Care provider's knowledge, attitude and practices toward chronic kidney disease in Jimma Town: Cross-sectional study

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Research article

Keywords: Care providers, Chronic Kidney Disease, Kidney Disease

Posted Date: July 24th, 2019

DOI: <https://doi.org/10.21203/rs.2.11891/v1>

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Abstract

Introduction:Chronic kidney disease (CKD) is a common and growing health problem that requires adequate knowledge by health care providers to reduce the progress of the diseases. Thus, this study is aimed to asses the care provider's knowledge, attitude, and practices toward CKD. **Method:** Cross-sectional study was conducted among 326 care providers at Jimma University Specialized hospital and three medium to higher clinics found in Jimma Town. Collected data entered to Epi-Data version 3.1 and exported to SPSS version 21 for windows for data analysis. Descriptive statistics and generalized linear modal were used to analyze the data. **Result:**The mean age and service year of the participants were 29.68($\pm$ 4.877) and 4.28($\pm$ 4.561), respectively. The overall weighted knowledge, attitude and practice score of the study participant was 9.0971(8.77, 9.42), 2.53(2.4,2.65), 10.14(9.94,10.33) respectively. More than half of the respondents 191 (58.6%) had the knowledge that eGFR (estimated Glomerular Filtration Rate) is a better way to assess kidney function. Many 215(66.0%) knew the five-stage and the risk factors of CKD. Above 250 study participant knew late detection and referral would increase kidney disease complication. In addition, 275(84.4%) of them are worried about treatment cost related to CKD. Over half of the care providers, 238(73.0%) believed that the Ethiopian ministry of health gave less attention to the problem. Furthermore, 234(71.8%) are interested to study more on CKD management. Majority 256(78.5%), very likely or likely refer patient to senior physician and Nephrologist. **Conclusion:** Care provides knowledge was found to be above moderate level and many had the knowledge on the basic function of the kidney, risk factors, treatment, and management of CKD. Many are worried about treatment cost and interested to learn about CKD primary from textbook and internet. The majority had a practice of referring patients to nephrologists or to a senior physician. Many care providers had a frequent discussion on the prevention strategies of CKD.

Introduction

Chronic kidney disease (CKD) is a worldwide epidemic health problem of increasing prevalence and costing an enormous burden on healthcare systems [1-3]. The worldwide increase of CKD needs a well organized preventive strategy mainly by detecting the risk factors [4-7]. According to the American Heart Association(AHA) statement released in 2013 states that CKD is a major risk factor for coronary disease [8-12]. Earlier-stage CKD can also lead to several complications related to anemia and bone mineral metabolism disorders [13]. Despite these known adverse consequences of CKD, the vast majority of the people remain unaware of the disease [14-16]. Kidney disease (KD) can be diagnosed with simple laboratory procedure. However, peoples practice toward testing (screening) themselves to know the status of CKD is extremely very low. In addition, awareness of CKD remains unacceptably low among care provider's [17-21]. Earlier recognition of CKD by nephrologists can slow the progression of the disease [22-26]. However, late evaluation of CKD patients by nephrologists would increase renal failure [27-30]. Most patients with CKD seeking treatment in the tertiary hospitals are mostly seen by a non-nephrologist. The nephrologist has relatively sufficient awareness related to CKD diagnosis than non-nephrologist [15, 31]. According to the unpublished study renal disease covers 1.2-6 % of adult hospital medical

admissions in Ethiopia. Chronic glomerulonephritis, diabetes, and hypertension are the leading causes of chronic kidney disease in Ethiopia. In addition, besides the low number of nephrologists in the country, very low level of awareness about kidney diseases, their risk factors, and management of CKD among care providers are believed to be low. Thus, this study proposed to see the level of care providers knowledge, attitude and practices (KAP) toward CKD. Farther more, the investigators believe that the study will bring change in the area by identifying gaps for future direction and better patient approach regarding CKD management.

Methods

Study Design and Study Setting

A cross-sectional survey was conducted at Jimma University Specialized Hospital (JUSH) and three main higher private clinics from February 25, 2018, to June 21, 2018. All are located at Jimma town.

Sample Size and Sampling Method

The sample size was determined based on the single population proportion formula using $Z^2 \times p \times q/d^2$ with the assumption of the prevalence of 50% for knowledge, attitudes, and practices (KAP) of chronic kidney disease, a 95% confidence interval and a 5% margin of error. Finally, adding a 10% non-response rate; the total sample size was 422. Sampling was done by the non-probability method. All health care professionals with a bachelor's degree in health sciences, general practitioner, resident doctors, and specialist doctors were eligible for the study.

Method of Data Collection

We developed a questionnaire on the basis of a literature review to include items assessing KAP on CKD. The content of the questionnaire was assessed by the professionals who are expert in the area. A total of 40 volunteer health care providers were involved in the pre-test. The data collectors and supervisors discussed the questionnaire thoroughly before data collection. The final version administered as part of this study consisted of 25 items divided into three conceptual domains: knowledge, attitudes, and practices. Knowledge domain comprised fourteen items and each was categorized into two point response scale ("Yes" and "No"). Attitude domain contained four questions with two major categorical response scale ("Agree" and "Disagree") to test care providers belief. Lastly, the practice domain consisted of seven items with a four-point Likert-scale ("Very Unlikely", "Unlikely", "Likely" and "Very Likely").

Statistical Analysis

The International Business Machines Corporation-Statistical Package for Social Sciences program version 23 (IBM-SPSS Statistics 21) was used for data analysis. The data were expressed as means $\pm$ standard deviation (SD) for continuous variables and as frequencies (percentages) for categorical

variables. Knowledge score and crude associations were assessed using generalized linear model. The possible presence of multicollinearity between independent variables was explored based on the variance inflation factor (VIF). Internal consistency of all CKD Index sub-scales (i.e. knowledge, attitude, practice scales) was assessed using Cronbach's alpha greater than 0.62. All odds ratios were reported with a 95% confidence interval. All P values were considered significant at < 0.05 .

Result

Participant characteristics

A total 326 health care professionals were involved and the majority of the participants were male 227(69.6%) and general practitioners 96(29.4%). The mean age and service year of the participants were 29.68(± 4.877) and 4.28(± 4.561) respectively. The overall weighted knowledge, attitude and practice score of the study participant was 9.0971(8.77, 9.42), 2.53(2.4,2.65), 10.14(9.94,10.33) (table 1).

Knowledge

Male participants had a higher knowledge of 9.54(9.17, 9.91) than female. Residents 10.1(9.49, 10.65) had higher knowledge score than other professionals. In addition, Male sex 0.875(0.204, 1.547) residents 1.84(0.979, 2.694) and specialist 1.72(0.802, 2.646) showed significant linear associations with the crude knowledge score of chronic kidney disease (table 1).

Majority of the respondents 191 (58.6%) had knowledge that eGFR (estimated Glomerular Filtration Rate) is a better way to assess the severity of kidney disease. In addition, 180(55.2%) of the participants also had a knowledge that eGFR helped in referral to a nephrologist (Q2). Regarding the age-related reduction in eGFR without kidney disease, the highest proportion of the participants 202(62.0%) responded that they don't think it leads to low eGFR with normal serum creatinine and normal urine analysis (Q3). Risk factors and complications of CKD is concerned, 298(91.4%) of them had knowledge that diabetes and hypertension are possible risk factors of CKD. Farther more, chronic illness, long term alcohol consumption and anemia are also considered as possible risk factors of CKD believed by health care professionals (table 2).

Attitude

Majority of the study participants 275(84.4%) agreed that they worry about treatment cost for CKD (Q1). In the same extent, 219(67.2%) of participants also believed that CKD is a major public health problem in Ethiopia (Q2) and 238(73.0%) of the participants disagree that ministry of health is working hard in the prevention of the disease (Q3). Furthermore, 234(71.8%) participants agreed that they need more education on CKD and eGFR (Q4) (table 3).

Practices

Majority of the participants 256(78.5%), Very likely or likely refer patient with CKD to senior physician and Nephrologist (Q1). However, 280(85.9%) and 245(75.2%) of participants Very Unlikely and Unlikely responded that they refer patients to get care from a traditional healer and treat themselves at home respectively (Q2 and Q3). In addition, many of the participants 260(79.8%) responded that their health center Very Unlikely or Unlikely prepare a weekly/monthly program focusing on the provision of health information regarding kidney disease (Q7) (Table S1).

Discussion

Overall, the aims of this study highlight the areas that need to be worked upon in order to improve the quality of care for patients with CKD. Health care providers involved in this study had enough knowledge score about CKD (9.0971(8.77, 9.42)). Majority of physicians knew eGFR for the diagnosis of CKD and helped them to refer patients to nephrologists. However, many didn't know the standard treatment guidelines and the Modification of Diet in Renal Disease (MDRD) equation used for the calculation of eGFR. This finding has a similarity with the study conducted at a Tertiary Care Hospital in Pakistan [33, 34]. In Ethiopia because of the poor infrastructure, poor laboratory facility and shortage of manpower in the area, physicians frequently use urine and serum creatinine as a means of CKD diagnosis. However, serum creatinine and urine diagnosis may not truly indicate the different stage of CKD, because creatinine level might increase in the blood after high protein ingestions, intense exercise and after taking some drugs such as Cimetidine, Trimethoprim, Pyrimethamine, Salicylates, Phenacetamide, Corticosteroids, and Vitamin D derivatives [35,36]. Increasing evidence indicates that the CKD burden is increasing in developing countries. The incidence of CKD in Ethiopia is rising because of increased risk factors such as high blood pressure and diabetes mellitus [37-38]. In our study, the majority of the care providers knew the possible risk factors of CKD such as diabetes mellitus, hypertension, cardiovascular disorders, and anemia and long term alcohol consumptions. This finding got a similarity with the study conducted in the USA [40-42]. Pharmacological treatment is one of the ways to treat patients with CKD before the advancement of the disease to the end stage. A variety of drugs such as β -Blockers, Thiazide Diuretics, and Angiotensin Converting Enzyme (ACE) inhibitors and others are administered by physicians to help patients to stay relatively healthy. Dialysis and kidney transplant are the only options that patients must take to minimize mortality associated with ESKD. In our study, care providers knew that β -Blockers, Thiazide Diuretics, and Angiotensin Converting Enzyme (ACE) inhibitors are some of the drugs given to patients with CKD to minimize the effect of the disease before the patient went for dialysis and Kidney transplant. The same finding has been reported by Rubeen K.Israni et al 2009 [43-45]. In the current study, care providers showed a strong interest in learning about eGFR and kidney disease. In addition, the majority of the study participants felt kidney problem in Ethiopia is a public health problem that the minister of health gave less attention. As far as practice parameters are concerned, we identified that the majority of the study participants very likely or likely refer patients to Nephrologists. Furthermore, care providers confirm that they had no regular or periodic meeting to discuss kidney disease. However, very likely or likely they had a talk with their patients about the possibility of developing kidney diseases associated with the main disease they bring and also discussed with preventive measures. It is also seen

that the majority of the participants collect information about CKD from social media or textbooks also they confirm that they did use urine proteins as a major evidence of a diagnosis of CKD.

Conclusion

The overall weighted knowledge score of the participant on CKD was 9.0971(8.77, 9.42) which is above a moderate level. Care providers should update themselves on the current advancement of sciences related to CKD treatment and management. Clinical departments should prepare regular meetings to discuss issues related to CKD. Furthermore, patient referral to the appropriate care unite should be encouraged. The ministry of health should give adequate attention to the prevention work as many care providers agreed that CKD is a public health problem in Ethiopia.

Abbreviations

ACE-Angiotensin Converting Enzyme,

AHA-American Heart Association,

CKD-Chronic Kidney Diseases,

eGFR-estimated Glomerular Filtration Rate,

ESRD-End Stage Renal Disease,

JUSH-Jimma University Specialized Hospital,

KAP-Knowledge, Attitude and Practices,

KD-Kidney Diseases,

MDRD-Modification of Diet in Renal Disease,

SD-Standard Deviation,

SPSS-Statistical Package for Social Sciences,

VIF-Variance Inflation Factor,

Declarations

Acknowledgements

The authors would like to kindly acknowledge study participants, data collectors and Jimma University stuffs.

Funding

This work was supported by Jimma University, Institute of health sciences research and postgraduate coordinating office. The funders had no role in the design, data collection, or analysis of this study and were not involved in the interpretation of data or in writing the manuscript.

Authors' contributions

ADW and EMB synthesized the idea and design of the study. ADW, EMB, KK, FK, SD, MS, BE, and FG involved in the data collection. ADW analyze the data and prepared the manuscript. All authors read and approved the final manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate

The Institutional Review Board of Jimma University (IHRPGD/3019/2019.) approved this study. After reviewing a study information sheet, all participants provided written consent to participate in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Additional Files

Additional file 1: Table S1. Practice on chronic kidney disease stratified by sex among Health Science Students of Jimma University; N = 395 (2018).

Supplementary Files

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