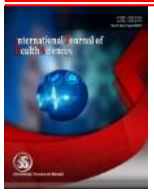

International Journal of Health Sciences
Available online at www.sciencescholar.us
Vol. 9 No. 1, April 2025, pages: 52-64
E-ISSN: 2550-696X
https://doi.org/10.53730/ijhs.v9n1.15490

Knowledge, Attitude, and Preventive Measures of Common People about Chronic Kidney Diseases in Dhaka City of Bangladesh

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Manuscript submitted: 27 November 2024, Manuscript revised: 18 December 2024, Accepted for publication: 09 January 2025

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Keywords

attitude;
CKD;
community health;
knowledge;
preventive measures;

Abstract

Bangladesh is one of the most populated countries in the globe. The yearly budget for the people of this country is not satisfactory in the health and education sector. Among the chronic diseases chronic kidney disease (CKD) is the major issue for the common people. CKD is defined as a persistent abnormality in kidney structure or function (e.g., glomerular filtration rate [GFR] <60 mL/min/1.73 m^2 or albuminuria ≥30 mg per 24 hours) for more than 3 months. CKD affects 8% to 16% of the population worldwide. In 2017, CKD resulted in 1.2 million deaths and was the 12th leading cause of death worldwide. However, by taking adequate preventive measures, CKD can be prevented for which proper knowledge about the disease is necessary. This study was carried out to gather information about the knowledge and attitude regarding CKD among the common people of Dhaka city. It is a cross-sectional type of descriptive study conducted for 10 months from March to December 2022 taking responses from 405 correspondents conveniently. Data was collected by a structured questionnaire by face-to-face interview. The collected data was computed and analyzed. The majority of the respondents were students, service holders, business, homemakers, and unemployed. About half of the participants showed interest in taking precautionary measures to prevent CKD. However, the other masses are completely unaware and ignorant of it. With proper health education and mass screening, the extreme consequences of CKD can be reduced effectively.

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Contents

1 Introduction

Chronic kidney disease (CKD), earlier known as chronic kidney failure is a worldwide epidemic health problem of increasing prevalence. The prevalence of CKD in the general population of the world is unknown, and it differs across countries and regions. Due to kidney diseases overall 5-10 million global deaths are occurring annually (Luyckx et al., 2018). A majority of CKD cases are not clinically recognized mainly because of the lack of patients' awareness about CKD risk factors. The global estimation of kidney diseases can be considered an iceberg as such numbers probably underestimate the true burden due to the limited epidemiological data, resulting from a lack of awareness and poor access to laboratory services (Luyckx et al., 2018). Hypertension and diabetes mellitus are the leading important risk factors for CKD in developing countries (Jha et al., 2013). Many studies have confirmed this association because these two diseases share risk factors such as smoking and obesity, and promote vascular alterations that increase the risk of developing kidney impairment (Alramly et al., 2013). Globally, the prevalence of hypertension in adults was estimated to be about 26%, with most cases (66%) being in developing countries (Ibrahim & Damasceno, 2012). Similarly, the worldwide prevalence of diabetes is estimated to be 6.4% and is expected to rise to 7.7% by 2030 (Shaw et al., 2010). The prevalence of CKD in patients with diabetes is known to be high (Janmohamed et al., 2013). In a retrospective study in the Netherlands, where the incidence rate of CKD was highest in participants with diabetes, with an incidence of 25,000 per 100,000 people every year (van Blijderveen et al., 2014). Knowledge, attitudes, and practices assessment could be an early step forward to assess the extent to which an individual can adopt healthy behaviors. Clinical indicators of renal dysfunction are efficient for the early detection of patients at risk for CKD; however, it is equally important to increase awareness of common people to modify their lifestyle towards preventing the occurrence of the disease. Evidence indicates that screening programs and population education programs regarding CKD have progressed patients' understanding of CKD and medical outcomes (National Kidney Foundation, 2011). Thus, such programs for patients at risk for CKD would be beneficial in eliminating the medical burden and related costs and may improve the quality of life.

The ability of a person with a chronic condition, such as hypertension and diabetes, to follow a self-care management process is the key to preventing CKD. This process emphasizes patients' involvement in self-monitoring and developing strategies to manage their health conditions (Huisman et al., 2009). CKD can be prevented by influencing patients' knowledge and attitudes towards early detection of the disease. Ajzen developed the theory of planned behaviour (TPB) to propose how the intention to act guides human behaviour (Ajzen, 2002). Knowledge is conceptualized as beliefs about a specific disease or condition. Patients need to gain knowledge about the kidney and its physiology, signs and symptoms, and risk factors to prevent CKD occurrence. Hopefully, this knowledge will help patients in choosing and implementing behaviours that lead to desirable outcomes (Darawad & Khalil, 2013). Attitudes are either positive or negative feelings about practicing the behaviour. For instance, gaining information and holding positive attitudes towards CKD in patients at risk will enhance their adherence to routine check-ups of kidney function. A recent study by Lin et al. (2013), aimed to develop a self-management education programme and to evaluate its effects on self-management behaviour and CKD progression among patients with early-stage CKD. The results showed that self-monitoring and observing daily activities by patients at risk can identify factors leading to their health problems and can acquire behaviours to optimize their health status.

Kidney damage or decreased renal function for three months or more is clinically considered as chronic kidney disease (CKD) (Levey et al., 2003). In patients with CKD, the GFR (glomerular filtration rate) decreases, or there are urinary or structural problems in the renal system (Guerrant et al., 2011). It is a progressive condition characterized by a decrease in kidney function of lower than 60mL/min/1.7m^2. CKD is a major irreversible, gradual impairment in kidney function in which the body's ability to maintain metabolic fluid and electrolyte balance fails. Renal function regulates blood composition and volume as well as removes metabolic wastes by urination, which helps to maintain bodily acid/base balance.[15] In such cases, electrolyte imbalance may necessitate dialysis (Narva & Briggs, 2009). Several countries have listed CKD as one of the top five causes of mortality in 2015, according to the Global Burden of Disease Report (Bikbov et al., 2020). CKD is becoming a considerable issue, as the incidence and prevalence of end-stage kidney disease (ESKD) have steadily increased over the last three decades (Jacobson, 2013).

Clinical indicators of renal dysfunction are imperative for the early detection of patients at risk for CKD; nevertheless, it is of equal importance to increase patients' awareness to modify their lifestyle toward preventing the occurrence of the disease. This process emphasizes patients' involvement in self-monitoring and developing strategies to manage their health condition. CKD can be prevented by influencing patients' knowledge and attitudes towards early detection of the disease. Knowledge is conceptualized as beliefs about a specific disease or condition. Patients need to gain knowledge about the kidney and its physiology, signs and symptoms, and risk factors to prevent CKD occurrence. Hopefully, this knowledge will help people in choosing and implementing behaviours that lead to desirable outcomes. Attitudes are either positive or negative feelings about practicing the behaviour. Gaining information and holding positive attitudes towards CKD in patients at risk will enhance their adherence to routine check-ups of kidney function (Levey et al., 2005).

Bangladesh continues to suffer from inadequate health literacy, which leads to late disease diagnosis, poor treatment, and a lack of knowledge about wellness and disease prevention. With poor healthcare facilities and low literacy levels in a country plagued by diseases from both the developing and developed worlds, enhancing knowledge about CKD might have a significant impact on the health and well-being of the people. CKD is a worldwide condition that has an impact on patients' socio-economic lives; however, little is known about the knowledge and awareness of the general population and the affected patients regarding CKD. Identifying knowledge gaps in people regionally would be helpful to develop and improve people's education in preventing and managing chronic renal diseases; nevertheless, information regarding patient awareness of CKD is lacking in this region, so we aim to explore the level of awareness regarding the condition among common people of Bangladesh (Arocena et al., 2008; Grigoriev et al., 2018).

Justification of the study

Chronic kidney disease, being a worldwide epidemic health problem of increasing prevalence, puts an enormous burden on the health system. Chronic kidney disease can lead to several other complications like coronary heart disease, anemia, Bone mineral disorders, etc. Overpowering the pathology of the disease, another major life-threatening reason is the economic burden and resource scarcity in the country. This has contributed to the casualty that could otherwise have been avoided with adequate resources. Casualty of this chronic disease in Bangladesh is quite high.

This study is conducted by cross-sectional study method. A written questionnaire containing adequate, specific, and topic-oriented questions was administered to the participants. We collected data from 405 people in Dhaka city. From the data provided above, we can say that CKD is a disease that has the potential to affect large populations in the economic, physical, and cultural environment in which people live. Furthermore, the low level of knowledge of general people about chronic kidney disease in Dhaka city increases its prevalence. CKD can cause economic disruption. Improving awareness and practice on the impact prevention and early detection of CKD will reduce the significant public health and economic burden (Brownstein et al., 2007; Sorlie et al., 2010).

To increase the capability of our healthcare system regarding the growing challenge of CKD, and to ensure to provide the best service possible to people, proper research is necessary and a highly integrated approach is required to control and prevent this major health problem which is growing rapidly. So, it requires major efforts from the government and medical sectors in coordination with other sectors to combat this serious

health problem. We need to know where we have been lacking and lagging in combating this chronic disease, to fully subdue it (Gazmararian et al., 2003).

It is highly important to find out how much knowledge and awareness the common people have and how they are practicing preventive measures. This study aims to establish these statistics. This will help us to understand how much knowledge and practice is lacking among the common people. Accordingly, the next step of educating the masses can be determined. Hence, this research is very essential in establishing the prevention measures in the epidemiology of chronic kidney disease. Improvement in the population's understanding of chronic kidney disease is needed to advance their awareness and practices to make appropriate decisions toward health promotion and better quality of life.

2 Materials and Methods

The study was carried out to find out the knowledge and attitude of general people regarding Chronic Kidney Disease in Dhaka city, to study the actions and precautions taken by people of different ages, views, and opinions regarding Chronic Kidney Disease, to study the strategies of preventive measures that the common people practice to withstand such kind of chronic disease in Bangladesh.

Study design:
This study was a cross-sectional type of descriptive study. This study was conducted among the general people of Dhaka city of Bangladesh.

Study period:
The study was conducted for months, from March to December.

Study place:
The study included people of Dhaka, Bangladesh.

Study population:
The study population included people of different social caste and ages.

Sample size:
This study included 405 respondents.

Sample technique:
The technique used in this study was the convenient type of non-probability sampling.

Research approach:
Permission was taken from the Departmental Head of Community Medicine of Dhaka National Medical College. A semi-structured questionnaire has been prepared. Pretesting was done on the general population. People of all ages were included. Data was collected from people by visiting them door-to-door. Respondents were interviewed and records were kept in the semi-structured interviewer-administered questionnaire.

Data collection technique:
Data was collected by face-to-face interviewing of people.

Research instrument:
A pre-tested semi-structured questionnaire was used as a research instrument.

Data editing and management:
An interviewer-administered questionnaire was used to collect data from respondents. The collected data was checked for errors that may be present and were further edited and corrected

Ethical implication:
Permission was taken from the Departmental Head of Community Medicine of Dhaka National Medical College and the respondents and their attendance.
The maintenance of their privacy was also ensured. So, the study is ethically implicated.

Limitation of study:
1) A research study was performed along with regular class there was no separate time allocated for this.
2) The study was not conducted among all the residents of Dhaka city.
3) There was no financial support.

3 Results and Discussions

This study was conducted to assess the knowledge attitude and practice of the people of Dhaka city regarding chronic kidney disease. The findings of the result showed that a higher portion of the respondents had a fair knowledge of 65.3% of CKD but they did not take adequate measures and precautions to prevent CKD as their attitude is just 51%. The discussion of the results is described below.

Most of the participants 63% lie between 18-45 years of age group, and the minority 2.5% are above 75 years. Most of the participants are male 57.0%, and 43% are female.74.6% of participants are Muslim and 19.6% are Hindus. Most of the participants are graduates 25.9%. The second highest being the HSC candidates 25.7%, 8.6% are illiterate. Most of the participants 46.2% monthly earn within 15000-30000BDT. Only 2% of participants earn more than 70000BDT. Maximum respondents 26.7% have 4 members in their family. 59.5%. are married, 35.6% are unmarried and 4.9% are divorced. 69.6% of the participants reside in pacca housing conditions 5.7% reside in kancha housing conditions.

91.6% of participants know that a man has 2 kidneys 8.1% think that a man has only one kidney. 0.2% of participants think that they have more than 2 kidneys.54.3% know that humans can lead a healthy life with 1 kidney. The rest 45.7% of participants do not know that. Surprisingly only 56.8% of participants have heard about chronic kidney disease. 43.2% have never heard of chronic kidney disease 26.9% have suffered from some kidney disease and 73.1%. have no such history. 37.8%% have suffered from urinary tract infections. 53.6%. of the participants have a history of kidney disease among their family members 76.5%. participants know that kidneys produce urine. 72.6% of participants know about the purification of blood that occurs in the kidneys. 65.9%. knows about the role of kidneys in maintaining blood sugar levels. 59% of participants are aware that obesity can cause chronic kidney disease. 67.7% know that high blood pressure can cause chronic kidney disease. 69.9% know that uncontrolled diabetes mellitus may cause chronic kidney disease 72.8% of participants know that alcohol causes chronic kidney disease. Only 53.1% know that childhood disease may lead to chronic kidney disease. 68.6% of participants agree that prolonged use of medication is a cause of chronic kidney disease 73.8% of participants agree that prolonged intake of painkillers is a cause of chronic kidney disease. 68.1%are aware that excess salt consumption is a cause of chronic kidney disease.

Table 1
Socio-demographic and clinical characteristics of participants

Variable	Frequency	%	Variable	Frequency	%
Demography Section			**Knowledge Section**		
Age group			Kidney disease of family		
18-25	81	20.0	Yes	217	53.6
26-35	83	20.5	No	188	46.4
36-45	92	22.7	Purification of blood		
46-55	79	19.5	Yes	294	72.6
56-65	41	10.1	No	111	27.4
66-75	19	4.7	Role of Kidney		
>75	10	2.5	Yes	267	65.9
Education Status			No	138	34.1
Illiterate	8.6	35	Obesity		
Primary	11.6	47	Yes	239	59.0
Secondary	15.3	62	No	166	41.0
Higher Secondary	25.7	104	Diabetes mellitus		
Graduate	25.9	105	Yes	283	69.9
Postgraduate	12.9	52	No	122	30.1
Monthly income			Childhood disease		
<15000	41	10.1	Yes	215	53.1
15000-30000	187	46.2	No	190	46.9
30000-50000	100	24.7	Alcohol		
50000-70000	69	17.0	Yes	295	72.8
>70000	8	2.0	No	110	27.2
Marital status			Prolong use of medicine		
Unmarried	144	35.6	Yes	278	68.6
Married	241	59.5	No	127	31.4
Divorced	20	4.9	Prolong use of painkiller		
Housing Condition			Yes	299	73.8
Pacca	282	69.6	No	106	26.2
Semi-pacca	86	21.2	Excess salt consumption		
Kancha	23	5.7	Yes	276	68.1
Others	14	3.5	No	129	31.9
Knowledge Section			Star fruit consumption		
One Kidney			Yes	240	59.3
Yes	220	54.3	No	165	40.7
No	185	45.7	Heart failure		
Kidney disease			Yes	250	61.7
Yes	109	26.9	No	155	38.3
No	296	73.1	Stress		
Urinary tract infection			Yes	255	63.0
Yes	153	37.8	No	150	37.0
No	252	62.2			

Variable	Frequency	%	Variable	Frequency	%
Knowledge Section			**Attitude Section**		
Awareness of early symptoms			Test without symptoms		
Yes	231	57.0	Yes	222	54.8
No	174	43.0	No	110	27.2
Fatality			Cannot say	72	17.8
Yes	314	77.5	Risk of death		
No	91	22.5	Yes	256	63.2
Water retention			No	149	19.5
Yes	270	66.7	Self-development of CKD		
No	135	33.3	Yes	200	49.4
Nausea, vomiting			No	114	28.1
Yes	222	54.8	Expensive test		
No	183	45.2	Yes	203	50.1
Fever			No	127	31.4
Yes	242	59.8	Cannot say	75	18.5
No	163	40.2	Idea of CKD learning		
Loss of appetite			Yes	281	69.4
Yes	215	53.1	No	82	20.2
No	190	46.9	Cannot say	42	10.4
Fatigue			Medicine or herbs		
Yes	225	55.6	Medicine	217	53.6
No	180	44.4	Herbs	110	27.2
Idea of no sign symptoms			Cannot say	78	19.3
Yes	227	56.0	Avoidance of Junk foods		
No	178	44.0	Yes	246	60.7
Chronic kidney disease			No	99	24.4
Yes	278	68.6	Cannot say	59	14.6
No	127	31.4	Threat to daily life		
Kidney transplant			Yes	265	65.4
Yes	293	72.3	No	96	23.7
No	111	27.4	Cannot say	44	10.9
Attitude Section			**Preventive Measures**		
CKD prevention			Blood pressure measurement		
Yes	213	52.6	Few days ago	148	36.5
No	149	36.8	1 month ago	110	27.2
Cannot say	42	10.4	Few month ago	93	23
Kidney function test			1 year ago	23	5.7
Yes	206	50.9	Few years	31	7.7
No	199	49.1			

Variable	Frequency	%	Variable	Frequency	%
Preventive Measures			**Preventive Measures**		
Sugar level assessment			Regular exercise		
Few days ago	66	16.3	daily	108	26.7
One month ago	94	23.2	twice a week	119	29.4
Few month ago	113	27.9	thrice a week	73	18.0
One year ago	70	17.3	once in a month	43	10.6
Few years ago	56	13.8	never	62	15.3
Never tested	6	1.5	Duration of exercise		
Cholesterol Level assessment			never	30	7.4
Few days ago	62	15.3	30 minutes	227	56.0
One month ago	76	18.8	one hour	114	28.1
Few month ago	96	23.7	one and half hour	9	2.2
One year ago	66	16.3	two hours	25	6.2
Few years ago	85	21.0	Duration of sleep		
Never tested	19	4.7	<4 hours	83	20.5
Daily water Intake			4-6 hours	193	47.7
<1 L	1	0.2	7-8 hours	120	29.6
1-2L	55	13.6	>8 hours	9	2.2
2-3L	107	26.4	Balanced diet intake		
3-4L	197	48.6	Yes	248	61.2
>4L	45	11.1	No	157	38.8
Kidney function assessment			Periodicity to visit a doctor		
Daily	70	17.3	every 3 months	68	16.8
Monthly	147	36.3	every 6 months	84	20.7
Yearly	134	33.1	annually	74	18.3
Once in a time	50	12.3	every 2 to 3 years	65	16.0
			never	114	28.1

59.3% of the participants knows that consumption of star fruit is a cause of chronic kidney disease.61.7% of the participants knows that heart failure is a risk factor of chronic kidney disease. 63% participants knows that stress is a risk factor of chronic kidney disease. 57% of the participants are aware that chronic kidney disease shows early symptoms.77.5% participants have knowledge about the fatality of chronic kidney failure. 66.7% participants agree that water retention can be a sign and symptom of chronic kidney disease.54.8% participants knows that nausea and vomiting is a sign and symptoms of chronic kidney disease. 59.8% participants are aware that fever can be a sign and symptom of chronic kidney disease.53.1% participants knows that loss of appetite is a sign and symptom of chronic kidney disease.55.6% participants agree that fatigue as well as tiredness can be a sign and symptom of chronic kidney disease.56.0% participants knows that chronic kidney disease can be occur without any sign and symptoms.68.6%. participants knows that chronic kidney disease leads to kidney failure. 72.3%. participants have knowledge that kidney failure is fatal. 52.6% participants believe that chronic kidney diseases can be prevented. 36.6% participants did not believe it. Rest 10.4% participants cannot say anything about it. 50.9% participants know about the kidney function test, 49.1% does not know about the kidney function test. 54.8% participants know about the necessity of kidney function test on production of sign symptoms. 27.2% participants do not know about it, 17.8% can't say anything on it. 65.7% participants know about the detection of chronic kidney diseases to prevent worsening of kidney. 34.3% does not know about it. 63.2% of the participants think that there is risk of death in CKD. 19.5% don't agree it. 50.1% of the participants thinks that kidney function test is expensive whereas 31.4% of the participants don't think so. 69.4% of the participants are interested in learning about kidney

disease whereas 20.2%are ignorant. 44.2% of the participants think that they can bear the cost of treatment in CKD. 35.6% don't agree with it. 53.6% of the participants are interested in the treatment of kidney disease by medicine 27.2% of the participants would treat it with herbs. 60.7% of the participants are interested in the avoidance of junk food whereas 24.4% are reluctant. 65.4% of the participants think CKD is threat to daily life whereas 23.7% don't think so.

Among the correspondents ,36.5% measured blood pressure few days ago, 27.2% measured one month ago, 23% measured few months ago, 5.7% one year ago, 7.7% measured few years ago. 16.3% of the participants measured blood sugar few days ago, 23.2% measured one month ago, 27.9% measured few months ago, 17.3% one year ago ,13.8% measured few years ago. 15.3% of the participants measured cholesterol few days ago, 18.8% measured one month ago, 23.7% measured few months ago, 16.3% one year ago, 21.0% measured few years ago. 4.7% participants never tested their cholesterol level. 48.6% thinks that 3-4L water should be taken per day,11.1% thinks that more than 4L should be taken,0.2% participant think to take water less the 1L in a day. 36.3% participants agree for monthly kidney assessment, 33.1% participants agree to do assessment yearly. 17.3% participants think to do kidney assessment daily and 12.3% participants thinks to do once in a lifetime. 29.4% participants do exercise twice a week, 26.7% participants do exercise daily, 18% participants do thrice in a week and 15.3% participants never do exercise.

Ta 56% participants do 30minutes exercise, 28.1% participants do one hour exercise, 6.2% participants do two hours of exercise whereas 7.4% participant never do exercise. 20.5% participants sleep less than 4hours in a day, 47.7% participants sleep around 4-5hours, 29.6% participants sleep for 7-8hours in a day, 2.2% participants sleep more than 8hours in a day. 61.2% participants agree to take of balanced diet whereas rest 38.8% participants do not agree. 28.1%, does not want to visit the doctor for any complications but 20.7% participants would like to visit the doctor within every 6 months. 16.8% in every 3 months and 18.3% annually.

Recommendation

This study shows that more than half of the population is well aware of the disease. However, some of them are not inclined to take precautions. On the contrary, the others are completely unaware and ignorant. To aid the growth of knowledge and prevention of the disease we recommend the following;

- At the community level:
  - ✓ Promote health education among the people of the community including all ages.
  - ✓ Inculcate proper dietary habits to maintain proper kidney health.
  - ✓ Organize a mass screening program to assess the kidney health status of individuals in the community.
  - ✓ Inform and notify the common people about the severity of the disease and recent medical advancements in the treatment.
  - ✓ Cultivate and develop the habit among the people to learn about such disease.

- At the individual level:
  - ✓ Maintain a proper balanced diet concerning age, sex, and health status of the individual.
  - ✓ Exercise regularly and increase physical activity to prevent obesity.
  - ✓ Visit a doctor periodically for health checkups.
  - ✓ Access the kidney function by routine investigation.
  - ✓ Build up an urge to learn about the disease.

Finally, the advice and education given to the people should not be only to follow these recommendations but also to ask them for advice the other people who are reluctant to follow these actions. Those who refuse to follow could be discriminated against; at least the fear of ostracism may push them to take prevention, to reduce loss of human life if not awareness and education.

4 Conclusion

This cross-sectional study was to perceive the knowledge, and attitude of the people of Dhaka city regarding Chronic Kidney Disease. The study concludes with the fact that young and educated people have a relatively considerable amount of knowledge about CKD. They also show a good attitude to follow good health practices to prevent it. On the contrary, a large sum of people mostly including the uneducated sector have a negligible amount of knowledge about the existence of this disease and so they are reluctant to follow preventive measures. However, this study finds a considerable amount of people who are aware of the disease but do not know or are hesitant to follow simple steps to prevent the disease, mostly due to unavailable resources. The government should have a customized and effective health education program for all people including all age groups to educate and enlighten them about this disease and steps that can be taken to prevent this disease like routine screening tests proper food habits, and periodic examinations, in appropriate intervals.

Conflict of interest: There is no conflict of interest

Acknowledgments
I am grateful to two anonymous reviewers for their valuable comments on the earlier version of this paper.

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