



Research Article

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Knowledge and Perceptions Toward Chronic Kidney Disease Prevention and Control in Saudi Arabia

AbdulRahman Ali AlSogair¹, Abdullah Abdulhadi Hammad Alharbi¹, Ibrahim A. Bin ahmed², Saleh Hadi Alharbi², Ibrahim A. Bin ahmed², Fahad A. Alateeq², Abdulmalik M. Aloriney², Hussain Gadelkarim Ahmed^{1*}

¹ College of Medicine, University of Hail, Saudi Arabia,

² Faculty of Medicine, Al Imam Mohammad Ibn Saud Islamic University, Kingdom of Saudi Arabia (KSA).

*Email: hussaingad5@gmail.com

ABSTRACT

Background: CKD is prevalent in most parts of the world. CKD can be prevented and controlled by controlling its underline causes. Therefore, the objective of the present study was to assess the knowledge and perception toward CKD prevention and control in Saudi Arabia. Methodology: This was a prospective descriptive study which included 783 apparently healthy Saudi volunteers, their ages ranged from 20 to 65 years with the mean age of 37 years. A purposeful questionnaire was designed and used for obtaining data about the CKD. Results: Out of 783 contributors, 232(29.6%) were males and 551(70.4%) were females, giving males' females' ratio of 1.00: 2.37. On asking the participants the question of "whether continuous doing renal function test for at risk individuals can reduce the burden of CKD," about 85% agreed, and 15% disagreed. On asking the participants the question of "whether controlling HTN can reduce the burden of CKD," about 30.6% agreed and 69.3% disagreed. On asking the participants the question of "whether controlling DM can reduce the burden of CKD," about 54.7% agreed and 45.3% disagreed. Conclusion: There was a relatively high positive attitude and knowledge toward CKD prevention and control among the educated Saudi population. Further efforts to promote health knowledge, particularly among less educated section has been needed in order to increase the chances of CKD prevention and control.

Key words: CKD, Prevention, Control, DM, Hypertension, CVD, Saudi Arabia.

INTRODUCTION

Chronic kidney disease (CKD) is a disease characterized by a gradual loss of kidney function. CKD is prevalent worldwide with a significant contribution to mortality [1, 2]. CKD has been defined as a reduced glomerular filtration rate (GFR), augmented urinary albumin excretion, or both; and its prevalence has been estimated to be 8-16% worldwide [3]. The prevalence rate of CKD in developing world has been greater in the developed countries. The most frequent risk factors of CKD in the developing nations have been chronic glomerulonephritis and systemic hypertension, and diabetic nephropathy has been the utmost cause in Europe, the United States, and Japan. The most common factors linked to the geographical variations of the prevalence rates have been diabetes mellitus (DM), hypertension (HTN), obesity, genetic predisposition, cigarette smoking, ingestion of heavy metals, race, and ethnicity [4]. These factors accompanied with oxidative stress will increase the risk of the disease [5].

Saudi Arabia has been one of the Gulf Cooperation Council (GCC). Although this country has a well-established health system, it has witnessed a rapid increase in the prevalence of non-communicable diseases including CKD [6]. Reports from GCC countries have shown the increasing prevalence of the most common

causes of CKD. The prevalence of obesity in these countries, which is related to multi-chronic illnesses, go beyond that in the developed world due to their fast economic progress and various lifestyle associated changes [7-9].

The early detection of CKD through screening at risk population represents a genuine opportunity for effective and safe interventions, which may reduce the overall burden of the disease including mortality, progression to end-stage renal disease (ESRD) or the other renal dysfunctions related to the complications and cardiovascular diseases (CVD) [10]. However, the screening the unselected people who have not been previously recognized to be at risk of CKD has not been shown to be cost-effective [11]. Nevertheless, the prevention of adverse outcomes of CKD could be assisted by estimating the persons with risk factors, to permit earlier detection, and risk factor reduction in individuals without CKD, to prevent or slow the progress of CKD [12].

A wide-ranging community based health education campaign and screening can be essential prevention and control measures for the early detection of CKD. Therefore, the aim of the present study was to assess the Knowledge and perceptions toward CKD prevention and control in Saudi Arabia.

MATERIALS AND METHODS

In this prospective descriptive study, data were obtained from 783 Saudi volunteers living in the city of Hail, Northern Saudi Arabia. The participants were randomly selected by simple random method regardless of their age, gender or education level.

Purposeful questionnaire was designed and used for the collection of the required data. The following information was obtained from each participant: age, sex, occupation, education level, testing at risk person, controlling HTN, controlling DM, controlling Analgesics usage, Physical activity, control by drugs, dialysis, and transplantation.

Data analysis:

Statistical Package for Social Sciences (SPSS) was used for the analysis, and Pearson Chi-square test was performed for statistical significance (P value). The 95% confidence level and confidence intervals were used. P value less than 0.05 was considered statistically significant.

Ethical consent:

Each participant was asked to sign a written ethical consent before the interview. The informed ethical consent form was designed and approved by the ethical committee of the College of Medicine (University of Hail, KSA) Research Board.

RESULTS

In this study, 783 Saudi participants were interviewed with regard to CKD, their ages ranged from 20 to 65, with a mean age of 37 years. Out of 783 contributors, 232(29.6%) were males and 551(70.4%) were females, giving male to female ratio of 1.00: 2.37.

Table1. Distribution of the participants by demographical characteristics

Variable	Category	Males	Females	Total
Age	≤25 years	56	292	348
	26-44	64	47	111
	45-64	86	214	290
	≥65	26	8	34
	Total	232	551	783
Education	Basic education	22	30	52
	Secondary	102	203	305
	University	108	318	426
	Total	232	551	783
Occupation	Teacher	43	181	224
	Military	72	0	72
	Free work	30	2	32
	Student	1	251	252
	Other	86	117	203
	Total	232		783

The distribution of the contributors by demographical characteristics has been described in Table 1 and Fig 1. The majority of the participants were found at the age range of ≤ 25 years constituting 348 (44%) followed by the age groups of 45-64 and 26-44 years constituting 290(37%), and 111(11.2%), respectively. The majority of males were found at age group of 45-64 years followed by the age groups of 26-44 years, representing 86(37%) and 64(28%), of the total males, in this order. The majority of the females were found at the age group of ≤ 25 years followed by the age groups of 45-64 years and 26-44 years, representing 292(53%) and 214(39%), of the total females, in this order.

Most of the study subjects were found with the university level of education followed by the secondary level constituting 426(54%) and 305(39%), correspondingly. For males, most of them were at university level constituting 108/232(47%) of the total males, also, most females were found with the university level comprising 318/551(58%) of the total females, as described in Table 1, Fig 1.

With regard to the occupation, most participants were students followed by teachers representing 252(32%) and 224(29%), respectively. For males, most of them were military representing 72(31%), hence, most of females were students comprising 251(46%), as described in Table 1, Fig 1.

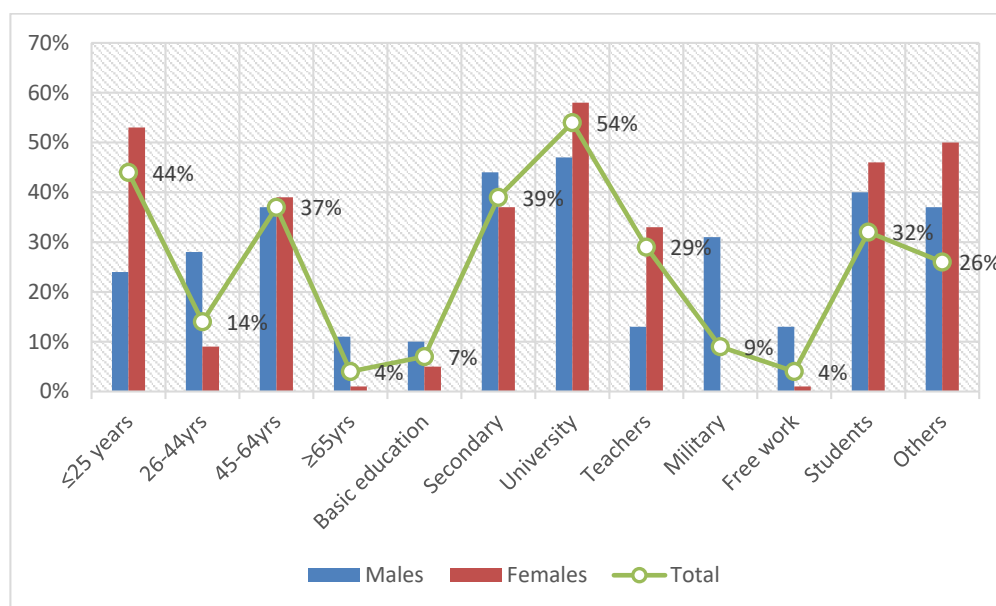


Figure 1. Description of the study subjects by demographical characteristics

Table 2, summarizes the distribution of participants by factors that can prevent or control CKD. On asking the participants the question of “whether continuous doing renal function test for at risk individuals can reduce the burden of CKD”, about 665/783(85%) agreed, and 118/783(15%) disagreed. Out of the 665 participants indicated positive relationship between renal function test and CKD, 114/232(49%) were males and 551/551(100%) were females.

On asking the participants the question of “whether controlling HTN can reduce the burden of CKD”, about 240/783(30.6%) agreed and 543/783(69.3%) disagreed. Out of the 240 participants who indicated the positive relationship between HTN and CKD, 120/232(51.7%) were males and 120/551(21.8%) were females.

On asking the participants the question of “whether controlling DM can reduce the burden of CKD,” about 428/783(54.7%) agreed, and 355/783(45.3%) disagreed. Out of the 428 participants who indicated a positive relationship between DM and CKD, 174/232(75%) were males, and 254/551(46%) were females.

On asking the participants the question of “whether controlling analgesics usage can reduce the burden of CKD”, about 685/783(87.5%) agreed, and 98/783(12.5%) disagreed. Out of the 685 participants who indicated the positive relationship between the analgesics usage and CKD, 186/232(80%) were males, and 499/551(90.6%) were females.

On asking the participants the question of “whether maintaining continuous physical activity can reduce the burden of CKD,” about 760/783(97%) agreed, and 23/783(3%) disagreed. Out of the 760 participants who indicated positive relationship between the physical activity and CKD, 219/232(94.4%) were males and 541/551(98%) were females, as shown in Fig 2.

Table 2. Distribution of the participants by means of CKD prevention and control

Variable	Category	Males	Females	Total
Testing at risk person	Yes	114	551	665
	No	118	0	118
	Total	232	551	783
Controlling HTN	Yes	120	120	240
	No	112	431	543
	Total	232	551	783
Controlling DM	Yes	174	254	428
	No	58	297	355
Control Analgesics usage	Yes	186	499	685
	No	46	52	98
Physical activity	Yes	219	541	760
	No	13	10	23

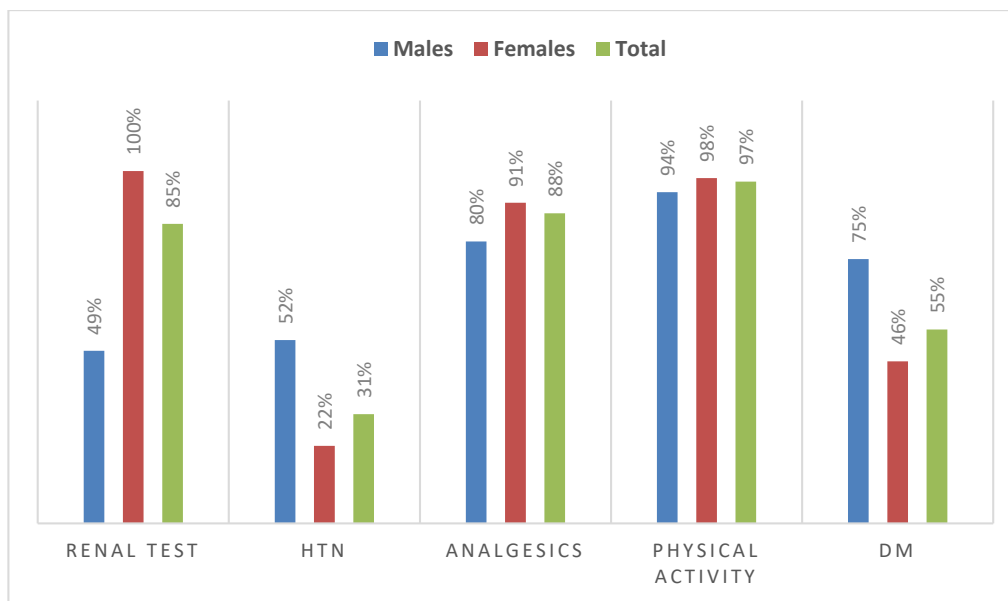
**Figure 2.** Description of the participants by means of CKD prevention and control

Table 3, summarizes the distribution of the participants by means of the intervention control of CKD. On asking the participants the question of “whether CKD can be controlled by drugs,” about 623/783(79.6%) agreed, and 160/783(20.4%) disagreed. Out of the 623 participants, who indicated a positive relationship between drugs and CKD, 138/232(60%) were males, and 485/551(88%) were females.

On asking the participants the question of “whether CKD can be controlled by dialysis,” about 702/783(90%) agreed, and 81/783(10%) disagreed. Out of the 702 participants who indicated a positive relationship between dialysis and CKD, 189/232(81.5%) were males and 513/551(93%) were females.

On asking the participants the question of “whether CKD can be controlled by transplantation,” about 689/783(88%) agreed, and 94/783(12%) disagreed. Out of the 689 participants who indicated a positive relationship between the transplantation and CKD, 164 /232(71%) were males and 525/551(95.3%) were females.

On asking the participants the question of “whether CKD can be controlled by the other factors,” about 110/783(14%) agreed, and 673/783(86%) disagreed. Out of the 110 participants who indicated a positive relationship between other factors and CKD, 54/232(23%) were males and 56/551(10%) were females, as indicated in Fig 3.

Table 3. Distribution of the participants by means of intervention and control

Variable	Category	Males	Females	Total
Control by drugs	Yes	138	485	623
	No	94	66	160
	Total	232	551	783
Dialysis	Yes	189	513	702

	No	43	38	81
Transplantation	Yes	164	525	689
	No	68	26	94
Other	Yes	54	56	110
	No	178	495	673

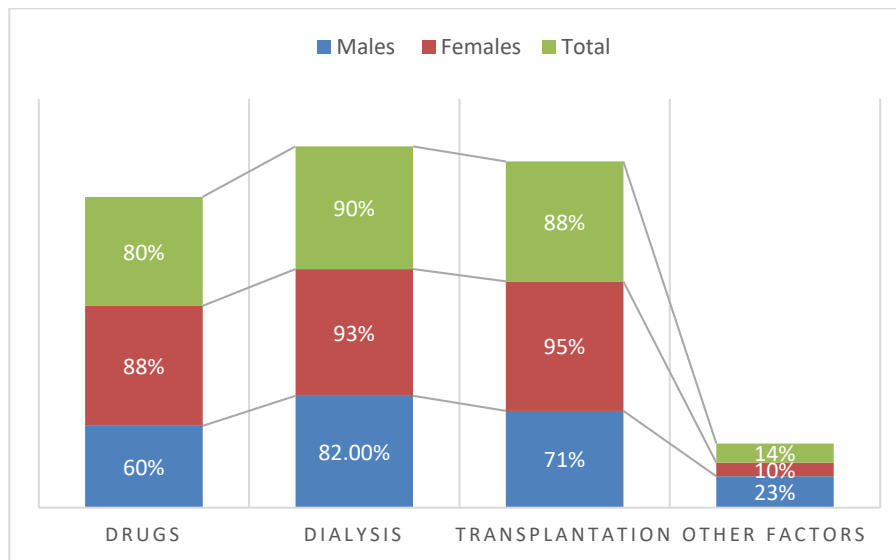


Figure 3. Description of the participants by means of intervention and control

DISCUSSION

Prevention and control are the corner stones of the disease control. The most successful prevention and control programs have been those community oriented programs. Thus, the present study attempted to assess the knowledge and perception toward CKD prevention and control in Saudi Arabia.

The present study surveyed about 783 Saudi participants with diverse demographical characteristics including male to female ratio.

On asking the participants the question of “whether continuous doing renal function test for at risk individuals can reduce the burden of CKD,” about 85% agreed and 15% disagreed. 49% of those who indicated a positive relationship between renal function test and CKD, were males and 100% were females. The patients should be evaluated each year to decide whether they are at an amplified risk of developing CKD based on the clinical and sociodemographic factors. DM, HTN, and older age have been the main risk factors that deserve screening. Other risk factors included CVD, family history of CKD, and ethnic and racial minority status. Serum creatinine levels can be used to estimate the GFR, and spot urine testing can detect proteinuria [13]. Repeated testing for CKD after 3 months considerably decreased the assessed prevalence of the disease and identified a population with true CKD and a cardiovascular risk significantly in excess of the general population [14].

On asking the participants the question of “whether controlling HTN can reduce the burden of CKD,” about 30.6% agreed and 69.3% disagreed. Those indicated a positive relationship between HTN and CKD, included 51.7% of the males and 21.8% of the females. These findings indicated low awareness measures, particularly among the females. HTN and CKD were meticulously connected to a combined cause and effect connection. Blood pressure (BP) classically rose with the deteriorations in kidney function, and continued raising in BP speed up progression of CKD [15].

On asking the participants the question of “whether controlling DM can reduce the burden of CKD,” about 54.7% agreed and 45.3% disagreed. Those indicated a positive relationship between DM and CKD, included 75% males and 46% females. The awareness in this regard was relatively higher, particularly among the males. It was well established that diabetes has been the leading cause of kidney disease. About 1 out of 4 adults with diabetes has a kidney disease [16]. Diabetic nephropathy has been the commonest cause of ESRD and affected between 30 and 45% of patients with DM [17, 18].

On asking the participants the question of “whether controlling analgesics usage can reduce the burden of CKD”, about 87.5% agreed, and 12.5% disagreed. Those pointed to the positive relationship between analgesics

usage and CKD included 80% of the males and 90.6% of the females. This point of view showed a high awareness level, particularly among the females. Nonsteroidal anti-inflammatory drug (NSAID) usage has been associated with the increased risk of CKD in subjects with hypertension and type 2 DM. The use of NSAID should be based on the clinical evaluations of benefits and risks, and should be prescribed with the caution for the people with hypertension and Type 2 DM [19, 20].

On asking the participants the question of “whether maintaining the continuous physical activity can reduce the burden of CKD,” about 97% agreed and 3% disagreed. Those indicated a positive relationship between the physical activity and CKD, included 94.4% of the males and 98% of the females. This category showed the highest attitude, particularly among the females, though females have been more inert due to some social restrictions. The practice of the physical activity is now a subject of a special attention in maintaining public health. Indeed, the expected benefits in terms of cardiovascular morbidity and mortality suggested that all the physicians should promote it [21]. CKD has been associated with several comorbidities, among which cardiovascular disease being the most significant. Aerobic training has a beneficial effect on the cardiovascular health in healthy and some well-defined non-healthy populations [22].

On asking the participants the question of “whether CKD can be controlled by drugs”, about 79.6% agreed and 20.4% disagreed. Early diagnosis and treatment of the primary cause and/or the implementation of the secondary preventive measures have been vital in patients with CKD. Most drugs have been used for the treatment of the underlining causes of CKD, such as, CVD, hypertension, DM, dyslipidemia etc. [23].

On asking the participants the question of “whether CKD can be controlled by dialysis,” about 90% agreed and 10% disagreed. Dialysis was mostly performed on cases with the end stage renal disease. The decision about when to start dialysis for ESKD has been multifarious, and has been influenced by numerous factors. It has been recommended that in asymptomatic patients with stage 5 CKD, dialysis may be safely delayed until the eGFR gets at least as low as 5-7 mL/min/1.73 m² if there is careful clinical follow-up and sufficient patient education [24].

Although the present study presented an important data regarding the knowledge and perception toward CKD prevention and control in Saudi Arabia, it had some limitations including its cross-sectional setting, targeting the educated population section and imbalance of the gender distribution.

CONCLUSION

There has been relatively high positive attitude and knowledge toward CKD prevention and control among the educated Saudi population. Further efforts to promote health knowledge, particularly among less educated section is needed in order to increase the chances of the prevention and control.

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