# Model of Self-management Behavior in People Experiencing Early Stage Chronic Kidney Disease

*Nucharin Photharos, Chintana Wacharasin*, Supaporn Duongpaeng*

**Abstract:** There are growing numbers of person with chronic kidney disease globally, including in Thailand. To slow progression of chronic kidney disease, self-management is essential. However, there are few studies that explore self-management behavior of persons experiencing early stages of chronic kidney disease. This study contributes a causal model to enhance the understanding of the pattern of relationships of factors influence self-management behaviors is necessary. A total of 275 participants receiving treatment at two tertiary hospitals in Bangkok were recruited using cluster random sampling. Data collection used seven self-administered questionnaires including; a demographic data form, Chronic Kidney Disease Self-Efficacy Questionnaire, Brief Illness Perception Questionnaire, Social Support Questionnaire, Health Literacy Scale-14, Chulalongkorn Family Inventory, and Chronic Kidney Disease Self-management. Structural equation modeling was used to test the model.

The result showed that the final model fitted the empirical data, in which health literacy, family functioning, and social support variables explained 31% of total variance in self-management behaviors. Health literacy and social support had a direct effect on self-management behaviors. Family functioning had indirect effect on self-management behavior through social support and direct effect on only self-efficacy. These findings suggest that nurses can positively influence self-management behaviors through nursing interventions that encourage health literacy and effective family functioning, and provide social support for persons with chronic kidney disease.

***Pacific Rim Int J Nurs Res 2018; 22(4) 360-371***

**Keywords:** Chronic kidney disease, Family functioning, Health literacy, Self efficacy, Self management, Social support

Received 6 May 2017; Accepted 21 February 2018

## Introduction

Chronic kidney disease (CKD) has been known as an emerging public health problem. It constitutes the 6th cause of death in Thailand[1] and 18th on the list of global deaths.[2] CKD is a non-communicable and preventive disease that may take months or years to

***Nucharin Photharos,*** *RN, PhD Candidate, Faculty of Nursing, Burapha University and Lecturer, Faculty of Nursing, Eastern Asia University, Pathumthani, Thailand.* ***E-mail:*** *poothamail@gmail.com*
***Correspondence to: Chintana Wacharasin*,*** *RN, PhD, Associate Professor, Faculty of Nursing Burapha University, Thailand.*
***E-mail:*** *chintana@buu.ac.th*
***Supaporn Duongpaeng****, RN, DNS, Assistant Professor, Faculty of Nursing Burapha University, Thailand.* ***E-mail:*** *d_supaporn@hotmail.com*

produce life-altering signs and symptoms. The main etiologies of CKD include hypertension, chronic glomerulonephritis and diabetes. Symptoms of CKD do not appear during the early stages and usually become noticeable to the individuals in later stages. It presents severe illness with fluid overload, uremic problems with increased risk of morbidity. The persons at later stages are treated by renal replacement therapy. The Nephrology Society of Thailand reported that 21,402 cases of CKD in 2014 were treated by peritoneal dialysis, 49,719 cases by hemodialysis and 6,923 cases by kidney transplantation.[3]

The slow progression of CKD is challenging at early stages of the disease. Self-management is one method to slow progress of the disease.[4,5,6] Especially during stages 1 and 2, vascular tissue can be adequately repaired through neo-angiogenesis mechanisms.[7] Many studies have found that self-management behaviors such as exercising regularly, maintaining a low salt diet, controlling blood pressure, ceasing smoking, and reducing alcohol consumption and weight can delay the progression of CKD.[8,9] Moreover, self-management behaviors contribute to lower serum creatinine levels,[10] improve estimated glomerular filtration rates (eGFR)[11] and reduce weight and body mass index.[12] Therefore, self-management behaviors are essential in the early stages of CKD.

Self-management behaviors of persons experiencing chronic illness have been widely studied in many countries. The clinical practice guideline of self-management intervention has been applied for several chronic conditions, but systematic reviews reveal that it is effective among persons experiencing long-term chronic conditions such as diabetes mellitus, asthma, stroke, and CKD with dialysis.[13] Little is known about self-management in the early stages of CKD. In order to implement the self-management intervention, the pattern of relationship among the factors influence self-management behaviors in the person with the early stage CKD should be examined. Thus, this study examined a hypothesized model depicting the causal relationships among self-efficacy, social support, illness perceptions, family functioning, health literacy and self-management behaviors among persons at the early stage CKD.

## Conceptual Framework and Literature Review

The model of self-management behaviors among persons experiencing the early stages of CKD (MSMB-CKD) was developed based on Individual and Family Self-Management Theory (IFSMT)[14,15] and a synthesized literature review. IFSMT illustrated self-management as multidimensional including context, process, and outcome.[14] The context dimension related to the risk and protective factors describes three main categories: condition-specific factors, physical and social environment, and individual and family factors.

The first category includes complexity of condition and treatments, trajectory and condition stability, and transitions. The second category refers to physical and social aspects, transportation, health care access, culture and social capital. The third category composes of developmental stage, learning ability, literacy, family functioning and capacity to self-management. The process dimension refers to self-regulation skills to manage risk factors and has three main categories. The first category, knowledge and belief consists of factual information, self-efficacy, outcome expectancy, and goal congruence.[15] The second category, self-regulation skills includes goal setting, self-monitoring and reflective thinking, decision-making, planning and action, and self-evaluation and emotional control.[15] The third category, social facilitation involves social influence, support, and negotiated collaboration.[14] Lastly, the outcome dimension comprises proximal and distal outcomes.[14,15] Our study focused on the proximal outcomes regarding to self-management behaviors.

This study conceptualized self-management behaviors among persons with early stages of CKD, were influenced by both context and process. The context was related to illness perception, health literacy and family functioning. The early stages of CKD present

specific conditions due to the trajectory of the disease. The individuals perceive CKD condition instead of illness perception as a pathway to think about illness. Illness perception involves organized patterns of thought that are generated in self-management behaviors.[16] Health literacy is the cognitive and social skills determining an individual's motivation and ability to gain access and use information which promotes and maintains a good health.[17] Family functioning provides a foundation for the development and maintenance concerning social, psychological and biological functions of family members.[18]

The process was related to CKD self-efficacy[19] and social support. Self-efficacy in special situations is, namely, CKD self-efficacy that drives changes in patient's behaviors to build confidence following CKD clinical guidelines. Moreover, self-efficacy mediates health literacy and self-management[20] and health literacy play an important role in enhancing self-efficacy and self-management behaviors. Social supports such as family and health care providers help persons with CKD perform self-management behaviors. The self-management for CKD includes several activities at home requiring family member support and health care providers' suggestion.

*Self-management behaviors* involve performing daily healthy behaviors purposefully among persons at early stage CKD to control blood pressure, blood glucose, diet and lifestyle. The individual's ability to manage health situations and adhere to healthy activities and diet prescriptions are crucial in the efforts to slow down the disease progression and prevent complications. Costantini et al.[21] found that self-management behaviors included renegotiating responsibility with clinical appointments and prescription medication and engaging in healthy activities among individuals with CKD stages 1 to 3.

*CKD Self-efficacy* refers to the confidence to perform daily healthy activities following the recommended guidelines to slow the progression of CKD. The clinical guidelines now available to manage CKD include ceasing smoking, reducing of alcohol consumption, exercise between 30 to 60 minutes 4 to 7 days weekly, limiting sodium intake to 2 gm/day, controlling body mass index less than 25 kg/m$^2$, and controlling protein intake to less than 0.80 - 1.0 g/kg./ IBW.[4, 5] Self-efficacy helps individual confidence in their ability to overcome barriers,[19] build-up the individual's ability to complete day-to-day tasks and is positively correlated with self-management.[20]

*Social support* refers to the perception of assistance by family and health care providers. Social support is a complex, multi-dimensional concept that involves family and health care providers in helping the individual make behavior changes,[14] and the clinical guidelines of early stage CKD suggest several health care practices that should be taken by individuals at home in conjunction with health care providers. The healthcare providers offer strategies that increase self-management behaviors to implement their management plan to achieve the goals of slowed progression of CKD.

*Family functioning* is the activity a family performs to maintain family life. Often used as an umbrella term, it encompasses numerous constructs, including family communication, roles, affective responses and involvement, behavioral control, and general functions.[18] Family functioning and self-management were studied among patients having various diagnoses. The studies of family functioning in early stage of CKD are limited. However, the existing data in other chronic illnesses were clear for family functioning relationship with self-management.[22, 23] For example, family functioning affected self-management roles of family members through responding to family member's patterns in daily living activities and solving problems by collaborating and openly expressing opinions among family members.[22] Good family functioning had higher levels of self-management for sodium intake.[23]

*Illness perception* refers the extent to which patients perceive the present illness relevant to early stage CKD. Individuals process health problems presented by an illness using a cognitive representation

and an emotional representation of the illness as well as coping strategies.[24] The previous study found that patients' illness perceptions were at risk for suboptimal self-management. The persons at early stage of CKD did not hold such strong beliefs about their illness being as threatening as those at later stages of CKD.[25] Persons at later stages of CKD had differences in illness perceptions regarding personal control, illness coherence and probable causes for disease.[26] Their studies suggested that by identifying patients' illness perceptions, it might be possible to improve health outcomes such as self-management.

*Health literacy* is an ability to gain and understand health information, WHO defined as gain access and use information which promotes and maintains a good health.[27] Related studies have proposed that health literacy plays an important role throughout the pathway of care for individuals with CKD; and thereby, improves self-management and the appropriate use of health services. Moreover, health literacy is linked to improving self-management in CKD while limited health literacy is related to lower levels of kidney disease knowledge.[28]

## Study Aim

To develop and test the causal relationships among family functioning, health literacy, CKD self-efficacy, illness perceptions, social support, and self-management behaviors among persons experiencing early stages of CKD.

## Study hypotheses

The MSMB-CKD was explicated in a cause-effect relationship and is presented in **Figure 1**. It was hypothesized that family functioning, illness perception, and health literacy directly affect self-management behaviors and indirectly affect self-management behaviors through CKD self-efficacy. Family functioning also influences self-management behaviors through social support.

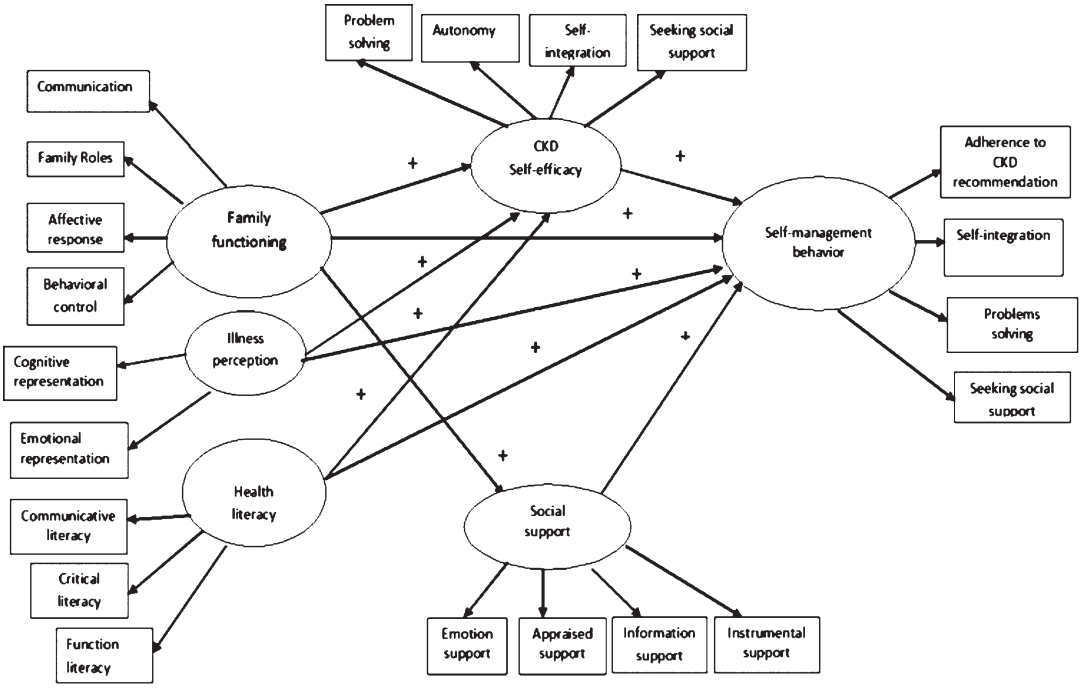


**Figure 1** The hypothesized model of self-management behaviors in persons with early stage chronic kidney disease

## Methods

***Design:*** A cross-sectional, correlational design.

***Sample and Setting:*** The participants were recruited at the nephrology clinics of two hospitals in Bangkok, Thailand. The sample size was based on ratio of observation to independent variables with five to ten respondents for each estimated parameter considered most appropriate.[29] According to the limited early stage CKD population, this study used five respondents for each estimated parameter. For the 55 free parameters, the estimated sample size was 275 respondents. The inclusion criteria consisted of Thais who were: 20 to 65 years old; had an estimated glomerular filtration rate (eGFR) between 31 - 90 ml/min/1.73 $m^2$ or diagnosis of early stage CKD; no kidney tumor or kidney infection; and able to understand and communicate in Thai.

***Ethical Considerations:*** The study was approved by the research ethics committees of the Faculty of Nursing, Burapha University (Approval # 04-02-2559) and the human research boards of the two hospitals (Approval # 073/2559 and #02-05-2559). The informed consent form explained the study including the purpose, benefits and risks, types of questionnaires, time and tasks to be completed. The participants were informed of their right to withdraw from the study at any time and were asked to sign a consent form. A code number was used to ensure the confidentiality of the participants.

***Instruments:*** The data collection consisted to seven instruments: a demographic data form; Chronic Kidney Disease Self-management (CKD-SM); CKD Self-Efficacy (CKD-SE) Questionnaire; Brief Illness Perception Questionnaire (Brief IPQ); Social Support from Family and Health Care Provider Questionnaire (SSFHCPQ); Chulalongkorn Family Inventory (CFI); and Health Literacy Scale-14 (HLS-14). The demographic data form recorded each participant's sex, age, education level, smoking, drinking, blood pressure, level of eGFR, comorbidity, and family history of CKD and family members.

The *CKD-SM*, developed by Lin et al.,[30] and back-translated into Thai with permission, was used to assess self-management behaviors. The CKD-SM comprises 29 items on a four-point rating scale ranging from 1 to 4 (never to always) to measure participant's self-management behaviors. The subscales include 11 self-integration items, 9 problem-solving items, 5 seeking social support items and adherence to 4 CKD recommendation items. Examples of items include "Managing CKD to stay healthy" and "Actively seeking information about kidney disease". Higher scores indicate better self-management behaviors. The Cronbach's alpha coefficient for internal reliability for this study was .88.

The *CKD-SE*, developed by Lin et al.,[31] is used to measure self-efficacy about CKD. The questionnaire contains 25 items that address: 8 autonomy items, 7 self-integration items, 6 problem solving items, and 4 seeking social support items. Examples of items are: "I am sure I can face the challenges of living with CKD" (autonomy) and "I am sure I would be able to look for information related to CKD through various channels (seeking social support). Scales rate from 0-10. The scores range from 0 to 250 points, with the higher scores indicating higher levels of confidence. The Cronbach's alpha coefficient for internal reliability for this study was .95.

The *Brief IPQ*, developed by Broadbent et al.,[32] and translated to Thai by Thepphawan et al.,[33] is used to assess illness perception. The Brief IPQ comprises 8 items. Five items assess cognitive representation, 2 items assess emotional representation, and 1 concerns illness comprehensibility. It is a single-item scale to measure perceptions and rated from 0 to 10. Examples of items are: "How much does your illness affect your life?" and "How much does your illness affect you emotionally?" The score ranges from 0 to 80 points, with the higher scores indicating higher perception of the illness. The Cronbach's alpha coefficient for internal reliability for this study was .74.

The *SSFHCPQ* was originally developed in Thai by Thotankham et al.,[34] based on social support theory. It has previously been administered with individuals with CKD in the Thai context[35] and is used to assess social support. The instruments consist of 24 items on a four-point response scale ranged from 1 to 4 (strongly disagree to strongly agree). Examples of items are: "I get information from health care professionals when I need it." and "My family takes care of thing for me when necessary." The scoring is calculated by summing participants' responses and taking the weighted mean for each subscale for the total SSFHCPQ score. Higher scores indicate better support from family and health care providers. The Cronbach's alpha coefficient for internal reliability for this study was .93.

The *CFI*, originally developed in Thai by Trangkasombat,[18] was used to assess family functioning. The original instrument comprises 36 items on a 4-point response scale from 1 to 4 (strongly disagree to strongly agree). This study excluded the problem-solving, affective involvement and general functioning subscales because early stage CKD does not present symptoms and does not affect the integrity and family capacity. Therefore, this study used 17 items including 3 role items, 5 communication items, 5 affective responsiveness items and 4 behavior items. Examples of items are: "Our family is able to solve daily problems that happen within our family". The total score ranges from 17 to 68 points, with the higher scores indicating higher family functioning. The Cronbach's alpha coefficient for internal reliability for this study was .83.

The *HLS*-14, developed by Suka et al.,[36] is based on Nutbeam's health literacy model and is used to assess health literacy. It has three subscales including 5 functional literacy items, 5 communicative literacy items and 4 critical literacy items. Examples of items are: "The content is too difficult for me" (functional literacy) and "I understand the obtained information" (communicative literacy). The instrument contains 14 items on a 5-point Likert scale that indicate how much the respondent agrees or disagrees with the item, i.e., "strongly disagree" to "strongly agree". The total score ranges from 14 to70 points. The higher scores indicate better health literacy. The Cronbach's alpha coefficient for internal reliability for this study was .80.

The back-translation method was used for *CKD-SM, CKD-SE, and HLS*-14 instruments after permission to do so was given by the original author. The back-translation included valid translation by two Thai nursing professors, two native English translators and two bilingual translators.[36, 37]

***Data collection procedures:*** After obtaining study approval, the principal investigator and research assistant informed physicians and nurses of the studied hospital about the objectives and process of the study and asked for their cooperation. The eligible participants were selected from two hospitals and were provided explanations of the research purpose, process of study, risks and benefits of the study and their rights to participate and then were asked to sign consent forms. The participants completed the self-administered form, and this process took 30-45 minutes.

***Data analysis*:** Descriptive statistics were used to describe characteristics of the participants and test the distribution of variables. Structural equation modelling (SEM) and SPSS AMOS were used to examine the self-management behaviors model among persons experiencing the early stage of CKD.

## Results

The sample comprised 275 people experiencing early stages of CKD, with over one half being male (60%). About 70% of persons with CKD in this group were at stage 3. More than 70% were aged 51 to 65 years old. Most participants had obtained education below bachelor's degree (68%). Only 10.5% smoked and 14.9% consumed alcohol. In all, 30.9% had blood pressures ranging from 131/81 to 140/90 mmHg and 28.7% ranged from 121/70 to 130/80 mmHg. Approximately, 36.7% of the participants had hypertension and 29.5% had both diabetes and hypertension. Only 19% of participants had CKD among family members.

For measurement model testing, six measurements, including self-management behaviors, health literacy,

family functioning, illness perception, CKD self-efficacy, and social support were tested. The finding indicated all measurement models had an acceptable overall model fit to the sample data. All factor loads were substantial and significant. SEM was employed to test the hypothesized model. After the hypothesized model was tested by the AMOS program, it did not fit the initial model and thus, it was modified. The results for the modified model found that CMIN was 215.62 ($p$ = .00, $df$ = 132), indicating significance ($p$ = .00). The other consideration was the CMIN/$df$ ratio.[38] This study determined that the modified model was relatively well fitting as indicated by a CMIN/$df$ of 1.63, while the GFI was .93, AGFI was .90, and RMSEA was .048. The validation index of adequacy of the modified model is at acceptable levels. The model explained 31% of variance in self-management behaviors. The causal relationship of health literacy, family functioning, illness perception, social support, CKD self-efficacy, and self-management behaviors consisting of direct, indirect and total effects is presented in **Table 1** and **Figure 2**.

**Table 1** Parameter Estimates of Direct, Indirect and Total Effects of Modified Model (n = 275)

| Causal variables | CKD Self-efficacy | | | Social support | | | Self-management | | |
|---|---|---|---|---|---|---|---|---|---|
| | DE | IE | TE | DE | IE | TE | DE | IE | TE |
| HL | .31* | - | .31* | - | - | - | .37* | .01 | .38* |
| FF | .53* | - | .53* | .64* | - | .64* | .05 | .17 | .22 |
| SE | - | - | - | - | - | - | .02 | - | .02 |
| SS | - | - | - | - | - | - | .24* | - | .24* |
| | $R^2$=54 | | | $R^2$=41 | | | $R^2$=31 | | |

NOTE * p <.05
HL= Health literacy, FF= Family functioning,
SE= CKD Self-efficacy, SS= Social support
DE= Direct effect, IE= Indirect effect, TD= Total effect

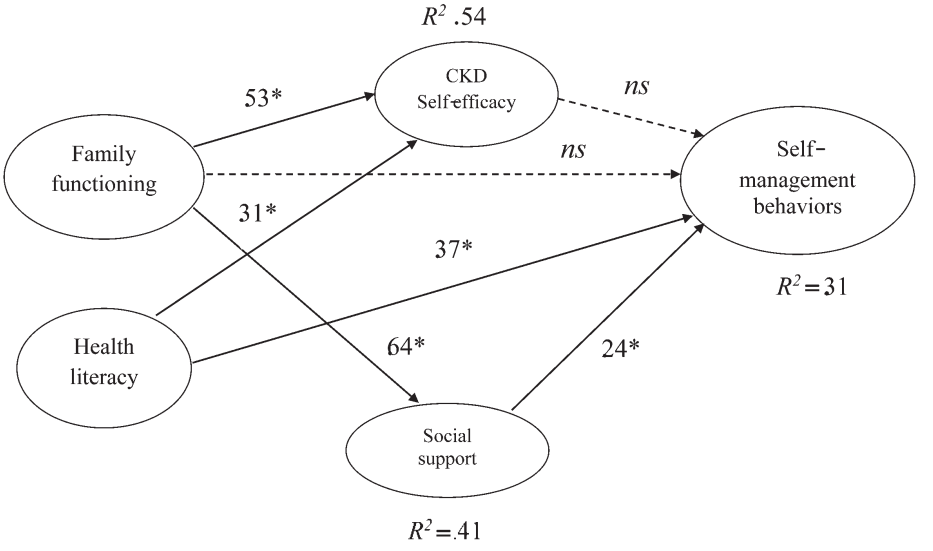


**Figure 2** The modified model of self-management behaviors in persons with early stage of chronic kidney disease

## Discussion

The final findings provide the context of a causal relationship between the significant predictors and self-management behaviors observed among persons with early stage CKD. However, illness perception presented a non-significant correlation with CKD self-efficacy and self-management behaviors. A possible explanation of this finding could be that participants felt good regarding their conditions because they presented no signs and symptoms at early stages. Usually, symptoms become noticeable to persons at latter stages and they do not perceive the disease is associated with non-performed self-management behaviors. Moreover, these participants had comorbidities comprising 11% diabetes, 36.7% hypertension, and 29.5% diabetes and hypertension. They might have perceived high blood pressure and high blood glucose more than eGFR related to kidney function.

Health literacy had a moderate positive direct effect on self-management behaviors. Indeed, health literacy influenced the person's ability to gain and understand health information indicating the cognitive ability to arrange healthy situations and adhere to recommended activities and diet for CKD. The finding was consistent with related studies such as persons with CKD undergoing hemodialysis that display communicative literacy and critical literacy were associated with self-management.[40] Devraj et al.[28] found that each one unit of increased health literacy was correlated with a 1.9% increase of eGFR. It could be implied that health literacy on persons' understanding about CKD lead to self-management behaviors.

Family functioning had the strongest positive direct effect on CKD self-efficacy and social support. Nevertheless, family functioning presented a significant indirect effect on self-management behaviors through social support. Family function involves family members fulfilling roles and performing tasks that facilitate the family's life and influences self-management behavior.[18] In Thai culture, people usually live with their families as an extended family unit. Individuals with CKD have a long-term impact on the family and in this context, family members manage their daily health routines, fulfill their roles, and communicate emotionally. Limited research has studied family functioning and self-management behaviors among individuals at the early stages of CKD. Evidence has showed that family functioning effects self-management behaviors in chronic illness.[25, 26] This study supports that family functioning may influence self-management behaviors through social support.

Surprisingly, the finding of this study revealed that self-efficacy did not affect self-management behaviors. One potential explanation might be that persons with early stage CKD, who were asymptomatic, did not recognize the changes in their activities so they did not perform self-management behaviors. Therefore, they were not confident to control diet intake and modify lifestyle. This finding is consistent with a study reporting that self-efficacy did not significantly affect self-management of blood pressure among adults receiving hemodialysis.[41] However, this finding is inconsistent with the previous studies, where CKD self-efficacy affected self-management in performing CKD recommended guidelines for slow disease progression.[5,20,35] Further studies need to explore CKD self-efficacy in different contexts.

Social support had a positive direct effect on self-management behaviors. The healthcare providers helped patients to develop and implement their individual management plans, reduce risk factors related to renal damage, remove barriers, and provide the necessary resources to achieve the goals of slowing disease progression. Moreover, family members might facilitate the self-management process in differing ways such as providing occasional advice, emotional support, and tangible support for more direct assistance with self-management. This finding is consistent with related studies reporting social support involving informational, instrumental and emotional aspects having a positive influence on self-management behaviors.[22]

In the current study, family functioning, health literacy and social support explained 31% of the variance in self-management behaviors. The estimated parameter from health literacy and social support to self-management behaviors had the significant positive direct effect. The estimated parameter from family functioning to self-management behaviors had a significant positive indirect effect through social support. This result suggests that self-management behaviors among persons with early stage CKD require both their own ability to use health information and support from families and health care providers. Health literacy is of paramount importance as it relates to the cognitive faculty to arrange healthy situations and adhere to recommended activities and diet for CKD. Also, social support as social facilitation enhances the person's capacities.

## Limitations

The study population comprised participants with CKD stages 1 to 3, presenting a eGFR from 31 to 90 ml/min/1.73 $m^2$ and treated at two tertiary hospitals in Bangkok. The generalizability of the findings to later stages and other places may be limited. The interpretation of causal relationships in the hypothesized or final model must be used with caution because of cross-sectional design. Thus, a longitudinal study is needed to observe the change over time.

## Conclusion and Implications for Nursing Practice

The final MSMB-CKD found the casual variables including health literacy and social support had a direct effect on self-management behaviors while family functioning had an indirect effect through social support. The implication for nursing practice is to develop interventions comprising health information about CKD, encouraging the practicing of recommendations for slow progression of CKD, inviting the family to support the person with CKD management, and promoting good communication in the family. In future studies, the phenomenon of CKD self-efficacy and illness perceptions in the perspectives of persons at early stages of CKD should be explored.

## Acknowledgement

The authors express their gratitude to the National Research Council of Thailand for research funding and to the participants in this study.

## References

1. Ministry of Public Health. Thailand health Profile Report 2008-2010. 2012 [cited 2012 October 10]. Available from http://eng.moph.go.th/index.php/health-situation-rend/103-thailand-health-profile-report-2008-2010. [In Thai].
2. Lozano R, Naghavi M, Foreman K, Lim S, Shibuya K, Aboyans V, et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: A systematic analysis for the Global Burden of Disease Study 2010. 2012 [cited 2014
3. June 18]. Available from http://www.thelancet.com/journals/lancet/article/PIIS0140-736(12)61728-0(2012).
4. Chuasuwan A, Praditpornsilpa K. Thailand renal replacement therapy year 2014. 2016 [cited 2018 February 3]. Available from http://nephrothai.org/images/10-11-2016/1.TRT-report-2014-3-11-59-final.pdf.
5. Kidney International Supplement. Disease: Improving Global Outcomes (KDIGO) CKD-MBD Update Work Group. KDIGO 2017 Clinical Practice Guideline Update for the Diagnosis, Evaluation, Prevention, and Treatment of Chronic Kidney Disease-Mineral and Bone Disorder (CKD-MBD). Kidney Int Suppl. 2017; 7: 1-59.
6. Curtin BR, Walters AJ, Schatell D, Pennell P, Wise M, Klicko K. Self-Efficacy and Self-Management Behaviors in Patients with Chronic Kidney Disease. Adv Chronic Kidney Dis 2008; 15(2): 191-205.
7. Novak M, Costantini L, Schneider S, Beanlands H. Approaches to self-management in chronic illness. Semin Dia J. 2013; 26(2):188-94.

8. Futrakul N, Futrakul P. Improved vascular repair is relevant to enhanced renal function with vasodilators in early stage of chronic kidney disease. Asian Biomed 2010; 4: 153-7.
9. Plantinga CL, Tuot SD, Powe RN. Awareness of Chronic Kidney Disease among Patients and Providers. Adv Chronic Kidney Dis 2010; 17(3): 225-36.
10. James TM, Hemmelgarn RB, Tonelli M. Early recognition and prevention of chronic kidney disease. 2010 [cited 2015 June 16]. Available from www.thelancet.com/journals/lancet/article/PIIS0141-6736(10)61107-5.
11. Lin CC, Tsai FM, Lin HS, Hwang SJ, Chen HC. Effects of self- management program on patients with early-stage chronic kidney disease: A pilot study. Appl Nurs Res. 2013; 26(3): 151-6.
12. Chen HS, Tsai YF, Sun CY, Wu W, Lee CC, Wu MS. The impact of self- management support on the progression of chronic kidney disease: A prospective randomized controlled trial. Nephrol Dial Transplant. 2011; 26: 3560-66.
13. Timmerman GM, Tahir MJ, Lewis RM, Samoson D, Temple H, Forman MR. Self-management of dietary intake using mindful eating to improve dietary intake for individuals with early stage chronic kidney disease. J Behav Med. 2017; 40(5): 702-11.
14. Taylor SJC, Pinnock H, Epiphaniou E, Pearce G, Parke HL, Schwappach A, et al. A rapid synthesis of the evidence on interventions supporting self-management for people with long-term conditions: PRISMS – Practical systematic RevIew of Self-Management Support for long-term conditions. Health Serv Deliv Res 2014;2(53).
15. Ryan PA, Sawin KJ. The individual and family self-management theory: Background and perspectives on context, process, and outcomes. Nurs Outlook. 2009; 57(4): 217-25.
16. Ryan PA, Sawin KJ. Individual and Family Self-Management Theory (Revised Figure). 2014 [cited 2015 Oct 10]. Available from http://www4.uwm.edu/nursing/about/centers-institutes/self-management/theory.cfm.
17. Jansen DL, Heijmans WM, Rijken M, Spreeuwenberg P, Grootendorst DC, Dekker FW. et al. Illness perceptions and treatment perceptions of patients with chronic kidney disease: different phases, different perceptions? Br J Health Psychol. 2013; 18(2): 244-62.
18. Nutbeam D. The evolving concept of health literacy. Soc Sci Med. 2008; 67: 2072-8.
19. Trangkasombat U. Family functioning in the families of psychiatric patients: a comparison with nonclinical families. J Med Assoc Thai. 2006 Nov; 89(11):1946-53.
20. Bandura A. Health Promotion by Social Cognitive Means. Health Educ Behav. 2004 April; 31(2): 143-64.
21. Wu VS. Prediction of self-care behaviour on the basis of knowledge about chronic kidney disease using self-efficacy as a mediator. J Clin Nurs. 2016; 25(17): 2609-18.
22. Costantini L, Beanlands H, McCay E, Cattran D, Hladunewich M, Francis D. The self-management experience of people with mild to moderate chronic kidney disease. Nephrology Nursing Journal 2008; 35(2):147-55.
23. Rosland AM, Heisler M, Choi HJ, Silveira MJ, Piette JD. Family Influences on Self-Management Among Functionally Independent Adults with Diabetes or Heart Failure: Do Family Members Hinder As Much As They Help? J Chronic Dis 2010; 6(1): 22-33.
24. Dunbar BS, Clark CP, Stamp DK, Reilly MC, Garg AR, Higgins M, et al. Family partnership and education interventions to reduce dietary sodium by patients with heart failure differ by family functioning. Heart & Lung. 2016; 1-8.
25. Leventhal H, Brissete I, Leventhal EA. The common- sense model of self-regulation of health and illness. In L.D. Cameron & H. Leventhal (Eds.). The self-regulation of health and illness behaviour. London: Routledge; 2003.
26. Pagels AA. Living with chronic kidney disease: Perceptions of illness and health-related quality of life. [homepage on the Internet]. 2012. No date [cited 2014 Feb 7]. Available from: http:/ publica tions. ki.se/ xmlui/bitstream/handle/10616/41246/Thesis_Agneta_Pagels.pdf?sequence=1
27. Timmers L, Thong M, Dekker FW, Boeschoten EW, Heijmans M, Rijken M, et al. Kaptein For the Netherlands Cooperative Study on the Adequacy of Dialysis (NECOSAD) Study Group. Illness perceptions in dialysis patients and their association with quality of life. Psychol Health. 2008; 23(6): 679-90.
28. World Health Organization. Jakarta Declaration on Leading Health Promotion into the 21st Century. Geneva: World Health Organization; 1997.
29. Devraj R, Borrego M, Vilay AM, Gordon EJ, Pailden J, Horowitz B. Relationship between Health Literacy and Kidney Function. Nephrology (Carlton). 2015; 20:360-7.
30. Hair JF, Black WC, Babin BJ, Anderson RE. Multivariate Data Analysis. 7th ed. New Jersey: Pearson Education International; 2010.
31. Lin CC, Wu CC, Wu LM, Chen HM, Chang SC. Psychometric evaluation of a new instrument to measure disease self-management of the early stage chronic kidney disease patients. J Clin Nurs. 2013; 22(7): 1073-9.

32. Lin CC, Wu CC, Anderson MR, Chang SC, Chang CS, Hwang JS, et al. The chronic kidney disease self-efficacy (CKD-SE) instrument: Development and psychometric evaluation. Nephrol Dial Transplant. 2012; 27(10): 3828-34.
33. Broadbent E, Petriea KJ, Maina J, Weinman J. The Brief Illness Perception Questionnaire. J Psychosom Res. 2006; 60: 631- 7.
34. Thepphawan P, Watthnakitkrileart D, Pongthavornkamol K, Dumavibhat C. Cognitive Representation, Emotional Responses and Hospitalization Experience in Predicting Decision Making for Receiving Treatment Among Patients with Acute Coronary Syndrome. J Nurs Sci. 2011; 29(2): 111-9.
35. Thotankham S. Effects of the self-efficacy and social support enhancement program on disease control behaviors and serum creatinine levels among elders with chronic renal failure. [Unpublished master's thesis]. Chiang Mai, Thailand: Chiang Mai University; 2008. [in Thai].
36. Sritarapipat P, Pothiborn L, Panuthai S, Lumlertgul D, Nanasilp P. Causal Model of elderly Thais' self-management behaviors of pre-dialysis chronic kidney disease. Pac Rim Int J Nurs Res Thai. 2012; 16(4): 277-92.
37. Suka M, Odajima T, Kasai M, Garashi A, Ishikawa H, Kusama M, et al. The 14-item health literacy scale for Japanese adults (HLS-14). Environ Health Prev Med. 2014; 18: 407-15.
38. Brislin RW. The wording and translation of research instrument. In Lonner WJ, Berry JW. (Eds). Field methods in cross-cultural research (pp.137-164). Beverly Hills CA: Sage; 1986.
39. Cha ES, Kim KH, Erlen JA. Translation of scales in cross-cultural research: Issues and techniques. J Adv Nurs. 2007; 58(4): 386-95.
40. Schumacker RE. Lomax RG. A Beginner's Guide to Structural. 3rd ed. New York: Taylor and Francis Group; 2010.
41. Lai AY, Ishikawa H, Kiuchi T, Mooppil N, Griva K. Communicative and critical health literacy, and self-management behaviors in end-stage renal disease patients with diabetes on hemodialysis. Patient Educ Couns. 2013; 91: 221-7.
42. Kauric-Klein Z, Peters MR, Yarandi NH. Self-Efficacy and Blood Pressure Self-Care Behaviors in Patients on Chronic Hemodialysis. West J Nurs Res. 2017; 39(7): 886-905.

# รูปแบบพฤติกรรมการจัดการตนเองของบุคคลที่เป็นโรคไตเรื้อรังระยะแรก

*นุจรินทร์ โพธารส จินตนา วัชรสินธุ์* สุภาภรณ์ ด้วงแพง*

**บทคัดย่อ:** ปัจจุบันทั่วโลกมีบุคคลที่ป่วยเป็นโรคไตเรื้อรังมากขึ้นรวมทั้งประเทศไทย พฤติกรรมการจัดการตนเองมีความสำคัญต่อการชะลอความเสื่อมของไตในระยะแรก งานวิจัยนี้ศึกษารูปแบบจำลองเชิงสาเหตุของปัจจัยที่มีอิทธิพลต่อพฤติกรรมการจัดการตนเอง โดยศึกษาในบุคคลที่เป็นโรคไตเรื้อรังระยะแรกจำนวน 275 คน ที่รักษาในโรงพยาบาลตติยภูมิเขตกรุงเทพฯ คัดเลือกจากการสุ่มแบบแบ่งกลุ่ม และเก็บข้อมูลโดยให้กลุ่มตัวอย่างทำแบบสอบถาม ที่ประกอบด้วยข้อมูลส่วนตัว แบบวัดสมรรถนะของตนเองเกี่ยวกันโรคไต แบบวัดการรับรู้การเจ็บป่วย แบบวัดการสนับสนุนทางสังคม แบบวัดความฉลาดทางสุขภาพ แบบวัดการทำหน้าที่ของครอบครัว และแบบวัดพฤติกรรมการจัดการตนเองเกี่ยวกับโรคไต สถิติที่ใช้ในวิเคราะห์คือแบบจำลองสมการเชิงโครงสร้าง ทดสอบปัจจัยที่มีอิทธิพลทางตรงและทางอ้อมต่อพฤติกรรมการจัดการตนเองของบุคคลที่เป็นโรคไตเรื้อรังระยะแรก

ผลการศึกษาพบว่า แบบจำลองเชิงสาเหตุ มีความสอดคล้องกับข้อมูลเชิงประจักษ์ สามารถอธิบายความสำเร็จของพฤติกรรมการจัดการตนเองของบุคคลที่เป็นโรคไตเรื้อรังระยะแรกได้ร้อยละ 31 โดยปัจจัยที่มีอิทธิพลโดยตรงในทางบวกต่อพฤติกรรมการจัดการตนเองคือความฉลาดทางสุขภาพ และการสนับสนุนทางสังคม และปัจจัยที่มีอิทธิพลโดยอ้อมในทางบวกต่อพฤติกรรมการจัดการตนเองคือการทำหน้าที่ของครอบครัวโดยผ่านทางการสนับสนุนทางสังคม ซึ่งให้ข้อเสนอแนะว่าพยาบาลควรสนับสนุนให้บุคคลรอบรู้เกี่ยวกับสุขภาพและควรมีกลยุทธ์ที่จะส่งเสริมให้บุคคลมีความฉลาดทางสุขภาพโดยเน้นบทบาทการทำหน้าที่ของครอบครัวเพื่อให้บุคคลที่เป็นโรคไตเรื้อรังระยะแรกมีความสามารถจัดการตนเอง ซึ่งจะส่งผลต่อการชะลอการเสื่อมของไตไปสู่ระยะสุดท้าย

***Pacific Rim Int J Nurs Res 2018; 22(4) 360-371***

**คำสำคัญ:** โรคไตเรื้อรังระยะแรก สมรรถนะแห่งตน การจัดการตนเอง การทำหน้าที่ของครอบครัว ความฉลาดทางสุขภาพ การจัดการตนเอง การสนับสุนทางสังคม

***นุจรินทร์ โพธารส*** *RN, PhD Candidate นิสิตปริญญาเอกคณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา จังหวัดชลบุรี และอาจารย์คณะพยาบาลศาสตร์ มหาวิทยาลัยอิสเทิร์นเอเชีย จังหวัดปทุมธานี ประเทศไทย 12110*
***ติดต่อที่: จินตนา วัชรสินธุ์**** *RN, PhD, รองศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา จังหวัดชลบุรี ประเทศไทย 20131*
***สุภาภรณ์ ด้วงแพง*** *RN, DSN, ผู้ช่วยศาสตราจารย์ คณะพยาบาลศาสตร์ มหาวิทยาลัยบูรพา จังหวัดชลบุรี ประเทศไทย 20131*