

AN EMPIRICAL STUDY ON THE SOCIOECONOMIC FACTORS AFFECTING TO CHRONIC KIDNEY DISEASE IN ANURADHAPURA DISTRICT (WITH SPECIAL REFERENCE TO KABITHIGOLLEWA)

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ABSTRACT: *Chronic kidney disease has become a major health issue especially in third world countries. In Sri Lanka main causative factors for CKD are not hypertension or diabetes like in other countries. High prevalence of CKD was identified in North Central Province in last few decades. But the causative factor of CKD is still unknown.*

The main objective of this study was to identify socioeconomic factors which affect the CKD in Anuradhapura district. Therefore the research problem is what are the socioeconomic factors affecting to CKD? In order to accomplish this task quantitative research approaches were employed.

The research area was Kabithigollawe Divisional Secretariat and data was collected in Gonahaddanawa, Wattewewa, Aiyathigewewa Grama Niladhari divisions. The research sample was 100 and simple random sampling, stratified sampling methods were used to collect data from kidney patients. Key informant interviews and focused group discussions were also used to collect data. Dependent variable of the study is socioeconomic factors affecting to chronic kidney disease and independent variables are income, occupation, education and infrastructure facilities.

In the theoretical part the concepts of factors affecting to chronic kidney disease were discussed. The results of the questionnaire and key informant interview present socioeconomic factors affecting to CKD and what are the policies have been taken to eradicate this situation. Male farmers who drink well water have a risk level of affecting from CKD. The mean age of the CKD patients is 60. Most of the patients have lower income and lower socioeconomic status. Majority of the patients have studied from grade 1 to grade 5. Water sources, food patterns and life style mainly affect for CKD. The socioeconomic background was depicted through their infrastructure facilities which were high under developed in this area. Enrich the knowledge of health education is important to eradicate CKD in Sri Lanka.

Keywords: Chronic kidney disease, Socioeconomic factors, Infrastructure, life style, food pattern

1. INTRODUCTION

The prevalence of chronic kidney disease is rising globally and it has become a major health issue worldwide. When studies about the biological form of kidneys the essential role of the kidneys is filtering and cleaning our blood through removing wastes of the body and extra water and it helps to control extra minerals in our body such as sodium, phosphorus, calcium and potassium which help our body to work well. (westernhospital, 2015). But this research narrowed only to explain about how socioeconomic factors affecting to CKD in Anuradhapura district with special reference to Kabithigollawa. Socioeconomic conditions have long been known to effect human health. For the majority of the world's population, health status is

resolute primarily by their level of socioeconomic development, for example per capita GNP, education, nutrition, employment, housing, the political system of the country, etc. (Park, 1994)

When it comes to Sri Lanka CKD has rapidly increased in the last decade .CKD has a higher frequency in male farmers from the North Central Province of Sri Lanka, who are over the age of 40 years. These communities can be found in areas where poverty is endemic. Their monthly income is less than LKR 10,000 per month. (Noble, n.d.)

According to the hypothesis of illeperuma et al that fluoride could be the causative factor for CKD and aluminum playing an additive effect by enhancing the absorption of fluoride. This hypothesis was based on the observation that areas affected by CKD are located in the fluoride belt of the country. People in these areas were using insufficient aluminum pots for cooking and storing water. (Wanigasuriya, 2012) In addition World Health Organization mentioned that CKD in North Central Province is an environmental exposure disease caused by several aspects such as chronic exposure to kidney damaging pesticides, arsenic, lead, cadmium, poor diet and genetic susceptibility to kidney failure. (westernhospital, n.d.)

Though all the districts of North Central Province are suffering from CKD this research is narrowed to investigating about the Kabithigollawa divisional secretariat in Anuradhapura district to gain accurate data for the research as it is the highly affected district in North Central Province. In Anuradhapura main economic sector is agriculture. For the paddy production people in this area is using tank water and rain water. Apart from rice they cultivate nuts, fruits, vegetables and dairy products.

The main purpose of this research is to find out whether socioeconomic factors as in educational level, unawareness, occupation, economic level, social background and other socioeconomic factors accurately affect to chronic kidney disease in Anuradhapura district. Therefore the research problem of current study is, “What are the socioeconomic factors affecting to chronic kidney disease in Anuradhapura district?”

General objective of the research is to determine the socioeconomic factors those are affecting for chronic kidney disease in Anuradhapura district and make recommendation. Specific objectives are to investigate if there is a problem about chronic kidney disease in Anuradhapura, to identify the nature of chronic kidney disease in Anuradhapura district, to identify the factors affecting chronic kidney

disease and to find out solutions for chronic kidney disease in Anuradhapura district.

Significances of the study are, this study will helpful for the future researchers to collect accurate data for their analyses and also to understand how socioeconomic factors affect for the kidney failures in Anuradhapura district, this will further helpful to make people aware about chronic kidney disease in Anuradhapura district, and through this research government can identify problems which are confronted by kidney patients and can give solutions for those social issues. And also people can recognize what policies are taken by government to eradicate chronic kidney disease from North Central Province.

2. METHODOLOGY

The available literature indicates various factors of CKD. Among such factors the researcher selected education, infrastructure facilities, income and occupation as independent variables and the dependent variable is socioeconomic factors which affect CKD in Anuradhapura. The research sample consists of 100 including kidney patients of Kabithigollawa MOH area from 398 populations which means 15% of population. Simple random sampling method used to select the sample where each individual is chosen randomly.

2.1 Quantitative Approach

a. Questionnaire

b. Key Informants Interview

Table 1. Tools of data collecting

Tool	Focused individuals / group	Type of the data expected to collect
Questioner	Kidney Patients	<ul style="list-style-type: none"> • Occupation • Income • Knowledge of education and health education • Infrastructure facilities
Interview	Chairmen of kidney institution of Sri Lanka	<ul style="list-style-type: none"> • Health education programs • Quality of the drinking water • Water sources

3. DISCUSSION AND RESULTS

The final questionnaire consists of two main parts. The first part included demographic questions designed to gather information about the respondents. The analyzed demographic factors were gender, age, marital status religion, ethnic group and Grama Niladari Division. This questionnaire was given to the patients who live in Aiyathigewewa, Gonahathdenawa, Wattewewa Grama Niladari divisions in Kabithigollewa. 48% of the patients from Aiyathigewewa, 39% from Gonahathdenawa and 13% from Wattewewa were taken as the sample.

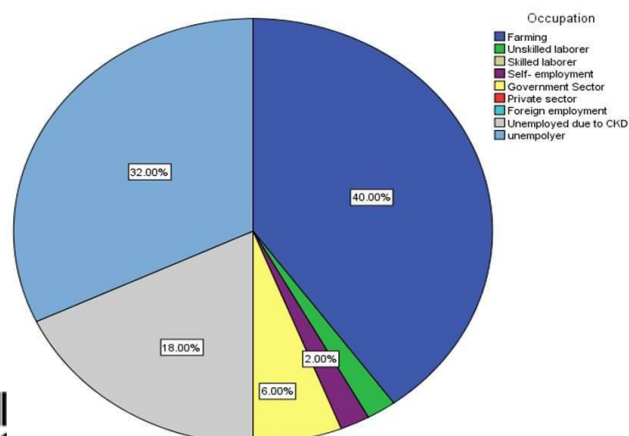
There were 63% of males and 37% of the females participated as the sample in the research and also out of 100 there were 97 patients married and 3 patients were unmarried. When it comes to the age of participants' maximum age is 85 and the minimum age is 18. Mode of the age is 25.

Table2. Education Level

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1. Never attend to School	23	23.0	23.0
	2. Grade 1-Grade 5	47	47.0	70.0
	3. Grade 6 – Grade 10	24	24.0	94.0
	4. Up to ordinary level	6	6.0	100.0
	Total	100	100.0	

22 patients from the sample have never attended school and majority of patients which means 47 patients have only attended from grade 1 to 5 classes. There are only 6 patients who attended up to ordinary level classes.

Majority of the sample are farmers (40), there are 2 unskilled laborers and 2 self-employers. Only 6 patients are working in government sector and there are 18 patients who are unemployed due to chronic kidney disease. Moreover 32 patients in the sample are unemployed.



	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	81	81.0	81.0	81.0
No	19	19.0	19.0	100.0
Total	100	100.0	100.0	

Feature1. Occupation

According to the research maximum family monthly income of the sample is 67000/= and the minimum family income is LKR 3000/= and the mode of income is LKR 18000/=.

81 patients from the sample are paid LKR 3000/= by the government for medical treatments while 19 patients are paying from their own money for medical treatments.

Table 3. Government aid for CKD patients

There are 90 patients who drink water from pipe born water supply from national water supply and drainage board. Only 1 patient drinks water from pipe born water pump through well and 9 patients consume water from water springs.

Table 4. cooking water source

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Pipe supply from national water supply board	90	90.0	90.0	90.0
Pipe	1	1.0	1.0	91.0
Water spring	9	9.0	9.0	100.0
Total	100	100.0	100.0	

Only one person uses pipe born water supply from national water supply board for cooking. There are 45 patients who use pipe born water pumping through shallow well for cooking. 30 patients use water from springs for cooking purposes. According to the results there are 53 patients who have done water quality test for the particular water source.

But 47 patients have not done the water quality test for the particular water resource.

Table 5. Water quality test

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	53	53.0	53.0	53.0
No	47	47.0	47.0	100.0
Total	100	100.0	100.0	

41 patients have not done a water quality test due to unawareness and 5 patients are not interested in doing a water quality test.

In the sample everyone takes medicine from the government hospital and 32 patients mentioned that they spend LKR 1001/= to LKR 2000/= money for monthly treatments. 15 patients pay more than LKR 5000/= for monthly treatments for CKD.

91 patients from the sample cannot afford the expenses of the medical treatments while 9 patients can afford it.

Table 6. Tolerance of monthly cost of medicine

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	9	9.0	9.0	9.0
	91	91.0	91.0	100.0
	100	100.0	100.0	

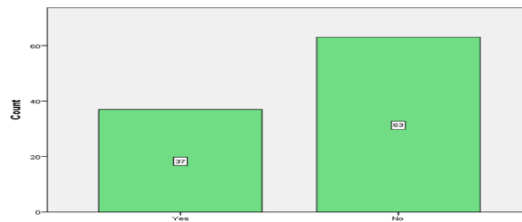
Only 14 farmers are drinking purified water while they are working in farms and 19 farmers are drinking water from a well which is located in their agricultural lands. 4 patients are drinking water from canal drain water which is located in agricultural lands. 79 patients are unaware about the daily intake of water and there are only 21 patients who are aware about the daily intake of water.

Table 7. Awareness of daily water intake

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	21	21.0	21.0	21.0
No	79	79.0	79.0	100.0

<i>Tot al</i>	100	100.0	100.0	
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There were only 23 patients who were aware about the symptoms of CKD while 77 patients were unaware about the symptoms of CKD. In Kabithigollawa only 37 patients mentioned that they had health education programs to prevent CKD while 63 patients mentioned that they did not participate in any health education programs in preventing and identifying chronic kidney.



Feature 2. Health education programs held to prevent CKD

As mentioned in K. Wanigasuriya's Study of "Aetiological factors of Chronic Kidney Disease in the North Central Province of Sri Lanka: A review of evidence to-date" and JMKB Jayasekara's "Agricultural and life style related risk factors of chronic kidney disease of unknown etiology" CKD mainly affected to males than females. In this research 37% are females while 63% are males who affected from chronic kidney disease. It was rare to find out marital status of patients in other researches but according to the current research 97% patients are married while 3% of the patients are unmarried. Therefore it is a social issue when breadwinners of the family are struggling with the CKD.

Members of the family who are residential also not studied in other researchers but in this research it has studied and 5 patients live alone in their home. There is no one in the families to look after their selves only neighbors look after them. Most of the neighbors help these patients by providing water and taking them to hospitals for monthly checkups.

K. Wanigasuriya mentioned in the research of "Aetiological factors of chronic kidney disease in the North Central province of Sri Lanka" most of the patients were farmers. This research also found that majority of patients are farmers and 18 patients were not engaging in farming activities due to CKD. According to the research of "Reasons and Social Effects of Chronic Kidney Disease (CKD) Patients in North Central Province Sri Lanka (With Special Reference to Padawiya Area)" by Wasantha Subasinghe, Most of farmers who are suffering from CKD have more than 10 years of experience in agricultural sector. Additionally most of families were becoming female headed as their husbands who functioned as breadwinners had been died of CKD.

Channa Jayasumana has mentioned in his research about "Drinking well water and occupational exposure to Herbicides is associated with chronic kidney disease, in Padavi-Sripura, Sri Lanka" that is because most of the farmers are engage in agricultural activities without using personnel protective equipment.

According to the current research only 14 patients are taking purified water from home when they are going to work. All the other patients who engage in agricultural activities consume water from a well which is located in the agricultural land, canal drain water which is located in the agricultural land, spring near to the agricultural land and pipe born water. Therefore there is a higher risk of affecting from CKD among farmers.

Education level is very low among CKD patients in Kabithigollawa as they have been engaged in farming activities from their young age. Most of the patients were only attended school up to grade 5. Majority of the people in this area are not interested in education. As a result of that they are not aware about diseases and prevention of diseases. Patients could not identify CKD due to lack of health education. But a different result for educational level of chronic kidney disease has cited by C Jayasumana in his study "Drinking well water and occupational exposure to Herbicides is associated with chronic kidney disease, in Padavi-Sripura, Sri Lanka" mentioned that majority of the CKD patients only studied up to ordinary level (n = 92, 73.6%) There were only 23 patients who knew about the symptoms of CKD while 77 patients were not aware about the symptoms. Only 11 people identified that they have CKD before going to a doctor. 89 patients from the sample were diagnosed having CKD when treated for a different illness. According to J.M.K.B Jayasekara low levels of defensive measures in the agrochemical usage show the need to educate the farmers on safe agrochemical.

Moreover 79 patients were not aware about the daily intake of water while 21 patients were aware about the daily intake of water. That shows how lack of education affects for CKD in Anuradhapura district. Though the government mentioned about organizing health education programs for CKD patients, health education programs were only held in Gonahathdenawa.

Majority of the patients had a poor income level. Their maximum income level was LKR 67000/= and minimum was LKR 3000/=. This research is similar to Wasantha Subasinghe's study as most of CKD patients were comparatively poor people. There were 25 patients where all the members of the family are unemployed. 81 patients are financially supported from the government due to low income level of patients. According to Wasantha Subasinghe's study patients have to spend more money to get proper treatments. In this research also 32 patients have to spend LKR 1001/= to LKR 2000/= while 30 patients are spending LKR 2001/= to LKR 5000/=. Government also supports to single parent families of deceased kidney patients through self-employment projects.

According to the research of "Chronic Kidney Disease (CKD) in Sri Lanka" NCP areas are suffering from drinking water quality problems due to widespread agriculture, livestock practices, poor sanitary conditions and soil and climatic characteristics. Therefore the availability of suitable water sources for domestic consumption is scarce. Therefore most of the patients have to buy water from national water supply board. In this research 90 patients from the sample were consumed pipe born water supply from national water supply board. But 10

patients were consumed spring water and shallow well water. Even though majority of patients consume water from national water supply board some of the patients use pipe born water pumping through shallow wells. There were 45 patients who use pipe born water pumping through shallow wells for cooking purposes. That shows lack of awareness among CKD patients in this area. They think that chronic kidney disease can be reduced from boiling water. Most of the patients consume water from well even after it has failed the water quality test due to lack of money and they have no any other option. Here we can see low infrastructure facilities of chronic kidney patients.

When it comes to the distance, the minimum distance that they have to travel to get their treatments is 1km and some of the patients have to travel even to Kandy to get their treatments. CKD patients have to spend more money to travel to hospitals.

4. CONCLUSION

Chronic kidney disease is mostly seen in the dry zone. Anuradhapura shows the highest population affected from CKD in North Central province. The mean age of chronic kidney disease patients is 60 years. The current study strongly favors that CKD is prevalent among farmers in dry zone and related with, history of drinking water from a well that was abandoned. Although the majority of patients who affected from CKD drink pipe born water supply from national water supply and drainage board, they use pipe born water pumping through shallow well, water from canal and water spring for cooking. Furthermore only 14 patients are taking purified water from home when they are going to work 86 patients drink pipe born water pumping through shallow well, water from canal and spring water. Most of the patients have lower income and socioeconomic status. Majority of the patients have studied only from grade 1 to grade 5. The socioeconomic background was depicted through their infrastructure facilities which were high under developed in this area.

Current research shows that there is an issue of CKD in North Central province which mainly affected the people in Anuradhapura. In Sri Lanka main causative factors for chronic kidney disease are not hypertension or diabetes like in other countries. Fluoride, cadmium content combination of fluoride in water and aluminum pots, arsenic, hard and reddish brown earth and low humicgley soil, calcium content, bioaccumulation of pesticide, heavy metal and toxins in the plants and aquatic animals are assumed as causes of chronic kidney disease in Anuradhapura district. Current research shows that not only biological factors, peoples' life pattern which means socioeconomic factors also affect in causing CKD.

There should be well-organized programs for national level preventing such as awareness programs on preventing and caring, national task force for better health services, clinical treatments, purified drinking water supply, and limitations on fertilizers and pesticide usage. Furthermore there should be counseling programs for CKD patients to encourage patients to overcome from their situations. There should be health education programs for patients who have no knowledge about their disease. Patients have to travel a long distance to buy water as water plants are far away from some villages. Therefore there should be way of distributing water

for each house. As some of patients are consuming canal and well water due to the distance of water plant.

5. REFERENCES

Gunatilake, S.K., 2014. Chronic Kidney Disease (CKD) in Sri Lanka- Current Research Evidence Justification. [Online] Available at: file:///C:/Users/user_2/Downloads/7680-27098-1-SM%20(5).pdf [Accessed 7 March 2017].

Noble, A., n.d. Review of Literature on Chronic Kidney Disease of Unknown Etiology (CKDu) in Sri Lanka. [Online] Available at: http://www.iwmi.cgiar.org/Publications/Working_Papers/working/wor158.pdf [Accessed 8 June 2016].

Park, K., 1994. Man and Medicine: Towards Health for All. In Preventive and social medicine. 14th ed. Jabalpur: M/s Banarsidas Bhanot. p.16.

Wanigasuriya, K., 2012. Aetiological factors of Chronic Kidney Disease in the North Central Province. [Online] Available at: <http://dh-web.org/health/ckdu/review-JCCGP.pdf> [Accessed 8 June 2016].

westernhospital, 2015. ESSENTIAL GUIDE TO KIDNEY DISEASE. [Online] Available at: <http://www.westernhospital.lk/essential-guide-to-kidney-disease/> [Accessed 23 May 2016].