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Study of Knowledge, Attitude and Risk Factors of Chronic Kidney Disease (CKD) Amongst Respondents Residing in Agency, Rural and Urban Areas of Visakhapatnam District, Andhra Pradesh–A Community Based Survey

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ABSTRACT
Chronic diseases are the primary cause of death worldwide and this epidemic has been connected to rapid economic growth and urbanization in developing countries. Understanding of risk factors and mounting the healthy lifestyles helps in identifying successful interventions in tackling the burden of chronic diseases in low and middle income countries. Chronic kidney disease (CKD) is being ever more recognized as a public health problem and is the common cause of morbidity and mortality in India. In the present study, a community based cross-sectional survey was conducted among the residents of agency, rural and urban areas of Visakhapatnam District, Andhra Pradesh, India during the period 2016-2018 to study the people's knowledge, attitude and risk factors of CKD leading to kidney failure. A survey was conducted using a validated questionnaire in person in the participant's native language. The questionnaire included the information on the socio-demographics and economic features, awareness about CKD, risk factors and symptoms leading to kidney failure. A total of 1340 respondents residing in the three domiciles were considered for the present survey. The study showed 2.4% of the participants were affected by CKD with higher frequency in rural areas and showed rural people were significantly more affected than the others. The results revealed that most of the agency, rural and urban respondents were unaware of the symptoms leading to kidney failure and knowledge regarding the signs and symptoms of CKD among the respondents was found to be inadequate. Detection of CKD in early stages is essential to delay the progression of the disease which consecutively decreases the economic burden on community. Hence, public health awareness programs and community based studies are required to sensitize the people about CKD and its risk factors on the importance and health benefits of physical activity would be useful to counter the anticipated decline in physical activity.
Keywords: *Chronic diseases, Chronic kidney disease, morbidity, socio-demographics, questionnaire.*

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INTRODUCTION

Chronic kidney disease, with its high incidence, morbidity and mortality, has become an important public health problem and several factors contribute to high prevalence of CKD in India. CKD is a progressive deterioration in kidney function, normally a consequence of disease or damage to the glomerular or tubular structures within the nephron and advance until the kidneys loses its homeostatic function [1]. The increasing frequency of diabetes, hypertension and associated risk factors like obesity and hypercholesterolaemia underscores the probable growth of the epidemic. A contributing association between hypertension and the development of cerebrovascular disease, ischemic heart disease, cardiac and renal failure has been implicated [2]. Poverty, poor sanitation, water contamination, pollutants and known and unknown nephrotoxins including heavy metals possibly will lead to glomerular and interstitial kidney diseases.

CKD refers to abnormalities of kidney structure and function with diminished kidney function and a glomerular filtration rate (GFR) of less than 60 mL/min per 1.73m^2 or markers of kidney damage or both at least for about 3 months period [3]. CKD may be regarded as one of the clinical model of accelerated vascular disease and premature ageing and the risk factor profile changes during the progression from mild moderate CKD to End Stage Renal Disease (ESRD). The Global Burden of Disease (GBD) 2015 study estimated that in 2015, 1.2 million people died from kidney failure, an increase of 32% since 2005 [4].

Kidneys play a central role in maintaining homeostasis in the body and are often the target organ of inflammatory, metabolic and systemic vascular disorders. Knowledge of the complex structure of human kidney provides a basis for understanding the multitude of functional characteristics in both healthy and diseased states. In addition to producing urine, the kidney has other important functions such as regulating blood pressure and salt balance by activating the Renin–Angiotensin–Aldosterone System (RAAS), maturation of red blood cells by excretion of erythropoietin, regulation of acid-base balance, regulation of body fluid osmolality and electrolyte concentrations, excretion of metabolic waste products and foreign chemicals- include urea, creatinine, uric acid, end products of hemoglobin breakdown and metabolites of various hormones.

Kidney disease is conventionally assessed in terms of both overall renal function (glomerular filtration rate, GFR) and the presence of kidney damage ascertained by either kidney biopsy or other markers of kidney damage such as proteinuria, also termed albuminuria and defined by a urine albumin/creatinine ratio of >30 mg/g or urine protein/creatinine ratio of > 200 mg/g), abnormal urinary sediment, abnormalities on imaging studies or kidney transplant [5]. The signs and symptoms associated with the disease are pulmonary and peripheral edema, loss of appetite, vomiting, nausea, anemia, blood in urine, dark urine, decreased mental alertness and decreased urine output. Prevalence of CKD appears to be increasing in India and at least 70% of the people live in rural areas with limited access to health care services with the result CKD is often diagnosed in advanced stages. Studies on the prevalence of diseases help in focusing attention to the magnitude of the burden and planning preventive measures.

Progression of CKD to renal failure and other adverse outcomes can either be prevented or delayed through early detection and treatment. Yet, data on the burden of CKD in India remain inadequate. The lack of community-based screening programs for CKD results in the patient detection at advanced stages rather than in early stages. Delayed detection and treatment of CKD may lead patients to adverse future outcomes. Though population based screening studies have been performed in developed countries, there are very few studies in the developing countries and especially in India where people are ignorant of the true prevalence and incidence of CKD. The strategies to improve identification include creating general public awareness, professional education, changes in health care policy, delivery system, basic clinical and outcome research related to CKD.

A few studies have reported the prevalence of CKD in urban populations, but there is a scarcity of such studies in the rural populations in South India. Hence, the present investigation has been taken up with the objective to study the prevalence patterns and association with some known risk factors of CKD and to know the people's knowledge, attitude and risk factors leading to kidney failure among the three domiciles of Visakhapatnam District, Andhra Pradesh during the period 2016-2018 from the collected demographic data.

MATERIAL AND METHODS

A questionnaire based cross-sectional survey was conducted to study the people's knowledge and attitude about the risk factors of CKD leading to kidney failure among the respondents of agency, rural and urban areas in 43 mandals of Visakhapatnam District, Andhra Pradesh during the period 2016-2018. The questions were generally based on the physiological role of kidneys and awareness questions related to CKD and its risk factors. The sample size was 1340 participants, with age group of 10-85 years.

The following are the list of agency, rural and urban mandals of Visakhapatnam district selected for the present study.

Agency mandals (11): Ananthagiri, Araku Valley, Chinthapalle, Dumbriguda, G. K. Veedhi, G. Madugula, Hukumpet, Koyyuru, Munching Puttu, Paderu and PedaBayalu.

Rural mandals (22): Achuthapuram, Anakapalli, Bodapalem (Kotavuratla), Butchyyapeta, Cheedikada, Chodavaram, Devarapalli, Dondawaka (Nakkapalli), K. Kotapadu, Kasimkota, Komaravolu (Rolugunta), Koruprolu (S. Rayavaram), Lingampeta (Golugunda), Madugula, Makavarapalem, Munagapaka, Narsipatnam, Nathavaram, Payakaraopeta, Rambilli, Ravikamatham and Yalamanchili.

Urban mandals (10): Anandapuram, Bheemunipatnam (Bheemili), Gajuwaka, Padmanabham, Paravada, Pedagantyada, Pendurthi, Sabbavaram, Vizag –Rural and Vizag-Urban.

Inclusion and Exclusion criteria: Respondents among the age group of 10-85 years were included in the survey given their consent. The study excluded participants with a history of CKD which was assessed during the consideration of demographic details.

All the subjects were given a validated questionnaire consisting of Socio-demographic details and questions related to awareness and knowledge of CKD. All the respondents were asked about the presence or absence of symptoms suggestive of CKD and its co-morbid symptoms. Participants were asked to answer the questions based on their knowledge about the symptoms such as bubbles in urine, yellow urine, blood in the urine, frequent thirst, back ache and yellow eyes leading to kidney failure.

Participants were asked to answer the questions based on their knowledge without accessing the Internet source.

Statistical analysis

The data collected from the respondents has been analyzed using appropriate statistical methods (SPSS 16.0). Chi square was used to study the association between definite variables and the significant p-value taken into consideration was ≤ 0.05.

RESULTS

Demographic characteristics of respondents

A total of 1340 respondents were recruited taken into consideration from the three domiciles of Visakhapatnam district. The respondents were predominantly 52.50% males and 47.50% females (Figure 1). The demographic distribution of respondents showed a total of 49.30% (N=660) respondents in rural area which is twice that of urban (26.1%, N=350) and agency areas (24.6%, N=330). Individuals from the agency and rural areas showed a higher male preponderance (65.2% and 50.8% in total) as compared to females. The interpretation of data showed that the distribution was more rated in younger and middle aged than the older aged with a ratio of 866:474 of the total individuals in the study (Figure 2). Demographic distribution according to the area of living showed rural subjects with a significant p-value < 0.05.

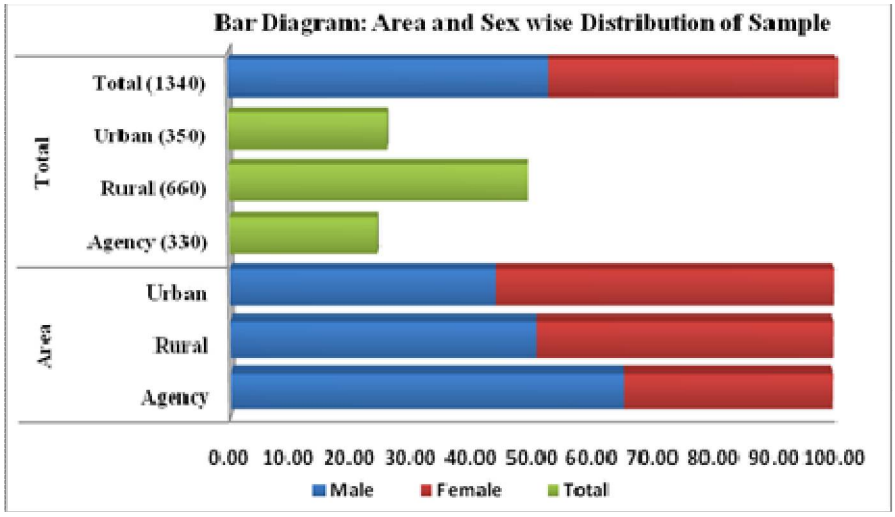

Figure 1. Bar Diagram showing area and sex wise distribution of respondents

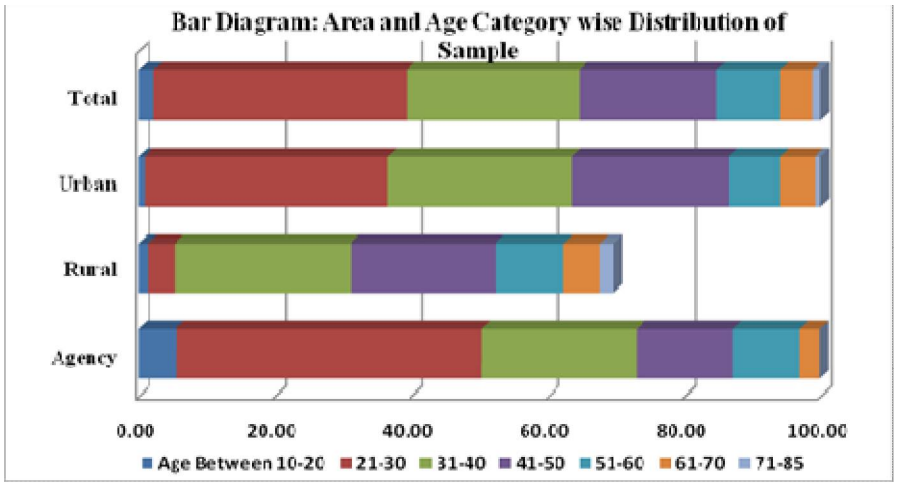

Figure 2. Area and age category wise distribution of sample

Prevalence of chronic kidney disease (CKD) among agency, rural and urban respondents

The data revealed that the major diseased conditions were hypertension (7.1%) and diabetes (2.3%) whereas cardiac, cerebrovascular and hyperlipidemia were of small proportion (Figure 3). The study showed 2.4% (N=32) of the respondents were affected by CKD among all the three domiciles of

Visakhapatnam district. However, the study distribution with an area of living depicted that rural respondents (3.3%) were significantly more affected than agency (2.1%) and urban (0.90%) respondents.

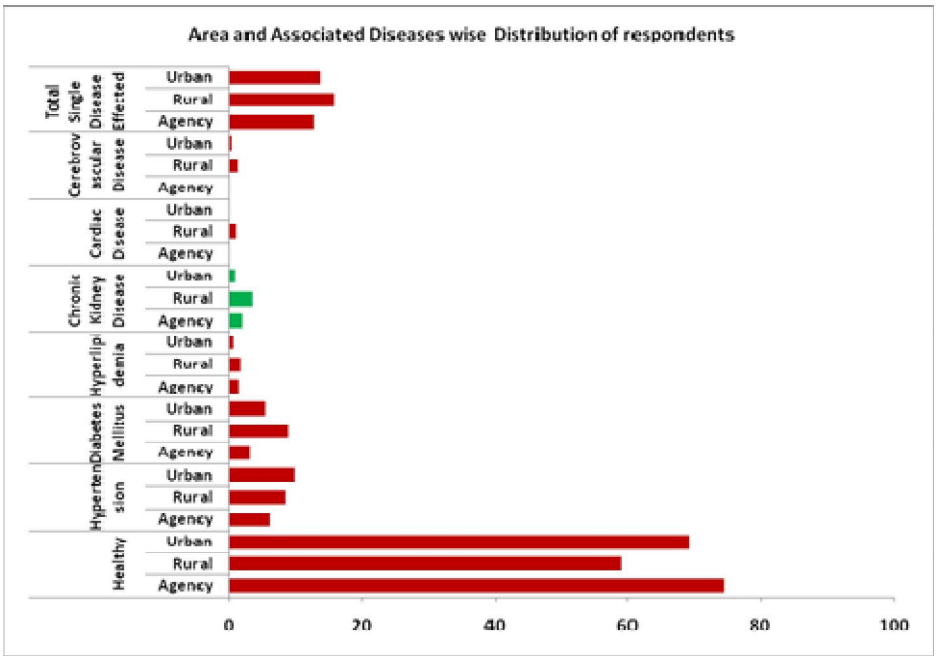

Figure 3.Area and associated diseases wise distribution of respondents

Awareness regarding symptoms such as bubbles in the urine, yellow urine and blood in the urine leading to kidney failure

Area and sex-wise awareness among the agency, rural and urban respondents

When inquired for the awareness of bubbles in urine, 39.10%, 26.90% and 29.90% of agency, rural and urban males were unaware of the symptoms respectively. Likewise, 27.80%, 28.40% and 52.30% of agency, rural and urban females were unaware of the symptoms. However, 50.70% of agency, 50.90% of rural, 58.40% of urban males and 53.00% of agency, 51.90% of rural and 40.50% of urban females responded that negatively for symptoms. Conversely, 10.20%, 22.20%, 11.70% of agency, rural and urban males and 19.10%, 19.80%, 7.20% of agency, rural and urban females responded positively respectively that they were aware of bubbles in urine as an indication of kidney disease (Figure 4).

When asked about yellow coloration in the urine, 47.40%, 31.40%, 32.50% of agency, rural and urban males and 42.60%, 36.10%, 49.20% of agency, rural and urban females was unaware of the symptoms respectively. However, 4.20%, 24.00%, 20.10% of agency, rural and urban males and 8.70%, 21.00%, 14.90% of agency, rural and urban females was aware of the yellow urination in kidney diseases respectively and rest of them responded negatively that they yellow coloration in the urine did not affect kidneys.

Blood urine is said to be one of the severe symptoms of kidney failure. When acknowledged for the symptoms in respondents, 13.10%, 13.40%, 21.60 of agency, rural and urban males and 20.20%, 15.80%, 19.40% of agency, rural and urban females responded positively that they were aware of symptoms like blood in the urine as an indication of kidney disease. On the other hand, 45.80%, 35.80%, 43.10% of agency, rural and urban males and 36.00%, 28.80%, 46.90% of agency, rural and urban females was unaware of blood in the urine in kidney disease and rest of them answered that blood in urine did not affect kidneys.

Area and educational status wise awareness

Distribution of individuals with respect to area and educational status concerning awareness of symptoms relating to kidney disease and failure showed a significant association. When inquired about the presence of symptoms such as bubbles in urine, 21.40%, 17.10%, 13.30%, 10.90%, 11.80%, 11.40% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of agency area, 21.40%, 19.50%, 15.90%, 20.70%, 11.80%, 23.80% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of rural area and 8.60%, 15.60%, 10.50%, 15.40%, 7.10% of below secondary, secondary, graduates, post graduate, uneducated individuals of urban area responded positively that they were aware of symptoms such as bubbles in urine in kidney disease (Figure 5).

Likewise, 2.90%, 6.70%, 3.60%, 2.90%, 10.20% of below secondary, secondary, graduates, post graduate, uneducated individuals of agency area, 26.80%, 19.50%, 26.80%, 27.00%, 23.50%, 19.70% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of rural area and 5.90%, 14.30%, 25.00%, 12.40%, 23.10%, 22.30% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of urban area answered positively for yellowish colour of urine as a sign of kidney disease.

When inquired about blood in urine, 21.40%, 5.70%, 22.70%, 14.50%, 11.80%, 12.50% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of agency area, 16.10%, 14.50%, 12.20%, 17.10%, 5.90%, 14.60% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of rural area and 17.60%, 34.30%, 18.80%, 8.70%, 35.70%, 21.40% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of urban area responded positively for the symptom, blood in urine as one of the major symptom in kidney disease.

Most of the residents of the three domiciles were unaware about the variables that affect kidneys like bubbles in urine, yellowish colour of urine and blood in urine while residents of agency and rural were unaware regarding the variables that affect kidneys.

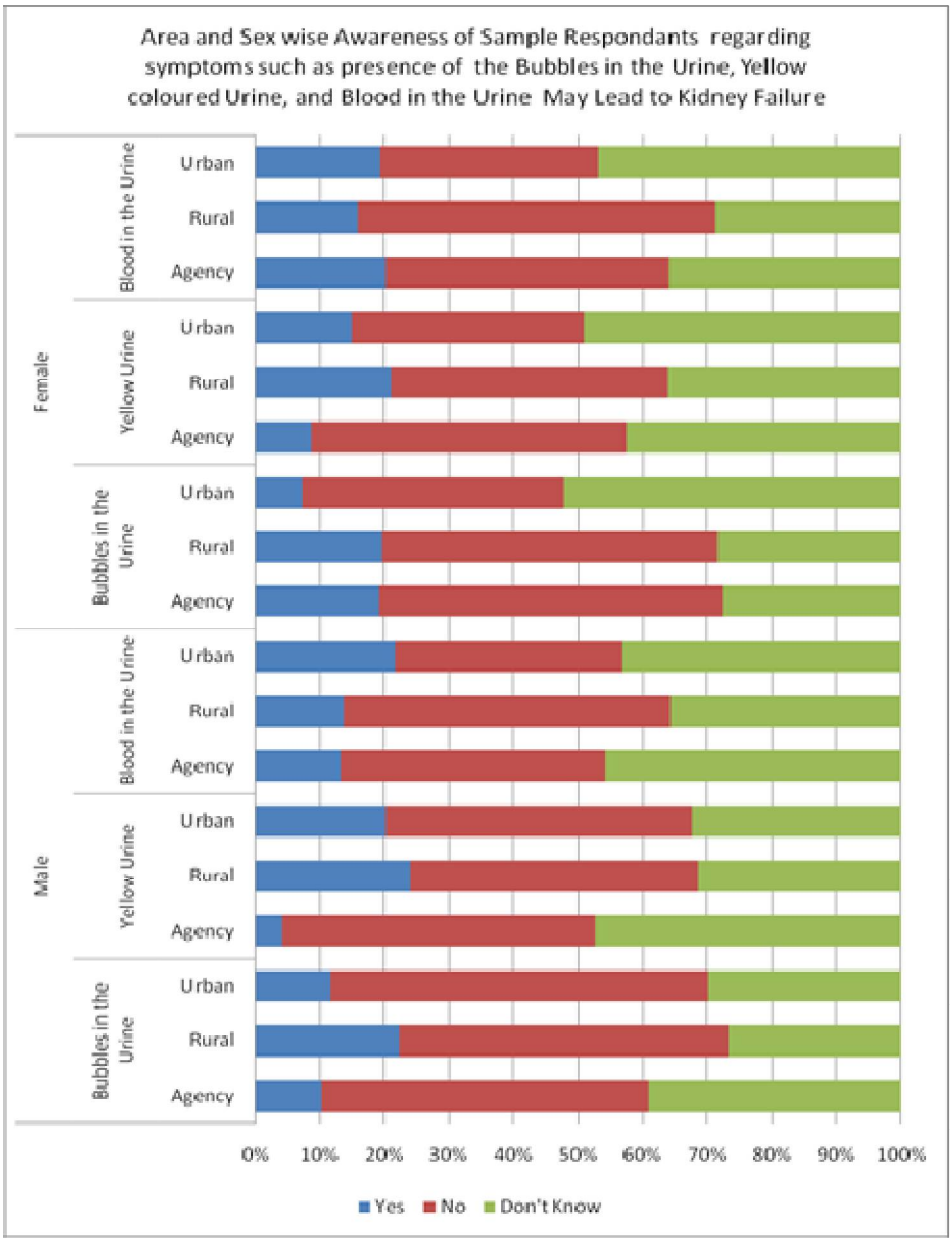

Figure 4. Area and sex wise awareness of sample respondents regarding symptoms such as presence of the bubbles in the urine, yellow coloured urine and blood in the urine.

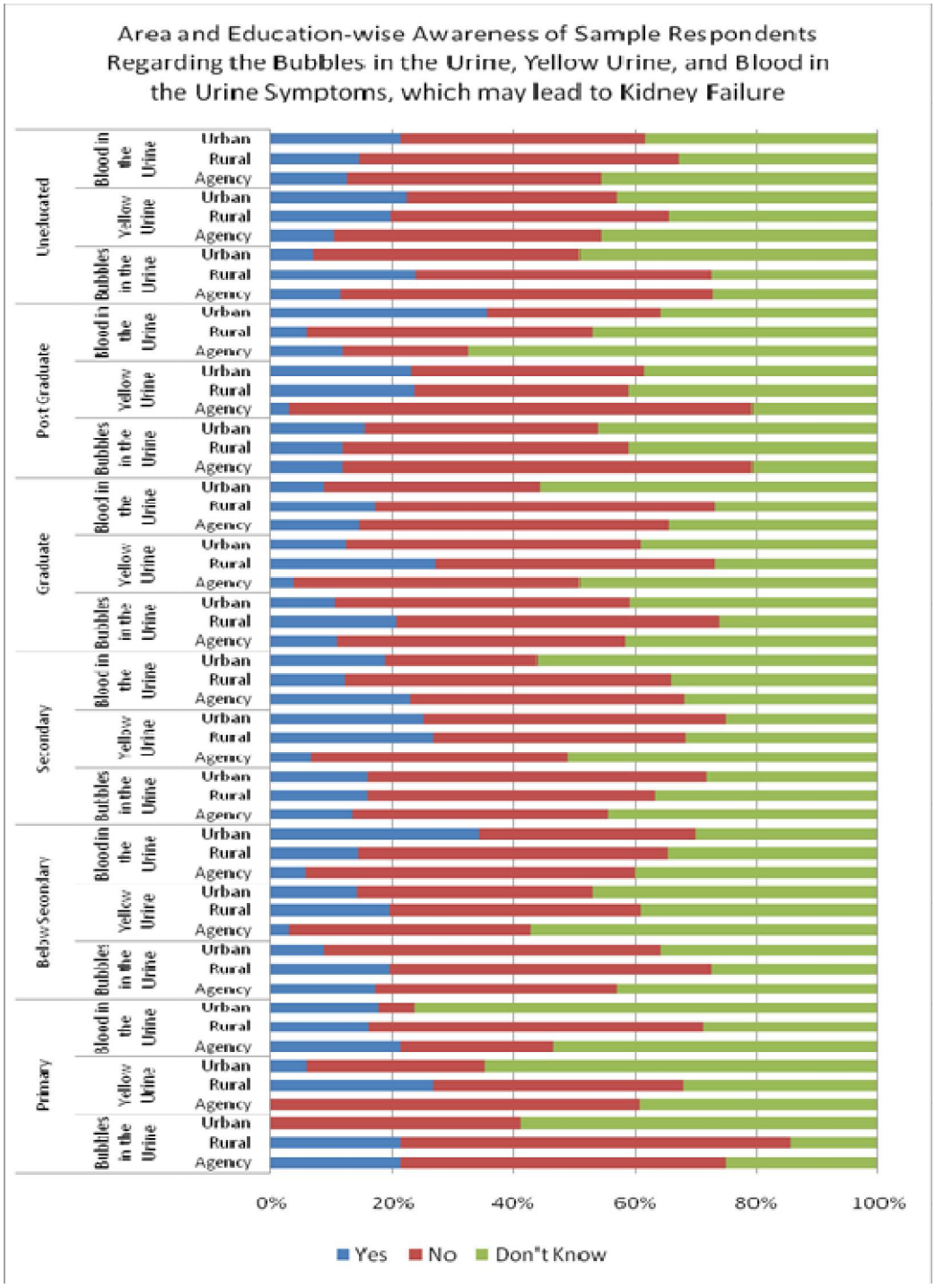

Figure 5. Area and education-wise awareness of sample respondents regarding the bubbles in the urine, yellow urine and blood in the urine

Area and occupational status wise awareness

Distribution of individuals considering area and occupational status regarding symptoms related to kidney disease and failure showed a significant association. Respondents in administration positions (100%), professional jobs (8%), students (12.5%), homemakers (15.90%), unemployed (14.3%) and causal labourers (12.2%) of agency area, respondents in professional jobs (11.5%), students (27.3%), homemakers (23.5%), retired personnel (50.0%), unemployed (20.20%) and causal labourers (19.50%) of rural area and respondents in professional jobs (12.5%), students (37.5%), homemakers (4.50%), unemployed (3.8%) and causal labourers (15.60%) of urban area replied positively for presence of bubbles in urine as an indication of kidney disease (Figure 6).

When inquired for yellowish tint in urine, students (4.2%), homemakers (2.3%), unemployed (10.1%) and causal labourers (4.3%) of agency area, respondents in professional jobs (15.4%), students (45.5%), homemakers (23.00%), retired personnel (50.0%), unemployed (26.4%) and causal labourers (18.7%) of rural area and respondents in professional jobs (31.2%), students (12.5%), homemakers (13.6%), retired (22.3%), unemployed (17.9%) and causal labourers (18.9%) of urban area replied positively for yellowish tint in urine as a sign of kidney disease.

When acknowledged for the presence of blood in urine, respondents in professional jobs (12%), students (26.1%), homemakers (20.9%), retired (50%), unemployed (13.4%) and causal labourers (13.9%) of agency area, respondents in professional jobs (11.5%), students (13.6%), homemakers (16.4%), unemployed (17.1%) and causal labourers (12.4%) of rural area and respondents in administration positions (16.7%), students (62.5%), homemakers (21.6%), retired (11.10%), unemployed (16.7%) and causal labourers (22.30%) of urban area replied positively that they were aware of blood in urine as an indication of kidney disease.

Among the three domiciles, residents of agency and rural were unaware regarding the variables that affect kidneys like bubbles in urine, yellowish colour of urine and blood in urine.

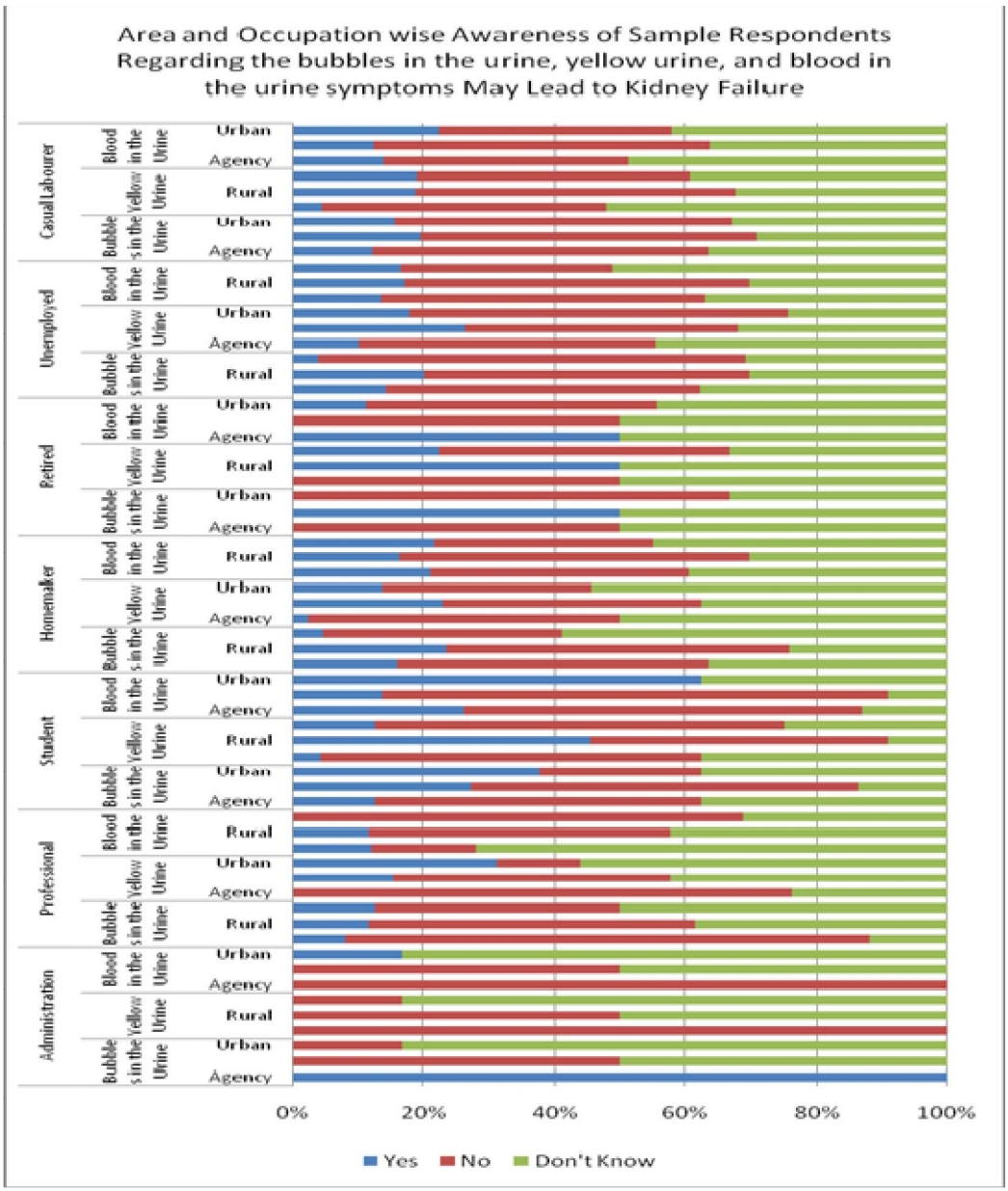

Figure 6. Area and occupation wise awareness of sample respondents regarding the bubbles in the urine, yellow urine, and blood in the urine symptoms

Symptoms regarding the frequent thirst, back ache and yellow eyes that leads to Kidney FailureArea and sex-wise awareness among the respondents

When inquired for the awareness of frequent thirst, 10.20%, 24.30%, 14.30% of agency, rural and urban males replied positively that they were aware of frequent thirst as a sign of kidney related disease (Figure 7). Likewise, 15.70%, 17.60%, 7.10% of agency, rural and urban females responded positively to have frequent thirst in kidney disease. On the other hand, 41.90%, 32.90%, 31.80% of agency, rural and urban males and 37.40%, 36.40%, 48.50% of agency, rural and urban females were unaware of the symptom in renal diseases. The others responded negatively that frequent thirst is not an indication of kidney disease.
When asked about backache, 10.30%, 21.50%, 10.40% of agency, rural and urban males and 20.90%, 22.30%, 10.30% of agency, rural and urban females replied positively to have back pain in kidney disease. In converse, 32.90%, 32.80%, 42.90% of agency, rural and urban males and 40.00%, 32.80%, 49.70% of agency, rural and urban females was unaware of the symptom in kidney disease. The others responded negatively that frequent thirst is not an indication of kidney disease.
Yellowish tint in eyes was acknowledged by 7.50%, 11.60%, 14.60% of agency, rural and urban males and 11.50%, 13.30%, 10.70% of agency, rural and urban females respectively as an indication of kidney disease. On the other hand, 38.30%, 38.70%, 40.40% of agency, rural and urban males and 38.90%, 39.00%, 51.50% of agency, rural and urban females was unaware of the symptom. The others responded negatively that frequent thirst is not an indication of kidney disease.

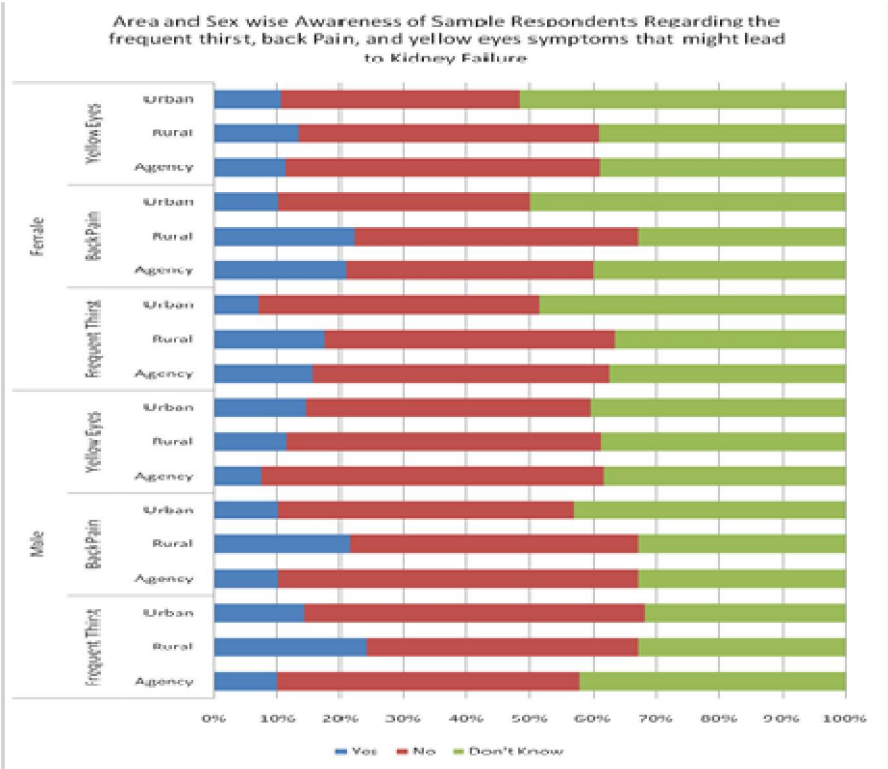

Figure 7. Area and sex wise awareness of sample respondents regarding the frequent thirst, back pain, and yellow eyes symptoms that might lead to kidney failure

Area and educational status wise awareness

The distribution of individuals concerning area and educational status wise awareness is significantly associated. Respondents when inquired about frequent thirst, 14.3%, 5.7%, 10%, 18.2%, 5.9%, 11.8% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of agency area, 28.6%, 20.3%, 13.4%, 13.5%, 11.8%, 25.7% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of rural area and 14.3%, 9.4%, 10.5%, 14.3%, 8.9% of below secondary, secondary, graduates, post graduate, uneducated individuals of urban area answered positively for regular thirst as a sign of kidney disease (Figure 8).
When inquired about back pain, 3.6%, 17.1%, 20.2%, 14.5%, 2.9%, 13.8% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of agency area, 28.6%, 25.8%, 14.6%, 14.4%, 11.8%, 24.6% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of rural area and 2.9%, 12.5%, 13.3%, 35.7%, 9.9% of below secondary,

secondary, graduates, post graduate, uneducated individuals of urban area answered positively for backache as an indication for kidney disease.

Likewise, when acknowledged about yellow eyes, 3.6%, 2.9%, 9.1%, 16.4%, 2.9%, 10.3% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of agency area, 12.7%, 12.9%, 9.3%, 9%, 6.2%, 14.6% of primary educated, below secondary, secondary, graduates, post graduate, uneducated individuals of rural area and 17.1%, 3.1%, 8.7%, 18.8% of below secondary, secondary, graduates, uneducated individuals of urban area answered positively for yellow eyes as an indication of kidney disease.

Among the three domiciles, residents of agency and rural were unaware regarding the variables that affect kidneys like frequent thirst, back ache and yellow eyes in kidney diseases.

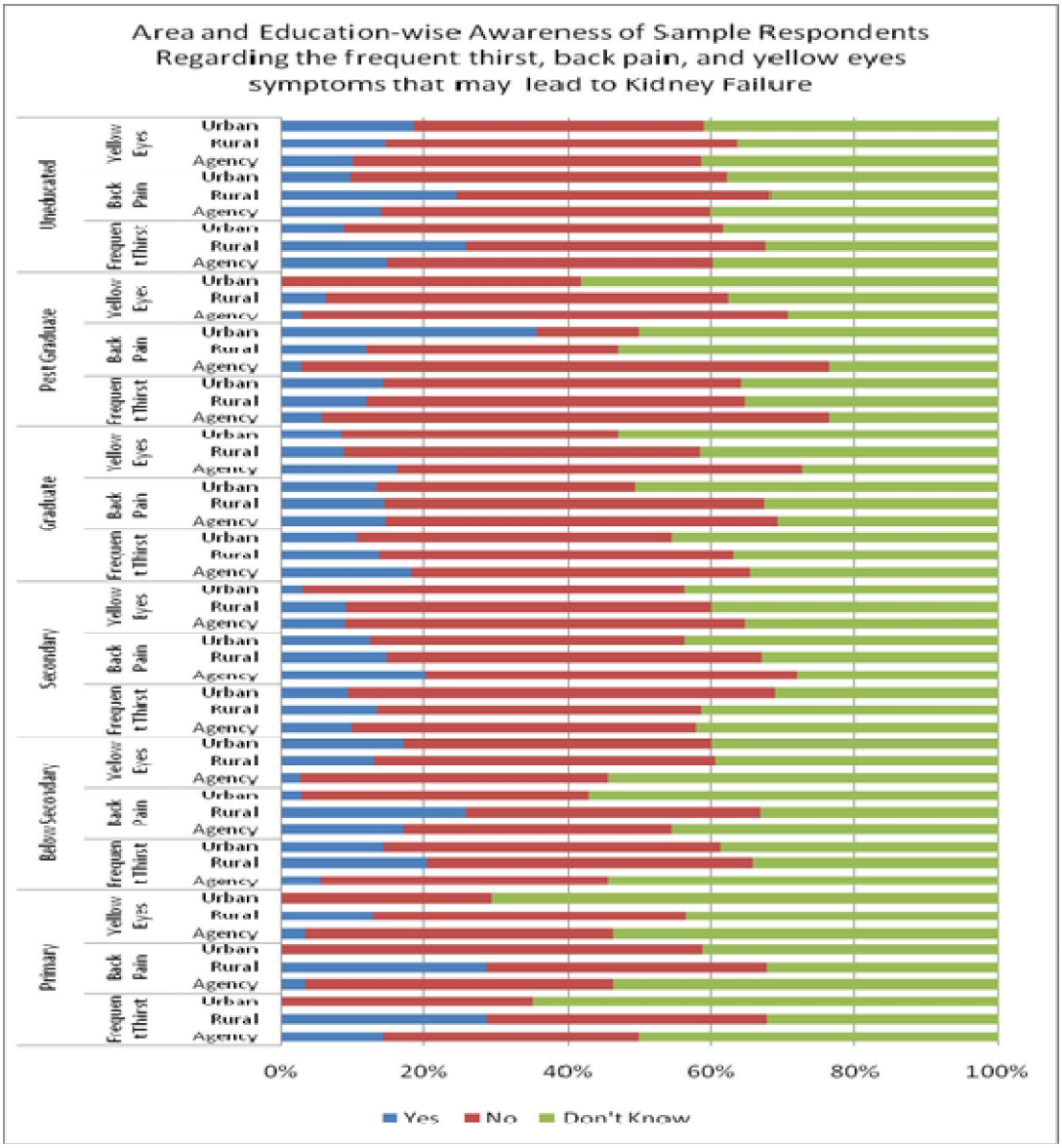

Figure 8. Area and education-wise awareness of sample respondents regarding the frequent thirst, back pain and yellow eyes symptoms that may lead to kidney failure

Area and occupational status wise awareness among respondents

Thedistribution of individuals regarding area and occupational status wise awareness showed a significant association. Awareness about the symptoms of kidney disease such as frequent thirst was responded positively by students (4.2%), homemaker (11.4%), unemployed (17.6%), labourers (11.3%) of agency area, respondents in administration services (11.5%), students (31.8%), homemaker (21.7%), unemployed (16.3%), casual labourers (23.1%) of rural area and students (37.5%), homemaker (7.2%), unemployed (16.7%), casual labourers (9.8%) of urban areas.

Likewise, when inquired about back pain, students (8.7%), homemaker (15.9%), unemployed (21.2%), casual labourers (10.4%) of agency area, respondents in professional jobs (7.7%), students (18.2%), homemaker (24.3%), unemployed (16.3%), casual labourers (23.7%) of rural area and respondents in professional jobs (31.2%), students (37.5%), homemaker (5.4%), unemployed (41.1%), casual labourers (9.1%) of urban areas responded positively that they are aware of back pain as an indication of kidney disease.

When respondents of all the three domiciles were questioned for yellow eyes in kidney diseases, respondents in professional jobs (4%), students (21.7%), homemaker (7%), retired (50%), unemployed (8.4%), casual labourers (7.9%) of agency area, students (27.3%), homemaker (13.8%), unemployed (6.2%), casual labourers (14.1%) of rural area, respondents in professional jobs (37.5%), homemaker (11.7%), retired (11.1%), unemployed (9%), casual labourers (13.2%) of urban areas responded that they were aware of yellow eyes as a sign of kidney disease.

Among the three domiciles, residents of agency and rural were unaware regarding the variables that affect kidneys like frequent thirst, back ache and yellow eyes in kidney diseases.

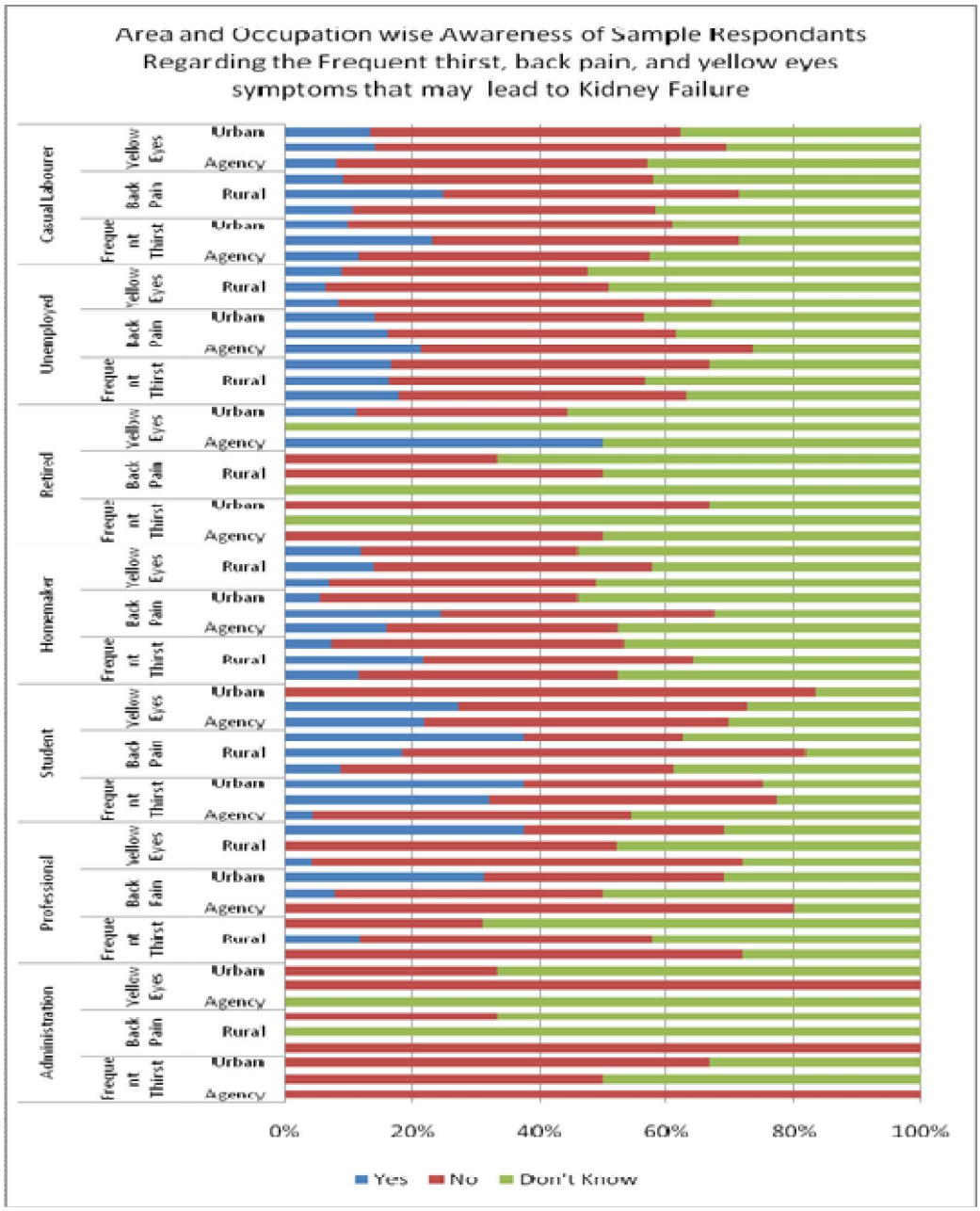

Figure 9. Area and occupation wise awareness of sample respondents regarding the frequent thirst, back pain, and yellow eyes symptoms that may lead to kidney failure

DISCUSSION

Chronic kidney disease (CKD) in India and around the world has become a significant health problem. The most efficient and reasonable treatment may involve screening for early detection, intervention and prevention. Chronic kidney disease can be overturned and stopped from progressing to end-stage kidney failure if detected at early stages. Public knowledge and awareness are the key determinants to overcome the burden of CKD. The knowledge and awareness of CKD among the people need to be amplified that could prevent the disease as there is lack of screening in the primary health care [6].

The present community based cross-sectional survey was aimed to study the respondents knowledge, attitude and risk factors of CKD leading to kidney failure among the three domiciles, i.e. agency, rural and urban areas of Visakhapatnam District, Andhra Pradesh, India during the period 2016-2018. The study revealed the information on the socio-demographic and economic features, awareness about CKD, risk factors and symptoms leading to kidney failure.Respondents of the three domiciles were inquired about the variables such as bubbles in urine, yellowish urine, blood in urine, frequent thirst, back pain and yellow tint of eyes that are the indications of kidney diseases.

The socio-demographic profile of the respondents (n=1340) was studied in the three domiciles of Visakhapatnam district and rural males and females were found to be in higher proportion than the other two domiciles which is twice that of urban and agency areas. The major disease conditions observed were diabetes, hypertension whereas cardiac, cerebrovascular and hyperlipidemia were of small proportion and the distribution was found much higher in rural and urban areas. In the present survey 2.4% of the respondents were affected by CKD and the study distribution with an area of living showed rural people were significantly more affected than the others. Sreejith et al. [7] conducted CKD screening in a village located in an area of chronic kidney disease cluster among agricultural labor in coastal south-eastern India in the states of Tamil Nadu and Puducherry (Tondaimandalam) and reported 19% of CKD prevalence. Less prevalence of CKD has reported among the individuals residing in Urban New Delhi [8]. and in rural South India [9]. In contrast to earlier reports, study using a population of 6,120 patients in medical centers all over India showed a much higher prevalence of 17% [10]. A high prevalence of CKD has also been reported in Uddanam region of Andhra Pradesh [11].

In the present study, most of the respondents of agency, rural and urban areas were unaware of the symptoms such as bubbles in urine, yellow urine and blood in the urine as an indication of kidney failure. Few of the rural and urban males and rural and agency females were reported to have much awareness about having bubbles in urine, yellow urine and blood in the urine leading to kidney disease. Rural respondents having Graduate, Postgraduate education and uneducated respondents were found to have much awareness about the symptoms and kidney failure.

Rural males and females were reported to have much awareness about the symptoms regarding the frequent thirst, back ache and yellow eyes leading to kidney failure in comparision with the other two domiciles. Rural respondents having primary, secondary education, graduates of agency and rural areas, Postgraduates of rural and urban areas and rural uneducated respondents were reported to have more awareness in comparision with others when inquired about the symptoms and kidney failure. Professionals and uneducated residents of urban areas, rural and urban students and rural homemakers were found to have awareness in comparision with others regarding the symptoms and kidney diseases.

Most of the residents of the three domiciles did not know and were unaware about the variables that affect kidneys like bubbles in urine, yellow urine, blood in the urine, frequent thirst, back ache and yellow eyes in kidney diseases and among the three domiciles, residents of agency and rural were more ignorant of the symptoms of kidney disease. Further studies in the form of community-based studies with systematic stratified sampling are needed to create awareness among the residents of three domiciles of Visakhapatnam District and to reduce the possible factors contributing to the high CKD burden.

Tout et al. [12] reported that the awareness of CKD was less in population lodging with kidney disease and also in the subjects engaged with the primary care of the disease. In a cross-sectional study conducted by Chandan et al. [13] among the general population of Chennai and Salem city of Tamil Nadu, the individuals found to have ample knowledge of the risk factors, signs and symptoms of CKD and insufficient knowledge of the physiological function of the kidney and the diagnosis of CKD. In a cross-sectional survey conducted in coastal area of Kottakuppam, Tamil Nadu among, awareness was found to be inadequate among the selected respondents regarding signs and symptoms of CKD [14]. In contrary, 50% of the study population was found to have awareness about the signs and symptoms of kidney disease and had inappropriate knowledge on the symptoms, risk factors, diagnostic tools of CKD [15]. A cross-sectional study carried by Salman et al. [16] at the out-patient department of Endocrinology, Hakeem Abdul Hameed Centenary (HAHC) Hospital, JamiaHamdard, New Delhi, India during April 2017–May 2018 revealed that only 33.43% of the subjects correctly recognized diabetes and hypertension as risk factors for CKD whereas 44.27% were aware of the kidney function.

CONCLUSION

In the present cross-sectional study, a clear and accurate questionnaire was used and deployed to evaluate the knowledge of CKD, risk factors and symptoms among the respondents of three domiciles of Visakhapatnam district, Andhra Pradesh, India. The participants' awareness was limited with regard to knowledge on CKD and its risk factors, signs and symptoms regardless of socio-demographic and economic characteristics. Among the three domiciles, most of the residents of agency and rural were unaware of the symptoms of kidney disease. Hence, awareness of the kidney's function, knowledge on CKD and its risk factors need to be enhanced by conducting awareness programs. These efforts might improve early detection and management of chronic kidney disease.

REFERENCES

1. Terrill B. Renal nursing: a guide to practice, Abingdon, Radcliffe Medical Press; 2002.
2. Whitworth JA. (2003),. World Health Organization, International Society of Hypertension Writing Group. J Hypertens. 21:1983-92.
3. KDIGO. Chapter 1: (2013).Definition and classification of CKD. Kidney Int Suppl. 2013;3(1):19-62.
4. Wang H, Naghavi M, Allen C, Barber RM, Bhutta ZA, Carter A, Casey DC, Charlson FJ, Chen AZ, Coates MM, Coggeshall M. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980–2015: a systematic analysis for the Global Burden of Disease Study 2015. The Lancet. 2016;388(10053):1459-544.
5. National Kidney Foundation. K/DOQI clinical practice guidelines for chronic kidney disease: evaluation, classification, and stratification. Am J Kidney Dis. 2002;39:S1–S266.
6. Varughese S, Abraham G. Chronic Kidney Disease in India: A clarion call for change. Clin J Am SocNephrol. 2018;13(5):802-04.
7. Parameswaran S, Rinu PK, Kar SS, Harichandrakumar KT, James TD, Priyamvada PS, Haridasan S, Mohan S, Radhakrishnan J. A Newly Recognized Endemic Region of CKD of Undetermined Etiology (CKDu) in South India—"Tondaimandalam Nephropathy". Kidney Int Rep. 2020;5(11):2066-73.
8. Agarwal SK, Dash SC, Irshad M, Raju S, Singh R, Pandey RM. Prevalence of chronic renal failure in adults in Delhi, India. Nephrol Dial Transplant. 2005;20(8):1638-42.
9. Mani MK. Prevention of chronic renal failure at the community level. Kidney Int. 2003;63:S86-9.
10. Singh AK, Farag YM, Mittal BV, Subramanian KK, Reddy SR, Acharya VN, Almeida AF, Channakeshavamurthy A, Ballal HS, Gaccione P, Issacs R. Epidemiology and risk factors of chronic kidney disease in India–results from the SEEK (Screening and Early Evaluation of Kidney Disease) study. BMC Nephrol. 2013;14(1):114.
11. Tatapudi RR, Rentala S, Gullipalli P, Komarraju AL, Singh AK, Tatapudi VS, Goru KB, Bhimarasetty DM, Narni H. High prevalence of CKD of unknown etiology in Uddanam, India. Kidney Int Rep. 2019;4(3):380-9.
12. Tuot DS, Wong KK, Velasquez A, Crews DC, Zonderman AB, Evans MK, Powe NR. CKD awareness in the general population: performance of CKD-specific questions. Kidney Med. 2019;1(2):43-50.
13. Bala RC, Jayabharathy M, Priya S, Ramya S. (2021). Awareness of Chronic Kidney Disease among Tamil Nadu Population-A Cross-sectional Study. J ClinDiag Res. 15(5):14-16.
14. Venkatachalam J, Abraham SB, Murugan N, Singh Z. (2013).Awareness about Chronic Kidney Disease (CKD) in a coastal area of Tamil Nadu, South India. ZENITH Int J Multidis Res. 3(8):156-63.
15. Ari KS, Anggun LL, Suci H. (2020). Awareness of chronic kidney disease among general adult population in Indonesia. J Global Pharma Technol.12(06):560-566.
16. Salman RA, AlSayyad AS, Ludwig C. (2019), Type 2 diabetes and healthcare resource utilisation in the Kingdom of Bahrain. BMC Health Ser Res. 19(1):1-0.

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