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Factors That Influence Behavior of Chronic Kidney Disease Prevention in Indonesia Citizens

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ABSTRACT

Background: Chronic kidney disease is giving a great contribution to the world's burden. Chronic kidney disease also affects 8%‑16% of the world's population. The huge number of chronic kidney disease cases has proven to be caused by the lack of knowledge regarding the signs and risk factors of chronic kidney disease.

Method: This is observational analytical research with a cross-sectional design. This study included 100 respondents, whereas those with a history of chronic kidney disease and psychology disorder were excluded. Knowledge is divided over good ($\geq 75\%$), average (56-74%), bad ($< 55\%$), attitude divided over good (76-100%), average (56-75%), bad (0-55%), and behavior divided over positive (T respondent $>$ T mean) and negative (T respondent $<$ T mean).

Result: Out of 100 respondents, it is acquired that adult ($p<0.001$), male gender ($p<0.001$), and higher education ($p<0.001$) were the only factors significantly associated with good knowledge, good attitude, and positive behavior. Lastly, respondents with good knowledge ($p=0.002$) (PR = 8.017 (90% CI: 2.759-23.296)) and, good attitude ($p<0.001$) (PR= 13.668 (90% CI: 4.269-43.767)) will have a positive behavior

Conclusion: In this study, positive behavior of chronic kidney disease prevention is significantly associated with adults, male gender, higher education, good knowledge, and good attitude.

Keywords: Attitude, Behavior, Chronic Kidney Disease Prevention, Knowledge

ABSTRAK

Latar Belakang: Penyakit ginjal kronis memberikan kontribusi yang besar atas beban di dunia. Penyakit ginjal kronis juga mempengaruhi 8%-16% dari populasi di seluruh dunia. Tingginya PGK di Indonesia telah terbukti disebabkan oleh pengetahuan yang kurang tentang tanda dan faktor risiko dari PGK, sehingga dibutuhkan pengetahuan dan sikap yang baik terhadap perilaku pencegahan PGK

Metode: Penelitian ini merupakan penelitian analitik dengan desain cross sectional. Penelitian ini menggunakan 100 responden dimana, adanya riwayat PGK dan kelainan

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psikologi di eksklusi. Pengetahuan dibagi atas baik (≥ 75%), sedang (56-74%), buruk (<55%), sikap dibagi atas baik (76-100%), sedang (56-75%), buruk (0-55%), dan perilaku dibagi atas positive (T responden > T mean) dan negative (T responden < T mean)

Hasil: *Dari 100 orang responden, didapatkan usia dewasa (p<0,001), jenis kelamin laki-laki (p<0,001) dan berpendidikan tinggi (p<0,001) adalah faktor yang paling berhubungan dengan pengetahuan yang baik, sikap yang baik dan perilaku yang positif. Penelitian ini juga mendapatkan bahwa pengetahuan yang baik (p=0,002) (RP = 8,017 (90% CI: 2,759-23,296)) dan sikap yang baik (p<0,001) (RP = 13,668 (90% CI: 4,269-43,767)) dapat menghasilkan perilaku positif*

Kesimpulan: *Pada penelitian ini, perilaku positif mengenai pencegahan PGK berhubungan dengan usia dewasa, jenis kelamin laki-laki, berpendidikan sarjana dengan pengetahuan baik dan sikap baik.*

Kata Kunci: *Pengetahuan, Perilaku, Penyakit Ginjal Kronis, Sikap*

1 Introduction

Chronic Kidney Disease (CKD) is a global burden and it is the 16th leading cause of years of life lost worldwide and affects 8-16% of the population in the world.[1][2][3] According to Indonesian Renal Registry (IRR) data in 2017, hemodialysis patients died with the highest risk factor to cause death being a cardiovascular disease with 37% and it increases in 2018 to 42%.[4]

According to the understanding above government provide prevention against CKD with changes in behavior called CERDIK.[6] These changes in behavior are usually based on knowledge, consciousness, and a positive attitude.[7] According to Triwibowo (2015), behavior is divided into 3 which is, knowledge, attitude, and action. Patients with knowledge of CKD can affect attitudes and behavior.[8] In addition, Notoatmodjo said that behavior with knowledge-based will last longer than behavior without knowledge-based. This knowledge can affect CKD patients in preventing CKD. According to Newcomb, one of the social psychologists said that attitude is a readiness to act without a certain motive implementation. Attitude is not an action or activity but a predisposition of action in behavior. Knowledge, belief thought, and emotion play an important role in the determination of attitude so in the practice of prevention CKD behavior can be affected by attitude and knowledge,[9] but according to IRR in 2011 a total of a patient who suffered from CKD in Indonesia is 22.304 patient and it increases in 2012 become 28.782 patient.[10] Kemenkes conclude that citizen still abandons these changes in behavior.[11] Therefore, the authors are interested in conducting the relationship between the knowledge and attitude of Indonesian citizens regarding the behavior of chronic kidney disease prevention.

2 Method

This is an analytical observational study with a cross-sectional design of the study. This cross-sectional study was performed in Indonesia and started as soon as ethical clearance was taken out by Ethics Commission FK USU

This is observational analytical research with a cross-sectional design. This study included 100 respondents, whereas those with a history of chronic kidney disease and psychology disorder were excluded. Knowledge is divided over good ($\geq$ 75%), average (56-74%), bad (< 55%), attitude divided over good (76-100%), average (56-75%), bad (0-55%), and behavior divided over positive (T respondent > T mean) and negative (T respondent < T mean).

Statistical Analysis

This research will be using a chi-square test a non-parametric statistic that is often used in research for public health because this test can compare two groups or more on the categorized data. If the x^2 count $\leq x^2$ table, there is a relationship between knowledge attitude with the savior of chronic kidney disease prevention. On the other hand, if the x^2 count $\geq x^2$ table, there is no relationship between knowledge attitude and behavior of chronic kidney disease prevention[1]. Variables with p value< 0.05 are included in multivariate tests, it is considered significant if p<0.05.

3   Result

Based on Table 1, the respondent's characteristics mostly are elderly (48%) age, female gender (52%), and bachelor's degree (39%). According to knowledge, attitude, and behavior, most of the respondents have good knowledge (41%), good attitude (50%), and positive behavior (71%).

Table 1 Frequency Distribution Characteristics of Indonesia Citizen

Characteristics	n	%
Age		
Young Adult	18	18
Adult	34	34
Elderly	48	48
Gender		
Male	48	48
Female	52	52
Education		
High School	41	41
Diploma	20	20
Bachelor's Degree	39	39
Knowledge		
High	41	41
Moderate	31	31
Low	28	28
Attitude		
Good	50	50
Fair	50	50
Behavior		
Positive	71	71
Negative	29	29

Based on Table 2, in bivariate analysis it is acquired that age (p<0.001), gender (p<0.001), and education level (p<0.001) have a relation with knowledge

Table 2 Characteristics of Indonesia Citizens with Knowledge

	Knowledge			P
	High n (%)	Moderate n (%)	Low n (%)	
Age				
Young Adult	9 (50)	4 (22.2)	5 (27.8)	<0.001
Adult	25 (73.5)	6 (17.6)	3 (8.8)	
Elderly	7 (14.6)	21 (43.8)	20 (41.7)	
Gender				
Male	30 (62.5)	12 (25)	6 (12.5)	<0.001
Female	11 (21.3)	19 (36.5)	22 (42.3)	
Education				
High School	8 (19.5)	14 (34.1)	19 (46.3)	<0.001
Diploma	6 (30)	8 (40)	6 (30)	
Bachelor's Degree	27 (69.2)	9 (23.1)	3 (7.7)	

Based on Table 3, multinomial logistic regression conclude that adult (p<0.001), male gender (p<0.001), and higher education (p<0.001) were the only factors significantly associated with a good attitude

Table 3 Characteristics of Indonesia Citizens with Attitude

	Attitude		P
	Good n (%)	Fair n (%)	
Age			
Young Adult	9 (50)	9 (50)	<0.001
Adult	26 (76.5)	8 (23.5)	
Elderly	15 (31.3)	33 (68.8)	
Gender			
Male	35 (72.9)	13 (27.1)	<0.001
Female	15 (28.8)	37 (71.2)	
Education			
High School	16 (39)	25 (61)	0.008
Diploma	7 (35)	13 (65)	
Bachelor's Degree	27 (69.2)	23 (30.8)	

Based on Table 4, multinomial logistic regression conclude that adult (p<0.001), male gender (p<0.001), and higher education (p<0.001) were the only factors significantly associated with positive behavior.

Table 4 Characteristics of Indonesia Citizens with Behavior

	Behavior		P
	Positive n (%)	Negative n (%)	
Age			
Young Adult	14 (77.8)	4 (22.2)	0.006
Adult	30 (88.2)	4 (11.8)	
Elderly	27 (56.3)	21 (43.8)	
Gender			
Male	41 (85.4)	7 (14.6)	0.002
Female	30 (57.7)	22 (42.3)	
Education			
High School	24 (58.5)	17 (42.5)	0.037
Diploma	14 (70)	6 (30)	
Bachelor's Degree	33 (84.6)	6 (11.3)	

Based on Table 5, respondents with good knowledge (p=0.002) (PR = 8.017 (90% CI: 2.759-23.296) and good attitude (p<0.001) (PR= 13.668 (90% CI: 4.269-43.767)) will have a positive behavior.

Table 5 Relation Knowledge and Attitude Toward Behavior of CKD Prevention

	Behavior		P
	Positive n (%)	Negative n (%)	
Knowledge			
High	37 (90.2)	4 (9.8)	0.002
Moderate	19 (61.3)	12 (38.7)	
Low	15 (53.6)	13 (46.4)	
Attitude			
Good	49 (94.2)	3 (5.8)	<0.001
Fair	22 (45.8)	26 (54.2)	

Based on Table 6, the final result of multivariate analysis, concludes that adult (p<0.001), male gender (p<0.001), and higher education (p<0.001) were the only factors significantly associated with good knowledge, good attitude, and positive behavior. Lastly, respondents with good knowledge (p=0.002) (PR = 8.017 (90% CI: 2.759-23.296)) and good attitude (p<0.001) (PR= 13.668 (90% CI: 4.269-43.767)) will have a positive behavior.

Table 6 Multivariate Analysis Between Knowledge, Attitude, and Behavior

Variables	Unstandardized coefficients (B)	Exp(B)	P value	90% CI
Knowledge				
High	2.082	8.017	0.002	2.759 - 23.296
Moderate	0.316	1.372		0.575 - 3.274
Low	Ref.			
Attitude				
Good	2.615	13.668	<0.001	4.269 – 43.767
Fair	Ref.			

4   Discussion

In this research, it is obtained that the proportion of respondents with good knowledge about CKD are 41 respondent (41%), the result consistent with data obtained by Noviriyanti 2014 knowledge about CKD in General Hospital Dokter Soedarso Pontianak it is acquired that most of the respondents were in good category (66.67%).[2] According to Younes 2022 research, found out the majority of developing countries citizens will have good knowledge about CKD[3]. Citizens' knowledge about chronic kidney disease prevention is a result of "knowing" dan happens after someone had sensed an object.[2]

Attitude is a person's response to a situation that is influenced by several factors. In this research, it is obtained that the majority of Indonesian citizens have a good attitude (50%) toward CKD prevention, this research is consistent with Nina's research 2020 conclude that respondent has a positive attitude towards CKD prevention.[3] Additionally, Yusoff *et al.* 2016 concluded that the majority of respondents were a good/positive attitude toward the risk of CKD prevention. Usually, the respondents who have a positive attitude will do anything for their health.[4]

In this research, it is obtained that the majority of Indonesian citizens have positive behavior (71%) toward CKD prevention. This research is consistent with Asmelash *et al.* research in 2020 obtained 210 respondents (48.4%) had positive behavior.[5] Additionally, Yusoff *et al.* research 2016 respondents had positive behavior 88.3%.[4] The results of this study have lower numbers than Yusoff *et al.* which allow for differences in the level of education and health education about CKD[6]. CKD prevention is doable with exercise, eating healthy food, and remembering to check blood pressure and blood sugar.

Based on this research, it is obtained that age, gender, and education are significantly related (p<0.001) to high knowledge. This is consistent with the findings of Chow *et al* 2014 the knowledge score about CKD is high for the respondent who has higher education.[7] Additionally, Sa'adeh *et al* 2018 obtained that knowledge has a significant relation with age and higher education (p<0.001).[8] The higher someone's education the easier for them to access information about one's problem and will have higher knowledge.[9] According to the result of this research, the researcher assumes that the knowledge score is low in females than males because of the lack of knowledge and exposure related to the disease which results in the

emergence of unawareness in females, which can cause CKD. However, several studies have stated that there is no difference in the frequency of the disease in both men and women. This statement was consistent with Nurchayanti *et al.* 2011 findings which state that disease can attack humans, both men and women. According to Khalil and Abdalrahin 2014, an indicator that can be used to determine the level of awareness regarding the prevention of chronic kidney disease is knowledge about the disease, including knowledge about the causes of the disease, the signs, and symptoms of the disease, how to treat it, risks factors, how to prevent CKD and how to live a healthy life, such as knowing the type of nutritious food, the benefits of the food for health and the importance of exercise.[10][6]

In this research, respondents' age (p<0.001), gender (p<0.001), and education (p=0.008) are significantly related to a good attitude. This is consistent with the findings of Khalil and Abdalrahim which states that gender (p=0.007) was related to a high score of attitudes[6]. Additionally, Sa'adeh *et al.* 2018 findings conclude that age (p=0.001), higher education, and high knowledge score (p=0.011) were the factors that were significantly related to high scores [8]. There are two types of attitudes, positive (good) and negative (fair or enough). A good attitude tendency to approach and expect certain objects, while a negative attitude usually has a tendency away, avoid, hate, and dislike certain objects. Respondents with a good attitude will usually do something for their health such as maintaining health, seeking the latest information to improve their health, and doing activities that can improve health.

In this research, respondent's characteristics age (p=0.006), gender (p=0.002), and education (p=0.037) are significantly related to positive behavior. This research is in line with research conducted by Sa'adeh *et al.* 2018 research with bivariate analysis found male gender (p=0.005), and high education (p<0.001) have a relationship with the behavior towards disease prevention of chronic kidney.[8] This research was also supported by research conducted by Khalil and Abdalrahim 2014 which stated that there was a relationship between age (p=0.015) and male sex (p=0.03) and behavior toward CKD prevention.[6]

According to Ajzen 2002 in Khalil and Abdalrahim 2014 CKD can be prevented by influencing respondents' knowledge and attitudes with early detection of the disease. Ajzen developed the Theory of Planned Behavior (TPB) which was intended to see how the intention to act guides human behavior. Ajzen et al. 2011 in Khalil and Abdalrahim 2014 suggested that attitudes can be positive or negative depending on the beliefs and knowledge that each individual has about CKD prevention. In the research Khalil and Abdalrahim, 2014 conducted using TPB as a guiding framework, it was found that respondents who did not have good knowledge and a positive attitude would also have unhealthy behavior toward CKD prevention. Statistically and based on TPB, health behavior is explained by the existence of satisfactory knowledge and attitudes ttowardCKD prevention. Thus, educational programs must incorporate these three components so that appropriate behavior can occur when symptoms occur. This program has proven the accuracy of TPB among patients at risk for CKD in Jordan.[6]

In this research, knowledge (p=0.002) and attitude (p<0.001) significantly related to positive behavior This is in line with Nina *et al.* 2020 most respondents who have knowledge of CKD and have positive attitudes and healthy behaviors related to a healthy lifestyle to prevent CKD because it is shown that the highest average value is in the attitude sub-variable (36.50) with a standard deviation (SD) of 4.246, with an average value of the total sub-variables of 74.69 (SD=8.147).[11] This research is also supported by the research of Sa'adeh et al. 2018 whose relationship between knowledge and attitudes has p <0.001. Behavior in preventing chronic kidney disease, namely, carrying out routine checks (measuring blood pressure and measuring blood sugar), reducing consumption of fatty or salty foods, and doing sports.[8]

Based on research by Sa'adeh et al. 2018 there is a positive correlation between attitudes and behavior p <0.001, this can be explained that human behavior depends on each attitude they take and this attitude can be awakened if they know the results.[8] This is supported by Notoatmodjo 2012 which says that individuals who know a health stimulus or object, then make an assessment or give an opinion on what is known then will be practiced or perform a behavior (which is considered good).[10] It can be concluded that knowledge and attitudes are influenced by the behavior of the people of Indonesia regarding the prevention of chronic kidney disease.

5   Conclusion

Factors that significantly influence Indonesian citizens' behavior are knowledge, attitude, behavior, adults, male sex, and bachelor's degree. The results of this study are different from other studies because of the difference in the number and type of patient studies.

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