associated risk factors among patients in different Dhaka City hospitals. The particular objectives were to assess the social demographic characteristics of participants from different hospitals, including age, marital status, education level, family history, monthly income, etc. and assess individuals with chronic kidney disease (CKD) for behavioral risk factors, diabetes mellitus (DM), and hypertension (HTN).

Materials and method

Types of study

The study was a cross-sectional descriptive study. This study was an attempt to find out the distribution of chronic kidney disease (CKD) among patients with disease in different hospitals.

Study area and period

After getting the approval of the research proposal from the honorable faculty member formal permission was taken from the authority of Kidney Foundation Hospital, National Institute of Kidney Disease Hospital (NIKDU), Bangladesh Institute of Research and Rehabilitation in Diabetes Endocrine and Metabolic Disorders (BIRDEM), Bangabandhu Sheikh Mujib Medical University Hospital (BSMMU). Subsequently, data were collected from indoor patients both sexes completing the inclusion criteria from November 2019 to June 2020.

Selection of Inclusion criteria of patients

The following inclusion criteria were followed: a) The patients were willing to participate in interviews in data collection, b) All the patients were diagnosed with kidney disease or not, c) all the patients the aged 25-75 years, d) both the sex in respective religion and occupation and e) those who do not agree to participate in the study and questionnaire.

Selection Exclusion criteria of patients

The following exclusive criteria were strictly followed in this selection of research work: a) the respondents who were not willing to participate in the interview schedule, b) patients with malignancy, b) beyond the age limit, c) those who agree to participate in the programming, and d) the patients with chronic disease & complications.

Sample size

The objective of the study was to find out the association of chronic kidney disease (CKD). The required sample size was 150. In this study, purposive sampling techniques were followed. All the respondents fulfillingthe above monitoring selection criteria were included, till the target 150 sample sizes were achieved.

Data collection procedure

After explaining the purpose of the study to the respondents and obtaining verbal consent and as per the selection criteria of the study, data collection was carried out through face-to-face interviews of the sample populations by asking questions in Bangla. Anthropometric measurements were measured by the researcher and blood pressure was recorded from the treatment card results of creatinine level, Hb level, HbA1c, uric acid, etc. were taken fromthe record if available.

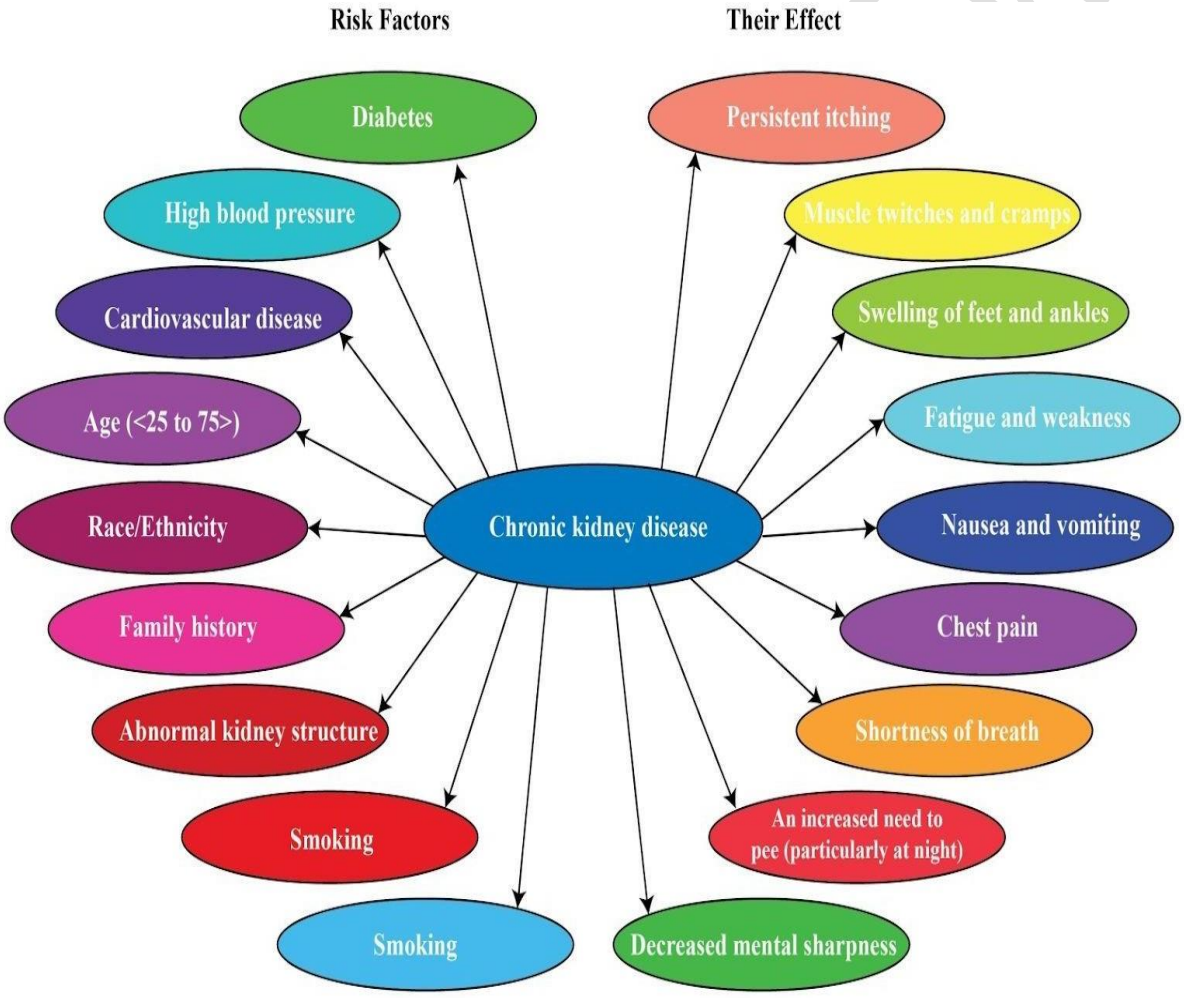

Figure 1: Conceptual framework

Results and Discussion

Participants undergo a detailed bio-clinical assessment that includes measures of vascular health, periodontal health, quality of life and socio-economic status, clinical assessment, and collection of samples for biomarker analysis. The determinants of progression of chronic kidney disease (CKD) are not fully understood though there are several proposed risk factors for progression (both traditional

and novel). Among the people of the world, there are 1.5 million risks of these factors. Awareness is increasing among the people. Their knowledge of chronic kidney disease (CKD) is increasing so that they can take prevention measures. The findings of this study may provide valuable information for further in-depth study as well as may provide guidelines for the health planners to formulate appropriate intervention strategies and may create awareness among chronic kidney disease(CKD) patients and their families.

Table 1: Demographic and Socioeconomic Characteristics

Variables	Frequency (n)	Percentage (%)
Age (years)		
20-30	1	0.7
31-40	3	2.0
41-50	34	23.1
51-60	48	32.7
61-70	40	27.2
≥ 70	21	14.3
Gender		
Male	98	66.2
Female	49	33.1
Third Gender	1	0.7
Religion		
Islam	138	93.2
Hindu	10	6.8
Education Level		
Primary	33	22.6
SSC	30	20.5
HSC	36	24.7
Graduation	29	19.9
Post-Graduation	6	4.1
Illiterate	6	4.1
Others	6	4.1
Marital Status		
Married	79	88.8
Unmarried	7	7.9
Separated	1	1.1
Divorced	2	2.2
Occupation		
Farmer	7	4.8
Service	24	16.48
Businessman	26	18.0
Student	4	2.7
Garment Worker	8	5.5
Working Abroad	2	1.4
Retired Person	20	13.6
Others	55	37.52

Variables	Frequency (n)	Percentage (%)
Income (BDT/month)		
≤ 10,000	31	26.5
11,000 - 20,000	29	24.8
21,000 - 30,000	31	26.5
31,000 - 40,000	22	18.8
41,000 - 50,000	3	2.6
≥ 51,000	1	0.9

Table 2: Lifestyle and Behavioral Factors

Variables	Frequency (n)	Percentage (%)
Smoking Tobacco		
Yes	66	44.6
No	74	50.0
Sometimes	8	5.4
Chewing Betel		
Yes	46	30.9
No	78	52.3
Sometimes	25	16.8
Alcohol Consumption		
Yes	18	12.4
No	127	87.6
Tea or Coffee		
Yes	65	73.0
No	24	27.0
Extra Salt Intake		
Yes	103	69.6
No	45	30.4
Craving Salty Food		
Yes	77	52.4
No	51	34.7
Sometimes	19	12.9
Fast Food/Junk Food Consumption		
Yes	24	16.2
No	64	43.2
Sometimes	60	40.5
Fruits & Vegetables Consumption		
Yes	94	63.1
No	23	15.4
Sometimes	32	21.5
Type of Oil Used		
Soybean Oil	59	65.6
Mustard Oil	11	12.2
Sesame Oil	3	3.3

Variables	Frequency (n)	Percentage (%)
Sunflower Oil	17	18.9
Type of Physical Work		
Heavy Work	9	6.1
Moderate Work	75	51.0
Sedentary Work	63	42.9

Table 3: Health Conditions and Medical History

Variables	Frequency (n)	Percentage (%)
Chronic Kidney Disease (CKD) and Dialysis Type		
Peritoneal Dialysis	25	18.38
Hemodialysis	15	11.02
No Dialysis	96	70.58
Surgery for Kidney Transplantation		
Yes	10	7.4
No	125	92.6
Body Mass Index (BMI) Category		
Underweight (BMI <18.5)	5	3.8
Normal Weight (18.5–24.9)	97	74.6
Overweight (25.0–29.9)	21	16.2
Obese (BMI ≥30)	7	5.4

Table 1 shows the demographic and socioeconomic characteristics of the participants. The majority of participants belonged to the 51–60 age group (32.7%), followed by the 61–70 group (27.2%), while a smaller proportion (0.7%) was from the 20–30 age group. Among the participants, 66.2% were male, 33.1% were female and 0.7% identified as third gender. Islam was the predominant religion (93.2%), while Hindus made up 6.8% of the participants. The highest proportion of participants had completed HSC (24.7%), followed by primary education (22.6%) and SSC (20.5%). A small percentage (4.1%) had attained post-graduate education, while another 4.1% were illiterate. The majority of participants were married (88.8%), while smaller proportions were unmarried (7.9%), divorced (2.2%) or separated (1.1%). Among different occupational groups, the largest segment (37.5%) was categorized as "others", followed by businessmen (18.0%) and service holders (16.5%). Students (2.7%) and individuals working abroad (1.4%) represented smaller portions of the sample. The highest

percentage of participants (26.5%) earned either 10,000 and below or 21,000–30,000, followed closely by 24.8% in the 11,000–20,000 income range, indicating that the majority belonged to the lower to middle-income group. Only 0.9% of participants had an income above 51,000.

Table 2 presents the lifestyle and dietary habits of the participants. In terms of tobacco use, 44.6% were smokers, 50.0% were non-smokers and 5.4% reported occasional smoking. Regarding betel chewing habits, 30.9% regularly chewed betel, 52.3% did not, and 16.8% consumed it occasionally. The majority of participants (87.6%) reported that they do not consume alcohol, while 12.4% indicated that they do consume alcohol, suggesting that alcohol consumption is relatively low among the study participants. Among dietary behaviors, 69.6% reported consuming extra salt, and 52.4% had cravings for salty food. Regarding fast food consumption, 16.2% consumed it regularly, 43.2% avoided it, and 40.5% ate it occasionally. A significant proportion of participants (63.1%) reported regular consumption of fruits and vegetables, while 21.5% consumed them occasionally. However, 15.4% did not consume fruits and vegetables at all, which may have implications for overall dietary quality and health outcomes. Among different types of cooking oils, soybean oil was the most commonly used (65.6%), followed by sunflower oil (18.9%). Mustard oil (12.2%) and sesame oil (3.3%) were used by a smaller fraction of participants. Regarding physical activity levels, 51.0% engaged in moderate physical work, while 42.9% had a sedentary lifestyle. Only a small proportion (6.1%) performed heavy physical work, indicating that most participants had low-to-moderate activity levels.

Table 3 shows the health conditions and medical history of the study participants. Among participants with chronic kidney disease (CKD), 29.4% were undergoing dialysis, including 18.4% receiving peritoneal dialysis and 11.0% receiving hemodialysis. The majority (70.6%) did not undergo dialysis treatment. Only 7.4% of participants had undergone kidney transplantation surgery, while 92.6% had not received such treatment, highlighting the limited accessibility or eligibility for kidney transplantation within the study population. Based on BMI classification, the majority of participants (74.6%) had a normal BMI (18.5–24.9). However, 16.2% were overweight (BMI 25–29.9), and 5.4% were classified as obese (BMI ≥30). A small proportion (3.8%) was underweight (BMI <18.5), which may indicate nutritional deficiencies.

Table 4: Association of Chronic Kidney Disease of medium Dialysis participants those who are intake of junk food

		junk food			Total	χ2	*p*-value
		Yes	No	sometimes			
	Count	2	17	12	31		
Peritoneal dialysis							
	% Within CKD medium Dialysis	6.5%	54.8%	38.7%	100.0%	3.984 a	0.105
	Count	21	41	42	104		
Hemodialysis							
	% Within CKD medium Dialysis	20.2%	39.4%	40.4%	100.0%		
Total	Count	23	58	54	135		
	% Within CKD medium Dialysis	17.0%	43.0%	40.0%	100.0%		

Table 5: Association of Chronic Kidney Disease of medium Dialysis participants those who consume extra salt

		extra salt		Total	χ2	*p*-value
		Yes	No			
	Count	13	17	30		
Peritoneal dialysis						
	% Within CKD medium Dialysis	43.3%	56.7%	100.0%		
	Count	80	25	105		
Hemodialysis						
	% Within CKD medium Dialysis	76.2%	23.8%	100.0%	19.134	0.001
Total	Count	93	42	135		
Hemodialysis	% Within CKD medium Dialysis	68.9%	31.1%	100.0%		
	% Within CKD medium Dialysis	88.1%	11.9%	100.0%		
Total	Count	64	17	81		
	% Within CKD medium Dialysis	79.0%	21.0%	100.0%		

		tea or coffee		Total	χ2	*p*-value
		Yes	No			
	Count	5	9	14	11.754	0.001
Peritoneal dialysis						
	Count	59	8	67		
Hemodialysis						

Table 6: Association of Chronic Kidney Disease of medium Dialysis participants those who are habit of tea or coffee

Table 7: Association of Chronic Kidney Disease of medium Dialysis participants those who consume fruits & vegetables

		Fruits & vegetables			Total	χ2	*p*-value
		Yes	No	sometimes			
	Count	21	8	2	31		
Peritoneal dialysis							
	% Within CKD medium Dialysis	67.7%	25.8%	6.5%	100.0%		
						5.952	0.003
	Count	64	15	26	105		
Hemodialysis							
	% Within CKD medium Dialysis	61.0%	14.3%	24.8%	100.0%		
Total	Count	85	23	28	136		
	% Within CKD medium Dialysis	62.5%	16.9%	20.6%	100.0%		

		Smoke or Tobacco			Total	χ2	*p*-value
		Yes	No	sometimes			
	Count	2	29	0	31		
Peritoneal dialysis							
	% Within CKD medium Dialysis	6.5%	93.5%	0.0%	100.0%		
						33.264	0.001
	Count	60	36	8	104		
Hemodialysis							
	% Within CKD medium Dialysis	57.7%	34.6%	7.7%	100.0%		
Total	Count	62	65	8	135		
	% Within CKD medium Dialysis	45.9%	48.1%	5.9%	100.0%		

Table 8: Association of Chronic Kidney Disease of medium Dialysisparticipants those who are an intake of smoke or tobacco.

Table 9: Association of Chronic Kidney Disease of medium Dialysis participants who drink beverage products.

		Beverage product		Total	χ2	*p*-value
		Yes	No			
	Count	6	10	16		
Peritoneal dialysis						
	% Within CKD medium Dialysis	37.5%	62.5%	100.0%		
					8.954	0.004
	Count	51	16	67		
Hemodialysis						
	% Within CKD medium Dialysis	76.1%	23.9%	100.0%		
Total	Count	57	26	83		
	% Within CKD medium Dialysis	68.7%	31.3%	100.0%		

Table 10: Association of Chronic Kidney Disease of medium Dialysis Participants Who Consume the type of oil.

		Type of oil				Total	χ2	*p*-value
		soyabean	mastered oil	sesame oil	sunflower oil			
	Count	12	1	1	0	14		
Peritoneal dialysis	% Within CKD medium Dialysis	85.7%	7.1%	7.1%	0.0%	100.0%		
							5.673	0.041
	Count	40	10	2	16	68		
Hemodialysis	% Within CKD medium Dialysis	58.8%	14.7%	2.9%	23.5%	100.0%		
Total	Count	52	11	3	16	82		
	% Within CKD medium Dialysis	63.4%	13.4%	3.7%	19.5%	100.0%		
							4.59	0.001

		HTN Level				Total	χ2	*p*-value
		Normal	Mild	Moderate	Severe			
	Count	5	11	7	4	27		
Peritoneal dialysis	% Within CKD medium Dialysis	18.5%	40.7%	25.9%	14.8%	100.0%		
	Count	14	41	26	3	84		
Hemodialysis	% Within CKD medium Dialysis	16.7%	48.8%	31.0%	3.6%	100.0%		
Total	Count	19	52	33	7	111		
	% Within CKD medium Dialysis	17.1%	46.8%	29.7%	6.3%	100.0%		

Table 11: Association of Chronic Kidney Disease of M edium Dialysis Participants who are respondents by their hypertension level.

Table 12: Association of Chronic Kidney Disease of medium Dialysis participants those who are intake of painkiller

Table 13: Association of Chronic Kidney Disease with other chronic diseases among chronic kidney disease patients with dialysis.

		If yes										Total	χ2	*p*-value
		DM	HTN	CVD	Asthma	12	23	34	123	124	234			
	Count	2	10	1	1	3	0	0	0	1	0	18		
Peritoneal Dialysis	% Within CKD medium Dialysis	11.1%	55.6%	5.6%	5.6%	16.7 %	0.0 %	0.0 %	0.0 %	5.6 %	0.0 %	100.0%		
													23.66	0.005
	Count	32	12	15	5	4	3	1	2	0	1	75		
Hemo Dialysis	% WithinCKD mediumDialysis	42.7%	16.0%	20.0 %	6.7%	5.3%	4.0 %	1.3 %	2.7 %	0.0 %	1.3 %	100.0%		
Total	Count	34	22	16	6	7	3	1	2	1	1	93		
	% WithinCKD mediumDialysis	36.6%	23.7%	17.2 %	6.5%	7.5%	3.2 %	1.1 %	2.2 %	1.1 %	1.1 %	100.0%		

Chronic Kidney Disease is a major public health concern in our country. The number of people with kidney disease is increasing day by day due to population growth, aging, urbanization, and increasing obesity and physical inactivity. Smoking, excess stress, energy drinks, too much salt intake, consumption of fast food and unhealthy lifestyles, and other socio-economic factors that have not been explored fully are increasing the risk of chronic kidney disease. This increased prevalence of CKD among elderly individuals also can be explained by the higher prevalence of diabetes and hypertension among this group of people which are considered important risk factors for developing CKD.

Table 4 shows that 24 (16.1%) people took junk food regularly and 60 (40.3%) people took junk food occasionally. From this study, we found that significant numbers of people took more junk food where junk food can be detrimental to the kidneys. However, junk food did not have a statistically significant effect on the prevalence of CKD (χ^2=3.984, p=0.105). On the other hand, craving salty food or adding extra salt to food is very injurious to our health, and kidney

		Painkiller intake			Total	χ2	*p*-value
		Yes	No	sometimes			
	Count	19	7	1	27		
Peritoneal dialysis							
CKD medium Dialysis	% Within CKD medium Dialysis	70.4%	25.9%	3.7%	100.0%		
						6.066	0.003
	Count	24	8	9	40		
Hemodialysis							
	% Within CKD medium Dialysis	81.3%	8.8%	9.9%	100.0%		
Total	Count	33	15	10			
	% Within CKD medium Dialysis	78.8%	12.7%	8.5%	100.0%		

salt intake is associated with the development of impaired kidney function and is independent of its effects on blood pressure. Our statistical analysis showed that 103 (69.1%) people regularly took extra salt and 45 (30.2%) people did not take extra salt. We found a strong relationship between high extra salt intake, smoking (χ^2=11.754, p=0.001), (χ^2=19.134, p=0.001) and chronic kidney disease respectively (Table 5 and Table 8). Salt restriction may help prevent the development of impaired kidney function. We should avoid these habits and healthily lead our lives. The study also found that 68.7% of CKD patients did not take added beverage products, compared to 31.3% who did (Table 9). Those who consume fruits & vegetables (Table 7) show the possibility of occurrence of chronic kidney disease significantly associated with CKD status (χ^2=5.952, p=0.003).

In our study, 94 (63.1%) people took painkillers for several years, and 23 (15.4%) people didn't take any painkillers regularly (χ^2=6.066, p=0.03) (Table 12). There is an association between hypertension with kidney disease. Among 149 people, 127 (85.2%) people were hypertensive and 18 (12.1%) people were in normal condition (χ^2=4.594, p=0.001) (Table 11). In our study 25 (18.38%) people were under peritoneal dialysis and 15 (11.02%) people were under hemodialysis. Among 135 people, 10 (7.4%) people transplanted their kidneys. The association of renal function in different age groups showed that the serum creatinine level was significantly higher. Among 149 people, 98 (78 2%) people had their creatinine level higher. Mean (M±SD) creatinine value was 90.0261±26.377 and mean (M±SD) albuminuria was 37.97±22.94. The normal value of creatinine level for males is 65.4-119 µ moles /liters and for females, it is 52.2-91.9 µ moles/liters. It was evidenced that for those with established renal disease, proteinuria could be an important predictor of the risk of progression and mortality. We didn't find any significant association with kidney disease the elevated cholesterol levels. These all indicate a close relationship with chronic kidney disease. The prolonged presence of hypertension and diabetes triggers the complications of kidney disease. The facts from the data obtained revealed that the kidney patients were more prone to develop hypertension. In addition, the distribution of risk factors like smoking, leg complication (Peripheral Vascular Disease), diabetes and hypertension were compared among kidney patients.

We have reviewed the role of salt intake in kidney diseases, particularly in relation to renal hemodynamics, renal excretion of proteins, renal morphological changes and progression of chronic renal failure. High salt intake may have detrimental effects on glomerular hemodynamics, inducing hyper filtration and increasing the filtration fraction and glomerular pressure. In a similar study by Charlton et al. developed a FFQ specifically to estimate sodium

intake and found that the estimation of sodium was strongly correlated with repeated 24- hour sodium excretion ($r = 0.386$; $p<0.01$) [6]. In Gallani [7] study, it was found that sodium intake values from a FFQ were significantly and strongly connected to the 24-hour urine collection, with a correlation coefficient of 0.30, which is moderately significant; however, they have reported that the FFQ often underestimates the total intake by 2.3 g. It would appear that restriction of sodium intake is an important preventive and therapeutic measure in patients with chronic renal diseases of various origin.

Patients with CKD often require dialysis when their kidneys can no longer filter waste products from the blood effectively. The lifestyle choices of these patients, including dietary habits and substance use, can significantly impact their health outcomes. The consumption of various beverage products has been studied in relation to CKD. Sugary drinks, particularly those high in fructose corn syrup, have been associated with an increased risk of developing CKD due to their potential to induce insulin resistance and obesity. A study found that higher intake of sugar-sweetened beverages was linked to a greater risk of CKD progression [8-10]. Conversely, beverages such as water are essential for maintaining hydration and supporting kidney function. Adequate fluid intake helps prevent dehydration, which can exacerbate kidney issues. However, excessive consumption of caffeinated beverages may lead to increased blood pressure and could potentially worsen kidney function in susceptible individuals.

Smoking is a well-established risk factor for the progression of CKD. Research indicates that smoking can accelerate the decline in renal function due to its effects on cardiovascular health and inflammation [11]. Previous study highlighted those smokers had a significantly higher risk of developing end-stage renal disease compared to non-smokers [12]. The harmful substances in tobacco smoke contribute to oxidative stress and vascular damage, which are detrimental to kidney health.

The relationship between tea or coffee consumption and CKD is complex. Some studies suggest that moderate coffee consumption may be associated with a reduced risk of developing CKD due to its antioxidant properties. For instance, a study found that coffee drinkers had lower rates of kidney dysfunction compared to non-drinkers [13]. However, excessive caffeine intake could lead to increased blood pressure, which is a concern for individuals already at risk for kidney disease. Tea consumption has also been linked with potential protective effects against CKD due to its polyphenol content. Green tea, in particular, has been studied for its anti-inflammatory properties that may benefit renal health.

The intake of junk food characterized by high levels of sodium, unhealthy fats, sugars, and low nutritional value has negative implications for individuals with CKD. Diets high in processed foods can lead to hypertension and obesity, both significant risk factors for the progression of kidney disease. A study demonstrated that higher consumption of fast food was associated with an increased risk of developing CKD among adults [14]. Moreover, junk food often contains additives like phosphates that can be harmful when consumed excessively by individuals with compromised kidney function since their ability to excrete phosphorus is impaired. In summary, there is substantial evidence linking lifestyle factors such as beverage consumption (especially sugary drinks), smoking habits, tea or coffee intake patterns, and junk food diets with the progression and management of chronic kidney disease among dialysis participants. These associations highlight the importance of dietary modifications and lifestyle changes as part of comprehensive care strategies for individuals suffering from CKD [15-17].

Chronic Kidney Disease (CKD) is a progressive condition that often coexists with hypertension, significantly impacting the health and quality of life of affected individuals. A study examining the association between CKD in medium dialysis participants and their hypertension levels, alongside painkiller usage, reveals critical insights into how these factors interplay. Hypertension is prevalent among CKD patients due to various pathophysiological mechanisms, including fluid overload and increased vascular resistance. It has been shown that poorly managed hypertension can accelerate kidney function decline, necessitating effective blood pressure control strategies in this population [18]. Moreover, the use of painkillers, particularly non-steroidal anti-inflammatory drugs (NSAIDs), poses additional risks for CKD patients. NSAIDs can lead to acute kidney injury and exacerbate existing renal impairment by reducing renal blood flow. Therefore, it is essential for healthcare providers to monitor both hypertension and analgesic use closely in CKD patients undergoing dialysis [19]. In conclusion, understanding the relationship between hypertension levels and painkiller usage among CKD participants is vital for optimizing treatment strategies and improving patient outcomes. Ongoing research is necessary to develop guidelines that address these interconnected issues effectively.

Conclusion:

In Bangladesh, Chronic Kidney disease is a public health problem, mainly attributed to high-risk conditions such as Hypertension and Diabetes. Once kidney disease occurs, continued use of the problem drug makes it worse. 3 % to 5% of new cases of chronic kidney failure each year may be caused by the overuse of these painkillers. The relationship between CKD and

HTN is cyclic, as CKD can cause HTN. Elevated BP leads to damage of blood vessels within the kidney, as well as throughout the body. This damage impairs the kidney's ability to filter fluid and waste from the blood, leading to an increase of fluid volume in the blood-thus causing an increase in BP. Excess sodium in CKD is caused by decreased sodium excretion and high sodium intake. A diet that relies mostly on junk food and processed may cause long-term damage to the kidneys. CKD is also closely associated with lifestyle. Several lifestyle factors shown to be independently associated with the primary prevention of CKD. Obesity, weight gain, after maturity, and metabolic syndrome increase the risk of CKD, independently of having DM and HTN. Our study represents proof of the concept that in hypertensive chronic kidney disease patients BP targets could vary according to the etiology of renal disease. It is apprehended that one out of three patients in this at-risk population have undiagnosed chronic kidney disease and poorly controlled chronic kidney disease risk factors. This growing problem poses clear challenges to our country. With this viewpoint, chronic kidney disease should be addressed through the development of multidisciplinary teams and improved communication between traditional healthcare givers and nephrology services. Attention to Chronic kidney disease risk factors is indispensable and must be given priority. We can conclude that people between the ages of 51-60 are mostly affected by chronic kidney disease and those between the ages of 20-30 are less affected by chronic kidney disease. People who consume more junk food, and smoke are more likely to risk chronic kidney disease. Chronic kidney disease plays a highly significant role in those who take painkillers, and extra salt, and people with hypertension have a higher risk of chronic kidney disease. Hypertension is highly significant in kidney patients.

Recommendation: Based on the findings of the study the following recommendations are put forward for consideration by the policy maker, preventive medicine and specialist, and future researchers.

1. Kidney patients should lead healthy and routine life**.** They have to follow a specificdiet chart for their kidney's betterment.
2. Most of the kidney patients need 60 grams of protein per day to meet their protein needs. For patients on dialysis, a higher protein intake is encouraged to replace dialysis protein loss and eat at least 8 ounces of lean meat per day. Examples: meats, fish, poultry, milk, eggs, cheeses.
3. Kidney patients have to control their blood sugar levels if they have diabetes. Blood sugar can damage the blood vessels in the kidneys. When the blood

vessels are damaged, the kidney doesn't work as well.

4. Kidney patients should check their blood pressure levels regularly. High blood pressure is one of the major causes of chronic kidney disease. Kidney disease can also cause high blood pressure. Having high blood pressure damages the tiny blood vessels in the kidneys.
5. Kidney patients should exercise at least 30 minutes on most days of the week. Exercise is important because when kidney function has decreased, it can affect muscles and bones.
6. Everyone has to avoid smoking. Smoking slows the blood flow to important organslike the kidneys and can make kidney disease worse.
7. Alcohol consumption must be restricted. Alcohol can also damage the kidneys.Regular heavy drinking has been found to double the risk of chronic kidney disease, which does not go away over time.
8. Salt is injurious to a kidney. Kidney patients shouldn't eat extra salt. High sodium intake can increase blood pressure and fluid retention (edema). High sodium foods: salt, canned soups, processed cheese, some canned goods, "fast food," pickles,olives, smoked and cured foods like bacon, ham, and luncheon meats.
9. Healthy people should drink plenty of water. Kidney patients should maintain fluid intake. People with decreased urine output need to monitor their fluid balance. Fluid requirements vary on dialysis but usually range between 1000-1500 mL per day.
10. Kidney patients should restrict secondary protein intake. Most beans and lentils are high in phosphorus and potassium so they're not ideal for people who have kidney disease.

Limitations

i. All research requires a huge budget & financial involvement. Without money no research canbe done from our institute there is no budget allocation for research scarcity of money limits our research.
ii. Most of the people are not well educated, so many of them give some without proper knowledge for which the data was not fully correct.
iii. Non-Cooperation of the hospital authority and administration have no interest in research which limits our possibility of flourished success.

iv. This systematic review assessed the chronic kidney disease (CKD) burden among the general population and high-risk groups in the studies. The included was assessed based on clinical trials, diagnostic studies, and observational studies. The assessment is based on population sampling and precision, sampling technique, response rate, and exclusion rate.

Conflict of interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

Data availability statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Funding

The authors have declared that this study had received no financial support.

Author contributions:

This work was carried out in collaboration among all authors. Authors Md. Abdul Halim, Kaniz Fatema, Swarnaly Aktar Bristy and Md. Ashraful Islam conceptualized the study, wrote, reviewed and prepared the original draft of the manuscript. Authors Adrita Afrin, Anwara Akter Khatun, Fahriha Nur A Kabir, Sourav Biswas Nayan and Tasnim Rahman Sathi reviewed and edited the manuscript. Authors. All authors read and approved the final manuscript

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