KNOWLEDGE, ATTITUDE AND PRACTICES OF THE RISK FOR CHRONIC KIDNEY DISEASE AMONG PATIENTS IN A TERTIARY TEACHING HOSPITAL

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ABSTRACT

Patients with chronic diseases such as diabetes, hypertension and cardiovascular diseases are known as high-risk groups for developing chronic kidney disease (CKD). Adequate related knowledge among them helps to increase their awareness towards CKD and adapt healthy attitude and practices for CKD prevention, which will result in better health outcomes. This study aimed to identify the patients' knowledge, attitude, and practices (KAP) towards the risks for CKD. This cross-sectional study used a self-administered survey questionnaire on 103 adult male and female patients at four general surgical and medical wards in a teaching hospital using convenient sampling method. The data were computed using STATA version 12. Data on KAP were obtained through the Chronic Kidney Disease Screening Index questionnaire. The majority of respondents had poor knowledge (69.9%, n=72), but most of them had good attitude (68.9%, n=71) and good practices (88.3%, n=91) towards the risk of CKD. Significant associations were indicated between education level, occupation and monthly family income with knowledge (*p*-value < 0.05). Significant associations were also indicated between age, sex, marital status and occupation with their attitude (*p*-value < 0.05). Meanwhile, marital status was found to be significantly associated with the practices towards the risk for CKD (*p*-value=0.008).

Poor knowledge on the risk of getting CKD among hospitalized adults in this study implied the need for improvement in the public understanding towards the risk for CKD.

Keywords : Chronic Kidney Disease; High-risk Patients; Knowledge, Attitude and Practices of Patient

INTRODUCTION

CKD is a long-term and irreversible condition, and the management is focusing on reducing the progression and treating its complications (Lewis, 2013). The rising number of patients with CKD has become a global challenge due to its progressiveness to end-stage renal failure (ESRF). It is also has been recognized as one of the leading causes of death in the population (Levey *et al*., 2007). Its prevalence is reported as increasing in Asian countries such as Japan, Thailand and China with the increasing number of diabetes and hypertension (Hooi *et al*., 2013). Both of these medical disorders are known as the major risk

factor of CKD and are considered as the 'high risk' group in Malaysia. Other common factors that may increase the risk include heart disease, smoking, high cholesterol (Hooi *et al*., 2013), family history of kidney disease (Chow *et al*., 2012), obesity and age above 65 years old (Almaguer, Herrera & Orantes, 2014).

Knowledge is referred to as the amount of information acquired, retained and utilized in the daily life (Lakhan & Sharma, 2010). It corresponds to how information is acquired by the public about their awareness on a certain issue. Chow *et al*., (2014) emphasized that insufficient information regarding a particular disorder within the public displays a greater

hurdle in disease prevention. Thus, it is essential to acknowledge the barrier of knowledge in order to design educational programmes. A study by Roomizadeh *et al*., (2014) in Iran indicated that individuals with the information on CKD and its risk factors will actively participate in health-promoting behaviors and lifestyle modifications to sustain normal blood sugar and blood pressure levels.

Attitude is a posture or opinion which reflects to certain situations, either positive or negative behaviour (Khalil & Abdalrahim, 2014). It is believed that lack of information on CKD from health providers or not paying attention to this aspect of health may lead to negative attitude towards the disease such as putting less effort to counsel their physician. In turn, patients with positive attitude usually will do something for their health (Khalil & Abdalrahim, 2014).

Practices mean the implementation of rules and knowledge which demonstrate the action in response to CKD prevention (Lakhan & Sharma, 2010). The application of ongoing knowledge gained as prerequisite with a combination of technology performed in an ethical manner will result in good practice.

Although CKD epidemically occurs within the population, not many people, however, are aware of this health issue. It was indicated that only 1.9% CKD respondents were aware of CKD in Thailand and 3.54% in Taiwan (Hooi *et al*., 2013). Indeed, this is a very small percentage of the population and thus, screening and early detection for CKD are highly required among this group.

There are a few studies looking at knowledge, attitude and practices towards the risk of CKD among hospitalized individuals and the public, particularly in western countries. But such studies, however, have not been done in Malaysia (Hooi *et al*., 2013). Thus, there is a need to evaluate the public's awareness of the possibility of getting CKD, particularly among those at higher risks (Zhang *et al*., 2012).

AIM

This study aimed to identify knowledge, attitude, and practices (KAP) towards the risks for CKD among patients with other chronic diseases and its association with the demographic variables.

RESEARCH METHODOLOGY

Study design and setting

A cross-sectional study was conducted to determine the level of KAP and their association with demographic variables at four medical and surgical wards in Hospital Universiti Sains Malaysia (HUSM). Hospital USM is a teaching hospital and it is one of the tertiary care centers for the east coast of Peninsular Malaysia (Abougalambou *et al*., 2010).

Population and sampling method

Sample size for this study was determined using G*Power software version 22. Overall, 103 adult patients were involved in this study and they were conveniently selected among those who had fulfilled the inclusion criteria. The inclusion criteria involved adult male and female within the age group of 18 to 85 years old (Health Profile Malaysia, 2010), diagnosed with other medical diseases that were acknowledged for being at higher risk for CKD. The diseases included diabetes mellitus, hypertension, heart diseases, obesity, had a family history of CKD). Along with that the respondents must be able to speak and write in our national language, Bahasa Malaysia, and agreed to participate in the study.

Ethical approval

Ethical approval to conduct this study was sought from the Research Ethics Committees (Human), Universiti Sains Malaysia. Permission to conduct the study at both medical and surgical wards was obtained from the hospital's Director as well as the Head of Medical and Surgical Departments. Consent forms were distributed to each respondent who met the inclusion criteria for this study and was signed after they fully understood the process of the study through verbal and written explanations.

Questionnaire design

The instrument used in this study was a self-administered questionnaire, which consisted of two main parts; Part A and B. Part A consisted of socio-demographic data (e.g., age, gender, ethnicity), while Part B comprised of the CKD Screening Index Questionnaires (Khalil *et al*., 2014). This questionnaire had three subscales used to assess the respondents' knowledge, attitude and practices towards the risks of getting CKD. The knowledge scale had 24 items and the

level was measured through the answers 'Yes', 'No' or 'Unsure'. Scores of more than 70% were defined as high knowledge (Khalil *et al*., 2014). The attitude scale had nine items with four point Likert scale responses of 'Strongly agree', 'Agree', 'Unsure', 'Disagree' and 'Strongly disagree'. Meanwhile, for the practice scale, it also had nine items with a five Likert scale with 'Always', 'Most of the time', 'Sometimes', and 'Not at all' responses. Higher scores of more than 70% for both attitude and practices scales indicated the patients' understanding towards appropriate lifestyles and compliances as ways to avoid CKD (Khalil *et al*., 2014).

Validity and Reliability

The CKD Screening Index Questionnaire was translated into the Malay language to be used in this study. The Malay version was checked for content validation by three nursing lecturers. It was then translated back into the English language and then checked by a bilingual expert at the Language Centre to ensure similar meaning. A pre-testing study was done prior to the study on 10 respondents with similar criteria. The data obtained were tested for reliability through the Cronbach's alpha test. The Cronbach's alpha for knowledge scale was 0.87, attitude scale was 0.73, and practice scale was 0.78. The reliabilities of the scales were considered adequate and exceeding the cut of point of 0.70 (Khalil *et al*., 2014).

Data Analysis

Descriptive analyses were conducted using STATA 12. Descriptive statistics by frequency and percentage were used to determine the level of KAP towards the risk of CKD. Pearson Chi-Square test was applied to determine the association between socio-demographic variables with levels of KAP towards the risk of CKD. When the assumption of the Pearson Chi-square test was not fulfilled, the Fisher Exact test was applied. The significance was set as $p<0.05$.

RESULTS

Overall, the response rate of this study was 91.2 and 103 questionnaires were included in the study from the sampling frame of 113. Of this number, 49.5% were males (n=51) and 50.5% females (Table 1). Respondents' age was categorized into three groups: 18-30 years old, 31-59 years old, and 60-85 years old. Most of them were between 31-59 years old (46.6%, n=48), Malay (79.6%) and had a moderate education level (39.8%). In terms of

marital status, the majority were married (70.9%), unemployed (58.3%) and had a monthly family income between RM 1001-RM 3000 (43.7%).

Table 1: Respondents' socio-demographic characteristics (n=103)

Variables	Male (%)	Female (%)	Total (%)
Sex	51 (49.5)	52 (50.5)	103 (100)
Age			
18-30 years old	5 (29.4)	12 (70.6)	17 (16.5)
31-59 years old	31 (64.6)	17 (35.4)	48 (46.6)
60-85 years old	15 (39.5)	23 (60.5)	38 (36.9)
Race			
Malay	41 (50.0)	41 (50.0)	82 (79.6)
Chinese	7 (58.3)	5 (41.7)	12 (11.7)
Indian	3 (33.3)	6 (66.7)	9 (8.7)
Education level			
Never	12 (46.2)	14 (53.8)	26 (25.2)
Primary school	12 (60.0)	8 (40.0)	20 (19.4)
Secondary school	21 (51.2)	20 (48.8)	41 (39.8)
College/University	6 (37.5)	10 (62.5)	16 (15.6)
Marital status			
Single	11 (55.0)	9 (45.0)	20 (19.4)
Married	38 (52.1)	35 (47.9)	73 (70.9)
Divorced	0 (0.0)	3 (100.0)	3 (2.9)
Widowed	2 (28.6)	5 (71.4)	7 (6.8)
Occupational			
Unemployed	19 (54.3)	16 (45.7)	35 (34.0)
Employed	32 (74.4)	11 (25.6)	43 (41.7)
Housewife	0 (0.0)	25 (100.0)	25 (24.3)
Monthly family income			
≤ RM 1000	18 (48.6)	19 (51.4)	37 (35.9)
RM 1001-3000	23 (51.1)	22 (48.9)	45 (43.7)
RM 3001-5000	4 (36.4)	7 (63.6)	11 (10.7)
RM 5001-10000	6 (60.0)	4 (40.0)	10 (9.7)

Level of Knowledge, Attitude and Practices towards the Risk for CKD

Data of these three domains were analyzed descriptively and presented by using frequency and percentages. Table 2 shows two indicators of poor and good levels of respondents' knowledge, attitude, and practices. The results revealed that the majority of respondents in this study had poor knowledge levels (69.9%). In contrast to that, most of the respondents had a good attitude level (68.9%) as well as good practices level (88.3%) towards the risk for CKD.

Table 2: Respondents' Knowledge, Attitude, and Practices (KAP) towards the Risk for CKD (n=103)

Category	KAP classification					
	Knowledge		Attitude		Practices	
	Number	%	Number	%	Number	%
Poor	72	**69.9**	32	31.1	12	11.7
Good	31	30.1	71	**68.9**	91	**88.3**
Total	103	100.0	103	100.0	103	100.0

Association between the respondents' selected socio-demographic characteristics and knowledge, attitudes, and practices towards the risk of CKD

In Table 3, the results indicated that there were significant associations between gender with knowledge (p = 0.046), age groups with knowledge (p=0.016), education with knowledge (p = 0.001), occupational with knowledge (p=0.001), and family income with knowledge (p=0.001). However, there was no significant association between marital statuses with knowledge. There were more female with poor knowledge compared to male participants. The results also showed a high percentage of participants of the older age group having poor knowledge. The majority of participants with tertiary education had good knowledge of CKD. The majority of them who were unemployed and also with low family income (<RM3000) were categorized as having poor knowledge.

Table 3: Associations between Selected Demographic variables and Knowledge towards the Risk of CKD (n=103)

Variables	Patient's Knowledge Level, n (%)		χ² (df)	p-value
	Poor	Good		
Sex			3.992(1)	0.046
Male	31(30.1)	20(19.4)		
Female	41(39.8)	11(10.7)		
Age			8.228(2)	0.016
18-30 years old	10(9.7)	7(6.8)		
31-59 years old	29(28.2)	19(18.4)		
60-85 years old	33(32.0)	5(4.9)		
Educational level				0.001*
Never	24(23.3)	2(1.9)		
Primary school	17(1.7)	3(2.9)		
Secondary school	27(26.2)	14(13.6)		
College/ University	4(3.9)	12(11.7)		
Marital status				0.104*
Single	11(10.7)	9(8.7)		
Married 51(49.5)	22(21.4)			
Divorced 3(2.9)	0(0.0)			
Widowed	7(6.8)	0(0.0)		
Occupational			13.741(2)	0.001*
Unemployed	29(28.2)	7(6.8)		
Employer	21(20.4)	21(20.4)		
Housewife	22(21.4)	3(2.9)		
Monthly family income				0.001*
≤RM1000	35(34.0)	2(1.9)		
RM1001-3000	29(28.2)	16(1.6)		
RM3001-5000	6(5.8)	5(4.9)		
RM5001-10000	2(1.9)	8(7.8)		

[a] *Pearson Chi-Square*
[b] *Fisher's Exact test*
P-value of 0.05 and less is statistically significant

Results in Table 4 showed that there were significant associations between gender with levels of attitudes (p = 0.028), age groups with levels of attitude (p = 0.035), marital status with levels of attitudes (p = 0.002), and occupational with levels of attitudes (p = 0.001). However, no significant association was found between educational with levels of attitude (p = 0.612) and family income and levels of attitude (p = 0.496). In terms of gender, there were more females with good attitude than male participants. A high percentage of participants with 31 to 85 years old, married, and employed were having a good attitude toward the risk of CKD.

Table 4: Associations between Selected Demographic variables and Attitude towards the Risk of CKD (n=103)

Demographic Data	Patient's Attitude Level, n (%)		χ² (df)	p-value
	Poor	Good		
Sex			4.820(1)	0.028
Male	21(20.4)	30(29.1)		
Female	11(10.7)	41(39.8)		
Age			6.684(2)	0.035
18-30 years old	8(7.8)	9(8.7)		
31-59 years old	9(8.7)	39(37.9)		
60-85 years old	15(14.6)	23(22.3)		
Educational level			1.816(3)	0.612
Never	10(9.7)	16(15.5)		
Primary school	6(5.8)	14(13.6)		
Secondary school	13(12.6)	28(27.2)		
College / University	3(2.9)	13(12.6)		
Marital status				0.002*
Single	13(12.6)	7(6.8)		
Married	16(15.5)	57(55.3)		
Divorced	1(1.0)	2(1.9)		
Widowed	2(1.9)	5(4.9)		
Occupation			17.420(2)	0.001
Unemployed	20(19.4)	15(14.6)		
Employed	9(8.7)	34(33.0)		
Housewives	3(2.9)	22(21.4)		
Monthly family income				0.496*
≤ RM1000	15(14.6)	22(21.4)		
RM1001-3000	12(11.7)	33(32.0)		
RM3001-5000	3(2.9)	8(7.8)		
RM5001-10 000	2(1.9)	8(7.8)		

* Fisher's exact test

Table 5 indicated the association between selected demographic variables and practices toward the risk for CKD. There was a significant association between marital status and practices (p = 0.008). The majority of the married participants were categorized as having good practices. However, there were no significant differences between other demographic variables with practices toward the risk of CKD.

Table 5: Associations between Selected Demographic variables and Practices towards the Risk of CKD (n=103)

Demographic Data	Patient's Practices Level, n (%)		χ² (df)	p-value
	Poor	Good		
Sex			0.001(1)	0.971
Male	6(5.8)	45(43.7)		
Female	6(5.8)	46(44.7)		
Age				0.081*
18-30 years old	5(4.9)	12(11.7)		
31-59 years old	4(3.9)	44(42.7)		
60-85 years old	3(2.9)	35(34.0)		
Education level				0.494*
Never	5(4.9)	21(20.4)		
Primary school	1(1.0)	19(18.4)		
Secondary school	4(3.9)	37(35.9)		
College / University	2(1.9)	14(13.6)		
Marital status				0.008*
Single	6(5.8)	14(13.6)		
Married	4(3.9)	69(67.0)		
Divorced	1(1.0)	2(1.9)		
Widowed	1(1.0)	6(5.8)		
Occupation				0.050*
Unemployed	8(7.8)	27(26.2)		
Employed	3(2.9)	40(38.8)		
Housewives	1(1.0)	24(23.3)		
Monthly family income				0.119*
≤RM1000	7(6.8)	30(29.1)		
RM1001-3000	2(1.9)	43(41.7)		
RM3001-5000	2(1.9)	9(8.7)		
RM5001-10 000	1(1.0)	9(8.7)		

Fisher's exact test

DISCUSSION

This study revealed the current levels of knowledge, attitudes and practices towards the risk of CKD among the hospitalized patients. The majority of the respondents in the present study had poor knowledge about the risk of getting CKD. Our data supported previous findings reporting that of 299 patients, 90% had a general knowledge of CKD of less than 60 % (Danguilan *et al.*, 2013). Most of the respondents were unable to recognize the signs and symptoms of CKD. We concluded that such situation was caused by the lack of physicians' awareness regarding CKD that hindered them from providing information about CKD to the patients. It is acknowledged that adequate information is important to improve the patients' health-seeking behavior (Danguilan *et al.*, 2013). The insufficient knowledge about the disease could always lead to poor health outcomes among patients (Crinson *et al.*, 2010).

In contrast to knowledge, our findings revealed that the majority of the respondents had good attitude towards the risk of getting CKD. The respondents' attitude was tested on their agreement to nine statements including 'doctor and nurses should give

more information about kidney disease. A different finding was reported in a study conducted among 2017 African Americans' attitude towards early detection and screening for kidney disease and they found that the majority had poor attitude towards the prevention of CKD (Waterman *et al.*, 2008).

Besides good attitude, the present study demonstrated that the respondents had good practices towards the risk of CKD. A different finding was indicated in another study when they found that the majority of their respondents (58.8%) had poor practices with regards to CKD (Cumming *et al.,* 2014). Despite the differences in these findings, the variances may reveal the existence of different barriers faced by the patients in different geographic regions or countries. For example in some countries, the patient needs to pay for the physicians' services or medications prescribed. Some of them have different levels of patient-provider interactions which may affect their practices towards certain diseases (Agrawal *et al.*, 2012). Ranimah, Rosediani, & Harmy, (2012) supported that the strengths of association between knowledge and health practice differed depending on the health practice at the study site, as well as the methodology and the type of questionnaires used.

Our study indicated a significant association between gender and knowledge level, whereby females had poorer knowledge compared to male patients. However, in other studies, male and female respondents had no difference regarding the knowledge of CKD (Danguilan *et al.*, 2013; Song *et al.* 2013). Poor knowledge among female patients in the current study may reflect their background as most of them were housewives (24.3%) with moderate education level (39.8) and maybe unemployed (34%). According to Desai, Chugh & Brief, 2014, it was a traditional conception that the women are in charge of the home with family roles, while men are the breadwinners. Females were also reported to being at a higher risk for CKD compared to males in other studies (Yu, Katon & Young, 2015). Thus, a great attention should be given to women by delivering more health education regarding CKD to them, especially those with diabetes and hypertension.

We also found a significant association between age and knowledge. Our data supported previous

findings that a lower knowledge level was related to aging (Danguilan *et al*., 2013; Song *et al*., 2013), whereby 36.9% of the respondent were elderly (Danguilan *et al*., 2013). The society believes that the aging process is related to poor cognitive ability that leads to poor self-care. They might be attached to this belief and were reluctant to learn new things. Other possible reasons for this condition may include the common situation where the elderly is prone to chronic diseases and that they are required to take plenty of medication, which may cause side effects such as drowsiness and mental dullness (William & Kemper, 2010). In fact, aging people may experience sensory changes which can interfere with the processing of information. They may also experience health related changes such as arthritis and pain. These diseases can affect the cognitive areas such as concentration and processing speed; or cause mood changes such as depression and anxiety which can alter their motivation to learn new information and to apply active strategies to prevent other diseases (Emory University, 2016).

A significant association was also revealed in our study between gender and attitude. Whereby female patients had good attitude compared to males towards the risk for CKD. When compared to men, women are always willing to seek medical treatments or information, and communicate with their friends or family regarding health issues (Voci & Cramer, 2009). Frequently, women seek information and they use various sources and places to learn about CKD including church, clinics, health affairs and community (Ryder *et al*., 2013). This was supported by in the study by Santos *et al*., (2015), where the women sought more medical services for preventive examinations, and they were more compliant to medical suggestions associated to existing diseases. Meanwhile, the males commonly felt that they were safe from diseases and mostly prioritized life pleasures over their health (Santos *et al*., 2015).

The findings of this study also revealed that those patients who were employed had a significant association with positive attitude. This was consistent with another study where positive attitude was higher among those who were employed in accepting the treatments for the disease (Bapat, *et al.*, 2008). Moreover employed patients also managed to overcome their difficulties on transportation cost to get

healthy foods and to visit health centers for further treatments (Kora & Pramiladevi, 2011).

Our study also indicated a significant association between marital status and practices towards the risk for CKD. The married patients in our study had good practices towards the risk for CKD. In contrast to this, another study found that married patients had no significant association with their practice, but married patients displayed good practices towards CKD (Khalil & Abdalrahim, 2014). This study was similar to present study. Jurj *et al*., (2006) suggested that married life can influence the spouse to follow the same lifestyles and morbidity patterns. Moreover, marriage is known as a positive indicator in improving the husband's health behavior through the wife or mother (Markey, *et al*., 2005). Since the female group in our study had good attitude and practices, it can be assumed that they have a significant role in enhancing their husband's practices towards health. However, there may be some biased issues as most of them were married and thus, this association is required to be re-assessed in future study. Obviously, more studies should be carried out to identify the association between respondents' marital status and their attitude towards health beliefs and health behaviors (Markey, *et al*., 2005).

CONCLUSION

Poor knowledge regarding CKD was indicated in 61% of the respondents in our study. Despite the poor knowledge, the findings however, indicated that the respondents had good attitudes and practices towards CKD. Some selected socio-demographic characteristics (age, sex, marital status, education level, occupation and monthly income) were significantly associated with either patients' knowledge, attitude or practices towards CKD' It was assumed that the findings of this study could be used as a baseline data for future research as well as for the benefit of the public and the healthcare professionals, to help in the improvement of the care of patients in this area.

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