Factors Related to Resilience among Elderly Patients with End Stage Renal Disease

Subonggoch Sriwantha, RN, MNS[1,2] ; Pornchai Jullamate, RN, PhD[3] ; Naiyana Piphatvanitcha, RN, PhD[3]

Subonggoch Sriwantha, RN, MNS

[1] Sakaeo Crown Prince Hospital, Sakaeo Province, Thailand.
[2] Student of Master of Nursing Science Program in Gerontological Nursing, Faculty of Nursing, Burapha University, Chonburi Province, Thailand.
[3] Faculty of Nursing, Burapha University, Chonburi Province, Thailand.

*Address Correspondence to author:
Assist. Prof. Pornchai Jullamate, PhD (Nursing)
Gerontological Nursing Section,
Faculty of Nursing, Burapha University
169 Bangsaen Beach Road, Saensuk,
Muang District, Chonburi Province
20130, Thailand.
email:pornchai@buu.ac.th

Received: January 10, 2018
Revision received: January 11, 2018
Accepted after revision: January 25, 2018
BKK Med J 2018;14(1):29-35.
www.bangkokmedjournal.com

Abstract

OBJECTIVE: This research aimed to study the resilience of elderly patients with end stage renal disease (ESRD) and its related factors towards hope, self-efficacy, optimism, and family relationships

RESEARCH TOOLS AND METHOD: This present study is a piece of descriptive correlation research. The samples included ninety-seven elderly patients who were diagnosed with ESRD and treated at the Outpatient Department, Chronic Kidney Disease and Artificial Kidney 1 Clinic, Sakaeo Crown Prince Hospital. The data were collected using interviews, and they were then analyzed with descriptive statistics and Pearson's Correlation Coefficient.

RESULTS: The findings revealed that the studied samples had moderate resilience (71.1%). A significant positive correlation was found between resilience and hope ($r = 0.536$, $p < 0.001$) family relationships ($r = 0.449$, $p < 0.001$) and self-efficacy ($r = 0.349$, $p < 0.001$). While, optimism ($r = 0.289$, $p = 0.004$) was found as a low positive correlation to resilience among the elderly people with ESRD

CONCLUSION: Among the elderly patients with ESRD in this study, a significant positive correlation was found between resilience and hope, self-efficacy, optimism, and family relationships. Therefore, nurses or healthcare professionals who are taking care of elderly patients with ESRD should focus on those factors to promote resilience among patients with ESRD.

Keywords: resilience, elderly, end stage renal disease, ESRD

End stage renal disease (ESRD) is one of the diseases most commonly found among elderly people. At present, there is a growing tendency for the disease to occur more frequently worldwide, including in Thailand. According to an occurrence report in Thailand, it was found that the number of ESRD patients had increased from 410.90 people in 2007 to 522.80 people in the year 2009. Later, the number increased from 10,181 people in 2012 to 12,800 people in the year 2013. Furthermore, it was predicted that the number of elderly patients with ESRD would increase up to 34, 594 in the year 2017.[1] This is a significant problem which is likely to become even more serious in the near future.

ESRD is the condition in which the nephron is gradually destroyed until it loses function. The deterioration in the functioning of the kidneys, namely filtration, tubular reabsorption, waste reduction, excretory system, and hormone production, leads to the end stage or the so-called ESRD. When chronic kidney disease (CKD) progresses to ESRD, the filtration rate will become lower than 15 ml/min/1.73 m^2 of the body surface area for more than a period of three months.[2] This can weaken the excretory system, water balance, pH balance, and the production of crucial hormones. As the kidney function decreases, this contributes to significant signs or symptoms e.g. hypertension and heart failure in the cardiovascular system; asthma, dyspnea due to fluid overload, pulmonary edema, and pneumonia in the respiratory system; and nausea and vomiting and anorexia in the digestive system. In addition, it will also affect the nervous system due to the accumulation of uremia and the imbalance of water and electrolytes.[3] When kidneys do not function

adequately, elderly patients with ESRD need to get renal replacement therapy. Nowadays, there are three methods of treatment: 1) Hemodialysis (HD), 2) Continuous ambulatory peritoneal dialysis (CAPD), and 3) Kidney transplantation. The treatment of elderly patients with ESRD on renal replacement therapy is more complicated compared to other age groups. That is because elderly patients are more likely to develop some changes in the blood circulatory system. Therefore the dosage needs to be assessed before selecting a treatment method.[4]

Elderly patients with ESRD who are treated with HD may develop complications during the treatment, such as nausea and vomiting, tachycardia, chest pain, chills and fever, dyspnea, and cramps. Also, after the dialysis, the patient may develop anorexia and back pain. For those under the treatment of CAPD, they may develop complications, such as abdominal infections, pain during the fill, pleural effusion, and hernia.[5] Those with and without renal replacement therapy tend to develop complications, such as anxiousness and depression, and as a result having higher levels of depression and nervousness.[6] This is in part exacerbated by the perceived burden they will become to their families and no longer being seen as the decision makers in the family but just another member of the family unit. These changes affected elderly patients by lowering their self-esteem, leading to depression, seclusion, changed social relationships, less social interaction, and a decrease in the significance of their roles.[7] Furthermore, elderly patients with ESRD experience physical deterioration, are less able to take care of themselves, are less able to access services, and are more likely to experience complications before receiving renal replacement therapy. Added to this, there are more expenses incurred from traveling to and from the hospital or clinic. This can make elderly patients feel abandoned, and increase their suffering.[8] As a consequence, they have to take good care of themselves to maintain a good quality of life and to increase their resilience to deal with these difficult situations. According to the literature review, resilience can enable elderly patients with ESRD to recover themselves from their illness. [9] Hence, they are able to live a well-balanced life.

Resilience is an ability possessed by an individual. It is used for overcoming any difficulty in human lives and getting through environmental risk experiences and adversity.[10] Hence, if elderly patients with ESRD have their own high levels of resilience, they will live their lives with hope and do what they are supposed to do continuously. This can make them realize how worthwhile living is, it can build up their sense of humor, open up their worldview, help them to accept their own illnesses, and to pay attention to their health.[11] This contributes to a quick recovery so as to overcome a crisis and deal with any situation appropriately. On the contrary, if elderly patients with chronic ESRD cannot recover quickly, they will be under tremendous stress.[12] In summary, resilience of elderly patients with ESRD is the ability to recover from the illness which causes difficulties to their everyday lives in order to overcome their problems and to live their lives happily and to have a good quality of life.

According to the literature review on factors related to resilience among elderly patients, it was found that most studies were conducted abroad with elderly patients in general and those with other illnesses. No studies related to elderly patients with ESRD could be found. As for Thailand, a study revealed that elderly patients with depression have a low level of resilience and that hope has a negative correlation with resilience among this group of patients.[13] Moreover, there is a study revealing that social support, health perception, and morale have positive correlations with resilience among elderly people and this studied group has high resilience.[14] As for the factors on self-efficacy, optimism, and family relationships, no studies on elderly patients could be found. Also, the number of studies about elderly patients with ESRD remains still limited, despite the fact that these important factors can contribute to the quality of life of elderly patients with ESRD. Therefore, the researcher has chosen these three factors into the study on factors related to resilience among elderly patients with ESRD, including 1) External support, 2) Inner strengths, and 3) Interpersonal and problem-solving skills. In the present study we aimed to study the related factors, including hope, self-efficacy, and optimism all regarded as inner strengths, and family relationships seen as external support.

In this study, the researcher included the factors relating to resilience among elderly patients with ESRD, including hope, self-efficacy, optimism, and family relationships. The study was conducted with elderly patients who were treated at the Sakaeo Crown Prince Hospital as this hospital is a general hospital in Area Health 6, where there are many patients with chronic kidney disease. According to the statistics from the Chronic Kidney Disease Clinic at the Sakaeo Crown Prince Hospital, the number of elderly patients with ESRD in 2014 was 1,145, and this figure increased to 2,650 in 2015. Additionally, more than 60% of elderly patients with kidney problems did not receive renal placement therapy, and the remaining 40% already received renal replacement therapy.[15] The researcher conducted this study in the Intensive Care Units and found that elderly patients with ESRD had previously developed complications of chronic kidney disease and rejected renal replacement therapy. In addition, there were still elderly patients at the ICU who had developed complications after renal replacement therapy who were staying in intensive care which we found were living with a very low quality of life. Therefore, we decided to study the factors related to resilience among elderly patients with ESRD. We expect that this study will help to promote resilience among elderly patients with renal disease, in addition to increasing public awareness of the importance of positive psychology in mental-bodily health, especially for patients with chronic diseases.

Materials and Methods

The study is a piece of descriptive correlation research. The samples (n=97) included elderly patients with ESRD who were diagnosed with ESRD. Some of the patients had been given renal replacement therapy, whereas others had not. And they were treated at the Outpatient Department, Chronic

ISSN 2287-0237 (online)/ 2287-9674 (print)

Kidney Disease and Artificial Kidney 1, Sakaeo Crown Prince Hospital, from August to October 2016. The selection criteria of the samples included 1) possessing good mental health and consciousness evaluated by a mental retardation test and having a score less than 7 and 2) being able to hear and communicate well in Thai.

The sample size of the study was calculated with the level of significance (α) equal to 0.05, the power of test equal to 0.80, and the effect size equal to 0.25, which was a small effect size. The two-tailed test was used to calculate the sample size using the G* Power 3.1.9.2 Program.

Research Tools

We used 7 questionnaires for collecting the data. The questionnaires are divided into two sections as follows:

Section 1: Screening Tool (1 questionnaire)

- Set 1: Background Information Questionnaire. It was designed to collect personal data, the questionnaire contains 10 questions including both multiple-choice questions and items to complete. The questions are about age, gender, marital status, occupation, education level, family income, length of the sickness from ESRD, type of renal replacement therapy, congenital disorder/medical problems, and caretaker.

Section 2: Tools for collecting the data. There are 6 questionnaires used as tools for collecting the data which include:

- Set 1: Six Item Cognitive Impairment Test (6CIT – Kingshill version 2000). It contains seven questions. If the score is more than seven, the questionnaire respondent may have cognitive impairment.[17]
- Set 2: Questionnaire about hope, the researcher utilized the Hope Evaluation Test by Narisa Wongpanarak (2013)[18] translated from The Heart HopeIndex by Herth (1992). The tool was validated by 3 experts in the field of geriatric nursing. Then, it was tried out with 30 elderly people whose characteristics are similar to the characteristics of the samples. With the use of Cronbach's alpha coefficient, the internal consistency reliability of the questionnaire is .82. This questionnaire has 12 questions in total 10 positive questions and 2 negative ones. A 4-level rating scale is used in the questionnaire starting from 1 point for ***absolutely disagreed*** to 4 points for **absolutely agreed**. The score ranges from 12 to 48. The point(s) from the negative questions need to be converted before summing up into the total score.
- Set 3: Self-efficacy Questionnaire. The researcher utilized the self-efficacy test for elderly patients with ESRD by Nantaka Khamkaew (2006)[19], developed from Bandura's self-efficacy theory (1997). The tool was validated by 3 experts and tried out with 15 elderly patients whose characteristics were similar to the samples, at the Outpatient Department, Kidney Disease Clinic, Nakornping Hospital. The reliability of the tool is 0.87. The questionnaire has 10 positive questions with a four-rating scale, starting from ***not confident at all*** (1 point) to the most confident (4 points). The average self-efficacy score ranges from 10 to 40.
- Set 4: Optimism Questionnaire. The researcher utilized the optimism evaluation tool from Khajohnsri Saenpunya (2010)[20] developed from Seligman (1988). The tool was validated by 3 experts in the field of geriatric nursing. Then, it was distributed to 30 elderly patients with ESRD at Geriatric Medicine Clinic, Pranangklao Hospital. It was found that the reliability of the tool is .73. This questionnaire contains 15 questions in total: 7 positives questions and 8 negative questions. The four-rating scale is used in the questionnaire, starting from ***the statement is the least true*** (1 point) to ***the statement is the most true*** (4 points). The average optimism score ranges from 15 to 60.
- Set 5: Family Relationship Questionnaire for Elderly People. The researcher used the family relationship test by Puangpaka Chinsangnet (1995),[21] which was adapted from Friedman (1981) and Morrow and Wilson (1961). The tool was validated by 3 experts in the field, and it was then tried out with 30 elderly club members in the Thailand Eastern Economic Corridor, Chonburi Province. It was found that the reliability of the tool is 0.87. The questionnaire has 15 questions in total, with 12 positive and 3 negative questions. A three-rating scale is used in the questionnaire, with ***The least agreed*** (1 point) and ***The most agreed*** (3 points). The average family relationship score ranges from 15 to 45. The point(s) from the negative questions need to be converted before summing up to a total score.
- Set 6: Resilience Questionnaire. The researcher utilized the resilience test for Thai elderly people by Maneerat (2011),[22] developed from Grotberg (1995, 2003). It was examined by six experts in the field to find the content validity, and a content validity index is 0.97. Then, the questionnaire was distributed to 517 elderly people. With the test and retest reliability method, the responses from the questionnaire were found to have a high correlation ($r = 0.91$, $p < 0.01$) and high internal consistency ($\alpha = 0.91$). The questionnaire comprised 5 areas, including the ability to connect with others, confidence in one's own life, social support, life with spiritual stability, ability to relax, distress, and solve problems. In the questionnaire, there are 24 questions, all of which are positive questions. A four-rating scale is used in the questionnaire, starting from ***Not agreed*** (1 point) to ***The most agreed*** (4 points). The average resilience score ranges from 24 to 96. There are three levels of interpretation, namely low resilience (24.00-48.00 points), moderate resilience (48.01-72.00 points), and high resilience (72.01-96.00 points).

Protecting the Rights of the Samples

This research study was approved by the Human Research Ethics Committee, Faculty of Nursing, Burapha University and was granted research ethics number 15-03-2559. This is to protect the rights of the samples, starting from the data collection process until the findings of the research are presented. The researcher already informed the objectives of the research to the research participants, details of the practices towards the research participants, and notified the participants on their rights regarding the withdrawal from the study, in which they can withdraw anytime without any negative effects.

Data Collection Method

The researcher made a name list of elderly patients with ESRD every week, adding only the names of new patients. After that, the researcher used simple random sampling through the selection without replacement method to select the patients from the name list of elderly patients with ESRD every day that the clinic was opened. The chronic kidney disease clinic was operated one day per week. Every week, there were about 20-30 elderly patients with ESRD visiting the clinic. Also, the Artificial Kidney Unit 1 was opened every day. As there were about 8-10 cases every day, data was collected from 5-6 cases each day. When the samples could not be found at the appointment, the researcher would randomly select the samples using the simple random sampling. The researcher eventually collected the data from 97 cases as planned.

Data Analysis

The researcher analyzed the data with a statistical software, using descriptive statistics, including frequency, percentage, mean, and standard deviation, and Pearson's Product Moment Correlation to explore the correlations among the variables in the study. The assumption, dispersion, resilience among elderly patients with ESRD, hope, self-efficacy, optimism, and family relationships were carried out with Histogram, Scatter Plot, and Kolmogorov Smirnov Test. It was found that the distribution was in the normal curve, and the Kolmogorov Smirnov value was $p > 0.05$ with an alpha level of 0.05 ($\alpha = 0.05$).

Results

In this study, it was found that 59.8% of the samples are female, 59.8% were 60-69 years old, with an average age of 68.67 years old (S.D. = 6.19). 72.2% of them were married, and 74.2% left school with a primary education. 80.4% of them did not have an occupation, and most of them had an income less than 2,000 Baht. 76.3% of them have an illness duration of 1 to 5 years. 38.1% of them have received renal replacement therapy, whereas 37.1% of them have not received the treatment. 24.7% of them performed CAPD by themselves. 58.8% were taken care of by their children or grandchildren. 90.72% had congenial disorder/medical problems. 90.91% were found to have hypertension, and 73.86% had diabetes. All the information is shown in Table 1.

The samples with moderate resilience, accounted for 71.1%, and the score ranged from 49-91 (M = 68.3, SD = 8.04), as shown in Table 2. Hope (r = 0.536), family relationships (r = 0.449), and self-efficacy (r = 0.349) had moderate positive correlations with resilience among elderly patients with ESRD which were statistically significant at the 0.01 level. Meanwhile, optimism had a low positive correlation with resilience among elderly patients with ESRD at a statistical significance level of 0.01 (r = 0.289), as shown in Table 3.

Table 1: The number and percentage of elderly patients with ESRD, shown in general details (n = 97)

General Information	n (%)
Gender	
Male	39 (40.2)
Female	58 (59.8)
Age (Years)	
60 - 69	58 (59.8)
70 - 79	33 (34.0)
≥ 80	6 (6.2)
Min – Max = 60 – 87, Mean ± SD = 68.67 ± 6.19	
Marital Status	
Married	70 (72.2)
Widow	23 (23.7)
Divorced/Separated	4 (4.1)
Occupation	
Do not have an occupation	78 (80.4)
Merchants	7 (7.2)
Work in the government service	1 (1.0)
Agriculture	7 (7.2)
Education Level	
No education	10 (10.3)
Primary education	72 (74.2)
High school	9 (9.3)
Bachelor's degree	6 (6.2)
Income (Baht per month)	
< 2000	71 (73.2)
2,000 - 4,000	9 (9.3)
4,001 - 6,000	9 (9.3)
< 6000	8 (8.2)
Average illness duration (year)	
< 1	6 (6.2)
1 - 5	74 (76.3)
> 5 -10	12 (12.4)
> 10	5 (5.1)
Types of renal replacement therapy	
Not receiving renal replacement therapy	36 (37.1)
Having received hemodialysis	37 (38.1)
Having performed continuous ambulatory peritoneal dialysis	24 (24.5)
Other medical problems/ Congenital disorder	
Having medical problems/congenital disorder	88 (90.7)
Having no medical problems/congenital disorder	9 (9.3)
Medical problems/congenital disorder found in the sample group (n = 88) * 1 person can choose more than 1 item.	
Hypertension	80 (90.9)
Diabetes	65 (73.8)
Heart Disease	9 (10.2)
Hypercholesterolemia	8 (9.1)
Caretaker	
Husband/wife	38 (39.2)
Children/Grandchildren	57 (58.8)
No caretaker	2 (2.1)

ISSN 2287-0237 (online)/ 2287-9674 (print)

Table 2: Number, percentage, mean, and standard deviation of resilience among elderly patients with ESRD (n = 97)

Characteristics	Possible Score	Acquired Score	n(%)	Mean	SD	Level
Resilience	24-96	49-91	69 (71.1)	68.30	8.04	Moderate

Table 3: Correlations between hope, self-efficacy, optimism, and family relationships with resilience among elderly patients with ESRD

Variables	Resilience	
	r	*p*
Hope	0.536	< 0.001
Self-efficacy	0.349	< 0.001
Optimism	0.289	0.004
Family Relationships	0.449	< 0.001

Discussion

Levels of resilience and factors related to resilience among elderly patients with end stage renal disease

Elderly patients with ESRD had a moderate level of resilience. This can be attributed to the fact that most of them are 60-69 years old (59.8%), which is the period when they are still strong and healthy and have the ability to take care of themselves. This is in accordance with the study on the resilience among elderly people in Israel which revealed that aging has a positive correlation with the level of resilience among elderly people.[23] In addition, there is a study on the effects of resilience among elderly people which revealed that the older people get the more resilience they have. Being healthy and the ability to perform daily routines can contribute to resilience among elderly people.[24]

Nevertheless, 76.3% of the samples had an illness period of 1-5 years, and they need to get HD and CAPD continually. Therefore, they need to visit the hospital frequently. Due to the limitation of their ability to perform daily routines and the fact that they have to live in isolation, some elderly patients with ESRD end up with depression.[14] Feeling depressed decreased their resilience to the moderate level.[25]

Moreover, 59.8% of the samples are female, and 90.72% had congenital disorder/medical problems, including hypertension (90.91%), diabetes (73.86%), and heart diseases (10.23%), respectively. When people get older, there are changes in human physiology, such as cardiac hypertrophy (cardiac muscle becoming thickened) due to the accumulation of cholesterol, blood vessel layers getting less flexible, and having poorer metabolism.[26] As a result the development of chronic kidney disease, with weakened renal excretion, less metabolism, and changes to the cardiovascular system, elderly patients with chronic kidney disease who also had medical problems/ congenital disorder were at risk of developing ESRD. This agreed with Thai SEEK Study's research study (2010)[27] by Nephrology Society of Thailand, which studied the samples from people across the country. It was found that most patients with chronic kidney disease were female, accounted for 54.5%, and prevalence was 18.7%. Also, factors related to chronic kidney disease include age, gender, diabetes, and hypertension—all of which are regarded as the risk factors for ESRD. Besides, most of the samples had medical problems/congenital disorder, which accounts for 88%, leading them to improve themselves to cope with their illnesses more and take care of themselves better, resulting in less resilience.[28] Furthermore, the research findings have showed that most of the samples did not have an occupation, this accounted for 80.4%. 73.2% of them earned less than 2,000 Baht per month. 58.8% of them had children as caretakers, whereas 39.2% of them were married. All the expenses were taken care of by the children, and the patients were taken to the hospital by their children. The fact that their family members are willing to help and take care of the patients have made the elderly patients with ESRD having more resilience.[15] When elderly patients with ESRD had someone to take care of them and help them during their illness periods, they could survive the worst moments, improve themselves, recover from the critical or difficult periods, and live more happily thereafter.

In this study, it was found that factors related to resilience among elderly patients with ESRD included hope, self-efficacy, optimism, and family relationships.

1. **Hope,** which was positively correlated with resilience among elderly patients with ESRD, was statistically significant at the level of 0.01, with moderate correlation ($r = 0.536$). This is due to the fact that elderly patients with ESRD have to experience chronic disease and go to the hospital frequently for a treatment, making them stressed during their illness periods. When elderly patients with ESRD are positive, hopeful, and confident about their illnesses, they will think that they can survive by themselves and have a better future. They will have morale on how to solve their problems. Also, they will accept their condition and be ready to take care of themselves. They will have life goals that is taking good care of themselves and following the doctor's advice. Resulting in the ability to recover from their illness, improve themselves to cope with the disease, and happily live with it.[24] Hope is a factor related to resilience among elderly patients with ESRD in which it could help the patients get over their critical illnesses and have resilience so as to get back to their normal lives.[29]
2. **Self-efficacy** has positively correlated with resilience among elderly patients with ESRD at the statistical significance level of .01, with moderate correlation ($r = 0.349$). This suggested that elderly patients with ESRD may have the knowledge and ability to take care of themselves, believe in their ability to manage themselves, have positive

aspects of their illnesses, know ways to solve problems, and take control of their situations well. In doing so, the patients are able to cope with the problems well. Self-efficacy is a factor correlated with resilience when the patients experience unpleasant changes or a chronic disease, so that they will be able to live their normal lives.[30] This is in accordance with a study of the factors contributing to resilience among elderly people when facing critical situations[31], which revealed that self-efficacy is a factor that promotes resilience and helps patients to get over critical situations. Furthermore, another study on the factors related to resilience among 289 elderly cancer patients[32] also revealed that self-efficacy is correlated with resilience, because it increases resilience. Elderly patients with ESRD have to cope with their chronic illnesses, accept their ability, and believe that they can take care of themselves well and continue living a good life.

3. **Optimism** had a low level of positive correlation ($r = 0.289$) with resilience among elderly patients with ESRD at the statistical significance level of 0.01. It is because elderly patients with ESRD had chronic illnesses, making them confront the difficulties of life, poor health, and other medical disorders/congenital disorder. This made them exhausted, anxious, and more depressed. When elderly patients with ESRD have positive thinking and good explanations for what was happening due to their illnesses and think that there are other patients suffering from the disease who can survive and take care of themselves, they will be inspired to take care of themselves and be able to get through the hardship during their illness periods. Elderly patients with ESRD with optimism can recover quickly from their illnesses, provided that they have positive emotions and a sense of purpose. This can made them live their lives bravely and confidently.[33]Therefore, optimism is a crucial factor that makes elderly patients with ESRD have resilience, enables them to take good care of themselves during their chronic illnesses, and contributes to their good health.
4. **Family relationships** was found to be positively correlated with resilience among ESRD at the statistical significance level of 0.01, with moderate correlation ($r = 0.449$). This is due to the fact that elderly patients with ESRD have to confront with long periods of sickness and experience difficulties of life. However, their family members are helpful to them, especially when they were distressed. Those members could empathize with them and should be willing to take care of them. The family members are trustworthy and give respect to the patients as usual. The findings showed that 58.8% of the samples were taken care of by their children, whereas 39.2% of them were looked after by their spouses. These trustworthy people could talk to them and should be willing to assist whenever the patients are unhappy or have either physical or mental discomfort. Consequently, when elderly patients with ESRD have good family relationships, they will be able to recover and cope with their chronic illnesses well. This is in agreement with a study about resilience in older adults residing in rural and remote environments. 198 elderly people were randomly selected from the population on the west coast of the U.S. It was found that family relationship is a factor used for predicting resilience in older adults.[34] Therefore, family relationships is a factor related to resilience among elderly patients with ESRD which contributes to the patients' ability to get over their critical periods of chronic illnesses and live happily thereafter.

Conclusion

The findings of the present study showed that hope, self-efficacy, optimism, and family relationships are correlated with resilience among elderly patients with ESRD. Therefore, these results should be utilized in enhancing the nursing practice or developing a program to promote resilience among elderly patients with ESRD. The emphasis should focus on hope, self-efficacy, optimism, and family relationships, so that patients will have good physical and mental health, resulting in a better quality of life.

Acknowledgements

We would like to express our deepest gratitude to the director of Sakaeo Crown Prince Hospital, and all the nurses and staff at the Chronic Kidney Disease and Artificial Kidney 1 Clinic for providing support during the data collection process. Also, we would like to thank all the participants who gave their cooperation and gave their time in this research.

References

1. Nephrology society of Thailand. Annual Thailand Renal Replacement Therapy 2007-2014. (Accessed November 10, 2015 from www.nephrothai.org/.../333-annual-report-thai-land-renal-replacement-therapy-2007-2014)
2. Kidney Disease Improving Global Outcome. Clinical practice guideline for the management of blood pressure in chronic kidney disease. *Kidney Inter Suppl* 2012;3:1-150.
3. Somma C, Trillini M, Kasa M, et al. Managing end stage renal disease in the elderly. *Aging Health* 2013;9(5):539-52.
4. Nitta K, Kazuyoshi O, Yanai O, et al. Aging and Chronic Kidney Disease. *Kidney Blood Press Res* 2014;38(1):109-20.
5. Ardkhitkarn S. Self-management behaviors and predicting factor in elders with end stage renal disease undergoing continuous ambulatory peritoneal dialysis. *Nurs J Thai* 2013;40:22-32.
6. McCurdy. Factors related to depression in end stage renal disease patients (Thesis Master of Psychology) Chattanooga: Tennessee University; 2014.
7. Iamong S, Tangsangaa K, Jittinan A, et al, editors. Textbook of peritoneal dialysis. Bangkok: Text & Jernal Plublication; 2008. (in Thai).
8. Puengchompoo W. Situation of palliative care in Thai elderly patients with end stage renal disease. *Nurs J Thai* 2014;41(4):167-77.

ISSN 2287-0237 (online)/ 2287-9674 (print)

9. Gooding PA, Hurst A, Johnson J, et al. Psychological resilience in young and older adults. *Int J Geriatr Psychiatry* 2012;27:262-70.
10. Grotberg EH. Resilence for today. Westport, London: Praeger; 2003.
11. Sansuk T. Resilience experiences of elderly in tsunami disaster. *J Health Sci Thai* 2009;18(1):33-42.
12. Isingrini E, Perret L, Rainer Q, et al. Resilience to chronic stress is mediated by noradrenergic regulation of dopamine neurons. *Nat Neuro Sci* 2016;19(4):560-3.
13. Khongphaisansophon A. Factor related to resilience among older persons with major depressive disorder. *J Psychiatr Ment Health Nurs Thai* 2016; 30(2):127-42.
14. Parayat C. Predictive factors of Resilience among elderly. *J Fac Nurs BUU Thai* 2016;24(2):97-106.
15. Chronic Kidney Disease Department. Statistical chronic kidney disease. Sakaeo: Sakaeo Crown Prince Hospital; 2015.
16. Bunyatnopparat K, Anutrakulchai S. Factors associated with life quality of hemodialysis patients. *SMJ Thai* 2016; 32(1):2-9.
17. Upadhyaya AK, Rajagopal M, Gale TM. The Six item cognitive impairment test (6-CIT) as a screening test for dementia: Comparison with Mini-Mental State Examination [MMSE]. *Aging Sci* 2010;3(2):138-42.
18. Wongparuk N. Mental health status, hope, and self-care behaviors regarding mental health of elderly in Maha Sarakham municipality. *KKU J Public Health Res Thai* 2013;6(1):141-50.
19. Khamkaew N. Factors predicting health promoting behaviors among the elderly with chronic renal failure. *Nurs J Thai* 2006;33(3):105-16.
20. Saenpunya K. Death anxiety, optimism, spiritual well-being and adjustment to death of elderly with chronic Illness at geriatric clinic, phranangklao hospital nonthaburi province. *BSp Thai* 2010;26(2):25-30.
21. Chinsangnet P. Life satisfaction of the elderly and its relation with self-care behaviors and the family relationship in eastern seaboard of chonburi (Thesis Master of Public Health: Family Health) Bangkok: Mahidol University; 1995.
22. Maneerat S. Development and psychometric evaluation of Thai elderly resilence scale (Thesis of Doctoral of dissertation Nursing). Songkla: Prince of Songkla University; 2011.
23. Cohen O, Geva D, Lahad M, et al. Community resilience throughout the lifespan-the potential contribution of healthy elders. *Plos One* 2016;11(2):1-14.
24. Macleod S, Musich S, Hawkins K, et al. The impact of resilience among older adults. Geriatr Nurs 2016;37(4):266-72.
25. Toukhsati SR, Jovanovic A, Dehghani S, et al. Low Psychological Resilience with Associated with Depression in patients with Cardiovascular Disease. *EJCN* 2016;16:64-9.
26. Amabile M, Altieri S, Mastroluca D, et al. Effect of underlying renal disease on nutritional and metabolic profile of older adults with reduced renal function. *Front Nutr* 2017;4(4):1-6.
27. Ingsathit A, Thakkinstian A, Chaiprasert A, et al. Prevalence and risk factor of chronic kidney disease in the Thai adult population: Thai SEEK study. *Nephrol Dial Transplant* 2010;25(5):1567-75.
28. Edward K. Chronic illness and wellbeing: using nursing practice to foster resilience as resistance. *Br J Nurs* 2013;22(13):741-6.
29. Hochhalter AK, Smith, ML, Ory MG. Successful aging and resilience: Applications for public health and health care. A&M Health Science Center, USA: Scott & White Healthcare; 2011:15-29.
30. Mi-Seon B, Ji-Hyun. Factor Influencing on Resilience of Elderly Gastric Cancer Patients. *Asian Oncol Nurs* 2017;17(3):170-9.
31. Bolton KW, Praetorius RT, Smith-Osborne A. Resilience protective factor in an older adult population: A qualitative interpretive meta-synthesis. *Soc Work Res* 2016;40(3):171-82.
32. Duan-Porter, Cohen HJ, Demark-Wahnefried W, et al. Physical resilience of older cancer survivors: An emerging concept. *J Geriatr Oncol* 2016;7(6):471-8.
33. Rutten BP, Hammels C, Geschwind N, et al. Resilience in mental health: linking psychological and neurobiological perspectives. *Acta Psychiatr Scand* 2013;28(1):3-20.
34. Mckibbin C, Lee A, Steinman BA, et al. Health status and social networks as predictor of resilience in older adult residing in rural and remote environments. *J Aging Res* 2016:8;2016:1-8.