Knowledge Evaluation of Chronic Kidney Disease, its Risk Factors and Preventive Measures in a Health District in Cameroon

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Abstract: *Background: Chronic Kidney Disease (CKD) is a global problem associated with increased morbidity and mortality. Due to its asymptomatic onset, patients are usually diagnosed late resulting in a poor prognosis. Knowledge of the disease, risk factors and preventive measures improves access to screening, diagnosis, early detection and prevention. We had as objective to evaluate the knowledge of the population on CKD in the Biyem-Assi Health District. Methods: It was a descriptive cross-sectional study; targeting persons above 16years, selected at household level using a stratified-cluster-random-sampling method. Data collection took 6months, using a structured and anonymous questionnaire, analyzed by estimating at 95% CI, and proportions of participants' awareness, risk factors and preventive measures. Results: Out of 550 participants, 467 responded a hence response rate of 84.90%. Fifty-eight (19.59%, 95% CI; 15.23 – 24.58) correctly define CKD. Nine (7.89%, 95% CI; 3.67 – 14.46) knew CKD is asymptomatic in its early stages. Only 9participants (5.84%, 95% CI; 2.71 – 10.80) and 40 (25.97%, 95% CI 19.25 – 33.65) identified painkillers and the association between high blood pressure and diabetes respectively as risk factors. Conclusion: Needed knowledge to ensure primary and secondary prevention of CKD is limited. Policy-makers need to plan and implement appropriate communication strategies as a response to this weakness.*

Keywords: Chronic Kidney Disease, population, awareness, knowledge, prevention, Cameroon

1. Background

Chronic kidney disease is a public health problem affecting both developed and developing countries globally. Due to the absence of early symptoms, the diagnosis of the disease rest on stages of clinical manifestations. [1] In 2015, Global Burden of Disease (GBD) estimated a 32% increase of kidney disease since 2005, and estimated that 2.3 – 7.1million people died in 2010 without access to dialysis. [2] In sub-Saharan Africa, with an under-developed health care system and a minimal health care budget, the disease has a prevalence of 13.9% [3] and in Cameroon particularly, the prevalence was, estimated to be 13.2% [4] in 2015.

Indeed the risk factors for CKD include: diabetes, hypertension, non-steroidal anti-inflammatory drugs (NSAID), obesity, alcohol consumption, old age, roadside drugs, excess herbal plant consumption, cigarette smoking, family history of disease, gender, and low socioeconomic status. [5, 4]

Furthermore, with a rise in deaths and in patients on hemodialysis, interventions like kidney early evaluation program (KEEP) and screening and early evaluation of kidney (SEEK) were implemented in the USA and India respectively. [6, 7], which saw a reduction in the morbidity of the disease.

This study aimed to assess the knowledge of the population on the awareness of chronic kidney disease, at the Biyem-Assi Health in the Yaoundé population. The results obtained provides a scientific basis for policy-makers and health planners that can be used to identify and implement early intervention strategies in the management of CKD and support primary and secondary prevention, thereby reducing the economic and clinical burden of CKD in Cameroon.

2. Methods

Study Design
This study was a descriptive cross-sectional study on the population, targeting participants who were 17years and above in the Biyem-Assi Health District, Yaoundé. We

selected them using a stratified cluster random sampling method. Within a period of six months, 550 participants were surveyed using a face-to-face method and an anonymous questionnaire adapted from previous studies.

Study period and Site
The study was conducted from January to June 2019 at the Biyem-Assi Health District in Yaoundé, city capital of Cameroon. According to data from the Regional Delegation of Public Health of the Centre Region, the Biyem-Assi Health District has 11 Health Areas and a total population size of 364455 inhabitants in 2018. The study site is a cosmopolitan city that has a cross-section of all the ethnic groups.

Participants
The study-targeted participants age 17 years and above living in the Biyem-Assi Health District for the past 1 year prior to the study. Health personnel, patients already on dialysis and those who did not dispose of their full mental capacity were excluded.

Variables
All variables for this study had the same data source, which was the words from the mouth of the participants. Our key variable included:

Awareness of CKD: Participants who had answered, "Yes" to the question "have you ever heard of CKD before, and could define CKD as loss of kidney function in waste removal, and participants who identified "no early symptom" where considered aware of CKD.

Awareness of CKD Risk Factors: Participants who identified either one or all of the risk factors listed such as age, diabetes and hypertension, and painkillers were, considered aware of risk factors.

Awareness of Preventive Measures: Participants who answered "yes" to the question "could the disease be preventable?" were, considered aware of the preventive measures.

Bias
Information Bias: The principal bias in this study was recall bias. This was, encountered because our main data source was from the mouth of the participants. To reduce participants' bias and improve consistency, our survey used yes or no questions. Also for every question asked, the survey proposed suggestions to facilitate the participant choices.

Sampling Procedure and Data Collection

Sample Size
We obtained a total sample size of 550 participants. The sample size estimation was determined using the standard formula for a descriptive cross-sectional study at a 95% confidence interval and a statistical precision of 5% [8], assuming a 13.2% prevalence estimated from a previous study. [4] We adjusted the sample size assuming a response rate of 65% and a design effect due to cluster sampling of 2.

Sampling
This was a stratified cluster random sampling method in two levels. The first being a random sampling of the 11 health areas with remission in which we chose six health areas. For the second level of sampling, we systematically obtained 55 quarters, which gave 55 clusters because we considered each quarter a cluster. We assigned the number of clusters per health area and quarter according to their general population. In each cluster, 10 people interviewed. Once in a quarter, we did a random selection of the road or street from a roundabout using a ballpoint pen which when diploid, the head of the pen gave us the direction. For the household selection, a household was selected by skipping two after the first one in left side of the first building in our direction. The process continued until we reached the total number of household needed. In compounds with more than one household, we randomly selected and included only one.

Data Analysis
We controlled the data quality by training data collectors. This control helped us reduce errors. The questionnaire used for data collection was adapted and modified from previous studies carried out in both Nigeria and Iran. [9, 10]

Before data analysis was done, the non-respondents were considered as missing data, hence was not included in the denominator for the analysis of the variables. Data collected was stored in a computer with access restrained only to the principal investigator. To ensure quality of the data, our questionnaire was designed in short and simple terms to give accurate and relevant response. We also ensured the completeness of response by providing short and direct question of yes or no, and in some questions options were provided for easy selection. Questionnaires were produced in both simple French and English language to suit the respondent.

The data obtained was coded, entered, and cleaned using Epi Info version 7.2.2.6. Awareness of CKD, Risk Factors and Preventive Measures were, assessed by estimating the 95% confidence interval of the proportion of participants knowing each of preventive measures and identified risk factors. The distribution of each estimated proportion was described and the key characteristics of the participants.

Ethical Issues
We obtained an ethical clearance from the National Ethical Committee for Human Health Research (CNERSH) (clearance N° 2019/05/22/CE/CNERSH/SP), an authorization from the Biyem-Assi Health District and the Faculty of Medicine and Pharmaceutical Sciences, University of Dschang (FMSP) to carry out this study. We drafted informed consent forms, and parental consent forms for 17years old participants, which the ethical committee validated.

In collecting data, we presented the informed consent and the parental consent forms explaining the disadvantages and advantages of the study and only continued once the participant had consented by signing the consent form. They were fully aware that their participation was voluntary, and they had the right to withdraw from the study at any time without having to give any explanation. We reassured the

participants about confidentiality and anonymity. The questionnaire, which was the main data collection tool, was, coded before a face-to-face administration.

3. Results

Sociodemographic Characteristics
Out of 550 participants, 467 responded, giving a response rate of (84.90%, at 95% CI; 81.91 – 87.89). The majority of our participants were males 237 (50.75%, at 95% CI; 46.22 – 55.28), and the mean age was 35.96 ± 14.02. Most of them had secondary education level 196 (49.97%, at 95% CI; 44.44 – 54.50), were self-employed 185 (39.69%, at 95% CI; 35.25 – 44.13), and represented (18-38yrs) the active adult group 292 (62.53%, at 95% CI; 58.14 – 66.92). Table 1 below shows the sample distribution by demographic characteristics.

The breakdown of age group to evaluate participation. **>18 – 38 (active adult group)** 292 (62.53%, at 95% CI; 58.19 – 66.92), **>38 – 58 (mildly active adult group)** 117 (25.05%, at 95% CI; 21.12 – 28.98), **>58 (retired adult group)** 48 (10.28%, at 95% CI; 7.53 – 13.03). See table1.

Awareness of Chronic Kidney Disease
Out of 467 participants, 405 (86.72%, at 95% CI; 83.34 – 89.50) had an awareness of the organ called kidney in the body, and 62 (13.28%, at 95% CI; 10.50 – 16.66) had not heard of the body organ called kidney.

Out of the 405 participants who were aware the kidney is a body organ, 157 (38.77%, at 95% CI; 34.15 – 43.59) knew the location of the kidneys, which is on both sides of the abdomen.

Out of 404 respondents, 370 (91.58%, at 95% CI; 88.47 – 93.92) knew that an individual normally has two kidneys. One hundred and fifty-eight (39.40%, at 95% CI; 34.74 – 44.26) participants were aware that a major function of the kidneys is waste removal and fluid level regulation. One hundred and twenty-seven (31.67%, at 95% CI; 27.31 – 36.38) did not know the function of the kidneys, 73 (18.20%, at 95% CI; 14.74 – 22.28) said the function of the kidneys is to select blood, and 43 (10.72%, at 95% CI; 8.06 – 14.13) said the function of the kidneys is to give energy.

Out of 467, 296 participants (63.38%, at 95% CI; 58.27 – 67.01) were aware of the existence of CKD and 171 (36.61%, at 95% CI; 32.99 – 41.73) had no knowledge on whether such a disease exists. From the 296 participants aware of CKD, only 58 (19.59%, at 95% CI; 15.23 – 24.58) could correctly define CKD as a loss of kidney function.116participants (39.19%, at 95% CI; 33.59 – 45.01) considered CKD as an infection of the kidneys, 82 (27.70%, at 95% CI; 22.68 – 33.18) abstained from choosing any answer, 40 (13.51%, 9.83 – 17.94) defined CKD as a swelling of the stomach. For age group, level of education, and occupational status, see table 2

One hundred and fourteen (24.41%, at 95% CI; 20.13-27.83) from 467 participants were aware of disease onset (early symptoms). From the 114, only 9 (7.89%, at 95% CI; 3.67 – 14.46) had the right knowledge that the disease is

asymptomatic in its onset. For age group, level of education and occupational status, see table 3.

Awareness of Risk Factors for Chronic Kidney Disease
From 467 participants, 154 (32.97%, at 95% CI; 28.46-36.93) could identify risk factors for CKD. Amongst the 154 participants who could identify risk factors, 40 (25.59%, at 95% CI; 19.25 – 33.65) selected diabetes and hypertension, 34 (22.08%, at 95% CI; 15.80 – 29.46) and nine (5.84%, at 95% CI; 2.71 – 10.80) identified age and painkillers respectively. Others see severe pains in the ribs 35 (22.73%, at 95% CI; 16.37 – 30.16) as a risk factor, and some consider stomach disease 33 (21.43%, at 95% CI; 15.23 – 28.76) as risk factor. Just a few, three (1.95%, at 95% CI; 0.40 – 5.59), suggested there are other risk factors.

For age group, level of education and occupational statusstratification, Out of 467 participants 27 had a significant medical history, 14 (29.79%, at 95% CI; 17.34 – 44.89) and 13 (27.66%, at 95% CI; 15.62 – 42.64) for diabetes and hypertension respectively. Out of 467 participants, 297 (63.60%, at 95% CI; 59.14 – 67.83) regularly took painkillers, with only six (7.06%, at 95% CI; 4.74 – 9.38) knowing that it is a risk factor. Out of 465 people who responded to this question, 314 (67.53%, at 95% CI; 63.27 – 71.79) had no knowledge about the risk of developing CKD. For age group, education level, occupation status, see table 4

Awareness of Preventive Measures for Chronic Kidney Disease
Out of 467 participants, 276 (59.10%, at 95% CI; 54.58-63.47) said CKD is curable at any level, 189 (40.47%, at 95% CI; 36.11-44.98) said the disease is incurable, while two (0.43%, at 95% CI; 0.12-1.55) did not know if it was curable or not. From 276 who agreed to disease being curable, 145 (52.54%, at 95% CI; 46.46-58.55) participants agreed regularly taking drugs is a cure for the disease, 99 (35.87%, at 95% CI; 30.21-41.84) selected hemodialysis as a method of cure, while 32 (11.59%, at 95% CI; 8.07-15.97) believed it can be cured spiritually. For those who said the disease is not curable 189, most of them 61 (32.28%, at 95% CI; 25.67-39.44) had no idea why the disease is not curable. Thirty-nine (20.63%, at 95% CI; 15.10-27.11) said it damages the kidney, 44 (23.28%, at 95% CI; 17.45-29.96) said its presence is final, and 45 (23.81%, at 95% CI; 17.93-30.53) said there is no drug to cure it. Encouragingly, 332 (71.09%, at 95% CI; 64.61-74.98) from 467 participants believed the disease is preventable. On preventive methods, 105/332 (31.63%, at 95% CI; 26.86 – 36.81) participants approved of spirituality.197/330 (59.70%, at 95% CI; 54.32 – 64.85) considered hemodialysis as a preventive method.173/332 (52.11%, at 95% CI; 46.74 – 57.43) participants did not believe regular blood pressure control is a preventive method. Therefore, even though they are aware that the disease is preventable; they lack the right knowledge on the prevention methods. Out of 467 participants, 294 (62.96%, at 95% CI; 58.49 – 67.21) had not yet heard of kidney screening test, while 170 (36.40%, at 95% CI; 32.17 – 40.86) had heard of kidney screening test. From those who had heard of the test, 128 (74.42%, at 95% CI; 67.22-80.76) had not yet been tested. On identifying at least, 1 kidney screening test carried out, From 382 respondents, 294

(76.96%, at 95% CI; 72.48 – 80.90) participants did not know any, while 37 (9.69%, at 95% CI; 7.11 – 13.07) participants could identify blood and urine tests.

4. Discussion

In general, the results of this study show a low level of awareness on CKD, its risk factors and preventive measure in the community.

Overall, only 39.4% of the respondents identified that a major function of the kidneys is waste removal and fluid level regulation, which is below that obtained from a study 76.3% in Nigeria [9]. Only 19.59% of the respondents correctly defined CKD as a loss of kidney function, which is lesser to that of Iran, 27.8% [10], hence indicating the need to raise awareness. On identifying early symptoms, only 7.89% were aware, compared to that inIran, with just 10.4% of the respondents knowing that CKD can be asymptomatic until advanced stages [10]. This might suggest that the population could be waiting for a symptom before visiting the hospital for screening.

Our findings show that majority 25.79% recognize diabetes and hypertension, which is almost the same as in Iran, where 12.7% and 14.4% identified unmanaged diabetes and hypertension as risk factors. [10] Only a handful 5.84% accepted non-steroidal anti-inflammatory drugs (NSAID) as risk factors, which did not stray from results obtained in other studies where 70% did not believe that NSAID could adversely affect the kidney [11]. More than half of the respondents 63.6% regularly take NSAID for pain-relief, as opposed to other studies where few 18.7% habitually used NSAID. Amongst those who regularly consume NSAID for pain-relief, only 7.06% know that it is a risk factor for CKD, concurring with results from studies in Nigeria where 87.6% did not know that regular consumption of NSAID is a risk factor for CKD. [9]Awareness of the risk factors is lacking, hence could be a factor for the increasing prevalence.

Majority, 71.09%consider the disease preventable, with 47.89% considering regular blood pressure monitoring, which is better than that of Australia, 20.3% with awareness that blood pressure monitoring could help evaluate kidney health [12]. Furthermore, on whether CKD is curable, more than half of the respondents 59.10% considered the disease curable, thereby depicting a high level of unawareness as it is not curable. Concerning kidney screening test, only 36.83% are aware, showing the need of sensitization campaigns to educate and encourage the for regular screening. In addition, only 9.69% could identify blood and urine test methods as tests for, kidney screening, which is very low compared to that in Australia with 76.2% and 68.2% for urine and blood test methods respectively [12]. Despite the majority being aware the disease is preventable, more work is still needed to orientate and encourage the populace to go for regular kidney screening.

5. Limitations

The indicators used to define awareness level were not exact enough. There could be an information bias as we depended solely on information given to us by participants. This study took place only on one geographical site, and despite its cosmopolitan population, our study does not assess the knowledge of CKD across the country.

6. Conclusion

In conclusion, minimum knowledge to insure primary and secondary prevention of CKD in Biyem Assi Health District is accessible to a very limited proportion of the population. A community based communication intervention has to be planned and implemented as response to this weakness.

Things already known on this topic
- Awareness of the disease could slow progression, prevent complications and reduce cardiovascular related outcomes.
- Most-informed people about chronic kidney disease are physicians and patients undergoing kidney dialysis.
- Studies have shown an increasing prevalence amongst the general ignorant population in the Sub-Saharan Africa on chronic kidney disease.

What this study adds
- It is the first study in the country to provide a community-based data on the awareness of chronic kidney disease, hence providing a baseline for further research in the community.
- It gives a clear picture of the population's awareness of the risk factors and preventive measures, which may explain the increasing prevalence as described by other studies.
- It provides a scientific data for adopting preventive actions to combat the high economic and clinical burden of the disease.

Tables and figures:
- Table 1: Socio-demographic Characteristics.
- Table 2: Knowledge on CKD Definition.
- Table 3: Awareness of Early Symptoms.
- Table 4: Awareness of Risk Factors.

Authors' contributions:
Trevor MBOH ANYAMBOD: Conception, financial resources, data curation, formal analysis, investigation,

methodology, original draft preparation, and writing and editingof manuscript.

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MartinNGUESTOP: Revision and editing of manuscript.

Skinner NGEUFACK LEKELEM: Financial resources, Revision and editing of manuscript.

Jerome ATEUDJIEU: Supervision, revisionand editing of manuscript, validation.

References

[1] Kaufman DP, Basit H, Knohl SJ. Physiology, Glomerular Filtration Rate (GFR). In: *StatPearls*.2019. Treasure Island (FL). StatPearls Publishing http: //www.ncbi. nlm. nih. gov/books/NBK500032/. Accessed 23 October 2019.

[2] Luyckx VA, Tonelli M, Stanifer JW. The global burden of kidney disease and the sustainable development goals. Bull World Health Organ.2018; 96 (6): 414-422D.

[3] Stanifer JW, Jing B, Tolan S, Helmke N, Mukerjee R, Naicker S, et al. The epidemiology of chronic kidney disease in sub-Saharan Africa: a systematic review and meta-analysis. Lancet Glob Health.2014; 2 (3): e174-181.

[4] Kaze FF, Meto DT, Halle M-P, Ngogang J, Kengne A-P. Prevalence and determinants of chronic kidney disease in rural and urban Cameroonians: a cross-sectional study. BMC Nephrol.2015; 16: 117.

[5] Kazancioğlu R. Risk factors for chronic kidney disease: an update. Kidney Int Suppl (2013).2013; 3 (4): 368–371.

[6] Claudine T J, Yang Q, Changchun W, David T. G, Wendy Weinstock B. The Kidney Early Evaluation Program (KEEP): Program Design and Demographic Characteristics of the Population. AJKD.2008; 51 (4). doi: https: //doi. org/10.1053/j. ajkd.2007.12.022.

[7] Singh AK, Farag YMK, Mittal BV, Subramanian KK, Reddy SRK, Acharya VN, et al. 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: 114.

[8] Charan J, Biswas T. How to Calculate Sample Size for Different Study Designs in Medical Research? Indian J Psychol Med.2013; 35 (2): 121–126.

[9] Dada AS, Awobusuyi JO, Ajayi AO, Adeoti AO, Ajayi EA, Fadare JO. Awareness of chronic kidney disease: a community survey in Ado Ekiti, South Western Nigeri. tjn.2015; 10 (1): 19 26-19 26.

[10] Roomizadeh P, Taheri D, Abedini A, Mortazavi M, Larry M, Mehdikhani B, et al. Limited knowledge of chronic kidney disease and its main risk factors among Iranian community: an appeal for promoting national public health education programs. Int J Health Policy Manag.2014; 2 (4): 161–166.

[11] Oluyombo R, Ayodele OE, Akinwusi PO, Okunola OO, Gbadegesin BA, Soje MO, et al. Awareness, knowledge and perception of chronic kidney disease in a rural community of South-West Nigeria. Nigerian Journal of Clinical Practice.2016; 19 (2): 161–169.

[12] Gheewala PA, Peterson GM, Zaidi STR, Jose MD, Castelino RL. Public knowledge of chronic kidney disease evaluated using a validated questionnaire: a cross-sectional study. BMC Public Health.2018; 18 (1): 371.

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Table 1: Sociodemographic characteristics

Characteristics (n=467)	Frequency	Proportion (%)
Sex		
Female sex	230	49.25
Male sex	237	50.75
Education level		
Higher Education	139	29.76
Secondary Education	196	41.97
Primary Education	99	21.9
Illiterate	33	7.07
Job status		
Civil servant	60	12.58
Self employed	185	39.61
Unemployed	105	22.48
Others	117	25.05
Age (years)		
≤18	10	2.14
>18 – 38	292	62.53
>38 – 58	117	25.05
>58	48	10.28

Table 2: Knowledge on CKD Definition

Variables	n	Kidney infection	Loss of kidney function	Swelling of kidneys	I don't know
Age-group					
Young adults	6	1 (16.67%)	3 (50.00%)	0	2 (33.33%)
Active-age	177	70 (39.55%)	33 (18.64%)	28 (15.82%)	46 (25.99%)
Mild active-age	77	31 (40.26%)	14 (18.18%)	10 (12.95%)	22 (28.57%)
Retired age	36	14 (38.89%)	8 (22.22%)	2 (5.56%)	12 (33.33%)
Education level					
Higher	120	53 (44.17%)	42 (35.00%)	9 (7.50%)	16 (13.33%)
Secondary	135	51 (37.78%)	15 (11.11%)	28 (20.74%)	41 (30.37%)
Primary	31	9 (29.03%)	1 (3.23%)	3 (9.69%)	18 (58.06%)
Illiterate	10	3 (30.00%)	0	0	7 (70.00%)
Occupation type					
Civil servant	55	30 (54.55%)	16 (29.09%)	2 (3.64%)	7 (12.73%)
Self-employed	133	41 (36.28%)	17 (15.04%)	18 (15.93%)	37 (32.74%)
Unemployed	68	26 (38.42%)	12 (17.65%)	15 (22.06%)	15 (22.06)
Others	60	19 (31.67%)	13 (21.67%)	5 (8.33%)	23 (38.33%)

Table 3: Awareness of Early Symptoms

Variables	n	Change in urine color/Smell	Difficulty in Urination	No Early Symptoms	Side Pain	Swelling of Stomach	I don't know
Age-group							
Young adults	4	2 (50.00%)	2 (50.00%)	0	0	0	0
Active-age	72	6 (8.33%)	20 (27.78%)	8 (11.11%)	21 (29.17%)	14 (19.44%)	3 (4.17%)
Mild active-age	26	4 (15.38%)	11 (42.31%)	1 (3.85%)	5 (19.23%)	5 (19.23%)	0
Retired age	12	6 (50.00%)	1 (8.33%)	0	2 (16.67%)	2 (16.67%)	1 (8.33%)
Education level							
Higher	60	11 (18.33%)	16 (26.67%)	6 (10.00%)	16 (26.67%)	10 (16.67%)	1 (1.67%)
Secondary	44	6 (13.64%)	16 (36.36%)	1 (1.27%)	11 (25.00%)	9 (20.45%)	1 (1.27%)
Primary	8	1 (12.50%)	2 (25.00%)	1 (12.50%)	1 (12.50%)	2 (25.00%)	1 (12.50%)
Illiterate	2	0	0	1 (50.00%)	0	0	1 (50.00%)
Occupation type							
Civil servant	24	5 (20.83%)	8 (33.33%)	1 (4.17%)	6 (25.00%)	4 (16.67%)	0
Self-employed	44	3 (6.82%)	14 (31.82%)	6 (13.64%)	9 (20.45%)	9 (20.45%)	3 (6.82%)
Unemployed	30	7 (23.33%)	8 (26.67%)	2 (6.67%)	7 (23.33%)	5 (16.67%)	1 (33.33%)
Others	16	3 (18.75%)	4 (25.00%)	0	6 (37.50%)	3 (18.75%)	0

Table 4: Awareness of Risk Factors

Variables	n	Old age	Diabetes/ hypertension	painkillers	Severe rib pain	Stomach disease	others
Age-group							
Young adult	4	0	2 (50.00%)	0	2 (50.00%)	0	0
Active-age	93	24 (25.81%)	21 (22.58%)	5 (5.38%)	21 (22.58%)	21 (22.58%)	1 (1.08%)
Mild active-age	39	7 (17.95%)	9 (23.08%)	3 (7.69%)	8 (20.51%)	10 (25.64%)	2 (5.13%)
Retired age	18	3 (16.67%)	8 (44.44%)	1 (5.56%)	4 (22.22%)	2 (11.11%)	0
Education level							
Higher	80	14 (17.50%)	26 (32.50%)	3 (3.75%)	18 (22.50%)	18 (22.50%)	1 (1.25%)
Secondary	57	16 (28.07%)	7 (12.28%)	5 (8.77%)	15 (26.32%)	12 (21.05%)	2 (3.51%)
Primary	13	4 (30.77%)	5 (38.46%)	1 (7.69%)	2 (15.38%)	1 (7.69%)	0
Illiterate	4	0	2 (50.00%)	0	0	2 (50.00%)	0
Occupation type							
Civil servant	36	10 (27.78%)	10 (27.78%)	0	8 (22.22%)	6 (16.67%)	2 (5.56%)
Self-employed	58	9 (15.52%)	18 (31.03%)	4 (6.90%)	15 (25.86%)	11 (18.97%)	1 (1.72%)
Unemployed	40	10 (25.00%)	7 (17.50%)	3 (7.50%)	10 (25.00%)	10 (25.00%)	0
Others	20	5 (25.00%)	5 (25.00%)	2 (10.00%)	2 (10.00%)	6 (30.00%)	0