Literacy Enhancement Program among Older People Receiving Hemodialysis: Feasibility and Acceptability

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Abstract: The prevalence of chronic kidney disease is higher in older people. Hemodialysis helps reduce complications and extends life for people with chronic kidney disease, however several adverse effects occur frequently, varying from discomfort to life-threatening events. Though these effects can be reduced with appropriate self-care, older people receiving hemodialysis have limited self-care behaviors and health literacy. This study used a one-group pretest-posttest design aimed to examine the feasibility and acceptability of a health literacy enhancement program and the effects of the program on health literacy and self-care behaviors in older people with chronic kidney disease receiving hemodialysis. Eighteen participants receiving hemodialysis at a district hospital in Thailand were recruited. The program was developed based on the Model of Health Literacy. Data were collected from April to July 2020. The feasibility and acceptability of the program were determined by retention of study participants and improvement of outcomes. Comparisons of dependent variables, before and after the intervention, were analyzed using Wilcoxon Signed Rank Test.

Results revealed that the program was feasible and acceptable. A significant improvement in outcomes, including health literacy scores, overall self-care behavior scores, and all seven dimensions of self-care behavior scores, occurred after the intervention (30 minutes per session, for four consecutive weeks). Findings suggest that the program is feasible and acceptable. However, whilst this program needs to be further tested using a randomized controlled trial, it has potential for nurses to promote health literacy and self-care behaviors of older people with chronic kidney disease receiving hemodialysis.

Pacific Rim Int J Nurs Res 2022; 26(3) 474-487

Keywords: Chronic kidney disease, Feasibility, Health literacy, Hemodialysis, Older people, Self-care behavior

Received 26 October 2021; Revised 1 April 2022; Accepted 5 April 2022

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Introduction

Chronic kidney disease (CKD) is a global public health problem. Its prevalence continues to rise, especially in developing countries, and the prevalence of CKD increases with age. A report on chronic kidney disease

in the United States in 2021 stated that the percentage of American people with CKD is now increasing from 6% of adults aged 18-44 years, to 12.4% of adults aged 45-64 years, and 38.1% of older adults 65 years or older.[1] Similarly, a Thai national health survey reported that prevalence of CKD is increasing with 2.3% of adults aged 30-44 years, 13.1% in adults aged 45-59 years, and 39.8% in older adults over 60 years.[2] A study on prevalence of CKD and related factors among people with diabetes also indicated that having an age >70 years was one factor related to CKD.[3]

The aging process leads to changes in the kidney, resulting in a high prevalence of end-stage renal disease (ESRD)[4] which is irreversible, and two key treatment approaches are palliative/supportive treatment or maximal conservative management, and renal replacement therapy (RRT). Main types of RRT are dialysis (hemodialysis [HD] and peritoneal dialysis [PD]) and kidney transplantation. HD is the most common modality of RRT in Asia countries, including in Thailand, with the proportion of RRT being 75.50 % for HD, 20.40% for PD, and 4.10% for KT in 2019.[5,6] The proportion of people aged 65 years or over who received HD or PD was 44%.[7] However, complications and problems related to HD frequently occurred, varying from discomfort symptoms to life-threatening events, such as itching, insomnia, muscle cramps, fall, vascular access thrombosis, infection, hemorrhage, intradialytic hypotension, air embolism, and decreased quality of life.[8,9]

Appropriate self-care of people receiving HD is an effective way to reduce financial burden, delay disease progression, promote physical and mental health, minimize the occurrence of complications and discomfort symptoms, decrease mortality, and promote quality of life.[10,11,12,13] A significant correlation between self-care and health outcomes has been reported.[14,15] However, several studies have also reported a low level of self-care in individuals with CKD receiving HD,[12,13,14,16] especially older people.[17] Self-care behaviors may be enhanced through health education. However, sustainable self-care behaviors cannot not be achieved by providing only health education as these behaviors are not solely determined by knowledge. Nutbeam[18,19] introduced the Model of Health Literacy, which outlines three levels of health literacy (HL): basic/functional HL, communicative/interactive HL, and critical HL. Most health education programs are directed only towards achieving functional HL and less likely to achieve substantial and sustainable self-care behaviors.[20] Growing evidence suggests that HL help improve self-care behaviors, which in turn, leads to improved desirable health outcomes.[18,21-24] For example, astudy in Thai older people with CKD also reported a significant positive relationship between HL and health behaviors.[25] The World Health Organization emphasizes the significance of HL as a vital development goal that contributes to substantial public health benefits.[26]

Limited HL is common among people receiving hemodialysis.[22,27,28] Compared to younger people, older people tend to have lower HL.[29] To promote self-care behaviors and health outcomes of older people receiving HD, HL should be enhanced. A preliminary survey on people with ESRD receiving HD in a hospital revealed that the majority of patients were 60 years or over, accounting for 80-92% of all people with HD in 2014-2018.[30] Furthermore, mortality, complications, and/or discomfort symptoms were reported more frequently in older people than younger people.[30] Several older people with chronic kidney disease receiving hemodialysis (PW-CKDD) reflected limited HL. For example, several expressed interest in consuming herbs with overclaimed benefits.[30] HL and self-care behaviors seemed to be key factors related to these undesirable health outcomes. This indicated that usual care might not be sufficient to achieve good outcomes. This vulnerable group was at risk of complications resulting from improper self-care and limited HL. Thus, the purposes of this study were to evaluate the feasibility and acceptability of the health literacy enhancement program (HLEP); and to examine effects of the program on HL and self-care behaviors of PW-CKDD.

Review of Literature and Conceptual Framework

Nutbeam[20] defined HL as cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information in ways which promote and maintain good health. Nutbeam's Model of Health Literacy[18,19] suggested three levels of HL: basic/functional HL, communicative/interactive HL, and critical HL. Functional HL refers to basic skills for obtaining and applying relevant health information to prescribed activities, such as medication adherence and health behaviors.[19] Interactive HL means more advanced skills that allows individuals to obtain health information and gain meaning from communications, as well as apply it to changing conditions and interacts with others, to expand the information and make decisions.[19] Critical HL is the most advanced skills that enable individuals to derive, utilize, and critically analyzing information to deploy greater control over life circumstances that affect health.[19] Six components of health literacy have also been suggested. These components can be abbreviated as 'SAMART' (its meaning in Thai is 'be able to'): Searching (Access to health information and services), Acknowledge (Knowledge and understanding of health information), Mass communication (Communication), Analysis (Decision making), Research (Media literacy), and Take action Self-management.[31]

The Health Literacy Enhancement Program (HLEP), which was the intervention of this study, was developed based on the 'Model of Health Literacy.[18,19] The program comprised four sessions, which aim to gradually improve the HL of PW-CKDD from functional HL to critical HL, covering all six components.

The purposes of this study were to examine the feasibility and acceptability of the HLEP for PW-CKDD, to evaluate the short-term (after the program) effects of HLEP on HL and self-care behaviors in PW-CKDD. The hypotheses were 1) the HLEP was feasible and acceptable, 2) After participating in the HLEP, PW-CKDD had higher HL scores than before participating in the program, and 3) After participating in the HLEP, PW-CKDD had higher self-care behavior scores than before participating in the program.

Methods

Study Design: A feasibility study using one group pretest posttest design. The writing of this report followed TREND Statement Checklist for a quasi-experimental study.

Sampling and Setting: Sample size was calculated with Cochran's formula based on the previous studies,[32] which obtained a sample size of 17, after adding 5% for drop out, and the required sample size was 18.[33] A provincial hospital in the northeast of Thailand was purposively selected as it was the workplace of the principal investigator (PI), who was aware of the phenomena and sought to solve these problems. The sample was PW-CKDD at the HD unit of the study hospital. Eighteen participants were recruited using consecutive sampling, according to the following inclusion criteria: 1) aged 60 years or over, 2) received HD for at least 6 months, 3) had no symptom of depression as screened with the Patient Health Questionnaire (PHQ)-2 screening tool for depression (2Q),[34] 4) had no cognitive impairment when measured with the Thai Mental State Examination (TMSE),[35] 5) be able to understand and communicate in Thai or Northeastern Thai Dialect (Isan language), 6) be independent with activities of daily living as screened using the Barthel Activities of Daily Living (BADL),[36] and 7) had no acute/ critical illness. Exclusion criteria were: 1) had any acute or critical illness during participation in the program; and 2) had not completed all four-week activities.

To recruit participants, 42 potential participants were screened for eligibility. Eighteen participants were ineligible, due to cognitive impairment, received HD less than 6 months, hearing impairment, and dependent

on BADL; for 10, 3, 3, and 2 people, respectively. Six declined to participate due to having no enough time before HD, while the program was implemented during waiting time before HD. All 18 participants, who were eligible and voluntary participate in the study, completed the study. Retention of the study participants was 100%.

Ethical Considerations: Ethical approval for the study was obtained from the Center for Ethics in Human Research, Khon Kaen University (approval number HE 632083 on 3 April 2020). Permissions for conducting the study were also obtained from the director of the study hospital and the director of nursing service department. The study was registered at the OSF Registry (registration DOI 10.17605/OSF.IO/X5TZQ).

Recruitment was performed in the study setting by a research assistant (RA) who explained to potential participants the objectives of the study. Further information was described to those who expressed interest in participating in the study regarding the time and activities required for study participation, potential benefits and risks, confidentiality, as well as the right to refusal and withdrawal anytime without any adverse effect. Written informed consent was obtained from all participants before the study.

Instruments: Instruments for data collection were as follows:

The Demographic Data Questionnaire was developed to obtain participants' information. It consists of 17 items dealing with gender, age, marital status, religion, family status, education level, occupation, average family income, income adequacy, health insurance, primary caregiver, time since first HD, frequency of HD, comorbidities, any complication during HD, any long-term complication from HD, and HD self-care information received.

The PW-CKDD Health Literacy Questionnaire (PW-CKDD - HLQ) was developed from a literature review by the PI. It consists of 54 items regarding PW-CKDD, for instance, 'PW-CKDD should consume protein foods from fish and egg whites.' Participants were asked to respond to each question, either true, false, or don't know. Correct response was scored 1, whereas incorrect or don't know response was scored 0. The total score ranged from 0 to 54 and a higher score indicated higher knowledge. The questionnaire was verified by five experts and obtained a content validity index (CVI) of 1.00. A reliability test from the present study showed Cronbach's alpha coefficient of 0.80.

The PW-CKDD Self-Care Behavior Questionnaire (PW-CKDD SCQ) was developed from a literature review by the PI. It consists of 36 items divided into seven categories: 1) diet (7 items); water intake (4 items); medication taking (5 items); self-care related to dialysis (7 items); daily activities (7 items); vascular care (5 items); and emotional care (1 items). Participants were asked to respond to each item according to their self-care behaviors and to skip some questions not applicable for them. For example, if they experience no unusual symptom, they could skip the item 'I went to the hospital immediately if I had unusual symptoms at home, such as breathlessness.' Scoring for each positive item ranges from 0-3 for not do it at all, sometimes, frequently, regularly, respectively; and vice versa for negative items. Raw scores were converted to a percentage based on the relevant question for each individual, and therefore, the score ranged from 0 to 100. A higher score indicated better self-care behaviors. Interpretation of the self-care level was as follows: 0-25 = poor, 26-50 = fair, 51-75 = good, and 76-100 = excellent. The questionnaire was verified by five experts and obtained a CVI of 0.99. The reliability test from this present study showed Cronbach's alpha coefficient of 0.91.

The Health Literacy Enhancement Program (HLEP)

This was developed by the researchers, based on the Model of Health Literacy,[19] comprising four session group activities. It provides health information, communication practice, critical appraisal training, and decision-making exercises. The content validity of HLEP was validated in terms of content and processes, languages, activities, time and arrangement by five experts: a physician who was an expert in nephrology

internal medicine of the study hospital; head nurses of the study hospital HD unit, and of a university hospital HD unit; and lecturers who were expert in health literacy and gerontological nursing. Verification of the program obtained a CVI of 0.96. The program was conducted weekly for 4 weeks, 15-30 minutes for each session (see details in **Table 1**).

Usual care: Usual care provided was giving self-care information for PW-CKDD individually by doctors, nurses, or other support staff at the study setting.

Data collection: The study was conducted at HD unit of the study hospital from April- July 2020. After receiving permission, the PI selected one RA, experienced for least 5-years as a registered nurse, who had neither involvement in the intervention nor provision of care for the participants, and obtained ethical certification. The RA was trained regarding informed consent, the sampling method, and data collection of the study. The RA collected all data at baseline (week 1), and immediately after intervention completion (week 4). The HLEP was conducted by PI as described in **Table 1.**

Statistical analysis: A statistical software program was used to analyze the data. The statistical significance was set at 0.05. Data obtained from all 18 participants were analyzed and descriptive statistics were used for analyzing demographic data, HL score, and the self-care behavior score. A normality test using Shapiro-Wilk Test revealed that the data did not distribute normally, therefore, the Wilcoxon Signed Rank Test was used to compare outcomes before and after participating in the program.

Table 1 The details and the implementation of the HLEP

Week	Objective	Session/ Time	Group activities
1	- Functional HL - *Knowledge and understanding*	- 'self-help group'/ 15-30 minutes	- introduction and overview program - provided educational activities - discussion about "Self-care for PW-CKDD" - an age-friendly manual of self-care for PW-CKDD was distributed. Its content consisted of self-care regarding pre-dialysis, during HD, post-dialysis, home self-monitoring, symptoms needed to inform nurses before next HD, vascular care, diet, medication.
2	- *Interactive HL* - *Communication and self-care*	- 'Three interesting questions when visiting HD unit'/ 15-30 minutes	- interactive skill training - communication regarding health and self-management through simulation scenario - Three questions ("What health problems do you have?" "What do you need to do?" and "How important of things you need to do?") were used - Accurate key points were summarized
3	- *Critical HL* - *Media literacy*	- 'critically appraise received information: media literacy' / 15-30 minutes	- Simulation scenario and situations that participants had actually experienced, were used for interactive learning. - sharing opinions and own experiences - Accurate key points were summarized
4	- *Critical HL* - *Decision making*	- 'knowledgeable about HD ensures safety and longevity'/ 15-30 minutes	- Simulation scenario and real situations experienced by PW-CKDD were used for interactive learning and practicing on decision-making skills. - Sharing opinions and own experiences - Accurate key points were summarized

Results

The participants were aged 63-78 years. All were Buddhist and had completed primary school or higher. The majority were male, married, and head of the family. Most had agricultural work, an average family monthly income ≥15,000 Thai baht (approximately 500 US dollars), sufficient income, were enrolled in the Civil Servant Medical Benefit Scheme, and had a spouse as the primary caregiver. Participants had HD for 1-19 years. Two-fifths had HD for 1 -5 years whilst around 75% had HD three times a week. Almost all had comorbid diseases. The most common comorbidities were hypertension and diabetes mellitus. All reported having received self-care information before attending the program. Most received information in relation to diet, medication taking, CKD knowledge, and activities of daily living. A minority received information regarding vascular care and emotional care (see details in **Table 2**).

Table 2 Characteristics of the participants (n = 18)

Characteristics	n	%
Gender		
Male	13	72.20
Female	5	27.80
Age		
60-69 years	12	66.70
70-79 years	6	33.30
Min-max = 63-78		
Marital status		
Married	16	88.88
Widow	1	5.56
Divorced	1	5.56
Religion		
Buddhism	18	100.00
Status in family		
Head of family	13	72.20
Family member	5	27.80
Education level		
Primary school	8	44.40
Lower secondary school	1	5.60
Higher secondary school / vocational certificate	4	22.20
Bachelor's degree or higher	5	27.80
Occupation		
Agriculture	11	61.11
Pensioner	6	33.33
Personal business	1	5.56
Family average income (n = 17)		
Less Than 5,000 Baht (149.20 USD)	3	17.65
5,000-10,000 Baht (149.20-298.39 USD)	4	23.53
10,001-15,000 Baht (298.40-447.59 USD)	1	5.88
More than 15,000 Baht (447.59 USD)	9	52.94

Table 2 Characteristics of the participants (n = 18) (Cont.)

Characteristics	n	%
Income adequacy (n = 18)		
Inadequate	8	44.44
Adequate, no saving money	7	38.89
Adequate, some saving money	3	16.67
Health insurance (n = 18)		
Civil servant medical benefit scheme	13	72.20
Universal health insurance	4	22.20
Department of local administration	1	5.60
Primary caregiver (n = 18)		
Spouse	11	61.10
Children	7	38.90
HD duration (n = 18)		
1–5 years	7	38.89
6–10 years	4	22.22
11–15 years	3	16.67
16–20 years	4	22.22
Frequency of HD (n = 18)		
Twice a week	4	22.20
3 times a week	14	77.80
Comorbidities (n = 18)		
No	1	5.60
Any comorbidity* (n = 17)	17	94.40
Hypertension	14	82.35
Diabetes mellitus	5	29.41
Gout	5	29.41
Heart disease	4	23.53
HD self-care information received (n = 18)		
Topics of HD self-care information received*	18	100.00
Diet	16	88.90
Medication taking	15	83.30
CKD knowledge	14	77.80
Daily activities	11	61.10
Vascular care	7	38.90
Emotional care	3	16.70
Self-care information received from:*		
Nurses	18	100.00
Physician	16	88.90
Other PW-CKDD	4	22.20
Nutritionist	4	22.20
Mass media	4	22.20
Friends/ relatives	1	5.60

*One participant might have more than 1 answer.

Feasibility and Acceptability of the HLEP

Feasibility of the program was determined by the retention rate and change in participants' outcomes. The retention rate was determined using proportion of PW-CKDD who completed the program and completed all data collection procedures, compared to those who were enrolled at the beginning of the study. Eighteen PW-CKDD were enrolled, and all completed the study during the 4-week session. The retention rate was 100%. After completion of the HLEP at week 4, all measured outcomes (health literacy, overall self-care behavior score, and each dimension of self-care behavior scores) were increased from baseline at week 1 (see details in **Table 3**). Acceptability was calculated from proportion of PW-CKDD who were willing to participate in the study compared to those who were eligible. As 24 PW-CKDD were eligible and 18 took part in the study, therefore, the acceptability was 75%.

Table 3. Scores of participants, before and after participating in the HLEP (n = 18)

Scores	Interval	Median	Mean	SD	Range	Level
Health literacy	Before HLEP	45.5	44.28	4.84	34-51	-
	After HLEP	53	52.83	0.92	51-54	-
Self-care behavior						
Overall	Before HLEP	76.39	73.89	17.38	32.41-97.06	Fair-Excellent
	After HLEP	99.53	98.76	1.59	95.37-100	Excellent
Diet	Before HLEP	76.19	74.33	15.07	47.62-95.24	Fair-Excellent
	After HLEP	100	97.88	4.07	85.71-100.00	Excellent
Water intake	Before HLEP	70.84	65.27	31.98	0.00-100.00	Poor-Excellent
	After HLEP	100	98.61	4.29	83.33-100.00	Excellent
Medication taking	Before HLEP	93.33	89.26	12.76	60.00-100	Good-Excellent
	After HLEP	100	99.26	2.15	93.33-100.00	Excellent
Behaviors related to dialysis	Before HLEP	71.43	70.89	27.56	19.05-100.00	Poor-Excellent
	After HLEP	100	100	0.00	100-100	Excellent
Daily activities	Before HLEP	76.19	69.49	22.79	19.05-100.00	Poor-Excellent
	After HLEP	100	98.41	3.27	90.48-100.00	Excellent
Vascular care	Before HLEP	76.66	76.30	20.35	40-100.00	Fair-Excellent
	After HLEP	100	98.14	6.39	73.33-100.00	Excellent
Emotional care	Before HLEP	66.67	68.51	29.08	0.00-100.00	Poor-Excellent
	After HLEP	100	100	00.0	100-100	Excellent

The Wilcoxon Signed Rank Test yielded significant differences between health literacy scores of the participants before and after participating in the program ($z = 3.627$, $p < .001$) (see details in **Table 4**).

When comparing the overall self-care behavior scores, Wilcoxon Signed Rank Test showed that after participating in the program, the participants had a statistically significantly higher ranking mean than before participating in the program ($z = 3.680$, $p < .001$). When comparing each dimension of self-care behavior scores, the Wilcoxon Signed Rank Test revealed that after the program, the participants had a statistically significantly higher rank mean than before participating in the program ($p < .001$) (**Table 4**).

Table 4 Comparisons of outcome scores of the participants before and after the HLEP

Scores	Number (n = 18)	Mean Ranks	Sum of ranks	Z	p-value
Health literacy					
Positive ranks	17	9.0	153.00	3.627	<.001
Negative ranks	0	.00	.00		
Ties	1				
Self-care behavior					
Overall				3.680	<.001
Positive ranks	17	10.00	170.00		
Negative ranks	1	1.00	1.00		
Ties	0				
Diet				3.622	<.001
Positive ranks	17	9.91	168.50		
Negative ranks	1	2.50	2.50		
Ties	0				
Water intake				3.112	.002
Positive ranks	13	7.85	102.00		
Negative ranks	1	3.00	3.00		
Ties	4				
Medication Taking					
Positive ranks	10	7.30	73.00		
Negative ranks	2	2.50	5.00		
Ties	6				
Behaviors related to dialysis					
Positive ranks	14	7.50			
Negative ranks	0	.00	.00		
Ties	4				
Daily activities					<.001
Positive ranks	16	9.50			
Negative ranks	1	1.00	1.00		
Ties	1				
Vascular care					
Positive ranks	12	7.33	88.00		
Negative ranks	1	3.00	3.00		
Ties	5				
Emotional Care					
Positive ranks	12	6.50	78.00		
Negative ranks	0	.00	.00		
Ties	6				

Discussion

Testing of the hypotheses revealed agreement of findings and study hypotheses. The study findings demonstrated the feasibility of the HLEP for PW-CKDD, supported by the high percentage of participant retention (100%) in the study. The program was also highly acceptable. Six of 24 eligible PW-CKDD declined to participate in the study, accounting for 25%. This indicated 75% acceptability. The study was

carried out while the PW-CKDD were waiting for HD. These six people expressed that they had not enough time in the waiting room for taking part in the study, due to arrival at the HD unit just before their HD schedule. Promotion of HL for this group required different approaches that were accessible for their convenience.

The results of this study showed that PW-CKDD had significantly higher HL scores after taking part in the HLEP. This can be explained by contributions of the HLEP procedures. Distribution of a self-care manual for PW-CKDD enhanced HL, mainly in the components of access to health information and services, and knowledge and understanding of health information. Group activities could enhance the remaining four components of HL. Sharing and learning during weekly group activities can provide more access and deeper understanding of information related to ESRD and HD. Communication skills and self-management skills were promoted mainly through the workshop ("three interesting questions when visiting HD Unit") during the second week of the program. Media literacy skills were been enhanced predominantly through the activities "critically appraise received information: media literacy" in the third week of the program. Decision-making skills were practiced largely through the group activities "knowledgeable about HD ensures safety and longevity" in the program's fourth week.

In addition, while participating in weekly activities, the PI, a health professional, encouraged the participants to discuss their opinions and ask questions to aid their understanding. The PI encouraged sharing, learning, support, and motivation, as well as positive reinforcement from the success of self-care modification, with a mutual goal to maintain appropriate self-care behaviors. This could also allow more accessibility to health information, which in turn, promote the access to health information and services and knowledge and understanding of health information components of HL.

Nutbeam[18] suggested that progression between HL levels was dependent upon cognitive development and exposure to different content as well as method of information/ messages delivered. The developed HLEP could promote functional HL, interactive HL, and critical HL through the group activities that delivered comprehensive contents related to HD using variety of methods.

The study results were consistent with findings from previous studies. The 10-week HL program,[37] improved HL score of people with hypertension. The 12-week HL enhancement program with a weekly three-hour training session,[38] promoted HL of older persons' caregivers. Health education activities for six sessions over eight weeks,[39] increased knowledge and skills of people with type 2 diabetes. The 4-week Health Education and Health Empowerment Program,[23] enhanced HL of Thai adults with uncontrolled hypertension at immediately post-intervention and follow-up period.

The study results revealed that PW-CKDD had a significantly higher mean self-care behavior score after receiving the HLEP ($p < .001$). This could be explained by the fact that the program facilitated accessibility to health care services system through group activities. Opportunities were provided to ask questions and exchange ideas with the PI whose specialty in caring for PW-CKDD. The HL of PW-CKDD that had been promoted through the program might also one among other influences contributing to better self-care. Nutbeam[18(p.2076)] suggested the conceptual model of HL as 'an asset, describing that improved health literacy can lead to change health behaviors and practices, which in turn, improve health outcomes as well as healthy choices and opportunities." Studies indicate that HL is associated with self-care behaviors and health outcomes, such as systolic blood pressure, diastolic blood pressure, and mean arterial pressure; missed dialysis treatments, emergency department visits, and hospitalizations related to ESRD.[21,22]

Behavior modifications regarding diet, water intake, medication taking, behaviors related to dialysis, daily activities, vascular care, and emotional care were key dimensions of self-care in PW-CKDD. The developed

HLEP incorporated practical exercises to promote HL and self-care skills with awareness of aged-related changes that might affect joining activities, learning knowledge and experience, and practicing and implementing self-care throughout the project.

The results of this study were consistent with other studies. A HL development program[37] improved self-care behavior scores of people with uncontrolled hypertension. A HL enhancement program[40] promoted self-care behavior of a pre-hypertension group who were overweight and another such program,[38] encouraged caregiving behavior among caregivers of dependent older persons in a community. Additionally, health education activities[39] related to better health behavior and fasting blood sugar in people with type 2 diabetes.

Limitations

Some limitations should be considered. Firstly, the study sample size was relatively small, which may influence power to claim findings. Further studies using larger sample sizes are recommended. Secondly, measurement of self-care behaviors using the questionnaire could be affected by some biases, in particular, social desirability bias. In this case, the participants might not actually perform such behaviors as reported, and accurate self-care data can be compromised. The researchers were aware of this bias and believed they managed to minimize this. Describing to participants that their accurate information would help improve provision of nursing services for promoting their health as well as wellbeing, actual and regardless of desirable self-care behavior, was highly beneficial and much appreciated. In addition, data collection was carried out by the RA instead of the PI who administered the program. However, further studies measuring objective health outcomes, for instance, incident of complications and/ or hospitalization related to HD/CKD, should be conducted to examine effectiveness of the program.

Thirdly, a one-group pretest-posttest design was conducted for the present study and some threats to internal validity of this design may have occurred, such as history, where participants could expose other factors that led to change of outcomes during the study; testing, as outcomes were measured using the same question for posttest and pretest, therefore, the score improvement after intervention could resulted from familiarity with questions. In addition, ESRD is a chronic condition, so increasing HL might also result from personal experience with the condition. Further studies should be conducted using randomization and control groups.

Conclusions and Implications for Nursing Practice

The HLEP can contribute to improve HL and self-care behaviors of older people receiving HD. The program can be provided for PW-CKDD to enhance HL and self-care behaviors. Therefore, nurses can implement this program in practice at district hospitals or similar contexts after further testing and possible modification. However, additional training is needed. In addition, an age-friendly manual for PW-CKDD developed for the intervention may help older people receiving HD obtain more knowledge, understanding for self-care.

Acknowledgments

The authors express their thanks to the Research and Training Center for Enhancing Quality of Life of Working Age, Thailand for supporting study funding and to all participants.

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โปรแกรมส่งเสริมความรอบรู้ด้านสุขภาพในผู้สูงอายุที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม: ความเป็นไปได้และการยอมรับได้

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บทคัดย่อ: ความชุกของโรคไตเรื้อรังสูงขึ้นในผู้สูงอายุ การฟอกเลือดด้วยเครื่องไตเทียมช่วยลดภาวะแทรกซ้อนและยืดอายุผู้ป่วยไตเรื้อรัง แต่ส่งผลให้เกิดผลข้างเคียงได้บ่อยตั้งแต่ความรู้สึกไม่สุขสบายไปจนถึงภาวะที่คุกคามชีวิต แม้ว่าผลข้างเคียงเหล่านี้สามารถลดลงได้ด้วยการดูแลตนเองที่เหมาะสม แต่ผู้สูงอายุที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียมจำนวนมากมีพฤติกรรมการดูแลตนเองและความรอบรู้ด้านสุขภาพที่จำกัด การศึกษาวิจัยแบบกลุ่มเดียววัดผลก่อน-หลังการทดลองนี้มีวัตถุประสงค์เพื่อศึกษาความเป็นไปได้และการยอมรับได้ของโปรแกรมส่งเสริมความรอบรู้ด้านสุขภาพและผลของโปรแกรมต่อความรอบรู้ด้านสุขภาพและพฤติกรรมการดูแลตนเองในผู้สูงอายุไตเรื้อรังที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม ผู้สูงอายุไตเรื้อรัง 18 คนที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียมที่โรงพยาบาลชุมชนในไทยเข้าร่วมการศึกษานี้ โปรแกรมนี้พัฒนาขึ้นตามกรอบแนวคิดแบบจำลองความรอบรู้ด้านสุขภาพ เก็บรวบรวมข้อมูลตั้งแต่เดือนเมษายนถึงกรกฎาคม 2563 ประเมินความเป็นไปได้และการยอมรับได้ของโปรแกรมโดยการคงอยู่ของผู้ร่วมวิจัยและผลลัพธ์ที่ดีขึ้น วิเคราะห์เปรียบเทียบตัวแปรตามก่อนและหลังการทดลองด้วยการทดสอบวิลคอกซัน (Wilcoxon Signed Rank Test) ผลการศึกษาพบว่าโปรแกรมมีความเป็นไปได้และยอมรับได้ ผลลัพธ์ที่ดีขึ้นอย่างมีนัยสำคัญ ได้แก่ คะแนนความรู้ด้านสุขภาพ คะแนนพฤติกรรมการดูแลตนเองโดยรวม และคะแนนพฤติกรรมการดูแลตนเองรายด้าน เกิดขึ้นหลังโปรแกรม (ครั้งละ 30 นาทีเป็นเวลา 4 สัปดาห์ติดต่อกัน) ผลการวิจัยชี้ให้เห็นว่าโปรแกรมมีความเป็นไปได้และยอมรับได้ พยาบาลสามารถใช้โปรแกรมนี้ในการส่งเสริมความรอบรู้ด้านสุขภาพและพฤติกรรมการดูแลตนเองของผู้สูงอายุไตเรื้อรังที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม อย่างไรก็ตามโปรแกรมควรได้รับการทดสอบเพิ่มเติมโดยใช้การศึกษาทดลองที่มีการสุ่มตัวอย่างและมีกลุ่มควบคุม

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คำสำคัญ: โรคไตเรื้อรัง การศึกษาความเป็นไปได้ ความรอบรู้ด้านสุขภาพ การฟอกเลือดด้วยเครื่องไตเทียมผู้สูงอายุ พฤติกรรมการดูแลตนเอง

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