

**SELF-EFFICACY INFLUENCE ON HEALTH-PROMOTING
BEHAVIORS OF HEMODIALYSIS PATIENTS**

The seal of Mahidol University is a circular emblem. It features a central blue circle containing a golden chedi (a traditional Thai Buddhist stupa) with intricate carvings. Surrounding the chedi are golden Thai script characters. The entire seal is set against a light yellow background.

Pol.Lt.Col. SIRITORN SA-NGAKUL

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Thesis
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BEHAVIORS OF HEMODIALYSIS PATIENTS**

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SELF-EFFICACY INFLUENCE ON HEALTH-PROMOTING BEHAVIORS OF HEMODIALYSIS PATIENTS

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ABSTRACT

This study was descriptive research, aiming to examine perceived self-efficacy in health-promoting behaviors and health-promoting behaviors of hemodialysis patients and the predictive power of perceived self-efficacy in health-promoting behaviors, age, education level, and family income on health-promoting behaviors. This study employed Pender's Health Promotion Model (Pender, 2002) as a conceptual framework. 132 hemodialysis patients were recruited for this study who received hemodialysis treatment at Hemodialysis Unit of The Kidney Foundation of Thailand at Galyanivadhana Building, The Priest's Hospital and Renal Unit of Police General Hospital. The data were collected through interviews using an instrument which comprised 3 sections: general characteristics of the subjects, perceived self-efficacy in health-promoting behaviors, and health-promoting behaviors of hemodialysis patients. The data were analyzed using percents, standard deviations, Pearson's product moment correlation coefficients and multiple regression technique.

The results revealed that the mean of overall perceived self-efficacy in health-promoting behaviors of the subjects were 69.83 (S.D. = 11.13) and the mean of over all health-promoting behaviors was at rather good level (mean = 3.22, S.D. = 0.25). Considering each aspect of health-promoting behaviors, the mean of health responsibility was at good level (mean = 3.62, S.D. = 0.25). The mean of nutrition behavior, interpersonal relations, spiritual growth, physical activity, and stress management were at rather good levels. The result of multiple regression analysis indicated that age, education level, family income, and perceived self-efficacy in health-promoting behaviors were able to predict health-promoting behaviors of hemodialysis patients for about 38.1% ($R^2 = .381$, $p < .001$).

This study suggests that nurses who take care of hemodialysis patients should assess perceived self-efficacy and enhance the perceived self-efficacy by concern about their ages and preparing appropriate information with their development. This would help them to have better health-promoting behaviors. Especially, nurses should use the program to promote health-promoting behavior in physical activity and stress management, which would encourage and foster optimum health.

KEYWORDS: SELF-EFFICACY/ HEALTH PROMOTING BEHAVIORS/
CHRONIC KIDNEY DISEASE / CKD/ END STAGE RENAL
DISEASE/ ESRD/ HEMODIALYSIS

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การรับรู้สมรรถนะของตนเองต่อพฤติกรรมสร้างเสริมสุขภาพ ของผู้ป่วยที่รักษาด้วยการฟอกเลือดด้วยเครื่องไตเทียม (SELF-EFFICACY INFLUENCE ON HEALTH-PROMOTING BEHAVIORS OF HEMODIALYSIS PATIENTS)

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บทคัดย่อ

การศึกษานี้เป็นการวิจัยเชิงบรรยาย มีวัตถุประสงค์เพื่อศึกษาการรับรู้สมรรถนะของตนเองในพฤติกรรมสร้างเสริมสุขภาพ และพฤติกรรมสร้างเสริมสุขภาพ รวมถึงอำนาจการทำนายของการรับรู้สมรรถนะของตนเองในพฤติกรรมสร้างเสริมสุขภาพ, อายุ, ระดับการศึกษา, และรายได้ของครอบครัว ต่อพฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยที่ฟอกเลือดด้วยเครื่องไตเทียม โดยใช้กรอบแนวคิดการสร้างเสริมสุขภาพของเพนเดอร์ (Pender, 2002) เป็นกรอบแนวคิดในการศึกษา กลุ่มตัวอย่างเป็นผู้ป่วยที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียมในหน่วยไตเทียม มูลนิธิโรคไตแห่งประเทศไทย ณ ตึกกัลยาณีวัฒนา โรงพยาบาลสงฆ์ และหน่วยไต โรงพยาบาลตำรวจ จำนวน 132 ราย เก็บรวบรวมข้อมูลโดยการสัมภาษณ์ ตามแบบสัมภาษณ์ซึ่งประกอบด้วย แบบสัมภาษณ์ข้อมูลส่วนบุคคล แบบสัมภาษณ์การรับรู้สมรรถนะของตนเองในพฤติกรรมสร้างเสริมสุขภาพ และแบบสัมภาษณ์พฤติกรรมสร้างเสริมสุขภาพ วิเคราะห์ข้อมูลโดยการหาค่าร้อยละ ค่าเฉลี่ย ส่วนเบี่ยงเบนมาตรฐาน ค่าสัมประสิทธิ์สหสัมพันธ์ของเพียร์สัน และการวิเคราะห์ถดถอยพหุคูณ

ผลการวิจัยพบว่า ระดับการรับรู้สมรรถนะของตนเองในพฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยที่ฟอกเลือดด้วยเครื่องไตเทียมมีคะแนนเฉลี่ยโดยรวมเท่ากับ 69.83 (S.D.=11.13) และพฤติกรรมสร้างเสริมสุขภาพโดยรวมอยู่ในระดับค่อนข้างดี (Mean = 3.22, S.D.= 0.25) เมื่อพิจารณาเป็นรายด้านพบว่าคะแนนเฉลี่ยพฤติกรรมสร้างเสริมสุขภาพด้านการรับผิดชอบต่อสุขภาพอยู่ในระดับดี (Mean = 3.62, S.D.= 0.25) ส่วนด้านโภชนาการ ด้านความสัมพันธ์ระหว่างบุคคล ด้านการพัฒนาทางจิตวิญญาณ ด้านกิจกรรมทางด้านร่างกาย และด้านการจัดการกับความเครียดอยู่ในระดับค่อนข้างดี เมื่อวิเคราะห์ถดถอยพหุคูณพบว่า อายุ ระดับการศึกษา รายได้ของครอบครัว และการรับรู้สมรรถนะของตนเองในพฤติกรรมสร้างเสริมสุขภาพ สามารถทำนายพฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยที่ฟอกเลือดด้วยเครื่องไตเทียมได้ร้อยละ 38.1 ($R^2 = .381, p < .001$)

จากผลการวิจัยครั้งนี้ ผู้วิจัยมีข้อเสนอแนะให้พยาบาลผู้ดูแลผู้ป่วยที่ฟอกเลือดด้วยเครื่องไตเทียม ควรมีการประเมินระดับการรับรู้สมรรถนะของตนเองในพฤติกรรมสร้างเสริมสุขภาพของผู้ป่วย และส่งเสริมให้ผู้ป่วยมีการรับรู้สมรรถนะของตนเองดีขึ้น เพื่อจะส่งผลให้ผู้ป่วยมีพฤติกรรมสร้างเสริมสุขภาพที่ดีด้วย และควรคำนึงถึงอายุของผู้ป่วยมีการเตรียมข้อมูลที่เหมาะสมตามพัฒนาการของผู้ป่วย โดยเฉพาะการจัดโปรแกรมสร้างเสริมสุขภาพด้านกิจกรรมทางด้านร่างกายและการจัดการกับความเครียด เพื่อให้ผู้ป่วยกลุ่มนี้มีภาวะสุขภาพสูงสุดต่อไป

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CHAPTER I

INTRODUCTION

Chronic kidney disease (CKD) is one of the most important health problems in Thailand and also throughout the world. Patients with CKD should be closely observed and should receive adequate treatments to control or slow the progress of the disease. CKD involves irreversible destructive of nephrons in both kidneys. Among individual with CKD, the stages are defined based on the level of kidney function. The last stage of CKD, kidney failure occurs when the glomerular filtration rate (GFR) is less than 15 ml per minute (NKF K/DOQI Guideline, 2002). This stage is comparable to End Stage Renal Disease (ESRD) in chronic renal failure. Although there are many different causes of CKD, the end result is a systemic disease involving every body organ. The prognosis and course of CKD are highly variable depending on etiology, patient's condition and age, and adequacy of medical follow-up. When the creatinine clearance falls below 15 ml per minute, some form of renal replacement therapy (RRT) is required for survival. RRT is an effective technology. It is divided into; hemodialysis (HD), continuous ambulatory peritoneal dialysis (CAPD) and renal transplantation (Holechek, 2004; Luvera, 1999; Vanichakarn, 1993).

ESRD represents a significant health problem world-wide, resulting in the death of thousands, and financial crisis for the patients and their families (Sellers & Edwards, 1999; Smeltzer & Bare, 2004). In the United State, at the end of 2002, over 345,000 individuals with ESRD were being treated for CKD. Of these, more than 245,000 were dialysis patients. Over the past 5 years, the number of new patients with kidney failure has averaged about 80,000 annually. This number of patients with ESRD is expected to reach 660,000 by 2010. Each year about 70,000 people die from causes related to renal failure (Holechek, 2004). In Thailand, The Nephrology Society of Thailand reported, by the year 2001 a total of 5,962 chronic renal failure patients, which is 99.4 per million people; of these 78.7% received hemodialysis (Jittinan, 2002). At the end of 2004, there were 8,640 patients (77.1%) who received hemodialysis of a total of 11,208 renal replacement therapy patients, which is 135 cases per million people (TRT

registry Subcommittee Nephrology Society of Thailand, 2005). From this statistic the trend of hemodialysis patients in Thailand is increasing dramatically.

Hemodialysis is an effective RRT for ESRD patients to prolong life and improve quality of life. It is still an imperfect technique to treat ESRD. It cannot fully replace the metabolic and hormonal functions of the kidney. It can ease many of symptoms of CKD, if started early, can prevent death and certain complications. Patients receiving hemodialysis must undergo treatment for the rest of their life or until they undergo a successful kidney transplant (Holechek, 2004; Smeltzer & Bare, 2004).

ESRD patients should be considered and decided by their family, nurse, physician and other appropriate health care personnel in order to receive hemodialysis treatment. Because the patients and their family should have burdened a financial matter for hemodialysis, which is approximately 20,000-30,000 baht per month for a long time (Jittinan, 2002; Napatorn, 1999). They should confront not only the burden financial matter but also various complication of diseases, and hemodialysis' itself. These lead to the higher incidence of mortality and many symptoms. In addition, congestive heart failure, coronary heart disease, chest pain, anemia, fatigue, nausea, vomiting, back pain, itching and infections, such as: hepatitis B and C can be occurred (Jones, 1992; Smeltzer & Bare, 2004). Beside the patients may have to face the suffering from the continuing symptoms of ESRD and dialysis, limitations resulting from negotiating dialysis into their lifestyles, ongoingness and uncertainty of life on dialysis and altered interrelationship between autonomy and dependence inherent in living on dialysis (Polascheck, 2003). Especially, a wide range of dietary restrictions and changes lifestyles can affect their social, psychological functioning, well-being and quality of life of the hemodialysis patients. Thus, they have to learn and seek for changing lifestyles after receiving hemodialysis treatment.

The changes of their lifestyles including appropriated health-promoting behaviors with medical regimen are important for hemodialysis patients. They have to do with other treatments for controlling severity of disease, avoiding risk factors and reducing complications. They could change nutrition behavior by controlling fluid, protein and electrolyte balance to decrease uremic symptoms and volume overload. Nonetheless, they should have more health responsibility related to personal hygiene, complications during dialysis observation and their vascular access site. Finally, the patients will

certainly deal with more stress and anxieties of life-threatening illness. So they should cope with stress and seek for stress management. It is necessary for them to have hope and perceive health realistically and to have good interpersonal relations. That makes them receive more support from family and social members.

The changing lifestyle and behaviors of hemodialysis patients are congruent with Pender's Health Promotion Model (HPM) (Pender, 1996; Pender, Murdaugh and Parson, 2002). Pender (2002) stated that poor health can exist even if disease is not present, and good health can be present in spite of disease. Illness is presented as discrete events throughout the life span and may be acute or chronic duration. Unless finding the causes of illness, nurse should engage knowledge and health-promoting behaviors for optimum health that can exist with illness. Health- promoting behaviors proposed in HPM cover the physical, mental, social and spiritual components. Those behaviors consist of 6 aspects, including nutrition behavior, physical activity, health responsibility, interpersonal relations, stress management and spiritual growth (Pender, 1996; Pender et al., 2002). If hemodialysis patients perform their health-promoting behaviors appropriate with their diseases, they may live with optimum health and well-being.

Pender's Health Promotion Model (Pender et al., 2002) offers variables affecting health-promoting behaviors. These variables are categorized into two major components, including individual characteristic and experiences, and behavior specific cognitions and affect. Individual characteristic and experiences component consists of biologic, psychologic, sociocultural and prior related behavior. Behavior specific cognitions and affect component include perceived benefits of action, perceived barrier to action, perceived self-efficacy, activity related affect, interpersonal influences and situational influences. These variables affect health-promoting behaviors directly and indirectly. According to results from many studies, personal factors such as age, education level and family income in individual characteristic and experiences component may directly influence health-promoting behaviors. Age is one of the important variables influencing on health-promoting behaviors. People in different age have different behaviors. The results of a study conducting in Bagwell & Bush (2000) found that the workers who had different age had different behaviors.

Especially, age and health perception could explain 23.46 % of variance of health-promoting behaviors of pregnant women with hepatitis B carrier (Leteerakul, 1998). Education level had a positive effect on health-promoting behaviors of diabetic patients (Ann, 2002). Family income had a positive effect on health-promoting behaviors in older adult (Suwannaroop, 1999). Habkonglek (2000) found that family income and self-efficacy could explain 29.10% of variance of health-promoting behaviors of chronic renal failure with CAPD.

Perceived self-efficacy in specific behavior is a factor of behavior-specific cognitions and affect, which is a motivating force that makes people conduct the health-promoting behaviors. Pender (2002) stated that perceived self-efficacy is the judgment of personal capability to organize and execute a particular cause of action. By means of, only knowledge about disease cannot guarantee practicing health promoting behaviors of hemodialysis patients (Prasopkittikun, 2001). According to the study of Long, Kee, Graham, Saethang & Dames (1998), the results indicated that only teaching intervention did not affect on medical compliance rate in older hemodialysis patients. And many previous studies found that perceived self- efficacy had a positive effect on health-promoting behaviors of the elderly chronic lung disease (Janchanakit, 1998), chronic renal failure with CAPD (Habkonglek, 2000), and diabetic patients (Anan, 2002). Similar to Lev & Owen (1998) who found the correlations occurred between self care self- efficacy and health status, mood states and perceived adherence with fluid restriction of hemodialysis patients and congruent with Tsay (2003) found self-efficacy training program for patients with ESRD decreased mean weight gains in experimental group, the results were statistically significant when baseline difference controlled for $p < .05$.

In conclusion, based on the reviewed literature perceived self- efficacy, age, education level, and family income were found to be significant variables influencing on health-promoting behaviors of healthy people and other chronically ill patients. So the researcher is interested in examining health-promoting behaviors of hemodialysis patients and factors that influences their health-promoting behaviors. The information of this study will be helpful to construct a guideline to promote appropriate health-promoting behaviors of hemodialysis patients to live with their illness with optimum health and well being.

Research questions

1. What are the health-promoting behaviors of the hemodialysis patients?
2. What is the perceived self-efficacy in health-promoting behaviors of the hemodialysis patients?
3. What is the predictive power between perceived self-efficacy in health-promoting behaviors, age, education level, and family income on health-promoting behaviors of hemodialysis patients?

Research objectives

1. To examine perceived self- efficacy in health-promoting behaviors and health-promoting behaviors of hemodialysis patients.
2. To examine the predictive power between perceived self- efficacy in health-promoting behaviors, age, education level and family income and health-promoting behaviors of hemodialysis patients.

Research hypothesis

Health-promoting behaviors of hemodialysis patients are predicted by perceived self- efficacy in health-promoting behaviors, age, education level and family income.

Conceptual framework of the study

The conceptual framework of this study is based on Pender's Health Promotion Model (Pender, 1996) which explains factors influencing on health-promoting behaviors of hemodialysis patients. Pender stated that health-promoting behaviors, particularly when integrated in to a healthy lifestyle that pervades all aspects of living. It should result in improving health, enhanced functional ability and better quality of life at all stages of development (Pender et al., 2002). Pender's Health Promotion Model consists of 3 components: 1) individual characteristics and experiences consists of prior related behaviors, personal factors (biological, psychological and sociocultural), 2) behavior specific cognitions and affect consist of perceived benefits of action, perceived barriers to action, perceived self- efficacy, activity related affect, interpersonal influence, situational influences, and 3) behavioral outcome which is

health-promoting behaviors consist of 6 aspects; nutrition behavior, physical activity, health responsibility, interpersonal relations, stress management, and spiritual growth.

Despite rapid technological advances in the treatment of hemodialysis patients for prolong the life span but can not irreversible of kidney functional. They should change their lifestyles and practice of health-promoting behaviors in 6 aspects appropriated with ESRD for avoiding risk factors and decreasing complications from process of disease and treatment. Pender stated that personal factors are individual characteristics and experience that enhance and promote health-promoting behaviors (Pender, 1996; Pender et al., 2002). In this study, the researcher focuses on age, education level, and family income, and perceived self- efficacy in health-promoting behaviors. These are considered some important influencing factors on health-promoting behaviors of hemodialysis patients.

Age: people with different age have different behaviors for treatments, some behavior may be matched in some target groups regarding their ages and behavior can be changed by age and the perceptions of health and wellness, which are vary according to age and cultural context. (Pender et al., 2002)

Education level: education level is a factor influencing on individual health promoting behaviors because high risk behaviors have been inversely correlated with lower education level. High education level enables persons to access and understand health related information. (Pender et al., 2002)

Family income: family income is a powerful variable that explains health status. Higher income facilitate accesses to care, better housing in safer neighborhoods and increase opportunities for healthy food purchases as well as health promotion programs. (Pender et al., 2002)

Perceived self- efficacy in health promoting behaviors is a factor of behavior specific cognitions and affect in Pender's Health Promotion Model (Pender et al., 2002) based on the social learning theory by Bandura (1997). Bandura stated that the behaviors could change by interdependent on internal personal factors and environmental events. Perceived self- efficacy refers to belief in one's capability to organize and execute the courses of action required to produce given attainments. Perceived self- efficacy is purposed as influencing perceived barriers to action, with higher efficacy resulting in lowered perception of barrier to the performance of health-

promoting behaviors and determining level of commitment or persistence in action (Pender et al., 2002). The study of perceived self- efficacy in health-promoting behaviors of hemodialysis patients is a personal expectation in ability to change health-promoting behaviors appropriately with disease that they confront and influencing on action attainment.

From the conceptual framework is mentioned above, the relationships between the factors in this study are illustrated in Figure 1.

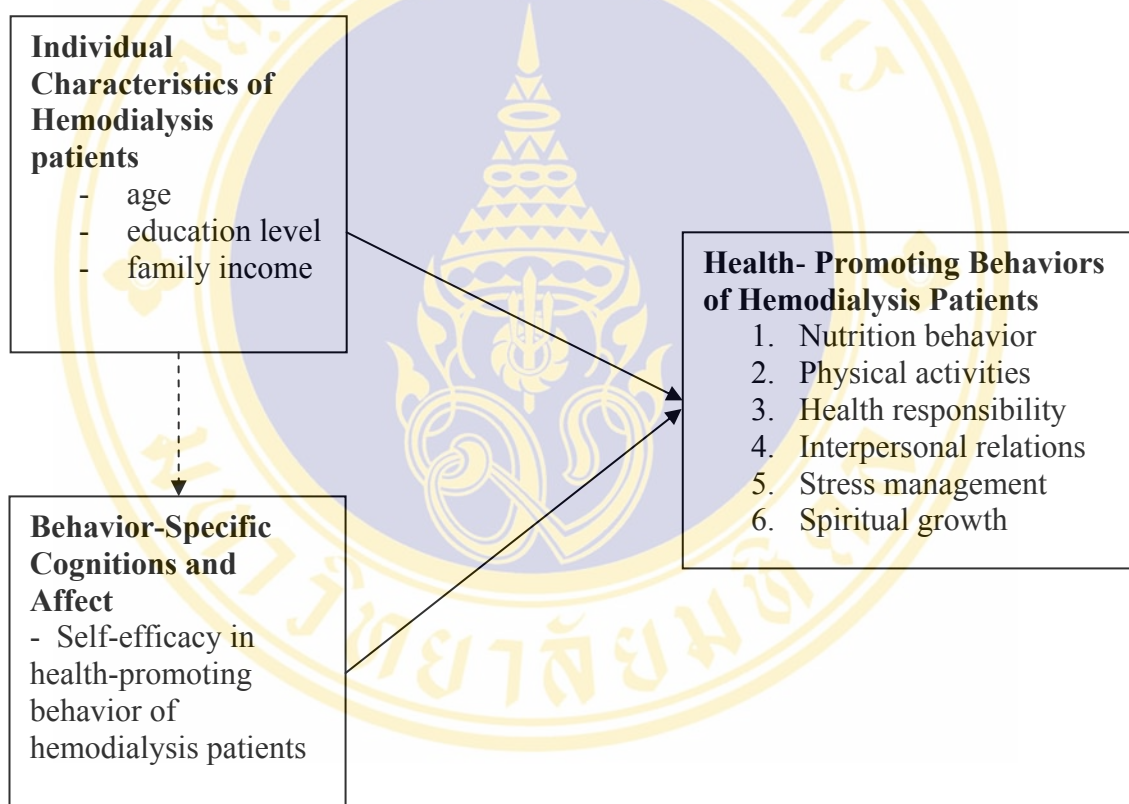


Figure1. Conceptual framework of the study

Scope of the study

This research studies health-promoting behaviors of hemodialysis patients who are received hemodialysis at Hemodialysis Unit of The Kidney Foundation of Thailand at Galyanivadhana Building, The Priest's Hospital and Renal Unit of Police General Hospital Bangkok.

Definitions of terms

1. Health-promoting behaviors are defined as the practice of an activity that will affect good health, physical, mental, social and spiritual of hemodialysis patients which will lead to well-being. It was assessed from health-promoting behaviors questionnaire that developed by researcher based on Health Promoting lifestyle Profile of Walker & Pender (Pender, 1996), Suwannaroop, (1999) and Habkonglek, (2000) and consisted of 6 aspects as follow:

1.1 Nutrition behavior is defined as the habits in daily lifestyle of hemodialysis patients about eating and selecting food appropriate to disease.

1.2 Physical activity is defined as the lifestyle of hemodialysis patients about selection type of exercise and regularity of exercise.

1.3 Health responsibility is defined as the habits in daily lifestyle of hemodialysis patients about the practice of health care, health protection and seeking information from health care team and mass media.

1.4 Interpersonal relation is defined as the habits in daily lifestyle of hemodialysis patients about ability for making good relations with others.

1.5 Stress management is defined as the habits in daily lifestyle of hemodialysis patients about sleeping, resting, acting to control stress and expressing emotions appropriately.

1.6 Spiritual growth is defined as the habits in daily lifestyle of hemodialysis patients about having enthusiasm in activities, life satisfaction, self esteem and identifying life's objectives.

2. Perceived self- efficacy in health promoting behaviors is defined as the belief or confident in one's ability of hemodialysis patients to perform the health promoting behaviors in 6 aspects these were confident in self-ability in selecting food appropriate to the disease, confident in self-ability in selecting exercise methods appropriate with sickness condition, confident in self-ability in health learning to protecting and avoiding disease and sickness, confident in self-ability in making good relations with others, confident in self-ability in selecting stress relieving activities and appropriate emotional expressions and confident in self-ability to have enthusiasm in activities, life satisfaction, self esteem, and identification of life's objectives. It was

assessed from perceived self- efficacy in health-promoting behaviors that developed by researcher based on Bandura conception (Bandura, 1997) and Habkonglek, (2000).

3. Age is defined as the number of years of the hemodialysis patients during his birthday and the date interviewed by the researcher. If there is more than 6 months leftover, it is considered 1 year.

4. Education level is defined as the highest level education of hemodialysis patients.

5. Family income is defined as the average income of each month of hemodialysis patients, which are: 1) the average income earned from their jobs, their pensions, their spouses, and their children when they were married, 2) the average income earned from their jobs, their pensions, and their relatives when they were single, and 3) the average income earned from their parents when they were students.

Expected outcome and benefits

1. The finding can be used as a guideline for health care professionals to enhance health-promoting behaviors of hemodialysis patients.

2. The finding about influential factors on health-promoting behaviors will help to finding target groups and can be use as background information for a health care team to implement health programs to promoting proper behavior of hemodialysis patients.

3. The finding can be used as resource for further studies in various aspects of caring for the hemodialysis patients.

CHAPTER II

LITERATURE REVIEW

This study aimed to study health-promoting behaviors and the influencing of perceived self-efficacy on health-promoting behaviors of hemodialysis patients. The relevant literatures were reviewed in this chapter as follow:

1. Chronic kidney disease patients with hemodialysis
 - 1.1 Chronic kidney disease.
 - 1.2 Hemodialysis.
 - 1.3 Impact of hemodialysis on patients.
2. Health-promoting behaviors of hemodialysis patients.
 - 2.1 Pender's Health Promotion Model.
 - 2.2 Health-promoting behaviors of hemodialysis patients.
3. Factors influencing on health-promoting behaviors of hemodialysis patients.
 - 3.1 Perceived self-efficacy in health-promoting behaviors
 - 3.2 Individual characteristics and experience (personal factors)
4. Conclusion

1. **Chronic kidney disease patients (CKD) with hemodialysis**

1.1 Chronic kidney disease (CKD) is a world wide public health problem. There is rising incidence and prevalence of kidney failure, with poor outcomes and high cost. There is an even higher prevalence of earlier stages of CKD. In 2000, the National Kidney Foundation (NKF) Kidney Disease Outcome Quality Initiative (K/DOQI) Advisor Board approved development of clinical practice guidelines to define and to classify stages in the progression of CKD. CKD was thus defined as the presence of kidney damage or decreased level of kidney function for three months or more, irrespective of diagnosis (NKF K/DOQI Guideline, 2002).

Definition of chronic kidney disease criteria:

1.1.1 Kidney damage for 3 months or more, as defined by structural or functional abnormalities of the kidney, with or without decreased GFR, manifest by either.

- Pathological abnormalities; or
- Markers of kidney damage, including abnormalities in the composition of the blood or urine, or abnormalities in imaging tests.

1.1.2 $\text{GFR} < 60 \text{ mL/min/1.73m}^2$ for 3 months or more, with or without kidney damage.

The classification of stages of CKD developed by the Work Group, including the population at increased risk of developing CKD, as well as to prevent the development of CKD and to improve outcomes in each stage, that shows in table 1.

Table 1. Classification of chronic kidney disease

Stage	Description	GFR (mL/min/1.73m ²)	Action
1	Kidney damage with normal or ↑ GFR	≥ 90	Diagnosis and treatment, Treatment of comorbid conditions, slowing progression, CVD risk reduction
2	Kidney damage with mild ↓ GFR	60-89	Estimating progression
3	Moderate ↓ GFR	30-59	Evaluating and treating complications
4	Severe ↓ GFR	15-29	Preparation for kidney replacement therapy
5	Kidney Failure	< 15 (or dialysis)	Replacement (if uremia present)

Abbreviations; GFR, glomerular filtration rate; CVD, cardiovascular disease (NKF K/DOQI Guideline, 2002)

Adverse outcomes of kidney disease are based on the level of kidney function and risk of loss function in the future. CKD trends to get worsen over time. The last stage of CKD is kidney failure or ESRD. It occurs when the GFR is less than 15 ml per minute. At this point, renal replacement (dialysis and transplantation) is required. Although there are many different causes of CKD, the end result is a systemic disease involving every body organ (Holechek, 2004). The patients may develop to hemodynamic instability and potentially fatal complications on all organs system such as electrolyte imbalance, metabolic changes, hematological, gastrointestinal, immunologic, cardiovascular, respiratory, musculoskeletal, integument, neurological, reproductive, endocrine and psychosocial changes. ESRD patients are commonly encountered with various problems. Sign and symptoms include the following: headache, malaise, weakness, fatigue, anorexia, nausea, vomiting, peripheral neuropathy, restless legs, and anemia. In addition, for severe symptoms such as pleural effusion, pleuritis, hypertension, congestive heart failure, pericarditis, seizure, coma especially, hyperkalemia which are the life threatening of renal failure patients (Jittinan, 2002; Jones, 1992; Krause, 2004; Limaumnoylap, 1993; Smeltzer and Bare, 2004; Tantayotai and Intarasombat, 2000)

1.2 Hemodialysis treatment

Hemodialysis is a one of effective renal replacement therapy, which is the best evolution that implemented to maintain life in ESRD patients. It gives a chance of ESRD patients for prolong survival and prepare the patients to receive the kidney transplantation. Hemodialysis is usually to keep the patients alive until a suitable donor kidney is found. The survival rate of dialysis patients, at one year after dialysis begins; the survival rate is about 79%. After 5 years, the rate decreases to 33% (Luvera, 2000; Molzahn, 2005; Vanitchakarn, 1993).

Hemodialysis is the movement of fluid and molecules across a semipermeable membrane from one compartment to another. Clinically dialysis is a technique in which substance move from the blood through a semipermeable membrane and into dialysis solution. It is used to correct fluid and electrolyte imbalances and to remove waste products in kidney failure. A typical schedule is 3 to 5 hours of treatment 2 or 3 times per week. This schedule varies with the size of the patients, the type of dialyzer used, the rate of blood flow, the personal preference of the patients, and other factors

(Limpamnoylap, 1993; Molzahn, 2005; Smeltzer & Bare, 2004; Wilkens, 2000).

1.2.1 The goal of hemodialysis therapy.

1.2.1.1 To remove the end products of protein metabolism, such as urea and creatinine, from the blood.

1.2.1.2 To maintain a self concentration of serum electrolytes.

1.2.1.3 To correct acidosis and replenish the bicarbonate levels of the blood.

1.2.1.4 To remove excess fluid from the blood.

1.2.2 Indications for hemodialysis

1.2.2.1 Blood urea nitrogen (BUN) above 100 mg/dL and creatinine of 10 to 12 mg/dL or Glomerular Filtration Rate (GFR) lower rate 15 ml/min.

1.2.2.2 It may also be used to treat patients with edema that does not respond of treatment especially acute pulmonary edema.

1.2.2.3 Hyperkalemia that does not respond to medical treatment.

1.2.2.4 Metabolic acidosis that does not respond to alkaline therapy.

1.2.2.5 Complications from uremia; encephalopathy, pericarditis.

1.2.2.6 Relative indication such as malnutrition and a general lack of well-being.

These indications can use in both acute renal failure and chronic kidney disease but acute renal failure may be different from chronic kidney disease. Besides these indications the patients must to assess physical, psychological, and financial status before decided to receive chronic hemodialysis (Napatorn, 1999; Pisitkul & Auimong, 2002).

1.3 Impact of hemodialysis on patients.

The dialysis complications can occur at anytime during the treatment. These problems may be caused by the dialysis itself or exacerbation of pre-existing problems, which are:

1.3.1 Technical complications: Although dialysis technology has improved considerably, resulting in products of high quality but sometime there are technical problems. These primarily consist of membrane rupture, rupture dialyzer, air embolism, blood leak, overheating of dialysate solution, and clotting (Buranaosot, Pisitkul & Susilp, 2002; Jacobs, 1997; Limpamnoylap, 1993; Suwamathakul, 1994).

1.3.2 Complications.

1.3.2.1 Physical complications.

- Dysequilibrium syndrome: In some patients, blood urea nitrogen and other solute levels may drop quickly during the first hour or two of dialysis, especially when the pre-dialysis blood urea nitrogen level is quite high. This sudden shift in plasma solute concentration may cause a dysequilibrium between the osmotic concentration in the brain and the plasma, with resultant cerebral edema. Signs and symptoms of this disequilibrium syndrome may include headache, nausea, vomiting, restlessness and convulsions.

- Hypotention: Hypotention occurs during hemodialysis primarily results from rapid removal of vascular volume decreased cardiac output, and decreased systemic intravascular resistance. The drop in blood pressure during dialysis may precipitate light headedness, nausea, vomiting, seizures, vision changes, and chest pain from cardiac ischemia.

- Bleeding: The role of hemodialysis in the coreaction of the hemostatic abnormalities of uremia remains controversial, platelet adhesion and activation induced by blood-artificial surface interaction that might contribute to platelet dysfunction. Moreover, heparin therapy, used to inhibit clotting in the extracorporeal circuit, and occasionally induces thrombocytopenia. Hemorrhagic episode in uremic patients range from mild disturbances such as: echymosis, epistaxis, and purpura to more dramatic episodes such as gastrointestinal bleeding, hemopericardium, subdural hematoma and spontaneous bleeding retroperitoneal hemorrhage.

- Dysrhythmias: Dysrhythmias may be resulted by electrolyte and pH change or from removal of anti arrhythmic medication drugs.

- Infection: Infection is still the major cause of morbidity and mortality in patients with hemodialysis patients. Infection is secondary to cardiovascular disease as a cause of death in 16% of patients treated with hemodialysis, because of their efficient immune status and malnutrition, the process of dialysis and environment. The most common of infections are septicemia, vascular access site inflammatory, also received contaminated blood transfusion, especially hepatitis B, C and HIV (Latscha, Sarsat & Jungers, 2004).

- Muscle cramp: Painful muscle cramp is a common problem, usually late in dialysis as fluid and electrolytes rapidly left the extra cellular space.
- Headache: Headache is a common complication may be caused by dysequilibrium syndrome.
- Vascular access complications: Infection and thrombosis are the most common complication of arteriovenous fistular, including stenosis, failure of maturation, seroma, aneurysm formation, embolism, dislodgement, erosion of shunt site, and ischemic steel syndrome, which may cause pain and ischemia in some patients including local erythema, tenderness, and purulent drainage from incision site (Hayes, 2000).
- Hypertension: Persistent hypertension is a leading cause of CKD, can also develop as a complication and potential problem, especially for the dialysis patients.
- Hemolysis: The causes of hemolysis can conveniently be divided into following: specific to the patients such as infection, due to medications, due to insufficient dialysis, due to faulty dialysis equipments and procedure, and due to waterborne toxins.
- Anemia: It develops as a result of inadequate erythropoietin production, which is a substance normally produced by the kidney, stimulates bone marrow to produce red blood cell. In kidney failure, erythropoietin production decreases and profound anemia results, including the shortened life span of red blood cells and nutritional deficiencies.
- Malnutrition: ESRD patients can alter the body's response to insulin as well as other metabolic function (such as erythroietin formation and vitamin D metabolism). These change, coupled with a loss of appetite, nausea, and protein-urea, contribute to the development of protein-energy malnutrition.

1.3.2.2 Psychological effects: Despite rapid technological advances in the treatment of patients on hemodialysis, most treatment-related stressors have not been caused by technology so hemodialysis patients can be increased stress, anxiety and depression. Patients' lives are affected in many area (Jablonski, 2004; Jittinan, 2002; Limpamnoylap, 1993; Napatorn, 2000; Polaschek, 2003; Welch & Austin, 1999)

- Loss of normal body image: It is the stress associated with the changes in bodily appearance, because of uremic symptoms: skin dryness, itching, weakness, pale, bad urinous breath, edema around the eye, face and feet. And physical appearance was also altered by the presence of dialysis access sites. (Holchek, 2004; Limpamnoylap, 1993; Welch & Austin, 1999)

- Fear: Fear is also a common feature of hemodialysis patients. They fear about death, and life threatening from disease and treatment: infections and the subsequent possible loss, clotting, or revision of their access sites and feeling of uncertainty generate a significant portion of this fear. They are unsure how they will physically react to each treatment session and also question how long they can expect to survive on maintenance dialysis.

- Dependant: Hemodialysis patients concern about altered relationship between autonomy and dependence inherent in living on dialysis and sometime they want to be free (Polscheck, 2003).

- Limitation of life: The most frequency problems are lifestyle changes or modification. They lose amount of time while on dialysis and their inability to participate in value activities. There are limitations of food; water and inability to eat favorite food also are stressful for these patients.

1.3.2.3 Family and social effects:

- Loss of job: Hemodialysis patients' loss amount of time on dialysis, these are interfered their jobs and role reversal, so they have risk for ineffective family coping related to chronic illness.

- Loss of member in group: Hemodialysis patients decrease in social life because they have extended period of treatments.

1.3.2.4 Financial effects: The cost of hemodialysis is approximate 20,000-30,000 baht per month and not including the expense for travel and food, especially they are not coverage by universal coverage. If the patients are not the government officers they couldn't reimbursement so they have financial burden which make them more stress.

Despite hemodialysis it is effectively, the patients are suffered to a greater or lesser degree from a range of symptoms. Both caused of the effects of ESRD, that renal replacement therapy can not fully eliminate, and the hemodialysis treatment

itself make hemodialysis patients have to change lifestyle and health behaviors to decrease complications and severity of disease. They should do by involving dietary restrictions, good eating habits, and reducing protein. These may eliminate uremic symptom, which affects multiple body systems. They should restrict fluid to reduce volume overload and have more health responsibility about avoiding risk behaviors and observing their complications from disease and treatments. They should cope with stress and seek for stress management. It is necessary to hemodialysis patients to have hope and interpersonal relations, which make them receive more supportive. Because of the reasons as mentioned, the changing appropriate lifestyles and health behaviors with disease and treatments should help them live with the optimum health and well-being.

2. Health- Promoting Behaviors

Health- promoting behaviors is an expression of the human actualizing tendency. Which is directed toward optimal well-being, personal fulfillment, and productive living. Health-promoting behaviors are defined as follow:

Palank (1991) defined health behavior as the person initiative in each period of age to retain of health condition and self-esteem. Production behaviors would reduce the change of having disease.

Gochman (1982) defined the definition of health behavior which can be used in practice as person characters such as belief, expectation, motivation, value, perception, and distinct behavior like doing and habit which related to health promotion, regaining of health and health prevention (Gochman, 1982 cited by Glanz, 1997).

Green & Kreuter (1991) stated that health promotion means the sum of total educational and environmental support, which results in a better way of life.

Murray & Zenger (1993) defined the definition of health-promoting behavior as the activities which help raise person health higher and more comfort, the highest of family, community and social potential.

Pender (1996) stated that health-promoting behavior is directed toward in increasing the level of well-being and self-actualization of a given individual or group. Health promotion focus on efforts to approach or move toward a positively balance state of health and well-being.

It could be summarized that health-promoting behavior means the practice of an activity that lead to a good health, physical, mental, social, and spiritual which will lead to well being.

2.1 Health Promotion Model

Pender developed the Health Promotion Model (HPM) in 1982 and revised it in 1987 and again in 1996. The HPM integrates nursing and behavioral science perspectives on factors that influenced human health behavior (Pender, 1996, Pender et al., 2002). The model focused on the efforts to approach or move towards a positively valence state of optimum health and well-being.

In Pender's Health Promotion Model, the factors influencing health- promoting behavior consist of 3 components. Those factors include individual characteristics and experiences, behavior specific cognitions and affect, and behavioral outcome. The model is presented in Figure 2. Each component in the model is described as follow;

2.1.1. Individual Characteristics and Experiences

Each person has unique personal characteristics and experiences that affect subsequent actions. How important the effect will depend on the target behavior considered. The aspects of prior behavior or individual characteristics selected for measurement provide flexibility in the HPM to capture variables that may be highly relevant to particular health behavior but not all health behaviors or in particular target population.

- Prior related behavior

Empirical studies indicate that often the best predictor of behavior is the frequency of the same or similar behavior in the past. Prior behavior is proposed as having both direct and indirect effects on the likelihood of and individual engaging in health-promoting behavior. The direct effect of past behavior on current health promoting behavior may be due to habit formation, predisposing one to engage in the behavior automatically, with little attention to the specific details of its execution. Habit strength accrues each time the behavior occurs and it most facilitated by concentrated, repetitive behavior. Prior behavior also has an indirect influence on health-promoting behavior through perception of behavior-specific cognitions and affect.

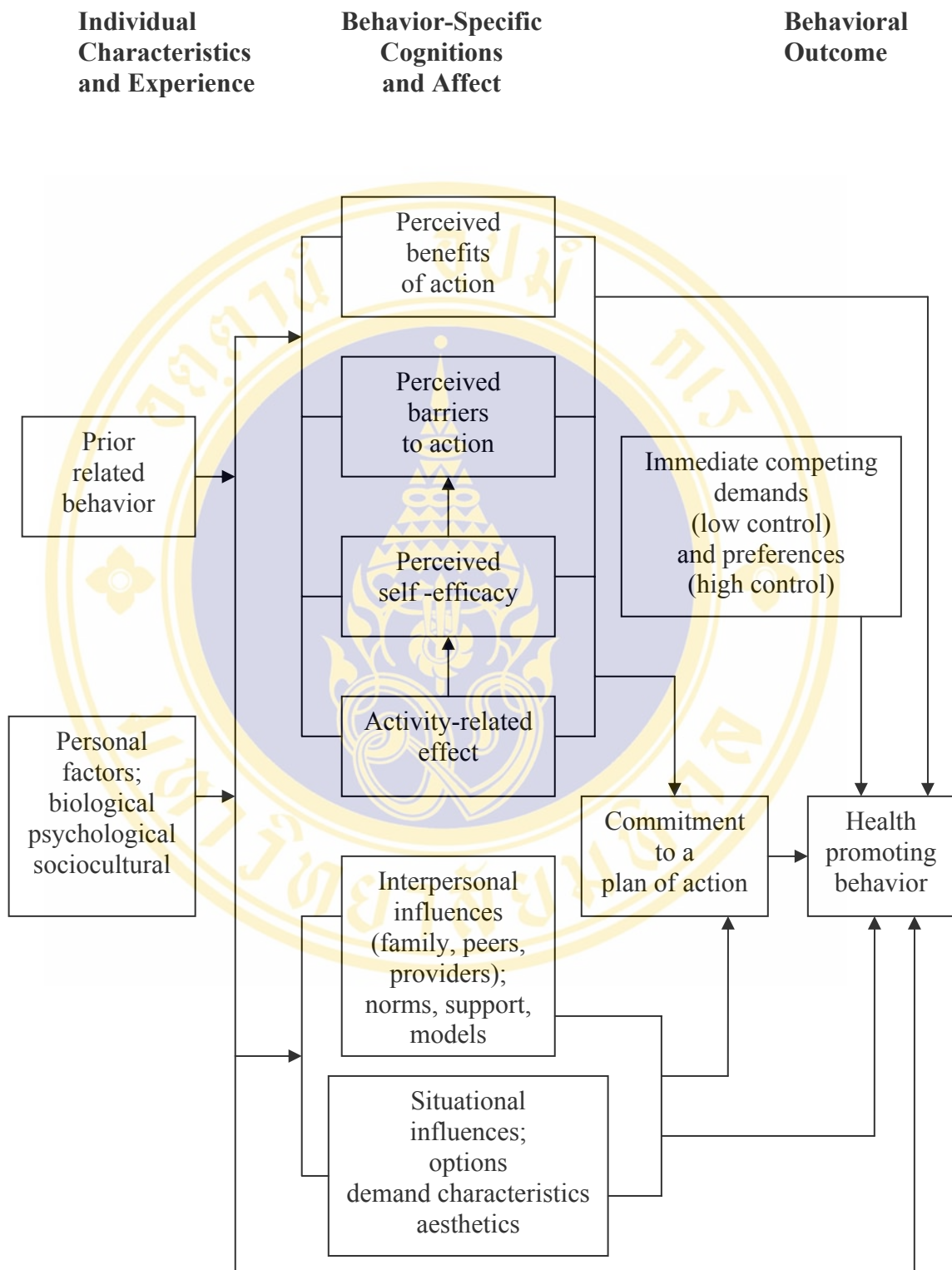


Figure 2. Pender's Health Promotion Model (revised) (Pender, 1996)

- Personal factors

The relevant personal factors predictive of a given behavior are shaped by the nature of the target behavior considered. Personal factors have been categorized as biological, psychological, and sociocultural. Biological factors include age, gender, body mass index, pubertal status, menopausal status, aerobic capacity, strength, agility, and balance. Psychological factors include self-esteem, self motivation, personal competence, perceived health status, and one's definition of health. Sociocultural factors include race, ethnicity, acculturation, education, and socioeconomic status. Personal factors are proposed as directly influencing behavior-specific cognitions and affect as well as health-promoting behavior.

2.1.2. Behavior-Specific Cognitions and Affect

This category of variables within the HPM is considered to be of major motivational significance. Furthermore, these variables constitute critical core for intervention, and are subject to modification through nursing actions.

- Perceived benefits of action.

According to Pender (Pender et al., 2002:69-70), one's plan to engage in a particular behavior is proposed as hinging on the anticipated benefits or outcomes. In the HPM, perceived benefits are proposed as directly motivating behaviors as well as indirectly motivating behaviors through determining the extent of commitment to a plan of action to engage in the behaviors from which the anticipated benefit will result. Anticipated benefits of action are mental representations of the positive or reinforcing consequences of a behavior.

- Perceived barriers to action

In relation to health promoting behaviors, barriers may be imagined or real. They consist of perceptions concerning availability of resources or the inconvenience, expense, difficulty, or time consuming nature of a particular action. Barriers are often viewed as blocks, hurdles, and personal cost of undertaking a given behavior. Loss of satisfaction from giving up health-damaging behaviors such as smoking or greasy food to adopt a healthier lifestyle can also constitute a barrier. Barriers usually arise from avoidance motives in relation to a given barrier.

- Perceived self-efficacy

Self-efficacy is a construct of social learning theory that has been discussed in detail by Bandura (1997). Self-efficacy is the judgment of personal capability to organize and execute a particular course of action. It is concerned not with the skill one has but with judgments of what one can do with whatever skill one possesses. Judgments of personal efficacy are distinguished from outcome expectations. Perceived self-efficacy is a judgment of one's abilities to accomplish a certain level of performance. Self-efficacy motivates health promoting behaviors directly through efficacy expectations and indirectly by affecting perceived barriers and commitment or persistence in pursuing a plan of action.

- The activity-related affect

Subjective feeling states occur prior to, during, and following an activity, based on the stimulus properties associated with the behavioral event. The activity-related affect consists of three components: emotional arousal to the act itself, the self acting, or the environment in which the action takes place (context related). The resultant feeling state is likely to affect whether an individual will repeat the behavior again or maintain the behavior long term. The affect associated with the behavior reflects a direct emotional reaction or gut-level response to the thought of the behavior, which can be positive or negative- is it fun, delightful, enjoyable, disgusting, or unpleasant? Behavior associations with positive affect are likely to be repeated, whereas those associated with negative affect are likely to be avoided.

- Interpersonal influences

According to the HPM, interpersonal influences are cognitions concerning the behaviors, beliefs, or attitudes of others. These cognitions may or may not correspond with reality. Primary sources of interpersonal influence on health promoting behaviors are families (parent and siblings), peers, and health care providers. Interpersonal influences include norms (expectations of significant others), social support (instrumental and emotional encouragement), and modeling (vicarious learning through observing others engaged in a particular behavior). In the HPM, interpersonal influences are proposed as affecting health promoting behaviors directly as well as indirectly through social pressures or encouragement to commit to a plan of action.

- Situational influences

Personal perceptions and cognitions of any situation or context can facilitate or impede behavior. Situational influences on health promoting behavior include perceptions of options available, demand characteristics, and aesthetic feature of environment in which a given behavior is propose to take place. Environments that are fascinating and interesting are also desirable contexts for the performance of health behaviors.

2.1.3. Behavior outcome

Commitment to plan of action initiates a behavior event. This commitment will propel the individual into and through the behavior unless a competing demand that preference that the individual does not resist intervenes.

- Commitment to a plan of action

Commitment to plan of action in the HPM implies the underlying cognitive processes: 1) commitment to carry out a specific action at a given time and place and with specified persons or alone, irrespective of competing preferences; 2) identification of definitive strategies for eliciting, carry out, and reinforcing the behavior. The requirement of identification of specific strategies to be use at different points in the behavior sequence goes beyond intentionality to further the likelihood that the plan of action developed by nurse and client will be successfully implemented.

- Immediate competing demands and preferences

Immediate competing demands and preferences refer to alternative behaviors that intrude into consciousness as possible causes of action immediately prior to the intended occurrence of a planned health promoting behaviors. Competing demands are viewed as those alternative behaviors over which individuals have a relatively low level of control because of environmental contingencies such as work or family care responsibilities. Failure to respond to a demand may have untoward effects for the self or for significant others. Competing preferences are viewed as alternative behaviors with powerful reinforcing properties over which individuals exert a relatively high level of control. Both competing demands and preferences can derail a plan of action to which one has committed.

- Health-promoting behavior

Health-promoting behavior is the endpoint or action outcome in the HPM, which is ultimately directed toward attaining positive health outcomes for the client. Health promoting behavior, particularly when integrated into a healthy lifestyle that pervade all aspects of life, should results in improved health, enhance functional ability, and better quality of life at all stages of development. Health promoting behavior can be divided into the following six aspects: health responsibility, physical activity, nutrition, interpersonal relations, stress management, and spiritual growth.

2.2 Health-promoting behaviors of hemodialysis patients

Hemodialysis patients should perform health-promoting behaviors regularly in 6 aspects as follow:

2.2.1 Nutrition behavior: When damaged kidneys cannot excrete end products of metabolism, these substances accumulate in the serum as toxins. The resulting symptoms, collectively known as uremic symptoms or uremic syndrome, affect every body system. The more toxins that accumulate, the more severe the symptoms. Diet is important factor for hemodialysis patients because of effects of uremia. Goal of nutritional therapy are to minimize uremic symptoms, and fluid and electrolyte imbalances, to maintain good nutritional status through adequate protein, caloric, vitamin, and mineral intake (Holechek, 2004; Jacobs, 1997; Rutanakul, 1994; Wilkens, 2000). Limitation of the nutrition is very complicated. Nurse should explain them as follow:

Protein: Protein is restricted because blood urea nitrogen (BUN) is an end product of protein metabolism. For the patients who are not undergoing dialysis, one guide is to restrict protein intake to 0.6 to 0.75 g/Kg of idea body weight (IBW) per day. Once the patient starts dialysis, protein intake can be increased to 1.2-1.3g/Kg of IBW per day and can be increased depending on the individual needs of the patient. At least 50% of protein intake should have high biologic value containing all of the essential amino acid (e.g. egg, meat, fish, and poultry). These can be used more efficiently with less nitrogenous waste (Holechek, 2004; Jacobs, 1997).

Calories: It is also important to provide adequate calories from carbohydrates and fat are need to minimize catabolism of body protein and to maintain body weight. Therefore 100 g. of carbohydrates and an appropriate amount of fat are prescribed to

maintain and intake of 30 to 45 kcal/ kg body weight per day (Holechek, 2004; Jacobs, 1997).

Potassium: Potassium usually requires restriction, depending on the individual's body size, serum potassium level, and frequency of dialysis. High intake would affect muscle action, especially the heart. High levels can cause the heart to stop. Low levels can also cause symptoms, such as weakness. High potassium can be found in fruits and vegetables such as orange, banana, durain, tomato, tamarind and chocolate. Patients must be reminded not to use salt substitutes because they contain potassium chloride (Wilkins, 2000).

Calcium and phosphorus: Calcium and phosphorus are needed for strong bone. They have a "see-saw" relationship, thus when phosphorus is up, calcium is down. The ratio should be kept within normal for strong bones. High phosphorus food should be avoided such as: milk, milk products, dried beans, peas, nut, and meat. Adequate calcium intake is important. Dietary sources may be supplemented with calcium carbonate, calcium lactate, or calcium gluconate (Molzahn, 2005; Wilkins, 2000).

Fat: Almost all patients with uremia develop hyperlipidemia, which elevated very-low-density lipoproteins, normal or decreased low-density lipoproteins (LDLs), and lowered high-density lipoproteins (HDLs), which increased serum triglyceride levels. These may contribute to the high incidence of atherosclerosis and cardiovascular disease. Hemodialysis patients should avoid high cholesterol foods such as: animal oil, egg yoke, fresh milk, coconut milk, and desserts made from egg (Holechek, 2004; Rutanakul, 1994).

Fluid and sodium: Dialysis patients with hypertension and edema may need to restrict intake for sodium and fluid. Even those who do not experience these symptoms, but who put out minimal urine, will benefit from a reduced sodium intake, to limit their thirst and prevent large intradialytic fluid gain. The recommended intake of sodium for the vast majority of patients is 2 to 3 g/day. Because solid foods in the average diet contribute approximately 500 to 800 ml. of fluid, these foods will replace the 500 ml. of net insensible water loss. Additional fluid is given to replace urinary and vomitus losses. When conducting about fluid balance, the health care provider must teach the patients how to deal with thirst without drinking. Sucking on a few ice

chips, cold slice fruit, or sour candies; using a spray mouthwash, or chewing gum containing citric acid may help to alleviate the dryness (Holechek, 2004; Jacobs, 1997; Wilkens, 2000).

2.2.2 Physical activity

Benefit of physical activity include weight maintenance, lower blood pressure, improve mood, relief from depression, improve sense of well being, decrease of type2 diabetes, reduce mortality from coronary heart disease, and increase level of peak bone mass (Hellson, 2005). So, Hemodialysis patients should perform activity to maintain good health. The exercise of hemodialysis patients should be at a moderate level of activity such as 30-40 minutes brisk walking 3 to 5 times per week will be beneficial, or up to the individual ability. Because the limitation of disease will lessen the endurance of work and exercise (e.g. anemia, fatigue). Many activities that are a part of most people's daily routine can serve as the mode of a physical activity program, including walking, housework, child care, and gardening but hemodialysis patients should be avoid activity at level that are physiologically untenable or result in untoward symptoms.

2.2.3 Health responsibility

Health responsibility is concerned with paying attention to and accepting responsibility for one's own health, being education about health, and seeking professional assistance when necessary. The necessary health responsibilities for hemodialysis patients are found to be taking prescribe medicine regularly, seeking for health information, performing self-observation their complications of disease and treatment, personal hygiene, and avoiding risk factors. Information can be sought after through several media such as television, magazines, internet, and others. Effective in seeking for health information depends on individuals' characteristics, effectiveness of communication, and accessibility of health information. Hemodialysis patients should know what problems to report to the health care provider: nausea, vomiting, cramp, muscle weakness, and assess the vascular access for patency, including caring for vascular access (Hayes, 2000), they should:

- Report sign of infection, including redness, warmth, drainage, swelling, unusual tenderness, or fever over 101°F (38.3°C) to their health care providers and dialysis center.

- Feel for a thrill at your access site daily and after any episodes of low blood pressure (BP), hypotension, dizziness, or light-headedness. Call their health care providers or dialysis center immediately if they can't feel a thrill.
- Avoiding sleeping on the access arm.
- Avoiding carrying anything that weights more than 2.3 kg or carrying anything draped over their access arm. Don't wear tight clothing over the access.
- Immediately report any numbness, pain, coldness, loss of motion, or reduction in sensation of the access arm or hand to their health care providers.
- Immediately report if the access site suddenly bulges more than usual.
- Not let anyone take BP, perform venipuncture, or start an I.V. line in the access arm.

2.2.4 Interpersonal relations

Interpersonal relation is personal skill in communicating with other persons in a meaningful way. Hemodialysis patients should have a relationship with their friends or other people in the society or in the family to exchange their opinion and share their feeling. In human interaction, individual and groups both give and receive social support, a reciprocal process and interactive resource that provide comfort, assistance, encouragement, and information (Pender et al., 2002) for hemodialysis patients.

2.2.5 Stress management

Stress is linked to decreased life satisfaction, the development of mental disorders, the occurrence of stress-related illness, and decreased immunologic functioning (Pender et al., 2002). Chronic dialysis patients are subjected to multiple physiological and psychosocial stressors and may be threatened with many potential losses and lifestyle changes (Lok, 1996). So they should find the appropriate strategies to manage the stress such as: reading, watching television, doing hobbies, sleeping enough, and relaxation training program (music therapy, biofeedback, meditation, visualization).

2.2.6 Spiritual growth

Spiritual health is the ability to develop one's spiritual nature to its fullest potential, including the ability to discover and articulate one's basic purpose in life, to learn how to experience love, joy, peace, and fulfillment, and how to help

themselves and other achieve their fullest potential (Pender et al., 2002). Hemodialysis patients are lack of self confident and self-esteem. So they should develop spiritual growth, which related to religion and their practices. They should have hope, which is a relational theme that describes the importance of seeing new possibilities (Rittman, Northesea, Hausauer, Green, & Swanson, 1993).

3. Factors influencing on health promoting behaviors of hemodialysis patients.

3.1 Perceived self-efficacy in health promoting behavior

In Health Promotion Model (HPM), perceived self-efficacy is a behavior-specific cognition and affects factors, which influencing on health-promoting behavior. Perceived self-efficacy, as defined by Bandura, is a judgment of one's ability to organize and execute given types of performances (Bandura, 1997). It is concerned not with the skill are has but with judgments of what can do with what ever skill are possesses (Pender et al., 2002). Belief of personal efficacy constitutes the key factor of human agency. If people believe they have no power to produce results, they will not attempt to make things happen (Bandura, 1997: 3). Bandura believes that personal behavior depends on two factors, which are beliefs of personal efficacy and outcome expectations. The causal relationship between beliefs of personal efficacy and outcome expectation is depicted in Figure 3.

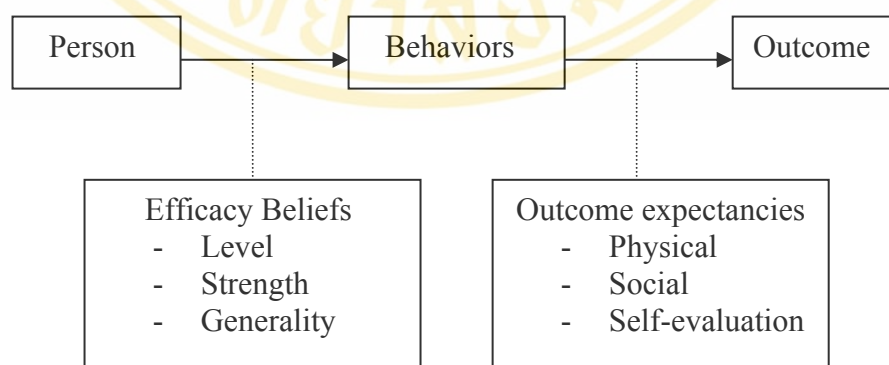


Figure 3. The relationship between efficacy beliefs and outcome expectancies
(Bandura, 1997: 22)

From the theory of the perceived self-efficacy and the outcome expectation, there is influence on the decision to express or behavior. A person who has the perceived self-efficacy and the outcome expectation will be determined to perform that activity. Conversely, a person with low perceived self-efficacy and low expectation would sure not be determined to perform that activity. However, if a person with low perceived self-efficacy and high expectation or high perceived self-efficacy and low expectation will not be determined to perform that activity (Bandura, 1997). In addition, perceived self-efficacy has an effect on doing successful complex activity because self-confidence in one own efficacy will be an indicator of the level of personal endeavor to work. For the person who is confident that he or she can do such activity will not be afraid to behave and will try to do the activity without desperation. The success in doing the complex activity and receiving the aimed result will be reinforcement for perceived self-efficacy for the person to behave. But these who fail to do the activity successfully or give it up will have low perceived self-efficacy, and that means the avoidance to behave.

Self-efficacy beliefs are constructed from four principal sources of information: (Bandura, 1997).

1. Enactive mastery experiences are the most influential source of efficacy information because they provide the most authentic evidence of whether one can muster whatever it takes to succeed. The relative power of guided enactive mastery to create and strengthen efficacy beliefs has been compared with other modes of influence such as modeling of strategies, cognitive simulations of successful performances, and tutorial instruction

2. Vicarious experiences that alter efficacy beliefs through transmission of competencies and comparison with the attainments of others. More often in everyday life, people compare themselves to particular associates in similar situations, work associates, competitors, or people in other settings engaged in similar endeavors. People are motivated by the successes of others who are similar to themselves but are discouraged from pursuing courses of behavior that they have seen often result in adverse consequences.

3. Verbal persuasion, social persuasion serves as a further mean of strengthening people's beliefs that they possess the capabilities to achieve what they seek. To extent that persuasive boosts in perceived efficacy lead people to try hard enough to succeed.

4. Psysiological and affective states, in judging their capabilities, people rely partly on somatic formation conveyed by physiological and emotion states. Mood states also affect people's judgments of their personal efficacy. Physiological indicators of efficacy play an especially influential role in health functioning and the activities requiring physical strength and stamina.

The idea of perceived self-efficacy has been widely used in supporting health-promoting behaviors, perceived self-efficacy as mediator between knowledge and behavior. This has influenced on choice of the behavior creating an environment to facilitate the behavior and creates endeavor to succeed in the performance.

Perceived self-efficacy is a powerful which Bandura (1997) and Pender (1996) belief that influencing on health behaviors. Several studies show the relationships between perceived self-efficacy and health behaviors in healthy people and chronic illness patients as follow:

Robertson & Keller (1992) studied relationships among health beliefs, self-efficacy, and exercise adherence in patients with coronary artery disease. The purpose of this study was to develop a model to identify the relationships among variables that were explanatory of adherence to a recommended exercise regimen for individual who had under gone coronary artery by pass graft (CABG) or percutaneous transluminal coronary angioplasty (PTCA). The study found that perceived barriers, benefits severity, self-efficacy, and type of surgery explained 31% of the variance in exercise adherence.

Stuifbergen & Beeker (1994) studied predictors of health-promoting lifestyle in persons with disabilities. The subjects were 117 adults with disabilities. The study found that the correlations between measures of health-promoting behaviors and specific self-efficacy were significantly ($p < .05$).

Hale & Trumbetta (1996) studied women's self-efficacy and sexual transmitted disease (STD) preventive behaviors. The study found that perceived risk and self-efficacy predicted 19% of behaviors risk for STD. Self-efficacy was highest for communicating about STD prevention.

Lev & Owen (1998) studied self-care self-efficacy over time and the relationship of subjects' self-care self-efficacy with adjustment to hemodialysis. Data were collected on three occasions baseline within 100 days of beginning treatment, 4 months after beginning treatment, 8 months beginning treatment. The results showed significant correlations occurred between self-care self-efficacy and mood states, health status, symptom distress and perceived adherence to fluid restrictions ($p < .05$) and the changes were more positive at 4-months than 8-months.

Habkonglek (2000) studied perceived self-efficacy and health-promoting behaviors of chronic renal failure patients with continuous ambulatory peritoneal dialysis (CAPD). The study found that perceived self-efficacy and family income were able to predict 29.1% of variance of health-promoting behaviors of chronic renal failure patients with CAPD.

Jinantuya (2001) studied a causal model of exercise behavior of the elderly in Bangkok metropolis. The study found that the correlations between self-efficacy and exercise behavior were significantly.

Ann (2002) studied factors affecting health-promoting behavior of diabetic patients care at Trat Hospital. The study found perceived self-efficacy could explain 41.6% of the variance of health-promoting behavior ($p < .001$).

Duangjinda (2004) studied the relationship between perceived self-efficacy, perceived barriers to action and health-promoting behavior of professional nurses. The subjects included 140 professional nurses. The study found that the correlations between incomes, perceived self-efficacy, perceived barriers to action and health-promoting behavior were significantly.

Tantayothin (2004) studied factors influencing nutritional and exercise behaviors of hypertensive patients in Sainoi district, Nonthaburi province. The subjects were 180 essential hypertensive patients. The results of the study showed perceived self-efficacy, perceived benefits, and marital status were able to predict 36.9% of the variance in nutrition behaviors ($p < .001$). Furthermore, perceived benefits, perceived self-efficacy, and perceived barriers could explain 35.4% of the variance of exercise behaviors in essential hypertensive patients ($p < .001$).

3.2 Individual characteristic and experience (personal factors)

Personal factors is one factor that influencing on health promoting behaviors (Pender et al., 2002). In this study, the researcher selected to study as follow:

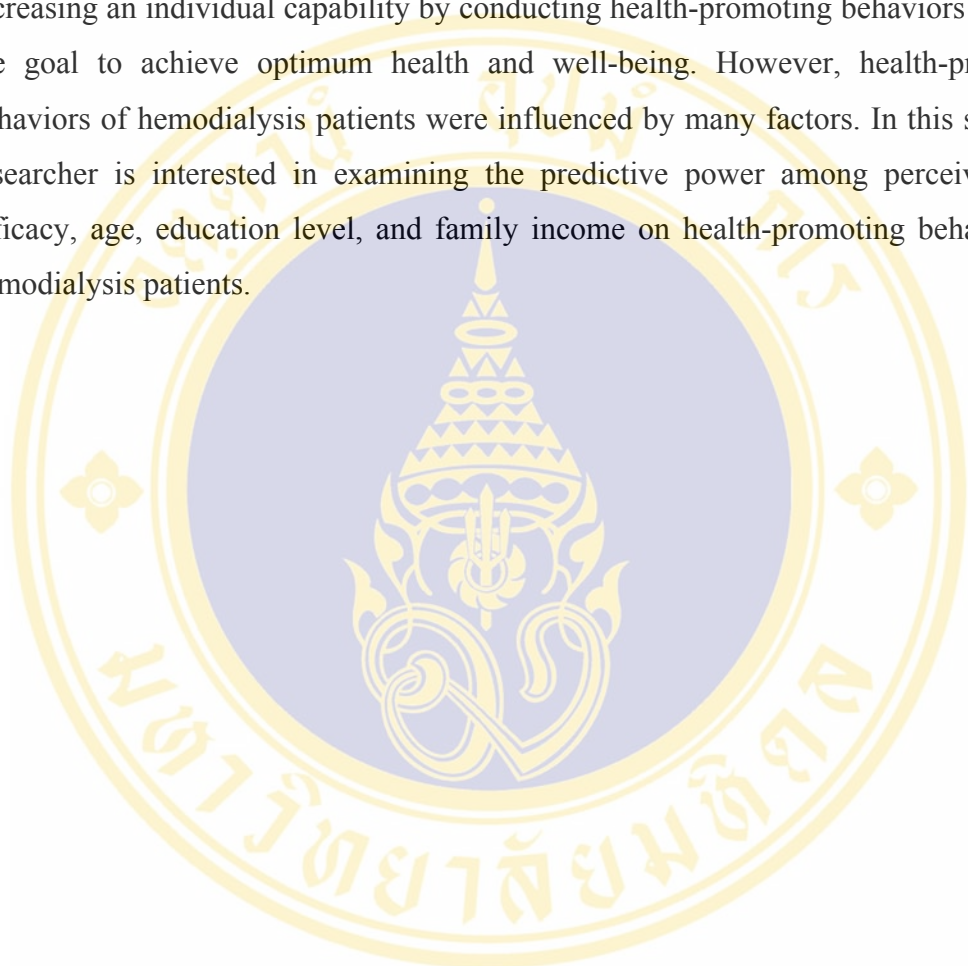
3.2.1 Age: Age is a biologic factor which related the experiences in the past and influenced on health- promoting behaviors (Pender et al., 2002). According to the study of Bagwell & Bush (2002) studied health promotion in Blue-collar workers. The study found that older workers scored significantly higher on nutrition, while younger workers scored significantly higher on exercise and older workers had higher scored on role performance and self actualization than younger workers. The same as Leeterakul (1998) found that health perception and age were able to predict of the variance of health-promoting behaviors in pregnant hepatitis B carriers ($p < .05$).

3.2.2 Education level: Education level is a sociocultural factors which influencing on health- promoting behaviors. High- risk behaviors have been inversely correlated with lower education levels. Higher educational levels enable persons to access and understand health-related information (Pender et al., 2002). From the study of Suwannaka (1989) found that education level was related to health behaviors of hepatitis B patients. Which correspond with the study of Ann S (2002) found that education level was positively correlated with health- promoting behaviors of diabetic patients. However, Habkonglek (2000) found that education level has no relationship with health- promoting behaviors of chronic renal failure patients with continuous ambulatory peritoneal dialysis (CAPD).

3.2.3 Family income: Income is a powerful variable that explains health status. Higher incomes facilitate access to care, better housing in safer neighborhoods, and increased opportunities for healthy food purchases as well as health promotion programs (Pender et al., 2002). According to the study of Habkonglek (2000) found that family income has positive relationship with health- promoting behaviors, and perceived self-efficacy and family income were able to predict 29.10% of variance of health-promoting behaviors of CAPD patients. Similar to a study of Laongphol (2000) found that income has positive relationship with preventing of infections and observing the complications in patients with opened fracture of lower extremities after receiving external fixation and Ann (2002) found that family income was positively correlation with health- promoting behaviors of diabetic patients.

4 Conclusions

Based on the review of literature and existing related researches. It can be concluded that, hemodialysis patients are confronted to complications and many problems from diseases and treatments. Therefore, they should adjust their lifestyles to increasing an individual capability by conducting health-promoting behaviors which is the goal to achieve optimum health and well-being. However, health-promoting behaviors of hemodialysis patients were influenced by many factors. In this study the researcher is interested in examining the predictive power among perceived self-efficacy, age, education level, and family income on health-promoting behaviors of hemodialysis patients.



CHAPTER III

METHODOLOGY

This research is a descriptive research design which determines the perceived self-efficacy in health-promoting behaviors and health-promoting behaviors of hemodialysis patients.

Population and Sampling

The population of this research are the kidney failure patients who are 18 years old or above and are treated by hemodialysis twice a week at Hemodialysis Unit of The Kidney Foundation of Thailand at Galyanivadhana Building, The Priest's Hospital and Renal Unit of Police General Hospital.

The subjects were recruited by using inclusion criteria as following:

1. Had been treated by chronic hemodialysis for at least 6 months.
2. Were able to understand Thai language.
3. Had good visual and hearing.
4. Had willingness to participate.
5. In case, the subjects were 60 years old and older, they should have screened for cognitive impairment by using Chula Mental Test (CMT). The total score was at least 15.

Sample size

A sample size at least 130 participations was required based on power analysis for multiple regression to provide a power of 0.95 and $\alpha = .05$ to estimate multiple regression in a medium effect size with four independent variables (Polit & Beck, 2004).

In this study there were 132 subjects from two settings, which were 126 subjects from Hemodialysis Unit of The Kidney Foundation of Thailand at Galyanivadhana Building, The Priest's Hospital and 6 subjects from Renal Unit of Police General Hospital.

Setting

This study was conducted for hemodialysis patients who received hemodialysis twice a week at

1. Hemodialysis Unit of The Kidney Foundation of Thailand at Galyanivadhana Building, The Priest's Hospital, which the patients came on Monday and Friday, Tuesday and Saturday, and Thursday and Sunday.

2. Renal Unit of Police General Hospital which the patients came on Monday and Thursday, and Tuesday and Friday.

The two settings are non profit hospital while Hemodialysis Unit of The Kidney Foundation of Thailand and Police General Hospital is the government hospital. The hemodialysis patients of these two setting will get better chance to receive treatment and advice from a health care specialist while they were waiting for receiving homodialysis. They also got recommendation and information regard to health-promoting behaviors from nurses and physicians.

Research Instruments

Two mains types of instrument were used in the study including instrument for cognitive screening and instrument for gathering data.

1. Instrument for cognitive screening

The Chula Mental Test (CMT) was used to screen for cognitive impairment if the patients were 60 years old and older, which criterion validity had been proved. It consisted of 13 questions include age, time, registration of three things, month, person, rice, do follow, proverb speak follow, judgment, count 10 to 20, naming objects, and subtraction. Registrations of three things and subtraction have 3 scores. Remember of persons and naming objects have 2 scores and the others have 1 score. A total score ranges from 0 to 19 (Appendix F). A total score less than 15 is considered having cognitive impairment. Sensitivity for screening dementia ranged from 83% to 100% and specificity ranged from 90 % to 94% (Jitapunkul, 2001).

2. Instruments for gathering data

The instruments for gathering data were questionnaires for interviewing which consisted of three parts: (1) the demographic data questionnaire, (2) self-efficacy in health-promoting behaviors questionnaire, and (3) health-promoting behaviors questionnaire. The details about these were:

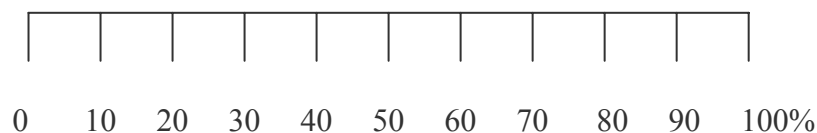
2.1. The demographic data questionnaire. The demographic data consisted of gender, age, marital status, occupation, education level, and family income.

2.2. Self-efficacy in health-promoting behaviors questionnaire. This questionnaire was developed by researcher based on Bandura's concept of self-efficacy. The questionnaire used to measuring self-efficacy in health-promoting behaviors of hemodialysis patients. It consisted of 22 items and divided into 6 aspects of self-efficacy in health-promoting behaviors as follow:

- 2.2.1. Nutrition behavior 4 items (item 1-4)
- 2.2.2. Physical activity 3 items (item 5-7)
- 2.2.3. Health responsibility 5 items (item 8-12)
- 2.2.4. Interpersonal relations 4 items (item 13-16)
- 2.2.5. Stress management 3 items (item 17-19)
- 2.2.6. Spiritual growth 3 items (item 20-22)

The response scale ranged from 0-100 %. The number on the response scale represented the percentage of self-efficacy in health-promoting behaviors of hemodialysis patients.

Non confident moderately confident Very confident



After the researcher read through each item, the subjects would be asked to indicate the percentage of their confidence from the card. The interpretation of self-efficacy in health-promoting behaviors could be made after dividing the entire scores by the responded number of items. Thus, a possible range of scores is 0% to 100%. High percentage indicates high level of perceived self-efficacy in health-promoting behaviors.

2.3. Health-promoting behaviors questionnaire. This questionnaire was developed by researcher based on Health Promoting Lifestyle Profile of Walker and Pender (Pender, 1996; 134), Suwonnaroop (1999), and Habkonglek (2000), which consisted of 54 items and divided in to 6 aspects as follow:

2.3.1. Nutrition behavior 10 items (item 1-10)

2.3.2. Physical activity 8 items (item 11-18)

2.3.3. Health responsibility 11 items (item 19-29)

2.3.4. Interpersonal relations 9 items (item 30-38)

2.3.5. Stress management 8 items (item 39-46)

2.3.6. Spiritual growth 8 items (item 47-54)

The answers were classified in to 4 rating scales as follow:

Regularly means the patients who practiced health promoting behaviors regularly or daily.

Frequently means the patients who practiced health promoting behaviors frequently or nearly everyday.

Sometimes means the patients who practiced health promoting behaviors occasionally or someday.

Never means the patients who had never practiced that health promoting behavior.

Score assignment

The levels of measurement of the scores were classified into 4 levels.

Never was assigned 1 point

Sometimes was assigned 2 points

Frequently was assigned 3 points

Regularly was assigned 4 points

A subject's total health-promoting behaviors score is the score obtained by calculating a mean of the subject's responses to all 54 items. A total possible health-promoting behaviors score and each subscale score ranges from 1 to 4.

Interpretation of the average scores

1.00-2.49 means health promoting behaviors of patients are poor.

2.50-3.49 means health promoting behaviors of patients are rather good.

3.50-4.00 means health promoting behaviors of patients are good.

Validity and Reliability of Instruments

Validity

The assessment of instruments for gathering data particularly the questionnaires were initially submitted for testing their validities of contents by five experts. They were one nephrologist, two expert nurses who working with hemodialysis patients, and two nursing instructors. The suggestions from five experts were incorporated in the final revision of the questionnaires.

Reliability

The revised questionnaires were initially tried out with 30 hemodialysis patients who had similar characteristics to the sample and tested for their reliabilities by using Cronbach's alpha Coefficient.

Results of the reliability of the questionnaires were:

1. The perceived self-efficacy in health-promoting behavior questionnaire = 0.87
2. The health-promoting behaviors questionnaire = 0.89

Data collection

All data were collected by the researcher following these steps:

1. Prior to data collection, permission for collecting data was obtained from the Ethical Clearance Committee on Human Right Related to Researches Mahidol University and Police General Hospital. After the permission was granted, the letters were sent to head nurses of Hemodialysis unit of The Kidney Foundation of Thailand and Renal Unit of Police General Hospital by Graduate studies, Mahidol University.

2. The patients were approached and assessed in order to gain their agreements to participate in this study while they were waiting for hemodialysis or receiving hemodialysis. It was such a good time to talk with the patients. The researcher introduced herself, provided an explanation about consent for participation, including the purpose of the study, the assurance of confidentiality and freedom to withdraw from the study at any time. This would not affect the treatments that they received.

3. The patients who participated were interviewed to complete the questionnaires respectively for about 30-45 minutes.
4. After finishing the interview, the researcher thanked the subjects for their participation.
5. The researcher prepared all the completed questionnaires for data analysis.

Protection of Human Subjects

This research was approved by the Ethical Committee on Human Rights Related to Researches of Mahidol University and Police General Hospital. Before collecting the data, potential participants were informed about the purposes of the study and their right to refuse to participate or to withdraw from the study at any time. They were ensured that their names would not be attached to the data, but a code number would be used instead. Besides, the participants were informed that data would be kept confidentially. The results of this study would be present by the group, not by individual. There was no negative effect of the study on the subjects except only inconvenience because they would ask to take time to answer questionnaires that took about 30-45 minutes. If the researcher found that some patients had incorrect behavior, the researcher instructed and encouraged them to perform health-promoting behavior at home. If the potential participants decided to be in the study, they were asked to sign consent form (Appendix F).

Data Analysis

Data were analyzed by using statistical software as follow:

1. Frequency and percentage of demographic data of the patients were computed.
2. Mean and standard deviation for self-efficacy in health promoting behavior and health promoting behavior were calculated.
3. The Pearson's Product Moment Correlation Coefficients among the study variables were computed.
4. Multiple regression analysis was used to determine the predictive power of age, education level, family income and self-efficacy in health-promoting behaviors on health-promoting behaviors.

CHAPTER IV

RESULTS

This study was conducted to explore the relationship between personal characteristic, perceived self-efficacy in health-promoting behaviors and the health promoting behaviors of hemodialysis patients. The subjects composed of 132 hemodialysis patients at Hemodialysis Unit of The Kidney Foundation of Thailand at Galyanivadhana Building, The Priest's Hospital and Renal Unit of Police General Hospital. The data were analyzed, and presented in this chapter as follow:

Part 1 : Frequency and percentage of demographic data of the subjects.

Part 2 : Means and standard deviations for self-efficacy in health promoting behavior and health promoting behaviors.

Part 3 : The Pearson's Product Moment Correlation Coefficients among the study variables.

Part 4 : Multiple regression analysis to determine the predictive power of age, education level, family income and self-efficacy in health-promoting behavior on health-promoting behaviors.

Table 2. Number and percentage of the subjects classified by demographic characteristics (n = 132)

Subject Characteristics	Number	Percentage
Gender		
Male	69	52.3
Female	63	47.7
Age (years)		
≤ 20	3	2.3
21- 39	54	40.9
40- 59	68	51.5
≥ 60	7	5.3
Range 18-67 years, Mean = 40.98, S.D. = 11.62		
Religion		
Buddhism	124	94.0
Islam	6	4.5
Christianity	2	1.5
Marital status		
Married	63	47.7
Single	52	39.4
Widowed/Divorced/Separated	17	12.9
Educational level		
Uneducated	3	2.3
Primary school	40	30.3
Secondary school	48	36.3
Certificate, Diploma	24	18.2
Bachelor degree and above	17	12.9

Table 2. Number and percentage of the subjects classified by demographic characteristic (n = 132) (continued)

Subject Characteristics	Number	Percentage
Occupation		
Unemployed	37	28.0
Employed	95	72.0
Employee	48	50.5
Trade	28	29.5
Business person	7	7.3
Government officer	5	5.3
Agriculturist	5	5.3
Freelance	2	2.1
Family Income (Baht/month)		
3,000 - 10,000	55	41.7
10,001 - 20,000	47	35.6
20,001 - 30,000	16	12.1
30,001 - 40,000	9	6.8
40,001 - 55,000	5	3.8

According to Table 2, the subjects were male 52.3%. The majority of them were between 40-59 years old (51.5%). Most of the subjects were Buddhist (94%). The table also indicates that almost half of subjects were married (47.7%) and their education level was secondary school 36.3%. The largest number of the subjects was employee (50.5%). Almost half of the subjects had family income ranges from 3,000 to 10,000 baht (41.7%).

Table 3. Number and percentage of the subjects classified by demographic characteristics (n = 132)

Subject Characteristics	Number	Percentage
Financial Support		
Spouse	42	31.8
Parents	38	28.8
Relatives	28	21.2
Son/Daughter/Grandchild	20	15.2
Colleague	3	2.3
Loan financial institution	1	0.7
Person providing care for the patients		
Self-reliance	126	95.5
Son/Daughter/Grandchild	3	2.3
Spouse	2	1.5
Relatives	1	0.7
Source of hospital financial support for hemodialysis		
Own expense	117	88.6
Social Security	9	6.8
Reimbursement from the government	6	4.6
Source of hospital financial support for medicine		
Universal Coverage	63	47.7
Social Security	40	30.3
Own expense	23	17.4
Reimbursement from the government	6	4.6
Hemodialysis treatment period (years)		
6 months-5years	76	57.6
6-10 years	45	34.1
11-15 years	11	8.3

According to Table 3, the subjects had got financial support from their spouses (31.8%). Most of them provided care by themselves (self-reliance) (95.5%). Almost half of the subjects had the source of hospital financial support for medicine by universal coverage (47.7%) and own expense for hemodialysis (88.6%). The majority of the subjects had received hemodialysis treatment from 6 months to 5 years (57.64%).

Table 4. Mean, standard deviation, and range of scores of perceived self-efficacy in health promoting behaviors in each aspect (n = 132).

Perceived self-efficacy in health - promoting behaviors in each aspect	Mean	S.D.	Min	Max
Health responsibility	82.85	13.43	40	100
Spiritual growth	76.24	15.62	20	100
Interpersonal relations	73.76	15.93	25	100
Stress management	68.33	16.35	16.66	100
Nutrition behavior	59.88	15.13	10	92.5
Physical activity	51.26	26.86	0	100
Over all of perceived self-efficacy in health - promoting behaviors	69.83	11.13	39.54	100

According to table 4, the mean of over all perceived self-efficacy in health-promoting behaviors score was 69.83 (S.D. = 11.13). Considering each aspect the mean of health responsibility was the highest score at 82.85 (S.D. = 13.43) and the mean of physical activity was the lowest score at 51.26 (S.D. = 26.86). In addition, it was found that the perceived self- efficacy in health responsibility, spiritual growth, and interpersonal relations had higher mean score than the overall mean score of perceived self- efficacy (Mean = 82.85, 76.24, 73.76) respectively. On the other hand, perceived self- efficacy in stress management, nutrition behavior, and physical activity had lower mean score than the overall mean score of perceived self- efficacy (Mean = 68.33, 59.88, 51.26) respectively.

Table 5. Mean, standard deviation and interpretation of health- promoting behaviors in each aspect (n = 132).

Health- promoting behaviors in each aspect	Mean	S.D.	Interpretation
Health responsibility	3.62	0.25	Good
Nutrition behavior	3.30	0.31	Rather good
Interpersonal relations	3.13	0.44	Rather good
Spiritual growth	3.10	0.52	Rather good
Physical activity	3.06	0.55	Rather good
Stress management	2.99	0.42	Rather good
Over all of health- promoting behaviors	3.22	0.25	Rather good

According to Table 5, the mean of the over all health- promoting behaviors was at rather good level (Mean = 3.22, S.D. = 0.25), considering in each aspect of health- promoting behaviors, the mean of health responsibility was the highest score at good level (Mean = 3.62, S.D. = 0.25) and the mean of stress management was at rather good level (Mean = 2.99, S.D. = 0.42).

Table 6. Pearson's Product Moment Correlation Coefficient of the study variables
(n = 132)

Variables	1	2	3	4	5
1. Age	-				
2. Education level	-.316**	-			
3. Family income	.219*	.360**	-		
4. Perceived self-efficacy	.080 ^{NS}	.089 ^{NS}	.176*	-	
5. Health promoting behaviors	.235**	-.091 ^{NS}	.118 ^{NS}	.580**	-

* $p < .05$, ** $p < .01$, ^{NS} $p > .05$

According to Table 6, The result showed that the highest degree of correlation of significant relationship was found between perceived self-efficacy in health promoting behaviors and health promoting behaviors ($r = .58$, $p < .01$) follow by age ($r = .23$, $p < .01$), respectively.

Moreover, there were positive correlation among the predictive variables, such as age and education level with family income ($r = .21$, $p < .05$) and ($r = .36$, $p < .01$). Positive correlation of family income and perceived self-efficacy ($r = .17$, $p < .05$), and negative correlation of age and education level ($r = -.31$, $p < .01$)

Table 7. The result of Multiple Regression Analysis among independent variables (predictors) age, education level, family income, and perceived self-efficacy in health promoting behaviors on health promoting behaviors.(n = 132)

Model	R	R ²	F Change	b	Beta	t
- Age				.190	.160	2.097*
- Education level				-1.384	-.105	-1.318 ^{NS}
- Family income				1.866E-05	.015	.194 ^{NS}
- Self-efficacy	.618	.381	19.573***	3.277E-20	.581	8.121***
* p < .05, *** p < .001, ^{NS} p > .05						

According to Table 7, the four independent variables age, education level, family income, and perceived self-efficacy in health-promoting behaviors were entered to the equation. It was found that age, education level, family income, and perceived self-efficacy in health-promoting behaviors could explain 38.1% of the variance of health-promoting behaviors of hemodialysis patients. (p < .001).

CHAPTER V

DISCUSSION

This study was a descriptive research and focused on perceived self- efficacy in health-promoting behaviors and the health-promoting behaviors of hemodialysis patients. It also explained the predictive power between perceived self- efficacy and demographic factors including age, education level, and family income on health-promoting behaviors. The results were discussed in accordance with the following objectives and hypothesis.

Objective 1: To examine perceived self- efficacy in health-promoting behaviors and the health-promoting behaviors of hemodialysis patients.

Perceived self- efficacy in health-promoting behaviors of hemodialysis patients

The results showed that the overall mean score of perceived self- efficacy in health-promoting behaviors was 69.83 (S.D. = 11.13). Considering each aspect, it was found that the perceived self- efficacy in health responsibility had the highest mean score (Mean = 82.85, S.D. = 13.43). On the other hand, perceived self- efficacy in nutrition behavior and physical activity had quite low and the lowest means score (Mean = 59.88, S.D. = 15.13, Mean = 51.26, S.D. = 26.86) respectively. This could be explained as follow:

The perceived self- efficacy in health responsibility was the highest mean score. The reason may be the subjects in this study had received hemodialysis treatment for 6 months to 15 years, which was a long time. So they viewed their illness experience as a normal part of their life. They had direct experience of complications from ESRD and dialysis itself such as edema, dyspnea, and shortness of breathing. They knew because of volume overload and they can avoid these complications by fluid restriction.

This is accordance with Bandura's concept (1997) in which the success in doing the complex activity and receiving the aimed result will be reinforcement for perceived self-efficacy for the person to behave. And the enactive mastery experience was a crucial contributing factor for the perceived self- efficacy. Moreover, the subjects had to be routinely dialysis twice a week. So they had more chance to receive the recommendations and reinforcement from nurses and physicians with verbal persuasion. In congruence, Bandura (1997) who stated that persuasive boosts in perceived efficacy lead people to try hard and enough to succeed and it would help them increased their confident to perform health behaviors for decreasing and avoiding complications. In addition, the subjects had a chance to exchange their experiences with peers while waiting for dialysis, which were vicarious experiences that alter efficacy beliefs. More often in everyday life people compare themselves to particular associates in similar situations or in other setting engaged in similar endeavors, the subjects were motivated by the successes of other who were similar to themselves (Bandura, 1997).

However, considering the perceived self- efficacy in nutrition behavior was quite low mean score (Mean = 59.88, S.D. = 15.13) and perceived self- efficacy in physical activity was the lowest mean score in 6 aspects (Mean = 51.26, S.D. = 26.86). This could be explained that majority of the subjects was 40 to 59 years old (Table 2). They were accustomed to their nutrition lifestyles for a long time and they lost amount of time while on dialysis and work. So they should buy food when they went out where there were a few food selections available for their diet. Some of the subjects told that sometimes they were frustrated about selecting favorite food or appropriate food. These made them had low confident in selecting food. The results of this study also indicated that the perceived self- efficacy in physical activity was the lowest mean score. It might have been because most of the subjects said that they had limitations from ESRD such as anemia, cramp, and fatigue. These made them had low confidence in doing the complex activity and exercise. Including, the lack of knowledge and persuasion from health care personnel about the level and frequency of activity so, they would not be sure to determine to perform physical activities. Furthermore, many subjects told that they had never maintained the exercise program before they were sick, which the same as the study of Tantayothin (2004) found that 57.2% of

hypertensive patients had not participated in the exercise. Thus they didn't have enactive mastery experience, which is the most influential source of efficacy information (Bandura, 1997).

Health-promoting behaviors of hemodialysis patients

This study found that the total score of the health-promoting behaviors of hemodialysis patients was at rather good with a mean of 3.22 (S.D. = 0.25). This can be explained that 67.4% of the subjects were educated at secondary school and above. It is believed that education is one of the personal socio-cultural factors which have direct influence to both behavior-specific cognitions and affect and behavioral outcome (Pender, 2002). Therefore, higher educated people are able to recognize and understand more what they learn and understand the incident that happens to them better than less educated people (Pender, 1996). The subjects were received hemodialysis treatment twice a week for 6 months to 15 years. They had gained more directly recommendations about disease and reinforcement in taking care of themselves from nurses and physicians. In addition, they could learn by observing the complications related behaviors from themselves and other patients, these made them be able to shape their behaviors with ESRD. 72% of the subjects were employed but nearly a half of the subjects (41.7%) had family income between 3,000 - 10,000 baht/month. This indicated that they didn't have enough money for family expense. Because the average of family expense in central region of Thailand was 11,227 baht/month/family (The National Statistic Office, 2002) and the cost of hemodialysis treatment was 8,000 – 10,000 baht/month. Some of subjects stated that only compliance with their regimens in treatment should make them to be healthy for working and they concerned about their financial burdens more than to perform health-promoting behaviors in some aspect such as physical activity.

Considering each aspect of health-promoting behaviors, it was found that only health responsibility was at good level. Health-promoting behaviors in other aspects including nutrition behavior, interpersonal relations, spiritual growth, physical activity, and stress management were at rather good level. The results are discussed as follow:

Health responsibility: The study revealed that the subjects had the highest score in this aspect at good level. This may result from 51.5% of the subjects were 40 to 59 years old, which is the time that persons can completely take care of themselves. Because they have been developed by adulthood (Orem, 1995). That they could think, and find the concrete reasons, decided and choose the way to have self-care. Including, they received advice from health care personnel and they had more experiences, which made them more understand how to take care of themselves. The subjects stated that they knew the vascular access site like a life line. If they lost it, they couldn't receive dialysis and should lose time and financial costs to make a new one, so the mean score in item of observe complications of their vascular access sites and observe their complications while receiving hemodialysis were at good level (Mean = 3.76, S.D. = .55, Mean = 3.95, S.D. = .31) respectively. This congruent with the result in the study of Habkonglek (2000) found that chronic renal failure patients with CAPD had a good level in the health responsibility (Mean = 3.58, S.D. = .28). The study of Ann (2002) also found that diabetic patients at Trat hospital had a good level in the health responsibility.

Nutrition behavior: The study revealed that the subjects had a rather good nutrition behavior, which indicated that the subjects knew what kinds of food were appropriated with ESRD. They could control their food intake by serve protein from egg white, fish, and chicken at good level (Mean = 3.53, S.D. = .67). In addition, the means score of not add fish-sauce, salt and soy bean sauce in food, avoid premixed food with sodium and potassium (such as canned food and instant noodle), and avoid fruits with high potassium (such as orange, banana, coconut and tamarind) were at rather good level (Table 10). Especially, in item of serve rice in main food and alter others carbohydrate (such as noodle) was the highest mean score at good level (Mean = 3.90, S.D. = .38) because that congruence with their original lifestyles. But in some items, the subjects could not change their behaviors appropriate with ESRD such as: limit quantity of daily drinking water was the lowest mean score in this aspect (Mean = 2.74, S.D. = 1.09). Some of the subjects told that they wanted to drink more because they were tired and thirsted when they worked hard. Some stated that the day before dialysis, they ate their favorite foods and drink more fluid because they knew dialysis

could help them. On the other hand the subjects who could limitation of fluid described many strategies to achieve control over fluid intake. They had a system for monitoring the amount of fluid consumed in a day. Some subjects only drank fluid with a meal, consumed hard candy, or took ice in the mouth to quench the desire for fluids. Most used a container and either filled it up as they drank fluids or emptied and they knew they had taken in all the fluids they were allowed. The result of this congruent with Habkonglek (2000) found that CRF patients with CAPD had the health-promoting behavior in nutrition at rather good level (Mean = 3.03, S.D. = .34) and Pattapong (2002) found that nutrition behavior for body weight control among middle age adolescents was at moderate level (Mean = 2.69, S.D. = .79).

Interpersonal relations: The result showed that the subjects had a rather good health-promoting behavior in this aspect (Mean = 3.13, S.D. = .44). This means that the subjects had a chance to communicate with other persons in a meaningful way. They should have a relationship with their friends or other people in the society or in the family to exchange their opinion and share their feeling. 82.6% of the subjects got support from a network of caring people, which 47.7% of them were married. Around 95.5% of the subjects reported that they took care themselves so they were not a burden for their families. In addition they spent amount of time in dialysis unit for long time, that made them had a chance to make a relationship with other people such as nurses, physicians and peers. But in item of find ways to meet their needs for intimacy was the lowest mean score at poor level (Mean = 1.89, S.D. = 1.14). Because the limitations resulting from illness made them decrease in social life. Some subjects told that after dialysis, they had a fewer friends because their friends worried about the subjects should loan their money.

Spiritual growth: The study revealed that the subjects had a rather good health-promoting behavior in spiritual growth. This means that the subjects in this study were rather to satisfy in life, having enthusiasm in activities, and identifying life's objectives. The reasons may be that in item of be aware what is important in their life was the highest mean score at good level (Mean = 3.54, S.D. = .89) and the mean score of believed that religion can help was at rather good level (Mean = 3.48, S.D. =

.85). Although they knew that they could not completely cure but the technological potential should help them to prolong their life span, therefore the mean score of believed that your life has purpose was at rather good level (Mean = 2.70, S.D. = 1.10), and the mean score of look forward to the future was at poor level (Mean = 2.33, S.D. = 1.10). Some of the subjects had expressed their hope for possibilities of having transplantation, getting job again, looking their grandchildren grow up. Maintaining hope or purpose is a relational theme that describes the important of seeing new possibilities in coping with chronic illness. Often hope is not a realistic goal to be accomplished but a possibility for the future (Rittman, Northesea, Hausauer, Green & Swanson, 1993).

Physical activity: This study found that the subjected had a rather good health-promoting behavior in physical activity. Considering each item, stopped exercised when you have difficulty and avoid exercise when you feel sick had the means score at good level (Mean = 3.74, S.D. = .78, Mean = 3.57, S.D. = .88) respectively. The reasons may be that they had received hemodialysis for a long time and they knew the limitations of activity from disease such as anemia and fatigue. Especially, the subjects told that they were feeling weak and wanted to rest after dialysis. So they were carefully about physical activity or exercise. The mean of perform daily activities as exercise (walking, showering the plants) was at good level (Mean = 3.54, S.D. = .88) because they knew they could do it. On the other hand, in item of perform the exercise follow the program was at rather good level (Mean = 2.70, S.D. = 1.10) and walked at least 30-40 minutes 3 times a week was at poor level (Mean = 2.40, S.D. = 1.24). Some of the subjects stated that sometime they avoided physical activity or exercise because they lacked of information about frequency and the level of activity that could endurance. In addition, 72% of the subjects were employed so, they spent amount of time while on dialysis and their job and some told that if they could comply their regimens (medical, and limitation of food and fluid), which is enough to be good health for them to work. So they neglected in other aspects of health-promoting behavior such as physical activity and stress management. This result is supported by the study of Pattaphong (2002) found that physical activities of promoting behavior for body weight control among middle age adolescents was at moderate level and

Tantayothin (2004) found that the over all exercise behavior of hypertensive patients was at fair level.

Stress management: The finding revealed that the subjects had a rather good health-promoting behavior in stress management, which was the lowest mean score in 6 aspects. Considering each item, the means score of take some times for relaxation each day (such as watching TV, napping) and accept those things in your life that you can not change were at good levels (Mean = 3.59, S.D. = .82, Mean = 3.58, S.D. = .74) respectively. In item of use specific methods to control your stress, and pray and concentrate on pleasant thoughts at bed time were at rather good level (Mean = 3.42, S.D. = .81, Mean = 2.94, S.D. = 1.12) respectively. In contrast of join in social activities or society as a recreation was the lowest mean score at poor level (Mean = 1.54, S.D. = .87). This is in congruence with the finding of Jaiepa (2000) found that 85.4% of ESRD patients never joined in social activities and others. But in contrast with Habkonglek (2000) revealed that CRF patients with CAPD had excellent health-promoting behavior in stress management. The reasons may be that the hemodialysis patients could not do it by themselves at home like CAPD patients, so they have to receive hemodialysis in hemodialysis unit by health care professionals. Moreover, they lost amount of time for dialysis and working that made them decreased in social life. The hemodialysis patients, who requiring long-term hemodialysis are often concern about the unpredictability of the illness and the disruption of their lives. They often have financial problem, difficulty holding a job, warning sexual desire and impotence, depression from being chronically ill, and fear of dying. Younger patients worry about marriage, having children, and the burden that they bring to their family. In addition, the regimented lifestyles fragment dialysis treatments and restrictions in food and fluid intake which they couldn't avoid or get rid of (Lok, 1995; Welch & Austin, 1998; Smeltzer & Bare, 2004).

Objective 2: To examine the predictive power between perceived self-efficacy in health-promoting behaviors, age, education level, and family income and health-promoting behaviors of hemodialysis patients.

The result of this study showed that age, education level, family income, and perceived self-efficacy in health-promoting behaviors could predict 38.1% ($p < .001$) of the variance of health-promoting behaviors of hemodialysis patients. The result can be explained as follows:

Perceived self-efficacy in health-promoting behaviors had the highest positively significant relationship with health-promoting behaviors ($r = .580, p < .01$). This indicated that the higher self-efficacy of hemodialysis patients perceived, the better health-promoting behaviors was performed and the lower self-efficacy of hemodialysis patients perceived, the worse health-promoting behaviors was performed. According to the data, the mean score of the overall perceived self-efficacy was 69.83 (S.D. = 11.13) and the subjects would also have the mean of the overall health-promoting behaviors at rather good level (Mean = 3.22, S.D. = .25). This could be explained that people with high perceived self-efficacy would have confidence in their capabilities to organize and execute the courses of action required to produce given attainments (Bandura, 1997). Self-efficacy is proposed as influencing perceived barriers to action, with higher efficacy resulting in lower perception of barriers to the performance of the target behavior. Self-efficacy is motivated to health-promoting behaviors directly by efficacy expectations, and indirectly by affecting perceived barriers and determining level of commitment or persistence in perusing a plan of action (Pender et al, 2002). The result of this study are congruent with the study of Habkonglek (2000) found that perceived self-efficacy had a positive relationship with health-promoting behaviors of CRF patients with CAPD and also it could predict health-promoting behaviors. Also from the study of perceived self-efficacy of chronic lung disease in elderly, it was found that perceived self-efficacy had a positive relation with health-promoting behaviors (Janchanakit, 1998). Including the study of Lev & Owen (1998) found that perceived self-efficacy, had a positive correlation with mood states, health status, and perceived adherence to fluid restrictions of hemodialysis patients.

Age: It was the factor which was found that had a positive relationship with health-promoting behaviors ($r = .235$, $p < .01$). This meant that the elder subjects should have better health-promoting behaviors and the younger subjects should have worse health-promoting behaviors. In this study found that 56.8% of the subjects were between 40 years to 67 years old. They could take care of themselves and the elder subjects could maintain high level of intellectual functioning into vary advanced age have educated themselves, perused intellectually stimulating activities, exhibited flexibility and satisfaction with their life accomplishments in midlife, and maintained lifestyles that preserve their physical health (Bandura, 1997). In addition, older individual who develop positive coping skills early in life, and direct ample energy to appropriate safe-care activities and have been found to have greater health-promoting behaviors (Pender, 2002). The result corresponded with the study of Bagwell and Bush (2000) found that the older workers had a high score in nutrition behavior, role performance, and self actualization than the younger workers. Similar to a study of Welch & Austin (1998) found that younger hemodialysis patients reported more stress with role reversal, uncertainty about the future and changes in body appearance than the older hemodialysis patients and accordance with Leeterakul (1998) who found that health perception and age could predict the variance of health-promoting behaviors in pregnant hepatitis B carriers.

Education level: This study found that education level was not statistically significant correlated with health-promoting behaviors of hemodialysis patients ($r = -.091$, $p > .05$). The finding revealed that hemodialysis patients with higher or lower in education level did not vary in health-promoting behaviors. Although, the study found 30.3% of the subjects finished in primary school, 36.3% of the subjects finished in secondary school and 41% of the subjects finished in certificate and bachelor degree and above, which were quite nearly of the percentage. But the subjects always received hemodialysis twice a week so they had opportunities to received advice and information about health care from health care personnel. This was person to person teaching with easy language and suited for all level education. Moreover, they could learn from their experiences such as; many subjects knew that if they did not restrict volume of fluid, they should have pulmonary edema and should admit in the hospital. This was life-threatening for them that enhanced to perform health-promoting

behaviors and did not require education level. Similar to Habkonglek (2000) found that education levels could not predict health-promoting behaviors of CRF with CAPD patients and Onchim (2002) found that education level did not have a relationship and could not predict self-care behavior of hypertensive patients.

Family income: This study also indicated that family income was not statistically significant correlated with health-promoting behaviors of hemodialysis patients ($r = .118$, $p > .05$). In other words, the subjects with a high or low family income did not have different health-promoting behaviors. About 41.7% of the subjects had an average family income 3,000 to 10,000 baht/month and 35.6% of the subjects had an average family income 10,001 to 20,000 baht/month. This indicated that they had inadequate income for family expense per month. Although the subjects needed continuous medical therapy, they did not face any obstacles. Almost the subjects (82.6%) had got financial support for medicine by universal coverage, social security, and reimbursement from the government (Table 3). Even if 28% of the subjects were unemployed and 86 % of the subjects had own expense for hemodialysis but they had the source of financial support from their family incomes (from their spouses, parents, and relatives) Moreover, the subjects could modify their lifestyles to perform health-promoting behaviors, which did not cost a lot of money such as; walking around the house, join in chess club for recreation, and meditation for relaxation. Therefore, the monthly family income of the subjects had no relationship with health-promoting behaviors. This congruent with the finding of Niyomkar (2001) found that family income could not predict health-promoting behaviors among epileptic adolescents.

Therefore, it can be concluded that the four factors age, education level, family income, and perceived self-efficacy in health-promoting behaviors influence on health-promoting behaviors of hemodialysis patient ($R^2 = .381$, $p < .001$).

CHAPTER VI

CONCLUSION

Summary of the study

This study was a descriptive research aiming to examine the predictive power of age, education level, family income and perceived self- efficacy in health-promoting behavior on health-promoting behaviors of hemodialysis patients. The subjects in this study were gathered at Hemodialysis Unit of The Kidney Foundation of Thailand at Galyanivadhana Building, The Priest's Hospital and Renal Unit of Police General Hospital. The data were collected from July to September 2005.

The study instrument was questionnaires which consisted three parts; namely, demographic data questionnaire, the perceived self-efficacy in health-promoting behaviors questionnaire, the health-promoting behaviors questionnaire. The instrument reliabilities were measured using Cronbach's alpha coefficient. The results in each section are the perceived self-efficacy health-promoting behaviors questionnaire = 0.87 and the health-promoting behaviors questionnaire = 0.89. The data were collected by interviewing and analyzed using frequency, percentage, mean, standard deviation, The Pearson's Product Moment Correlation Coefficient, and Multiple Regression Analysis.

The findings are summarized as follow:

1. The majority of the subjects (52.3%) were male and between 20-59 years old (51.5%). 47.7% of the subjects were married. Most of them were Buddhist (94%). The education background of the subject was secondary school 36.3%. The largest number of the subject was employee (50.5%). Almost half of the subjects had family income ranges from 3,000 to 10,000 baht (41.7%) and had got financial support from their spouses (31.8%). Most of them provided care by themselves (self-reliance) (95.5%). Almost the subjects had the source of hospital financial support for medicine by universal coverage (47.7%) and own expense for hemodialysis (88.6%). The majority of the subjects (57.64%) were received hemodialysis treatment period of 6 months to 5 years.

2. The mean of overall perceived self-efficacy in health-promoting behaviors was 69.83 (S.D. = 11.13). Considering each aspect the mean of perceived self-efficacy in health responsibility was the highest score (Mean = 82.85, S.D. = 13.43) follow by spiritual growth (Mean = 76.24, S.D. = 15.62), interpersonal relations (Mean = 73.76, S.D. = 15.93), stress management (Mean = 68.33, S.D. = 16.35), nutrition behavior (Mean = 59.88, S.D. = 15.13), and physical activity (Mean = 51.26, S.D. = 11.13).

3. The mean of overall health-promoting behaviors was at rather good level (Mean = 3.22, S.D. = .25). Considering each aspect the mean of health responsibility was at good level (Mean = 3.62, S.D. = .25) and the mean of nutrition behavior, interpersonal relations, spiritual growth, physical activity and stress management were at rather good levels (Table 5).

4. Age, education level, family income, and perceived self-efficacy in health-promoting behaviors could predict 38.1% ($p < .001$) of the variance of health-promoting behaviors of hemodialysis patients.

Implications and Recommendations

1. Nurses who take care of hemodialysis patients should assess the perceived self-efficacy in health-promoting behaviors of hemodialysis patients.

2. Nurses may enhance perceived self-efficacy in health-promoting behaviors.

This could be done through:

2.1 Role model is selected from hemodialysis patients in the same setting, and has good health-promoting behaviors affected on efficacy belief. Hemodialysis patients should persuade themselves that if others can do it, they too have the capabilities to raise their performance (Bandura, 1997).

2.2 Verbal persuasion by nurses is easier to sustain a sense of efficacy. To persuade the important of health-promoting behaviors, to persuade about their succeed experiences for controlling complications, and to empower them.

2.3 Providing environment with friendly atmosphere can provide emotional support, promote the relationship between hemodialysis patients and nurses, enhance physical status and reduce stress level these affect people's judgments of their personal efficacy.

3. This study indicated age was a significant positively correlation with health-promoting behaviors. Nurses should concern about the patients ages and prepare appropriate information with their developments to educate and suggest which would encourage and foster optimum health for hemodialysis patients especially, the younger patients.

4. The study evidenced that health-promoting behavior in stress management was at rather good level (Mean = 2.99), which the lowest mean score in 6 aspects. Therefore, nurses should provide appropriate intervention to reduce stress in hemodialysis patients such as relaxation techniques for example; music therapy, massage, yoga, etc.

Recommendations for future research

1. The results of this study evidences that age, education level, family income, and perceived self-efficacy in health-promoting behaviors can predict health-promoting behaviors, so further research should study others factors in the Health Promotion Model. Those may affect health-promoting behaviors of hemodialysis patients such as; social support, perceived barrier to action, and perceived benefits of action.

2. Developed the program for increasing perceived self-efficacy in health-promoting behaviors to enhance health-promoting behaviors of hemodialysis patients for further study with using experimental designed.

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APPENDIX A

LIST OF EXPERTS

The experts who performed the content validation of the instruments were as follows;

Pol.Lt.Col. Surat Songpanich

Nephrologist of Department of Medicine, Police General Hospital

Pol.Lt.Col. Chatsuda Aumanaphong

The head nurse of Nephrology Unit of Police General Hospital

Mrs. Issanee Putthimontree

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APPENDIX B

MORE RESULTS

Table 8. Means and standard deviation of perceived self-efficacy in health-promoting behavior in each item (n = 132).

Perceived self-efficacy in health promoting behaviors of the subjects	Mean	S.D.	Min	Max
1. Confident to limited of water.....	57.27	21.2	0	100
2. Confident to balance protein.....	58.41	19.4	10	100
3. Confident to limited of potassium.....	67.12	21.7	0	100
4. Even if you go out you can control	56.74	24.9	0	100
5. Confident to exercise.....	57.35	27.4	0	100
6. Even you were stress.....	48.64	28.7	0	100
7. Even if you were busy.....	47.80	27.6	0	100
8. Confident to take medication.....	85.53	17.7	0	100
9. Confident to request of suggestion.....	78.71	22.5	20	100
10. Confident to observe complications.....	86.21	16.9	20	100
11. Confident to take care of vascular access.....	81.97	19.4	20	100
12. Even if to take of vascular access.....	81.82	19.6	20	100
13. Confident to meet other people.....	83.48	20.4	10	100
14. Confident to suggest to.....	80.45	20.4	0	100
15. Confident to share your experience.....	71.21	22.3	0	100
16. Confident to meet your friend.....	59.92	26.3	0	100
17. Confident to relieve stress.....	69.92	21.0	0	100
18. Confident to control your temper.....	64.17	23.9	0	100
19. Confident to take time.....	70.91	20.4	0	100
20. Confident to be happy.....	73.71	20.4	0	100
21. Confident to cope to accept.....	84.17	19.9	0	100
22. Confident to give interest in.....	70.83	23.2	0	100

Table 9. Mean, standard deviation and interpretation of health responsibility in each item (n = 132).

Health responsibility	Mean	S.D.	Interpretation
- Avoid infections by personal	3.98	.12	Good
- Observe your complication while receiving	3.95	.31	Good
- Avoid an accident and.....	3.87	.54	Good
- Observe your complications	3.85	.49	Good
- Care for attack on hard or	3.78	.54	Good
- Observe complication of your vascular	3.76	.55	Good
- Follow up and receiving	3.74	.49	Good
- Care your vascular.....	3.73	.56	Good
- Counsel health professional.....	3.56	.71	Good
- Ask for information about.....	3.30	.83	Rather good
- Attend education program on personal health care and read	2.35	.67	Poor
Health responsibility (Over all)	3.62	.25	Good

Table 10. Mean, standard deviation and interpretation of nutrition behavior in each item (n = 132).

Nutrition behavior	Mean	S.D.	Interpretation
- Serve rice in main food and alter others	3.90	.38	Good
- Serve protein from egg white.....	3.53	.67	Good
- Serve 3 meals a day	3.47	.87	Rather good
- Not add fish-sauce, salt	3.33	.81	Rather good
- Avoid fruits with high potassium	3.33	.64	Rather good
- Avoid premixed food with.....	3.27	.65	Rather good
- Select serve of low fat.....	3.14	.63	Rather good
- Avoid salty and spicy.....	3.11	.72	Rather good
- Limited use of sugar.....	2.95	.69	Rather good
- Limited quantity of daily drinking.....	2.74	1.09	Rather good
Nutrition behavior (Over all)	3.30	.31	Rather good

Table 11. Mean, standard deviation and interpretation of interpersonal relations in each item (n = 132).

Interpersonal relations	Mean	S.D.	Interpretation
- Maintain meaningful and fulfilling relationship.....	3.82	.49	Good
- Get support from a network	3.67	.77	Good
- Praise other people easily for	3.63	.68	Good
- Make it easy to show concern.....	3.28	.95	Rather good
- Spend time with.....	3.26	.95	Rather good
- Touch and be touched by people	2.95	.95	Rather good
- Counsel your problem with	2.86	1.09	Rather good
- Settle conflicts with others through discussion and.....	2.81	1.04	Rather good
- Find ways to meet my needs	1.89	1.14	Poor
Interpersonal relations (Over all)	3.13	.44	Rather good

Table 12. Mean, standard deviation and interpretation of spiritual growth in each item
(n = 132)

Spiritual growth	Mean	S.D.	Interpretation
- Be aware of what is important.....	3.54	.89	Good
- Believe that religion can help.....	3.48	.85	Rather good
- Find each day interesting	3.46	.82	Rather good
- Feel content and at peace	3.30	.97	Rather good
- Expose yourself to new experience...	3.21	.97	Rather good
- Believe that your health will.....	3.21	.97	Rather good
- Believe that your life has propose	2.70	1.10	Rather good
- Look forward to the future.....	2.33	1.10	Poor
Spiritual growth(Over all)	3.10	.52	Rather good

Table 13. Mean, standard deviation and interpretation of physical activity in each item (n = 132)

Physical activity	Mean	S.D.	Interpretation
- Rest when you finish exercise	3.87	.38	Good
- Stop exercise when you have.....	3.74	.78	Good
- Avoid exercise when you feel	3.57	.88	Good
- Perform daily activities as an	3.54	.88	Good
- Do stretching exercise at least	2.91	1.14	Rather good
- Perform exercise follow the.....	2.70	1.19	Rather good
- Walking at least 30-40 minutes 3	2.40	1.24	Poor
- Warm up before exercise.....	1.77	1.09	Poor
Physical activity (Over all)	3.06	.55	Rather good

Table 14. Mean, standard deviation and interpretation of stress management in each item (n = 132)

Stress management	Mean	S.D.	Interpretation
- Take some times for relaxation	3.59	.82	Good
- Accept those things in your life that	3.58	.74	Good
- Sleep daily for 6-8 hours.....	3.49	.82	Rather good
- Balance time between work and.....	3.47	.80	Rather good
- Use specific methods to control	3.42	.81	Rather good
- Pray and concentrate on pleasant	2.94	1.12	Rather good
- Practice meditation for 15-20	1.89	.98	Poor
- Join in social activities or	1.54	.87	Poor
Stress management(Over all)	2.99	.42	Rather good

APPENDIX C

Testing Assumptions of Multiple Regression Analysis

The assumptions were tested before using multiple regression analysis included linearity, normality, homoscedasticity, multicollinearity. The results for each assumption were presented as follows:

1. The relationship between x and y must be linear. The residuals were tested for approximately normal distribution. If the distribution of the residual was normal; with one peak of 0.25 of a standard deviation above the mean, it meant the relationship is linear. Besides, the dependent variable is normally distributed for each value of the independent variables (SPSS, 1999 cited by Munro, 2001). It has been showed that a histogram of the standardized residuals was approximately normal and presented as follow (Figure 4.):

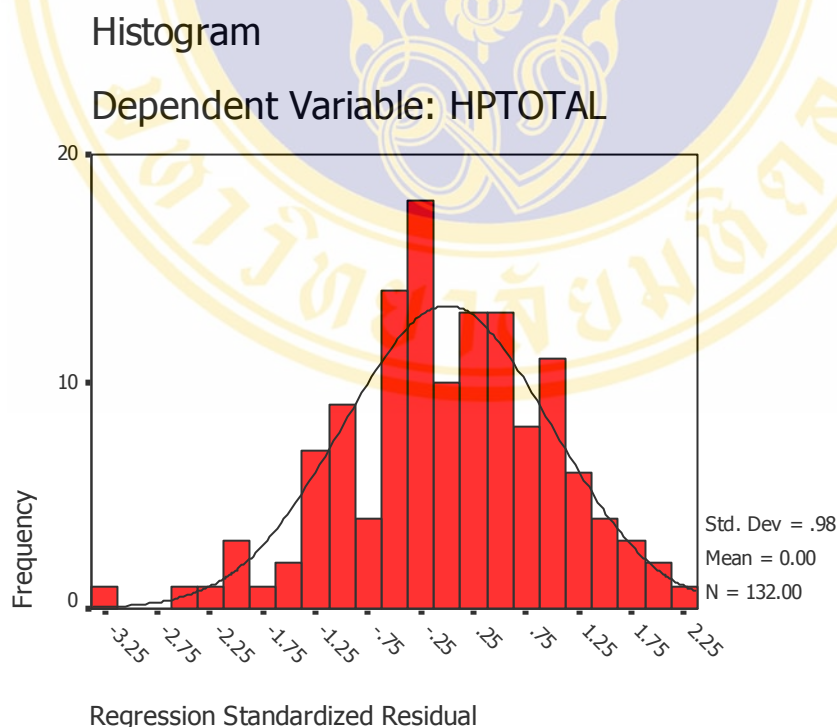


Figure 4. Histogram of residual

2. Homoscedasticity. The residual were plotted against the predicted values and against the independent variables. The results were revealed that the actual scores varies around the prediction line, which the data was formed as straight line from the upper- left corner, and the lower-left corner to upper-right corner.

Then the residuals from a normal distribution, the plotted values fell close to the line of normal probability (Figure 5.)

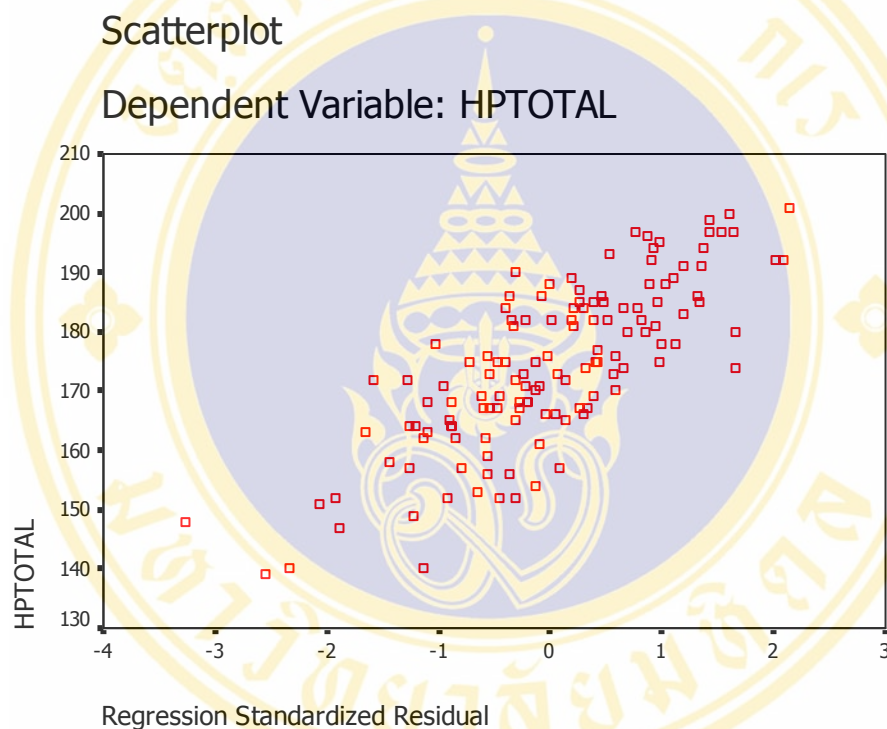


Figure 5. Scatter plot between regression residual and regression predicted value

Partial Regression Plot

Normal P-P Plot of Regression Standard

Dependent Variable: HPTOTAL

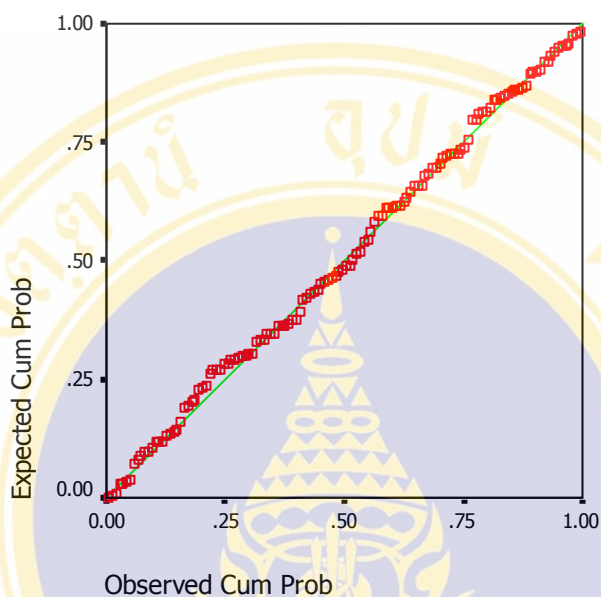


Figure 6. Normal P-P plot of regression standardized residual

APPENDIX D

ETHICAL CLEARANCE



No. 117/2005

Documentary Proof of Ethical Clearance
The Committee on Human Rights Related to
Human Experimentation
Mahidol University, Bangkok

Title of Project. Self-Efficacy Influencing on Health Promoting Behaviors of Hemodialysis Patients
(Thesis for Master Degree)

Principle Investigator. Miss Siritorn Sangakul

Name of Institution. Faculty of Nursing

Approved by the Committee on Human Rights Related to Human Experimentation

Signature of Chairman. 
(Professor Dr. Srisin Khusmith)

Signature of Head of the Institute. 
(Professor Dr. Pornchai Matangkasombut)

Date of Approval. 16 AUG 2005

APPENDIX E

PERMISSION LETTER OF DATA COLLECTION



บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล

คณะแพทยศาสตร์ศิริราชพยาบาล

ตึกจุฬารัตนวิทยา ชั้น 4 2 ถนนพหลโยธิน

เขตบางกอกน้อย กรุงเทพฯ 10700

โทร. 0-2411-2002 โทรสาร 0-2419-7060

ที่ ศษ 0517.02 (ศร)/ 1431

20 มิถุนายน 2548

มูลนิธิโรคไตแห่งประเทศไทย
เลขที่หนังสือรับเข้า 310/2548
วันที่ 20 มิ.ย. 48 เวลา 14.30 น.

เรื่อง ขออนุญาตขอทราบให้นักศึกษาได้มาเก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์

เรียน เลขาธิการมูลนิธิโรคไตแห่งประเทศไทย

ซึ่งส่งมาด้วย แบบสัมภาษณ์ จำนวน 1 ชุด

ด้วย พ.ต.ท. หญิง ศิริธร ธงาภรณ์ นักศึกษามหาวิทยาลัย มหาวิทยาลัยมหิดล หลักสูตรปริญญาโท สาขาวิชาการพยาบาลผู้ใหญ่ คณะพยาบาลศาสตร์ กำลังทำวิทยานิพนธ์ เรื่อง “การรับรู้สมรรถนะของตนเอง ต่อพฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยที่รักษาด้วยการฟอกเลือดด้วยเครื่องไตเทียม” อยู่ในความควบคุมของ อ.ดร.กรรณิกาญจน์ สังกาศ ซึ่งในการศึกษาวิจัยครั้งนี้ นักศึกษามีความประสงค์จะเก็บข้อมูลจากผู้ป่วยที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม ที่มีอายุตั้งแต่ 18 ปีขึ้นไป หน่วยไตเทียม มูลนิธิโรคไตแห่งประเทศไทย ณ ตึกกัลยาณิวัฒนา โรงพยาบาลสงฆ์ โดยใช้วิธีการสัมภาษณ์ผู้ป่วยด้วยตนเอง ตั้งแต่วันที่ 1 กรกฎาคม 2548 ถึงวันที่ 31 กันยายน 2548 (หรือจนกว่าจะเก็บข้อมูลครบ)

บัณฑิตวิทยาลัย จึงใคร่ขอความกรุณาจากท่านโปรดอนุญาตให้นักศึกษาได้เก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์ ตามที่เห็นสมควรด้วย จักเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

ในนาม อ.ดร.กรรณิกาญจน์
เพื่อไปขอพิจารณาเอกสารไป
พิมพ์แบบฟอร์มผู้ป่วย หน่วยไตเทียม
มูลนิธิโรคไตฯ ม.มหิดล ถัดมา
ขอเชิญ
20 มิ.ย. 48

ภกช. นค

(ศาสตราจารย์ นพ.บรรจง มไหสวริยะ)

รองคณบดีฝ่ายวิจัย ปฏิบัติราชการแทน

คณบดีบัณฑิตวิทยาลัย

๐๕๖๘
๒๕ มิ.ย. ๒๕๔๘ / รุ่งโรจน์ ทน
ชุกรการ.....
วันที่ 20 มิ.ย. ๔๘
ส่ง.....

ติดต่ออาจารย์ผู้ควบคุมวิทยานิพนธ์ : อ.ดร.กรรณิกาญจน์ สังกาศ

โทรศัพท์ 0-9922-3255 โทรสาร 0-2412-8415

ที่ 0029.2(อกพ.)/ ผ.อ.



องค์กรแพทย์ โรงพยาบาลตำรวจ
สำนักงานแพทย์ใหญ่
492/1 ถนนพระราม 1 แขวงวังใหม่
เขตปทุมวัน กรุงเทพฯ 10330

6 กรกฎาคม 2548

เรื่อง อนุญาตให้เก็บรวบรวมข้อมูลประกอบการทำวิทยานิพนธ์
เรียน พันตำรวจโทหญิง สิริธร สง่ากุล

ตามที่ท่านได้ขออนุญาตเก็บรวบรวมข้อมูลประกอบการทำวิทยานิพนธ์เรื่อง “ การรับรู้สมรรถนะของตนเองต่อพฤติกรรมสร้างเสริมสุขภาพ ของผู้ป่วยที่รักษาด้วยเครื่องเฝ้าเทียม ” นั้น
คณะอนุกรรมการวิจัยในมนุษย์ องค์กรแพทย์ โรงพยาบาลตำรวจ ได้พิจารณาแล้วเห็นว่า
เป็นไปตามกฎเกณฑ์ของแพทยสภาว่าด้วยเรื่องการวิจัยในมนุษย์ จึงอนุญาตให้ทำการเก็บข้อมูลประกอบการทำ
วิทยานิพนธ์ดังกล่าวได้
จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ

พันตำรวจเอก

(สุพัฒน์ เล่าหะวันนะ)

ประธานอนุกรรมการการวิจัยในมนุษย์

โรงพยาบาลตำรวจ

องค์กรแพทย์ โรงพยาบาลตำรวจ

โทร. 0-2252-8111-25 ต่อ 4701

APPENDIX F

CONSENT FORM

คำอธิบายโครงการวิจัย

เรื่อง การรับรู้สมรรถนะของตนเองต่อพฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยที่รักษาด้วย
การฟอกเลือดด้วยเครื่องไตเทียม

ดิฉัน พ.ต.ท.หญิง ศิริธร สว่างกุล นักศึกษาปริญญาโท สาขาการพยาบาลผู้ใหญ่ คณะพยาบาล
ศาสตร์ มหาวิทยาลัยมหิดล กำลังทำวิจัยเรื่อง การรับรู้สมรรถนะของตนเองต่อพฤติกรรมสร้างเสริม
สุขภาพของผู้ป่วยที่รักษาด้วยการฟอกเลือดด้วยเครื่องไตเทียม ท่านเป็นบุคคลหนึ่งที่มีความสำคัญ
ยิ่งในการให้ข้อมูลครั้งนี้ จึงขอความร่วมมือในการตอบแบบสัมภาษณ์ ซึ่งจะใช้เวลาประมาณ
30-45 นาที แบบสัมภาษณ์นี้มีทั้งหมด 3 ส่วน คือ

ส่วนที่ 1 แบบสัมภาษณ์ข้อมูลส่วนบุคคล

ส่วนที่ 2 แบบสัมภาษณ์การรับรู้สมรรถนะของตนเองในพฤติกรรมสร้างเสริมสุขภาพ

ส่วนที่ 3 แบบสัมภาษณ์พฤติกรรมสร้างเสริมสุขภาพ

การตอบแบบสัมภาษณ์ชุดนี้ท่านสามารถตอบตามความรู้สึกที่แท้จริงส่วนตัวของท่าน
ข้อมูลที่ได้จากท่านครั้งนี้ จะนำไปใช้เพื่อเป็นแนวทางในการวางแผนการพยาบาล ให้ผู้ป่วยที่ได้รับ
การฟอกเลือดด้วยเครื่องไตเทียมมีพฤติกรรมสร้างเสริมสุขภาพที่เหมาะสมต่อไป การเข้าร่วมวิจัย
ครั้งนี้เป็นไปโดยความสมัครใจของท่าน ไม่ว่าท่านจะเข้าร่วมการวิจัยหรือไม่ก็ตาม จะไม่มีผล
กระทบต่อการบริการ หรือการรักษาที่ท่านหรือผู้ที่เกี่ยวข้องกับท่านมีสิทธิ์จะได้รับแต่ประการใด
หากท่านยินดีเข้าร่วมการวิจัย ในระหว่างที่ทำการวิจัยท่านสามารถยุติการสัมภาษณ์/ถอนตัวจากการ
วิจัยได้ โดยไม่มีผลกระทบต่อการรักษาและการดูแลที่ท่านจะได้รับ ข้อมูลที่ได้จากท่านทั้งหมดจะ
เป็นความลับและนำเสนอผลการวิจัยในภาพรวม

ในระหว่างการเข้าร่วมการวิจัย ถ้าท่านมีข้อสงสัยใดๆ ดิฉันยินดีตอบข้อสงสัยของท่าน
ตลอดเวลา การวิจัยครั้งนี้จะสำเร็จตามวัตถุประสงค์ด้วยความอนุเคราะห์ และความร่วมมือจากท่าน
ที่กรุณาเสียสละเวลาในครั้งนี้ จึงขอกราบขอบพระคุณมา ณ โอกาสนี้ด้วย

พ.ต.ท.หญิง ศิริธร สว่างกุล

ผู้วิจัย

ใบยินยอมเข้าร่วมโครงการวิจัยในมนุษย์

โดยได้รับการบอกกล่าวและเต็มใจ (Informed Consent Form)

เรื่อง การรับรู้สมรรถนะของตนเองต่อพฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยที่รักษาด้วย
การฟอกเลือดด้วยเครื่องไตเทียม

วันที่ให้คำยินยอม

วันที่.....เดือน.....พ.ศ.....

ก่อนที่จะเข้าพเจ้าจะลงนามในใบยินยอมในการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย รวมทั้งประโยชน์ที่จะเกิดจากการวิจัย เรื่อง การรับรู้สมรรถนะของตนเองต่อพฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยที่รักษาด้วยการฟอกเลือดด้วยเครื่องไตเทียมอย่างละเอียด และมีความเข้าใจดีแล้ว

ผู้วิจัยรับรองว่าจะตอบคำถามต่างๆ ที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบังซ่อนเร้นจน
ข้าพเจ้าพอใจ

ข้าพเจ้ามีสิทธิที่จะบอกเลิกการเข้าร่วม โครงการวิจัยนี้เมื่อใดก็ได้ และเข้าร่วมโครงการนี้ด้วยความสมัครใจ และการบอกเลิกการเข้าร่วมโครงการวิจัยนี้ จะไม่มีผลกระทบใดๆ ต่อการได้รับการบริการหรือการรักษาที่ข้าพเจ้าหรือผู้เกี่ยวข้องมีสิทธิได้รับแต่ประการใด

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะที่เกี่ยวกับตัวข้าพเจ้าเป็นความลับ และจะเปิดเผยได้เฉพาะในรูปที่สรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่างๆที่เกี่ยวข้องกระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว และมีความเข้าใจดีทุกประการ จึงได้ลงนามในใบ
ยินยอมนี้ด้วยความสมัครใจ

ลงชื่อ.....ผู้ยินยอม

(.....)

ลงชื่อ..... พยาน

(.....)

ลงชื่อ..... พยาน

(.....)

ลงชื่อ.....ผู้วิจัย

(พ.ต.ท.หญิง ศิริธร สังกุล)

APPENDIX I

RESEARCH INSTRUMENT

แบบสัมภาษณ์

คำชี้แจงเกี่ยวกับแบบสัมภาษณ์

แบบสัมภาษณ์ในการเก็บข้อมูลนี้ ประกอบไปด้วยแบบสัมภาษณ์ 3 ส่วน โดยมีรายละเอียดดังนี้ ต่อไปนี้คือ

ส่วนที่ 1 แบบสัมภาษณ์ข้อมูลส่วนบุคคลของผู้ป่วยที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม

ส่วนที่ 2 แบบสัมภาษณ์การรับรู้สมรรถนะของตนเองในพฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม

ส่วนที่ 3 แบบสัมภาษณ์พฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม

ส่วนที่ 1 แบบสัมภาษณ์ข้อมูลส่วนบุคคลของผู้ป่วยที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม

วันที่เก็บข้อมูล.....

เลขที่แบบสอบถาม.....

ชื่อโรงพยาบาล.....

ข้อมูลทั่วไป

สำหรับผู้วิจัย

1. เพศ () ชาย () หญิง []

2. อายุ.....ปี.....เดือน

3. ศาสนา.....

4. สถานภาพสมรส () โสด () คู่ () หม้าย, หย่า, แยกกันอยู่ []

:

:

ข้อมูลการประเมินสมรรถภาพการปฏิบัติกิจวัตรประจำวัน โดยใช้แบบวัดดัชนีจุฬาเอดีแอล (Chula ADL Index)

13 เดินหรือเคลื่อนที่นอกบ้าน (Walking outdoor) []

0 เดินไม่ได้

1 ใช้รถเข็นและช่วยตัวเองได้ หรือต้องการคนประคอง 2 ข้าง

2 ต้องการคนช่วยพยุง หรือไปด้วยตลอด

3 เดินเองได้

:

:

17 การใช้บริการรถเมล์ รถสองแถว (Public transport) []

0 ไม่สามารถทำได้

1 ทำได้แต่ต้องมีคนช่วยดูแลไปด้วย

2 ไปมาเองได้

ส่วนที่ 2 แบบสัมภาษณ์การรับรู้สมรรถนะของตนเองในพฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม

แบบสัมภาษณ์นี้สอบถามเกี่ยวกับความเชื่อในความสามารถของท่านในพฤติกรรมสร้างเสริมสุขภาพของตนเอง

คำชี้แจงในการตอบแบบวัด

เมื่อผู้สัมภาษณ์อ่านข้อความให้ท่านฟังแล้ว ขอให้ท่านบอกเปอร์เซ็นต์ความเชื่อที่ท่านสามารถกระทำตามข้อความต่างๆ ได้ในระดับใด โดยให้ท่านดูจากแผ่นแสดงมาตรวัดที่มีระดับคะแนน ตั้งแต่ 0% ถึง 100% โดยที่คะแนน 0% หมายถึง ข้อความนั้นท่านไม่มั่นใจว่าจะสามารถทำได้เลย คะแนน 50% ข้อความนั้นท่านมั่นใจปานกลางว่าสามารถทำได้ และคะแนนจะเพิ่มขึ้นเรื่อยๆ จนถึง 100% ซึ่งหมายถึง ข้อความนั้นท่านมั่นใจว่าความสามารถทำได้แน่นอน แบบสัมภาษณ์จะมีจำนวนทั้งหมด 22 ข้อ ดังนี้คือ

ท่านมีความเชื่อว่าท่านสามารถทำกิจกรรมดังต่อไปนี้ได้ในระดับใด



1. ท่านมั่นใจว่าท่านสามารถดื่มน้ำในปริมาณที่จำกัดได้ ถึงแม้ว่าจะต้องปฏิบัติอย่างต่อเนื่องเป็นระยะเวลานาน 1
2. ท่านมั่นใจว่าท่านสามารถรับประทานอาหารที่มีปริมาณโปรตีนและพลังงานในสัดส่วนที่พอเหมาะได้ ถึงแม้ว่าจะ..... 2
- :
- :
- 22.ท่านมั่นใจว่าท่านสามารถที่จะเรียนรู้สิ่งใหม่ๆ หรือสิ่งท้าทายที่เกิดขึ้นในชีวิตได้ 22

ส่วนที่ 3 แบบสัมภาษณ์พฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยที่ได้รับการฟอกเลือด ด้วยเครื่องไตเทียม

คำชี้แจง

แบบวัดชุดนี้ มีวัตถุประสงค์เพื่อต้องการทราบถึงพฤติกรรมสร้างเสริมสุขภาพของผู้ป่วยไตวายเรื้อรังที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียม โดยแบบสัมภาษณ์ชุดนี้มีจำนวน 54 ข้อ คำตอบที่ได้ไม่มีถูกหรือผิด และทุกคำตอบจะเป็นความลับ ขอให้ท่านตอบข้อความแต่ละข้อให้ตรงกับความเป็นจริงที่ท่านได้ปฏิบัติ หรือตรงกับเหตุการณ์ที่เกิดขึ้นกับท่านมากที่สุดและเลือกคำตอบเพียงคำตอบเดียวในแต่ละข้อ และขอความกรุณาตอบทุกข้อ โดยมีเกณฑ์ในการเลือกตอบดังนี้

- 1 = ท่านไม่เคยปฏิบัติกิจกรรมนั้นเลย
- 2 = ท่านปฏิบัติกิจกรรมนั้นบ้างเป็นบางครั้งในแต่ละเดือน
- 3 = ท่านปฏิบัติกิจกรรมนั้นบ่อยครั้งในแต่ละอาทิตย์
- 4 = ท่านปฏิบัติกิจกรรมนั้นอย่างสม่ำเสมอทุกวัน

ข้อความ	ไม่เคย 1	บางครั้ง 2	บ่อยครั้ง 3	สม่ำเสมอ 4	หมายเหตุ
<u>ด้านโภชนาการ</u>					
1. ท่านเลือกรับประทานอาหารที่มีไขมันต่ำ เช่น ไขมันจากพืชแทนไขมันสัตว์					
2. ท่านหลีกเลี่ยงการรับประทานอาหารรสหวานจัด ขนมหวาน และผลไม้หวานจัด					
:					
:					
53. ท่านรู้สึกว้าเหวหรือคำสอนในศาสนาของท่าน เป็นที่ยึดเหนี่ยวทางจิตใจ					
54. ท่านสนใจที่จะเรียนรู้สิ่งใหม่ๆ และสิ่งที่ท้าทาย ความสามารถ					

แบบทดสอบสภาพจิตจุฬา
(Chula Mental Test: CMT)

คะแนนรวมเท่ากับ.....

แบบทดสอบสภาพจิตจุฬา เป็นเครื่องมือในการประเมินสุขภาพจิตของผู้ป่วยไควซเรื้อรังที่ได้รับการฟอกเลือดด้วยเครื่องไตเทียมที่มีอายุ 60 ปีหรือมากกว่า 60 ปีขึ้นไป หากตอบได้คะแนนน้อยกว่า 15 ผู้ป่วยไม่ต้องตอบแบบสัมภาษณ์ในส่วนอื่นๆ ต่อ

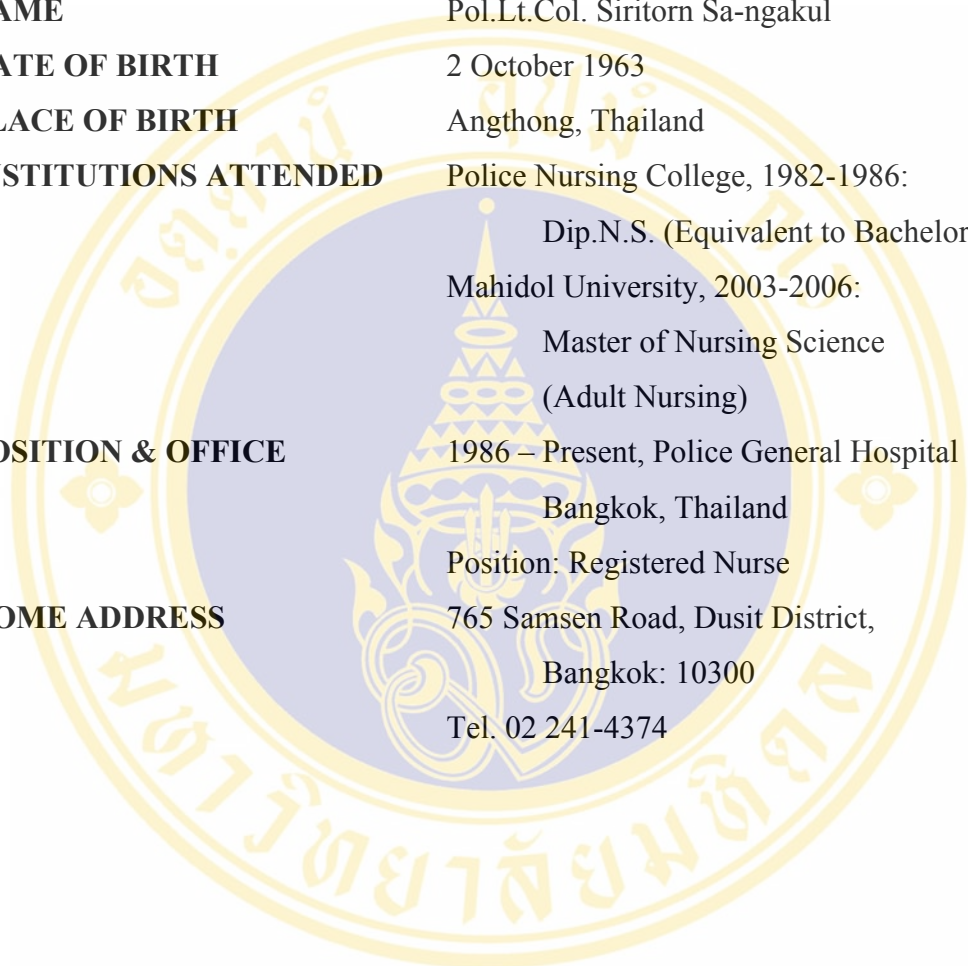
คำชี้แจง

แบบสัมภาษณ์นี้จะมีข้อคำถามจำนวนทั้งหมด 13 ข้อ ดังนี้คือ

ข้อ	คำถาม	คำตอบ	คะแนน
1	ปีนี้คุณอายุเท่าไร?		1/0
2	ขณะนี้กี่โมง? (อาจตอบคลาดเคลื่อนได้ 1 ชั่วโมง)		1/0
:			
:			
13	บอกให้ผู้ถูกทดสอบลบเลขที่ละ 3 จาก 20 ทั้งหมด 3 ครั้ง $20 - 3 = a$ $17 - 3 = b$ $14 - 3 = c$ (ให้คะแนนตามจำนวนเลขที่ลบได้ถูกต้องครั้งละ 1 คะแนน)	$a = 17$ $b = 14$ $c = 11$	1/0 1/0 1/0

การแปลคะแนน

- 1.คะแนนที่ได้ต่ำสุดคือ 0 และสูงสุดคือ 19
- 2.คะแนนที่ต่ำกว่า 15 แสดงว่าน่าจะมีคามผิดปกติของ Cognitive function

BIOGRAPHY

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