INFLUENCE OF PARKINSON'S DISEASE RELATED KNOWLEDGE ON PARKINSON'S PATIENT EMPOWERMENT

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อิทธิพลของความรู้เกี่ยวกับโรคพาร์กินสันต่อการเสริมสร้างพลังอำนาจของผู้ป่วยพาร์กินสัน

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรดุษฎีบัณฑิต
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Thesis Title	INFLUENCE OF PARKINSON'S DISEASE RELATED KNOWLEDGE ON PARKINSON'S PATIENT EMPOWERMENT
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ประมณฑ์ วิวัฒนากุลวาณิชย์ : อิทธิพลของความรู้เกี่ยวกับโรคพาร์กินสันต่อการเสริมสร้างพลังอำนาจของผู้ป่วยพาร์กินสัน (INFLUENCE OF PARKINSON'S DISEASE RELATED KNOWLEDGE ON PARKINSON'S PATIENT EMPOWERMENT) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ผศ. ภญ. ร.ต.อ.หญิง ดร. ฐณัฏฐา กิตติโสภี, 138 หน้า.

โรคพาร์กินสัน เป็นโรคความเสื่อมของระบบประสาท ซึ่งส่งผลกระทบต่อภาวะทางอารมณ์และร่างกายของผู้ป่วย ทำให้ผู้ป่วยพาร์กินสันมีแนวโน้มสูญเสียการเสริมสร้างพลังอำนาจ (Empowerment) อันเป็นภาวะการรู้คิดในการรับรู้ความสามารถและการควบคุม ทั้งนี้การลดลงของการเสริมสร้างพลังอำนาจส่งผลให้ผู้ป่วยสูญเสียการพึ่งตนเองและไม่สามารถที่จะควบคุมชีวิตและสุขภาพของตนเองได้ ในการเพิ่มการเสริมสร้างพลังอำนาจในผู้ป่วยพาร์กินสัน จำเป็นต้องเข้าใจปัจจัยที่ส่งผลต่อการเสริมสร้างพลังอำนาจ ดังนั้นจุดประสงค์ของการศึกษานี้คือ 1) ต้องการดูความสัมพันธ์ระหว่างความรู้เกี่ยวกับโรคพาร์กินสันกับการเสริมสร้างพลังอำนาจในผู้ป่วยพาร์กินสัน หลังจากควบคุมปัจจัยกวนต่างๆทางด้านบุคลิกภาพ และความรุนแรงของโรค และ 2) ประเมินระดับความรู้เกี่ยวกับโรคพาร์กินสันในมุมมองของผู้ป่วยที่ได้รับผ่านช่องทางต่างๆจาก แพทย์ เว็บไซต์ ผู้ดูแลและกลุ่มสนับสนุนผู้ป่วย

การศึกษานี้เป็นการวิจัยเชิงสำรวจภาคตัดขวาง โดยใช้แบบสอบถามด้วยการสัมภาษณ์ผู้ป่วยพาร์กินสันที่คลินิกพาร์กินสัน ณ โรงพยาบาลจุฬาลงกรณ์สภากาชาดไทย มีผู้เข้าร่วมการศึกษาทั้งหมด 128 คน (ชายร้อยละ 47.7) อายุเฉลี่ย 58.3 ± 8.9 ปี และค่าเฉลี่ยระยะเวลาการเป็นโรค 8.1 ± 4.8 ปี ผู้ป่วยจะถูกถามคำถามจากแบบสอบถาม 4 หัวข้อ 1) การเสริมสร้างพลังอำนาจของผู้ป่วยพาร์กินสัน 2) การควบคุมตนเองด้านสุขภาพ 3) การเห็นคุณค่าในตนเอง และ 4) ความรู้เกี่ยวกับโรคพาร์กินสัน

ผลงานวิจัยพบว่าผู้ป่วยพาร์กินสันรายงานว่าได้รับความรู้เกี่ยวกับโรคพาร์กินสันในระดับสูงโดยผ่านทาง แพทย์ ผู้ดูแล เว็บไซต์และกลุ่มผู้ป่วย ตามลำดับ ผลการวิเคราะห์ถดถอยพหุแบบเชิงชั้นชี้ให้เห็นว่า สี่ปัจจัยที่สำคัญคือ ความรู้ในการดูแลตนเอง ($\beta = 0.15$, $p < 0.05$) การเห็นคุณค่าในตนเอง ($\beta = 0.33$, $p < 0.05$) ความเชื่ออำนาจในตนเองด้านสุขภาพ ($\beta = 0.32$, $p < 0.05$) ความเชื่ออำนาจนอกตนเองจากคนรอบข้าง ($\beta = 0.18$, $p < 0.05$) โดยตัวแปรทั้งหมดในโมเดลสามารถอธิบายความแปรปรวนของการเสริมสร้างพลังอำนาจในผู้ป่วยพาร์กินสันได้ 38%

จากการค้นพบดังกล่าวนี้ หลังจากควบคุมปัจจัยกวนด้านการเห็นคุณค่าในตนเอง ความเชื่ออำนาจในตนเองด้านสุขภาพ ความเชื่ออำนาจนอกตนเองจากคนรอบข้าง ความเชื่ออำนาจนอกตนเองจากเหตุบังเอิญและความรุนแรงของโรค ความรู้ในการดูแลตนเองยังคงส่งผลที่สำคัญอย่างมีนัยสำคัญทางสถิติต่อการเสริมสร้างพลังอำนาจในผู้ป่วยพาร์กินสัน (R^2 Change = 0.02, $p < 0.05$) ดังนั้นวิธีการที่มีประสิทธิภาพเพื่อเพิ่มการเสริมสร้างพลังอำนาจในผู้ป่วยพาร์กินสันควรเน้นในการให้ความรู้ในการดูแลตนเอง

ภาควิชา เภสัชศาสตร์สังคมและบริหาร ลายมือชื่อนิสิต ____________________

สาขาวิชา เภสัชศาสตร์สังคมและบริหาร ลายมือชื่อ อ.ที่ปรึกษาหลัก ____________________

ปีการศึกษา 2558

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KEYWORDS: PARKINSON'S DIEASE / PATIENT EMPOWERMENT / PERSONALITY STYLES / SELF-ESTEEM / HEALTH LOCUS OF CONTROL / DISEASE RELATED KNOWLEDGE / SELF-CARE KNOWLEDGE

PRAMON VIWATTANAKULVANID: INFLUENCE OF PARKINSON'S DISEASE RELATED KNOWLEDGE ON PARKINSON'S PATIENT EMPOWERMENT. ADVISOR: ASST. PROF. TANATTHA KITTISOPEE, Ph.D., 138 pp.

Parkinson’s disease (PD), a neurodegenerative disorder, affects the emotional and physical functions of persons with Parkinson’s (PwP), who tend to lose their sense of empowerment, a cognitive state of perceived competence and perceived control. A diminished sense of empowerment is a result of being dependent and unable to have control over their own lives and health. To increase empowerment in PwP, it is necessary to understand the factors that impact on the empowerment. This study aimed to 1) find the extent of relationship between Parkinson’s disease related knowledge and Parkinson’s patient empowerment, controlling for personality traits and severity of disease and 2) examine Parkinson’s patient perceived acquiring Parkinson’s disease related knowledge level via distribution channel from doctors, websites, caregivers and patient support groups.

This cross-sectional survey study with the interviewed questionnaire was performed at PD clinics at King Chulalongkorn Memorial hospital. The study included 128 PwP (47.7% males) with a mean age of 58.3 ± 8.9 years, and a mean disease duration of 8.1 ± 4.8 years. Each participant in the study was asked questions from four sections: 1) Parkinson’s Patient Empowerment, 2) Health Locus of Control, 3) Self-esteem, and 4) PD Knowledge.

The results showed Parkinson’s patients perceived acquiring very high Parkinson’s disease related knowledge level via doctors, caregivers, websites and patient support groups, respectively. The hierarchical multiple regression analysis indicated four significant important influencing factors were self-care knowledge ($\beta = 0.15$, $p < 0.05$), self-esteem ($\beta = 0.33$, $p < 0.05$), internal health locus of control ($\beta = 0.32$, $p < 0.05$) and external health locus of control by powerful others ($\beta = 0.18$, $p < 0.05$). All variables in the model can explain 38% of variance in Parkinson’s patient empowerment.

Based on these findings, after controlling for self-esteem, internal health locus of control, external health locus of control by powerful others, external health locus of control by chance and severity of disease, self-care knowledge still showed statistically significant contribution to Parkinson’s patient empowerment (R2 Change = 0.02, $p < 0.05$). Thus, the effective intervention to increase Parkinson’s patient empowerment should emphasize providing self-care knowledge.

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Academic Year: 2015

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Finally, I most gratefully acknowledge my family and Parkinson's patients for all their support throughout the period of this research.

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CHAPTER I

INTRODUCTION

1.1 Statement of the problem

Parkinson's disease (PD), the second most age-related neurodegenerative diseases, affects approximately 1-2% of people over age 60 years and older (Olanow, Stern, & Sethi, 2009). The disease is typically diagnosed by the appearance of bradykinesia, rest tremor, rigidity and postural ability (Bhidayasiri & Brenden, 2011). By 2040, the number of Persons with Parkinson's (PwP) in the States is estimated to be 1.3 million, with more than 85% of individuals older than 50 years old (Habermann & Davis, 2005). In Thailand, the estimated number of PD population in Thailand was 60,565 cases by March 2011, which is based on PD Registry in Thailand launched for two year data (Bhidayasiri et al., 2011). However, the number of PwP in Thailand still needs to be studied to find the exact number of patients which are expected to be higher than 60,565 cases.

The symptoms of PD affect psychosocial well–being and social functioning of PwP and their family members (Reese, 2007). PD caregivers have to provide physical support, emotional support and economic support. Due to the caring for patients with chronic or disabling diseases, caregivers might have to face the challenge of psychological and physical distress, limitation on their personal life and social activities and financial difficulties (Lokk, 2009). In Thailand, it also showed the relationship between the PD symptoms and caregivers' burden, which raised an issue of caregiver's burden for PD (Viwattanakulvanid et al., 2014). Besides caregiver-burden for PD care, the cost of PD illness causes the burden on healthcare system and society. In the United States, the combined direct and indirect cost for PD expenditures such as medical treatment, Social Security payments and lost income from inability to work, is projected to be approximately $25 billion per year and medication costs for each PD patient average $2,500 per year and the expenditures of therapeutic surgery can cost up to $100,000 per patient (Phrma, 2013). In 2040, the estimation of PD care cost in the United States will exceed $50 billion (Findley, 2007). In Thailand, the estimated the annual total direct costs and annual direct medical costs of PD were 26,314.30 and 29,476.00 baht, respectively (Techakehakij & Kanyamee, 2016). Thus, if we calculated the direct medical costs of PD based on approximately 60,000 cases in Thailand, the estimated direct medical costs of PD will be higher than 1.57 billion baht per year (Techakehakij & Kanyamee, 2016). As a result, all of economic and societal impacts of PD should not be ignored. Therefore, the current study would like to apply the concept of the empowerment for PD care through the understanding of influencing factors that empower those patients, which finally will improve the health outcomes of PwP, reduce PD caregiver burdens and reduces PD care costs in the healthcare system.

The concept of empowerment in health care came from self-management, involving patients to have responsibilities to manage their own health and gain control over their own lives, which finally improves the health outcomes (Wong-Rieger, 2012; Woodall, Raine, South, & Warwick-Booth, 2010). In 1986, the Ottawa Conference known as "Ottawa Charter for Health Promotion" mentioned empowerment term as the idea in Health promotion to strengthen community to control their own actions to have better health. Finally, WHO defined the term empowerment as "A process through which people gain greater control over decisions and actions affecting their health."(WHO, 1998). Before 21st Century, the term "empowerment" was first introduced by Paulo Freire, a Brazilian humanitarian and educator, since 1973. Freire perceived empowerment as education will liberate the oppressed people (Gerhardt, 2000; Hur, 2006). After the introduction of Paulo's empowerment, the empowerment idea was also applied into several contexts especially in healthcare context to be used as public health interventions to empower patients (Mooney, 2009). The patient empowerment idea also has been used as a patient-provider partnerships in healthcare and patient self-care strategy to improve health outcomes and quality of life in patients with chronic conditions (Cooper, Booth, & Gill, 2009; Jirapaet, 2000; Mallory O Johnson, 2012; Pibernik-Okanovic, Prasek, Poljicanin-Filipovic, Pavlic-Renar, & Metelko, 2004; Tang, Funnell, Brown, & Kurlander, 2010; Tsay & Hung, 2004; Wahlin, Ek, & Idvall, 2006; Wallerstein, 2006) such as diabetes, end-stage renal disease, HIV, chronic obstructive pulmonary disease, osteoporosis, cancer and mental disorders. For examples, in studies related to patients with diabetes (Cooper et al., 2009; Pibernik-Okanovic et al., 2004; Tang et al., 2010), an empowerment-based education program under self-care idea, compared to standard care showed the positive results of quality of life and metabolic control. In studies related to HIV patients (Jirapaet, 2000; Mallory O Johnson, 2012), an empowerment program based on the idea of patients' participation in health care was applied to assist patients and the study findings showed the improvement of quality of life.

Although the concept of empowerment is very useful to help patients manage their own diseases, its concept still lacks a clear theoretical foundation and causes myths and misconception (Anderson & Funnell, 2010; Rissel, 1994). The unclear empowerment theoretical foundation is composed of various empowerment definitions by different users, empowerment measurement ambiguities and empowerment structural barriers (Rissel, 1994). Based on the concept of psychological empowerment (Zimmerman, 1995; Zimmerman & Rappaport, 1988), psychological empowerment can be referred as the individual level of analysis, which involves the beliefs about individual's competence, control and understanding of socio-political environment. In this study, we use the empowerment concept in health care context and individual psychological perspective called as psychological health empowerment.

Based on the psychological health empowerment model (Menon, 2002), we defined the term of psychological health empowerment as "a cognitive state of perceived competence and perceived control to manage their own health." which is shaped by the interaction of health care providers and patients. Patient empowerment was defined as "Patient's cognitive state of perceived competence and perceived control to manage of his or her own health." Based on Zimmerman and Menon's concepts, the two essential components of psychological empowerment are 1) perceived competence- beliefs about one's ability to perform the roles and responsibilities of taking care of one's own health and 2) perceived control- beliefs about one's ability to make decisions related to one's own health (Menon, 2002; Zimmerman, 1995, 2000).

As mentioned about Parkinson's disease, the disease affects both physical well-being and mental conditions. For mental conditions of PD, patients have a high risk of facing stress and depression. Emotions such as stress and depression in PwP can affect the symptoms and progression of PD (Hemmerle, Herman, & Seroogy, 2012; Hurt et al., 2011). Most clinicians focus on the management of physical conditions and have less attention on the psychosocial issues. The impact of the lack of attention and support by the health care providers may affect compliance with disease treatment, symptoms management, and the course of the illness (Reese, 2007). Due to the unpredictable symptoms and the inevitable deterioration of competencies, PwP tend to have a diminished sense of empowerment and control over their own lives (Attard & Coulson, 2012). The lack of empowerment can have a direct effect on health by stimulating unhealthy or negative physiology and also have an indirect effect on health by influencing individual behavior (Green & Tones, 2010). Thus, if we can increase the empowerment in PwP, it will assist patients to gain back the control of their lives which finally affect the health outcomes.

To increase empowerment in PwP, we need to understand the factors that influence on Parkinson’s patient empowerment. Disease related knowledge was suggested as one factor that can empower patients when they have enough knowledge to make their own decisions or play an active role to take care of their own health (Funnell, Anderson, Arnold, Johnson, & Taylor-Moon, 1991; Soderholm Werko, 2008). Many studies (Anderson, Funnell, Barr, Dedrick, & Davis, 1991; Aujoulat, d’Hoore, & Deccache, 2007; Feste & Anderson, 1995; Funnell et al., 1991) emphasized the importance of knowledge in patient education programs in order to empower patients. Knowledge can make patients understand their own health problems, know options to solve the problems, evaluate the risks and finally selected their own options. As a result, patients become empowered patients (Thawani & Gharpure, 1997). With adequate information or knowledge, patients can perform an active role and responsibility in their health-related decisions regarding their treatment and care (Soderholm Werko, 2008). In Thailand, the current knowledge in existing PD education program aims to provide disease related knowledge which covers disease, treatment and self-care. Additionally, medical professionals routinely provide disease related knowledge for PwP and expect that PwP can have a sense of empowerment to manage their own health or to make their own health-related decisions. However, there are no empirical data to show whether providing only disease related knowledge can empower PwP in Thailand. Therefore, the understanding of the impact of disease related knowledge and Parkinson’s patient empowerment is also important to enhance empowerment of PwP.

However, personality traits such as self-esteem and health locus of control are also intrinsic factors that also have an impact on patient empowerment (E. Sally Rogers, 1997; Koelen & Lindstrom, 2005; Menon, 2002; Spreitzer, 1995; Zimmerman, 1995). Additionally, severity of diseases characterized by duration of disease and stages of disease can possibly affect patient empowerment (Gaston & Mitchell, 2005; Longtin et al., 2010). Therefore, the understanding of the impact of disease related knowledge and controlling for other factors such as personality traits and severity of disease on Parkinson's patient empowerment is important for investigating whether disease related knowledge can enhance empowerment of PwP as shown in the conceptual framework below.

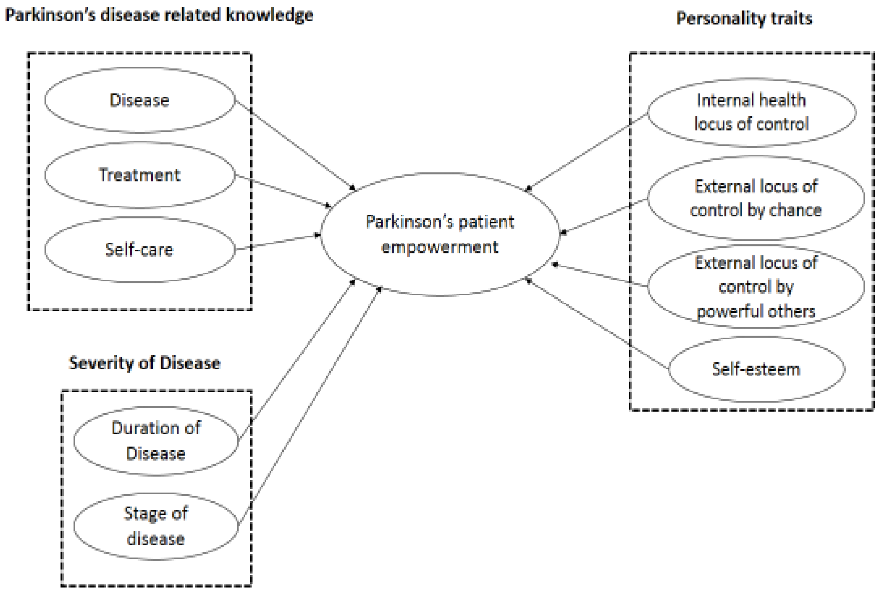

Figure 1 CONCEPTUAL FRAMEWORK

According to the distribution channels for disease related knowledge, empowered patients seek information from a variety of channels and sometimes those channels are likely to provide a lot of information about patients' medical conditions (Leung, Sham, & Zamora, 2011). Disease related knowledge can be disseminated through various channels such as doctors, websites, patient support groups and caregivers (Holmström & Röing, 2010; McAllister, Dunn, Payne, Davies, & Todd, 2012). As mentioned before, health care professionals routinely provide disease related knowledge. However, health care professionals especially doctors in developing countries have issues of time constraint and manpower limitation and they need to take care of many patients. As a result, doctors cannot effectively empower patients. Thus, if we understand patient's perceived acquiring disease related knowledge level via different distribution channels, it will assist health care professionals to improve distribution channels of disease related knowledge, which finally empower patients.

1.2 Research questions

1) What is the extent of relationship between Parkinson's disease related knowledge and Parkinson's patient empowerment, controlling for personality traits and severity of disease?

2) What is the Parkinson's patient's perceived acquiring Parkinson's disease related knowledge level via distribution channels from doctors, websites, caregivers and patient support groups?

1.3 Objectives of the study

1) To find the extent of relationship between Parkinson's disease related knowledge and Parkinson's patient empowerment, controlling for personality traits and severity of disease.

2) To examine Parkinson's perceived acquiring Parkinson's disease related knowledge level via distribution channel from doctors, websites, caregivers and patient support groups.

1.4 Scope of the study

This cross-sectional survey study was designed to find the relationship between Parkinson's disease related knowledge and Parkinson's patient empowerment, controlling for personality traits and severity of disease, and to examine Parkinson's perceived acquiring Parkinson's disease related knowledge level via distribution channel from doctors, websites, caregivers and patient support groups. The study conducted in PD clinic at King Chulalongkorn Memorial Hospital.

1.5 Significant of the study

The outcomes of this study could be valuable for healthcare providers to understand the relationship between Parkinson's disease related knowledge and Parkinson's patient empowerment and select the appropriate influential factor to empower PwP, which will indirectly affect better health outcomes. In addition, health care providers also can improve the distribution channels (websites, doctors, patient support groups and caregivers) to transfer disease related knowledge to empower PwP.

CHAPTER II

LITERATURE REVIEW

Parkinson’s disease is one of neurodegenerative disorders. The disease affects patients in both psychical and mental health conditions. In physical health conditions, Parkinson’s patients suffer major motor symptoms such as bradykinesia, rigidity, rest tremor and postural imbalance (Bhidayasiri & Brenden, 2011). In mental health conditions, Parkinson’s patients feel stress and depress that might accelerate the progression of the disease (Hemmerle et al., 2012; Hurt et al., 2011). Due to the unpredictable symptoms and the progression of Parkinson’s patients, patients tend to lose the control of their lives (Attard & Coulson, 2012; Gwenda Simons, Thomposon, Pasqualini, & consortium, 2006). Moreover, the lack of attention and psychosocial support by health care providers cause the less compliance with the treatment, symptoms management, and the course of illness (Reese, 2007). Besides the burden in PwP, PD caregivers also face the challenge on their physical health, psychological health, personal life, social activities and financial difficulties (Lokk, 2009). Meanwhile, PD care cost also causes the burden on healthcare system and society. Thus, policy makers tried to find the effective intervention to improve the health outcomes of PwP, reduce caregiver-burden and decrease overall health care expenditures.

As losing the control of PwP lives, they seem to lose their empowerment in both competence and control which are two main components in patient empowerment to take care of their own health. Thus, empowerment was defined as a cognitive state of perceived competence and perceived control to manage one's own health in this study. To restore Parkinson's patient empowerment, we need to understand the influential factors that affect Parkinson's patient empowerment. From the reviews (Anderson et al., 1991; Anderson et al., 1995; Feste & Anderson, 1995; Funnell et al., 1991; G. Simons, Thompson, & Smith Pasqualini, 2006; Soderholm Werko, 2008), we found that disease related knowledge in patient education program was considered to be important factor that can empower patients but there were a few studies that emphasized on Parkinson's patient empowerment. Generally, health care providers routinely provide only disease related knowledge to patients and expect them to be empowered or responsible for their own health. However, there is a lack of clear evident that providing only disease related knowledge can empower patients.

As a result, the study aimed to explore the relationship between Parkinson's disease related knowledge and Parkinson's patient empowerment, controlling for personality traits and severity of disease, and to examine Parkinson's perceived acquiring Parkinson's disease related knowledge level via distribution channel from doctors, websites, caregivers and patient support groups.

In the literature review chapter, there were four major sections as follows.

- Empowerment concept
- Parkinson's disease (PD) and empowerment

- Parkinson’s disease related knowledge
    - ➢ Distribution channels to disseminate disease related knowledge
- Other influencing factors
    - ➢ Personality traits
        - ○ Health locus of control
        - ○ Self-esteem
    - ➢ Severity of disease
        - ○ Hoehn and Yahr staging (HY)
        - ○ Disease duration

2.1 Empowerment concept

Since the introduction of empowerment concept by Friere in 1973, he suggested that the oppressed people of the world can liberate themselves through education. As a result, his studies indicated that education system allowed people to freely express their opinions in the oppressive environment (Gerhardt, 2000; Hur, 2006). Also, he was the first person to explain the impact of education system to increase people’s freedom and autonomy, which later on were applied in healthcare promotion strategies to empower patients through education. In 1987, Rappaport also emphasized the important of education in the empowerment concept. He defined the empowerment term as “ A process by which people gain mastery over their lives.” (Rappaport, 1987). The definition of empowerment by Rappaport leads us to understand the empowerment term in psychological sense which involves the main component of empowerment as "perceived control". In 1991, Gibson defined the empowerment term related to health care as "A process of helping people to assert control over the factors which affect their lives. The process encompasses both individual responsibility in health care and the broader institutional, organizational or societal responsibilities in enabling people to assume responsibility for their own health." (Gibson, 1991). The description of empowerment by Gibson gave us the understanding of another important component in empowerment besides "Perceived control" which is later called as "Perceived competence". As a result, the researcher concluded that the empowerment components should be composed of perceived competence and perceived control.

In 1995, the study from Catherine and Robert defined the empowerment term as "An educational process designed to help patients develop knowledge, skills, attitudes and degree of self-awareness necessary to effectively assume responsibility for their health-related decisions." (Feste & Anderson, 1995). They viewed the empowerment term is related to education. The study also suggested the topics for empowerment education, includes well-being, self-image, motivation, adaptability, stress management, problem-solving, social-support, self-awareness and hope.

In 1998, WHO defined empowerment as "A process through which people gain greater control over decisions and actions affecting health." (WHO, 1998). Two levels of empowerment as community empowerment and individual empowerment was also defined by WHO as follows.

“Community empowerment involves individuals acting collectively to gain greater influence and control over the determinants of health and the quality of life in their community, and is an important goal in community action for health.”(WHO, 1998)

“Individual empowerment refers primarily to the individuals’ ability to make decisions and have control over their personal life.” (WHO, 1998)

According to the definition of empowerment and the levels of empowerment by WHO and the empowerment explanation from the study (Zimmerman, 1995), it helped the researcher to clarify the scope of empowerment as individual empowerment level and psychological empowerment in the current study. In 1995, Spreitzer showed the idea how to measure psychological empowerment in working context, which were comprised of meaning, competence, self-determination and impact (Spreitzer, 1995). In 2001, the psychological empowerment measurement from Spreitzer was later on applied by Sanjay T. Menon under the three dimensions of psychological empowerment as perceived control refers to beliefs about autonomy and decision-making, perceived competence refers to self-efficacy with respect to the demand of role and goal internalization refers to the enabling power of ideas such as a vision for the future (Menon, 2001). At that time, both authors still studied psychological empowerment in working context.

In 2002, Menon extended the study of psychological empowerment in healthcare setting and defined psychological empowerment as “A cognitive state characterized by perceptions of control regarding one’s own health and health care; perceptions of competence regarding one’s own ability to maintain good health and mange interactions with the health care system; and internalization of health ideals and goals at the individual and societal level.” (Menon, 2002). He clearly described empowerment in individual psychological perspective and used the term of psychological health empowerment. Menon also proposed the psychological health empowerment model related to three elements, which involve health policy and systems, health service providers and individual. Additionally, he found that if anyone would like to use the empowerment term, he or she needs to indicate three things as follows; you view empowerment as an act or a process or a psychological state; you specify empowerment in which context or setting such as healthcare, politics, psychology, society.; and you look at which level of analysis such as individual, group, community. The explanation of empowerment by Menon helps the researcher to clarify the empowerment term in psychology perspective.

As different definitions of empowerment term appeared in many studies, the reviews (Feste & Anderson, 1995; Gerhardt, 2000; Gibson, 1991; Hur, 2006; Menon, 2002; Rappaport, 1987; WHO, 1998) help this study the clarification of the empowerment term, which are found to be the most difficult issue among researchers who conducted study related to empowerment. In this study, researcher considered empowerment term in healthcare, individual level and psychological context based on the study (Menon, 2002). Thus, for health policy or systems in psychological health empowerment model, we perceived it is related to societal level and community level rather than individual level as a result of excluding health policy or systems and goal internalization element in our study. Finally, the researcher defined empowerment as “A cognitive state of perceived competence and perceived control to manage one’s own health.” From the reviews (Feste & Anderson, 1995; Gibson, 1991; Menon, 2002; Rappaport, 1987; WHO, 1998), the researcher synthesized the empowerment in the important component as perceived competence and perceived control and also defined those as below.

- **Perceived competence** is the beliefs about one’s ability to perform the roles and responsibilities of taking care of one’s own health.
- **Perceived control** is the beliefs about one’s ability to make a decision related to one’s own health.

As a result, both perceived competence and perceived control are the important component to measure the level of empowerment from patients in this study. However, the Menon’s study (Menon, 2002) suggested the relationship between perceived competence and perceived control as the increasing level of competence regarding specific health related tasks and experienced health related success will ultimately increase perceptions of control. As a result, the author treated perceived competence and perceived control as a unidimension.

After introducing the empowerment concept, the next section is about Parkinson's disease and empowerment. The section provides the understanding of why the researcher is interested to apply empowerment concept into Parkinson's patients.

2.2 Parkinson's disease (PD) and empowerment

According to the increase of aging population in Thailand, the elderly people are at risk of chronic diseases (Office of the National Economic and Social Development Board, 2011). One of chronic diseases in elderly is Parkinson's disease, the second most common neurodegenerative disorder. The estimation of patients with PD worldwide is up to 5 million. The prevalence of PD is about 1-2 percent of people with age above 60 years old (Olanow et al., 2009). In Thailand, the crude prevalence of PD is 95.34 cases per 100,000 populations and the estimated total PD cases are 60,565 cases (Bhidayasiri et al., 2011).

Parkinson's disease is an age-related neurodegenerative disease with the main symptoms including resting tremor, rigidity, bradykinesia and postural imbalance. Besides motor symptoms, patients also have non-motor symptoms such as sleep disturbances, mood disorders, erectile dysfunction and constipation. At present, Parkinson's disease is treatable but not curable disease as a result the main treatment is still symptomatic (Bhidayasiri & Brenden, 2011; Bhidayasiri & Ling, 2009; Bhidayasiri & Truong, 2012). The disease affects patients in both physical well-being and mental conditions. According to physical well-beings, PwP have symptoms related to the movement such as rest tremor, rigidity, bradykinesia and postural instability. For mental conditions, PwP have a high risk of stress and depression. Emotions such as stress and depression in Parkinson’s disease affect the symptoms and progression of the disease (Hemmerle et al., 2012; Hurt et al., 2011). Unlike other chronic diseases, PwP have various psychosocial problems due to their symptoms. For examples, on/off syndrome affects the interaction with the society, low self-esteem and confidence and loss of independence and freedom; the reduction in facial expression in PwP affects social interaction and communication in the society (Gwenda Simons et al., 2006). All of these burdens from unpredictable symptoms and the progression of the disease cause PwP to lose their independent and control over their lives because it is hard for them to perform normal daily activities and remain independent (Attard & Coulson, 2012; Gwenda Simons et al., 2006). Therefore, PwP have a sense of low empowerment in both perceived competence and perceived control, which are two important components in patient empowerment.

Currently, there are a few studies of the application of empowerment concept into PwP. Thus, if we understand the influencing factors towards empowerment of PwP and use them to empower PwP, PwP can become empowered patients and gain back control of their lives, which will finally improve the health outcomes such as compliance with the medical treatment, symptom management and the course of illness.

2.3 Parkinson’s disease related knowledge

Paulo Freire, a Brazilian educator, was the first person who introduced the term “empowerment” as education to liberate the oppressed people (Gerhardt, 2000). In the field of public health, Paulo Freire’s empowerment education model is similar to health education and his theoretical framework is very useful to address the issues in healthcare system (Mooney, 2009). Freire also guided the three steps of empowerment; “Conscientizing” the oppressed people can become empowered by gaining the knowledge of social inequality, “Inspiring” the oppressed people support each other to feel confident about overcoming social equality and “Liberating” the oppressed people liberate themselves (Hur, 2006). The education or knowledge (Conscientizing) that Friere gave to those oppressed people make the feeling of being empowered or gaining control (Inspiring) and competence (Liberating) of their lives. Additionally, education or knowledge should be an important factor that affects the empowerment.

As stated above how important knowledge or education can empower people, next is the explanation of how knowledge becomes the influencing factor toward patient empowerment in health care context. From Thawani and Gharpure’s study (Thawani & Gharpure, 1997), if we would like to transform passive patients into active patients, patients need to be awakened, informed, educated and enlightened to enable them to exercise their rights. The study pointed the importance of knowledge to make patients understand their own health problems, know options to solve the problems, evaluate the risks and finally selected their own options. As a result, patients become empowered patients. From Azy’s study (Azy Barak, 2008), the feeling of personal empowerment can be achieved by obtaining relevant information and knowledge. In the Funnell’s study (Funnell et al., 1991) , people are empowered when they have enough knowledge to make appropriate decisions, enough control and resources to implement their decisions. This is in line with the Soderholm’s study (Soderholm Werko, 2008), with adequate information or knowledge, patients can perform an active role in their health-related decisions regarding their treatment and care. They can decide on alternatives in the health care services, access to relevant information and have ability to analyze it. The study also pointed out that the important contribution factor that influences patient empowerment is the increase in patients’ knowledge through patient education.

According to the education program in patient empowerment studies (Anderson et al., 1991; Anderson et al., 1995; Aujoulat et al., 2007; Feste & Anderson, 1995; Gwenda Simons et al., 2006), the disease related knowledge is a partial section in patient empowerment program. The Parkinson’s disease related knowledge in this study covers three items such as disease knowledge that includes the causes of disease, symptoms of disease, the diagnosis of disease; treatment knowledge that provides administration or application of remedies to a patient or for a disease or an injury; medicinal or surgical management, therapy; self-care knowledge that provides the care of oneself without medical, professional or other assistance or oversight.

2.3.1 Distribution channels to disseminate Parkinson’s disease related knowledge

According to the distribution channels for disease related knowledge, empowered patients tend to seek information from a variety of channels and sometimes those channels are likely to provide a lot of information about patients’ medical conditions (Leung et al., 2011). For disease related knowledge, they can be disseminated through various channels such as doctors, websites, patient support groups and caregivers (Holmström & Röing, 2010; McAllister et al., 2012).

1) ***Websites:*** Now the Internet provides patients with access to a plentiful medical information and research which were not available in the past. A 2010 survey of over 12,000 people across 12 countries from British United Provident Association Health Pulse showed that nearly two-thirds (64 percent) of people who use the Internet to research health do so to check up on their medications, or evaluate alternatives. Almost half of them (46%) read up on their symptoms and self-diagnose their illness (Leung et al., 2011).

2) ***Doctors:*** In general, doctors play an important role assisting the patient in making decision and encouraging patients to be partners of the healthcare team (Lau, 2002). Additionally, the way doctors communicate with patients is a necessary component in empowering patients to manage their own health and well-being. Doctors can inform the disease related knowledge to patients in a language that they understand.

3) *Patient Support Groups:* A support group is a group that brings together people experiencing the same issues such as sickness, relationship problems or major life changes. Participants of support groups often share experiences and knowledge. It can be helpful just getting to talk with other people who are in the same situation. For patient support groups, the groups gather people who share a common health concern or interest. A support group can be formed by non-profit organizations, advocacy organizations, health clinics or other organizations. There are many benefits from participating in support groups such as feeling less lonely, obtaining a sense of empowerment and control, learning problem-solving skills, sharing emotional feelings , reducing stress and depression, etc. (MayoClinic, 2012).

4) *Caregivers:* In the Holmstrom and Roing's study (Holmström & Röing, 2010), it indicated that patient empowerment is related to caregivers in many ways such as behavior caregiver and patient, sharing of power between caregiver and patient, partnership between caregiver and patient based on mutual trust and respect. Regarding the communication to transfer disease related knowledge, caregivers can provide patient with information regarding diagnosis, pathology, treatment and prognosis. Therefore, the disease related knowledge through caregivers should be studied to compare with other distribution channels to find the effective channel.

2.4 Other influencing factors

Although Parkinson's disease related knowledge possibly impacts on Parkinson's patient empowerment, there are two influencing factors that should be controlled as follows.

2.4.1 Personality traits

Another important factor that influences patient empowerment besides Parkinson's disease related knowledge is also related to personality traits. In many studies (E. Sally Rogers, 1997; Koelen & Lindstrom, 2005; Menon, 2002; Spreitzer, 1995), we found that personality traits also impact on psychological empowerment. The Spreitzer's study (Spreitzer, 1995) related to psychological empowerment described two personality traits such as self-esteem and locus of control were expected to be antecedents of empowerment and have a relationship with empowerment. Self-esteem can be perceived as a sense of self-worth and a strong belief of control over one's own future or own life, which can be associated with empowerment (E. Sally Rogers, 1997). Meanwhile, people can experience perceived competence and control in psychological empowerment depending on individual's health locus of control (Menon, 2002), which is defined as generalized belief regarding the controlling source of one's health outcomes (Bonnie R. Strickland, 1989). The explanation of Menon on the influence of health locus of control on psychological empowerment was also similar to the Koelen and Linstorm's study (Koelen & Lindstrom, 2005).

The personality traits are defined as “the relatively enduring patterns of thoughts, feelings, and behaviors that distinguish individuals from one other.”(Brent W. Roberts, 2008). Therefore, two main personality traits that affect psychological empowerment include health locus of control and self-esteem. The explanation of two main personality traits is as follows.

2.4.1.1 Health Locus of control

Concepts of Locus of control

The locus of Control construct is useful for studying expectancies for health related behaviors. The application of the locus of control construct in relation to health behaviors had become known as health locus of control.

In 1966, Rotter mentioned locus of control of reinforcement which means people differently perceive their own actions were guided by reinforcement (rewards and punishments). As a result, this reinforcement will shape what kind of attitudes and actions people hold. People with an internal locus of control of reinforcement believe that their own actions determine the rewards that they obtain. On the other hand, people with an external locus of control of reinforcement believe that their own actions does not matter because the rewards in life are controlled by luck, chance or powerful others (Rotter, 1966).

In 1978, Wallston and colleagues tried to explain the relationship between locus of control and health-related behaviors. They defined health locus of control as the degree to which individual believe that their health is controlled by internal versus external factor. Wallston and colleagues also developed the Multidimensional Health Locus of Control scales to measure a personal belief on what influences health. The scale assesses three main dimensions. The first one is to measure internal belief which means people believe their health influenced by their own choices and behaviors. The second one is to measure chance belief which means people believe their health influenced by chance, luck, fate or god. The last one is to measure powerful others belief which means people believe their health influenced by people around them such as doctors, nurses, family members (B. Wallston, Wallston, & DeVellis, 1978).

In 1978, Strickland stated people with internal health locus of control believe their good health as a result from their own actions and those people tend to have positive health behaviors. On the other hand, people with external health locus of control by powerful others believe their health depending on the care from physicians or health care providers. Those people tend to follow the directions from health care providers. People with external health locus of control by chance believe in fate or destiny and they tend to ignore the prevention or care for their illness (Bonnie R Strickland, 1978) .

In 1983, Lefcourt defined locus of control as the general belief of personal characteristics or actions and outcomes of their actions which can describe individual’s belief in internal or external locus of control. People with internal locus of control believe outcomes resulting from their own actions. On the other hand, people with external locus of control believe outcomes resulting from fate or luck (Lefcourt, 1984).

Relationships between locus of control, health-related behaviors and empowerment

The concept of health locus of control from Wallston's study (B. Wallston et al., 1978) was applied in this study. Wallston revealed the relationship between belief of health locus of control and individual's health behavior (B. Wallston et al., 1978). All health behaviors such as seeking for health knowledge, taking medicines as directed by physicians, visiting doctors as scheduled, exercising and having healthy food .etc. can be explained by the concept of health locus of control. The health locus of control consists of an internal health locus of control, an external health locus of control by chance and an external health locus of control by powerful others. The term "Internal health locus of control" means people believe that their own actions have a certain impact on their health. Thus, they strongly believe they can control their own health by changing risk behaviors to healthy behaviors. Additionally, the studies (Keedy, 2009; K. A. Wallston & Wallston, 1982) stated the relationship between health locus of control and health behaviors as patients with internal health locus of control had a positive relationship with the life pleasure, will to live, the need for control of the healthcare delivery process, health information-seeking behavior and adherence to health care providers' recommendations (especially when health was highly valued). "External health locus of control by chance" means people believe that their own health is influenced by chance, fate or god. Patients with external health locus of control by chance had a positive relationship with depression level and report of physical symptoms, and negatively associated with the need for control over the healthcare delivery process (K. A. Wallston & Wallston, 1982). “External health locus of control by powerful others” means people believe that their own health is dependent on the competence of doctors, nurses, on behavior of their friends and family. Patients with external health locus of control by powerful others had a positive relationship with health information-seeking and adherence to treatment recommendations and negatively associated with the need for control over healthcare delivery process (K. A. Wallston & Wallston, 1982). Regarding patients with chronic conditions, the Wallston’s study (K. A. Wallston & Wallston, 1982) found that they tended to have higher external health locus of control by chance and powerful others than healthy people. Also, patients with disabilities had higher external health locus of control by powerful others than external health locus of control by chance and internal health locus of control.

In comparison between internal health locus of control and external health locus of control, patients with an external locus of control do not perceive their own actions as significantly influencing their health and they have worse habits, are less likely to perform health-promoting behaviors and as a result they tend to ignore messages regarding disease prevention or illness recovery (Koelen & Lindstrom, 2005). Therefore, people with internal health locus of control possibly have higher empowerment and adopt more appropriate behaviors to take care of their health than people with external locus of control (Menon, 2002; B. Wallston et al., 1978).

2.4.1.2 Self-esteem

Definition of self-esteem

The term of self-esteem has been widely used in sociology and psychology. The term was also defined in the different meanings as follows.

In 1970, Maslow defined the concept of self-esteem as a part of human needs divided into two levels. The first level is the desire of individual to have power, strength, competence, success and freedom. The second level is the desire of individual to gain respect and recognition from others (Maslow, Frager, Fadiman, McReynolds, & Cox, 1970).

In 1979, Rosenberg perceived self-esteem as the general sense of self-worth, self-acceptance, self-regard and self-confidence, which reflects from the self-evaluation in positive and negative way. The self-evaluation is based on the social environment or group characteristics, which are used as the standard frame for self-evaluation (M. Rosenberg, 1979).

In 1981, Coopersmith defined self-esteem as individual's attitude towards oneself and it is related to the personal beliefs about oneself to have competence, significant, success and worthiness that is expressed in the attitudes. Other people can see these attitudes through words or behaviors from each individual (Coopersmith, 1981).

In 1985, Baumeister and Tice defined self-esteem as a global evaluation of the self and it is typically measured by the degree to which the person endorses various evaluation statement about the self (Baumeister & Tice, 1985).

In 1988, Brockner stated that self-esteem term has a similar meanings to other terms such as self-acceptance, self- assurance, self-efficacy and self-respect (Brockner, 1988).

In 1993, Block and Robbins explained self-esteem as the perception of self about what individual wants to become or does not want to become and accept those characteristics as positive worth (Block & Robins, 1993).

Theories of self-esteem

Besides different definitions of self-esteem from many studies addressed above, there are two famous theories of self-esteem that can provide helpful information to conceptualize and operationalize self-esteem in this study. The first one is Cooley's Looking Glass Self, Cooley focused on the importance of social acceptance and the reflected judgments of others (Cooley, 1902). The theory pointed that people tend to feel what they imagine or think other people think of them; for examples, if they think others think they are ugly, they tend to think of themselves as ugly. If they think others think they are beautiful, they tend to think of themselves as beautiful. However, the concept of "Looking Glass Self" seems to be influenced by external forces rather than the internal feelings that occur inside individuals. The other one is self-esteem from Rosenberg who conducted the studies of adolescence in American Public schools (Rosenberg, 1965). Rosenberg viewed self-esteem is one of the most powerful feelings for motivation in the human development. He defined self-esteem as a positive or negative attitude toward a particular object, namely the self. People with high or positive self-esteem have the feelings of self-respect and worthiness. Moreover, they recognize their strengths and weaknesses. On the other hand, people with low or negative self-esteem lack the feeling of self-respect for themselves and look at themselves as unworthy people.

Another important ambiguous issue of the self-esteem concept is the fluctuation inside self-esteem. Self-esteem can be perceived as a relatively stable trait in some theories. Regarding this perspective, self-esteem is a stable because it slowly forms over a period of time through individual's experiences. However, self-esteem also can be viewed as "state" and it can be manipulated or affected (Heatherton & Polivy, 1991). For example, although we feel good about ourselves, we also have a moment that we have a feelings of dislike about ourselves. Fluctuation is a state self-esteem are related to social evaluations or the individual's feelings towards himself or herself, and even emotional feelings such as anger and hostility (Kernis, 1993). People with a sensitive sense of self-esteem react very positively to positive feedback and respond very defensively to negative feedback. Moreover, the Robins and his team's study (Robins, Trzesniewski, Tracy, Gosling, & Potter, 2002) showed the fluctuations in self-esteem can occur across the life span which indicated the level of self-esteem can be changed.

In summary, self-esteem concept from studies (Brockner, 1988; Rosenberg, 1965; M. Rosenberg, 1979) was applied in this study and defined as a general feeling of self-worth or loving oneself. Also, the feeling of self-esteem can be changed due to personal experiences or group characteristics.

Relationships between self-esteem and empowerment

In Green and Tones' book related to health promotion (Green & Tones, 2010), it explained that self-esteem has a significant direct and indirect effect on health. For instance, self-esteem is typically considered a direct impact on mental health and happiness. Self-esteem may also have an indirect influence through its contribution to intentions to perform healthy or unhealthy actions (Green & Tones, 2010). For instance, individuals with high self-esteem who respect and value themselves will seek to look after themselves by adopting courses of action that prevent disease. Also, they are more likely to reject unhealthy behavior. Meanwhile, those having low self-esteem are more likely to obey to interpersonal pressures such social pressure as a result in adoption of unhealthy behavior (Green & Tones, 2010).

Regarding empowerment and self-esteem, individuals with high self-esteem are likely to extend their feelings of self-worth to sense of competence and look at themselves as the valuable persons. Additionally, they look at themselves as able to change their lives for the better, as being responsible for their health, giving attention to their own physical health and even making their own health choices (Spreitzer, 1995; Swinney, 2002). As a result, they tend to feel empowered to take care of their own health. On the other hand, individuals with low self-esteem do not look at themselves as valuable persons and tend to feel anxious, depressed and unhappy as a result in not being able to make decisions for changes for their lives (Spreitzer, 1995; Swinney, 2002). Therefore, individuals with high self-esteem are considered as highly empowered people.

2.4.2 Severity of disease

In Longtin and his team's study (Longtin et al., 2010), it stated that disease severity was one of factors that influence patient participation in patient's health decision making. Disease severity also had a negative relationship with the desire of patients to participate in decision making or a sense of empowerment especially in patients with worse conditions such as advanced cancer due to disease progression (Butow, Maclean, Dunn, Tattersall, & Boyer, 1997; Gaston & Mitchell, 2005).

Parkinson's disease is a chronic neurodegenerative disease with unknown cure. As disease progresses, patients require to have polypharmacy to control the symptoms and experience the side effects of the medications (Pfeiffer, Wszolek, & Ebadi, 2004). As a results, PwP are likely to lose a sense of empowerment which can impact on their health. Severity of diseases characterized by duration of disease and stages of disease can possibly affect Parkinson's patient empowerment. The severity of Parkinson's disease which can be represented with Hoehn and Yahr scale (HY) and disease duration in PwP needs to be controlled in the current study.

2.4.2.1 Hoehn and Yahr scale

The Hoehn and Yahr scale (HY), the method of describing the severity of Parkinsonism, was introduced by Dr. Margaret M. Hoehn in 1967 (Hoehn MM, 1967). It was used to indicate the severity of PD in the motor functions and evaluating the patterns of progressive motor impairment (Pfeiffer et al., 2004). The original HY scale was designed with a five-point scale from 1 to 5 and then was modified for some clinical trials which can describe the transitional stage of the disease (Goetz et al., 2004). The original and modified HY scale are showed in the table below.

Table 1: Comparison between original Hoehn and Yahr scale and modified Hoehn and Yahr Scale (Goetz et al., 2004)

Original Hoehn and Yahr Scale	**Modified Hoehn and Yahr scale**
Stage 1 Unilateral involvement only usually with minimal or no functional disability **Stage 2** Bilateral or midline involvement without impairment of balance **Stage 3** Bilateral disease: mild to moderate disability with impaired postural reflexes; physically independent **Stage 4** Severely disabling disease; still able to walk or stand unassisted **Stage 5** Confinement to bed or wheelchair unless aided	**Stage 1** Unilateral disease **Stage 1.5** Unilateral plus axial involvement **Stage 2** Bilateral disease, without impairment of balance **Stage 2.5** Mild bilateral disease, with recovery on pull test **Stage 3** Mild to moderate bilateral disease; some postural instability; physically independent **Stage 4** Severe disability; still able to walk or stand unassisted **Stage 5** Wheelchair bound or bedridden unless aided

As PD progresses, PwP experience worse PD motor symptoms, which negatively affect quality of life (Pfeiffer et al., 2004). The PD progression in HY stages were also correlated with motor decline, decrease in quality of life and neuroimaging studies of dopaminergic loss (Bhidayasiri & Tarsy, 2012). Thus, stage of Parkinson’s disease categorized by HY staging can affect the sense of empowerment to control over their own lives in PwP and it should be controlled in order to investigate the main effect of disease related knowledge on Parkinson’s patient empowerment in the current study.

2.4.2.2 Duration of disease

Regarding duration of disease, Tol and his team’s study concluded that the increasing years of living with diabetes can negatively affect patients to adopt healthy behaviors through empowerment (Tol, Shojaeezadeh, Sharifirad, Alhani, & Tehrani, 2012). Additionally, Kumar and his team’s study indicated that older ages and longer duration of diabetes were the important predictors of patient empowerment in diabetes patients and showed the positive correlation between patient empowerment and duration of disease (Kumar, Kumar, Anish, & Pillarisetti, 2014). The study explained that older patients with longer diabetes duration possibly felt familiar with the disease and doctors. As a result, those old diabetes patients liked to participate in diabetes education program and they were active to ask more questions to health care team in order to take care of themselves. Nevertheless, Hara and his team’s study (Hara et al., 2014) which identified the factors relating to patient empowerment did not show the relationship between patient empowerment and disease duration in diabetes patients. The relationship between disease duration and patient empowerment is still ambiguous.

However, there is no studies that emphasize on the duration of PD and empowerment. Due to the unique characteristics of neurodegenerative diseases, PD symptoms continue and worsen over a period of years. Disease duration was correlated with the degree of neuronal loss in Parkinson’s disease (Bhidayasiri & Brenden, 2011; Pfeiffer et al., 2004). Thus, disease duration of PD can worsen the symptoms of PD which possibly impact on empowerment of PwP and should be controlled in the current study as well.

CHAPTER III

METHODOLOGY

According to the two research questions, the researcher would like to address the questions below.

1) What is the extent of relationship between Parkinson's disease related knowledge and Parkinson's patient empowerment, controlling for personality traits and severity of disease?
2) What is the Parkinson's patient's perceived acquiring Parkinson's disease related knowledge level via distribution channels from doctors, websites, caregivers and patient support groups?

The current study aimed to find the relationship between Parkinson's disease related knowledge and Parkinson's patient empowerment, controlling for personality traits and severity of disease, and to examine Parkinson's perceived acquiring Parkinson's disease related knowledge level via distribution channel from doctors, websites, caregivers and patient support groups.

In this section, the study presented the methods and procedures, namely the definitions of variables and their operationalization, sample population, research instruments, treatment of the data and data analysis.

3.1 Statistical Hypothesis

Hypothesis: Disease knowledge scores, Treatment knowledge scores, Self-care knowledge scores will have regression coefficients significantly in explaining the amount of variation in the scores of Parkinson’s patient empowerment, controlling for Internal health locus of control scores, External health locus of control by chance scores, External health locus of control by powerful others scores, self-esteem scores, HY staging and duration of disease

3.2 Study Design

The design of this study was a cross-sectional survey research to find the extent of the relationship between Parkinson’s disease related knowledge and Parkinson’s patient empowerment, controlling for personality traits and severity of disease, and to examine Parkinson’s perceived acquiring Parkinson’s disease related knowledge level via distribution channel from doctors, websites, caregivers and patient support groups. Interviewer-administered questionnaires were used for data collection in this study. Each participants were asked the same questions by the researcher in order to reduce bias.

3.3 Population and sample size

The study population was PwP at King Chulalongkorn Memorial Hospital. Samples in this study were out patients PwP who came to PD clinic on Tuesdays and Wednesdays during September 2014 – February 2015 at King Chulalongkorn Memorial Hospital. Also, the purposive sampling was used in the sampling method.

Inclusion criteria:

1. Diagnosed with PD
2. Had a minimum score of 24/30 on Mini Mental Status Examination (MMSE)

Exclusion criteria:

1. Not willing to have an interview or unable to complete all answers in questionnaires

The inclusion criteria were assessed by the patient OPD records at PD clinic at King Chulalongkorn Memorial Hospital. MMSE questionnaires assessed by nurses at PD clinic and HY staging assessed by clinicians at PD clinic were recorded in patient OPD records.

Sample sizes in this study were determined by Jacob Cohen's formula for multiple regression analysis (Cohen & Cohen, 1983) as shown below.

$$N = \frac{L}{\gamma} + k + 1$$

N = estimated number of subjects needed
L = table value for the desired alpha and power
k = number of predictors
γ = estimated effect size

Replacing all variables with the number of independent variables = 9, γ (the medium effect size) = 0.15 based on the study (LeBlanc, 2013), power = 0.8, $\alpha = 0.05$ and L value for the desired alpha and power = 15.65. As a result, the minimum sample size requirement was 114 PwP.

3.4 Operational definition

All variables were defined as below.

Empowerment: A cognitive state of perceived competence and perceived control to manage one’s own lives.

Patient Empowerment: Patients’ cognitive state of perceived competence and perceived control to manage their own health.

Perceived competence: The beliefs about ability to perform the roles and responsibilities of taking care of one’s own health.

Perceived control: The beliefs about ability to make one’s own health related decision.

Parkinson’s disease related knowledge: The essential health knowledge of Parkinson’s disease related to disease knowledge, treatment knowledge and self-care knowledge.

Disease knowledge: The information about disease that includes the causes of disease, symptoms of disease.

Treatment knowledge: The information about administration or application of therapies to a patient or for a disease.

Self-care knowledge: The information about the care of oneself without medical professional.

Personality traits: The relatively enduring patterns of thoughts, feelings, and behaviors that distinguish individuals from one other.

Health locus of control: A generalized expectation of the relationship between an individual's behavior and health outcomes.

Internal health locus of control: The belief of the health outcomes as a result of their own actions or behaviors.

External health locus of control by chance: The belief of the health outcomes as a result from external forces such as luck, god or fate.

External health locus of control by powerful others: The belief of the health outcomes as a result of behavior from the competence of doctors, nurses, friends and family.

Self-esteem: The general sense of self-worth or loving oneself.

Website distribution channel: The distribution channel through online technology that patients can obtain information and support regarding their own health; all interactive web applications accessed via the Internet or an intranet.

Doctors distribution channel: The distribution channel through consultation with doctors that patients can obtain information and support regarding their own health.

Patient Support groups distribution channel: The distribution channel through talking with patients in patient support groups that patient can obtain information and support regarding their own health.

Caregivers distribution channel: The distribution channel patients can obtain information and support regarding their own health through talking with family members who take care of them.

Hoehn and Yahr scale (HY): It is a widely used clinical rating scale to evaluate the progressive motor impairment in Parkinson's patients who receive dopaminergic or do not receive dopaminergic (Bhidayasiri & Tarsy, 2012).

3.5 Methods of data collection

PD clinic at King Chulalongkorn Memorial Hospital was opened every Tuesday afternoon (13.00 pm.-17.00 pm.) and Wednesday morning (9.00 am. – 12.00 am.). For data collection method, the researcher interviewed PwP who visited PD clinic during September 2014 – February 2015 regarding each question on the questionnaire. Patient lists on the visited date were presented at PD clinic. Patient OPD records for patients who visit the doctors at PD clinic were delivered at PD clinic every Monday. The researcher used Patient OPD records to screen out eligible patients before conduction interview. MMSE scores and PD diagnosis were recorded in patient OPD records. All questionnaires were filled by the researcher who conducted the interview by himself. The information sheet and consent form were presented to each participant before conducting the interview. The interview period was approximately 20-30 minutes for each patient.

3.6 Steps of the interview process

- Researcher informed patients the details including objectives and benefits of the research study
- Researcher enquired the consent and the access of patient history profiles from the patients
- If patients are willing to participate in the study, researcher asks patients to sign the consent form.
- Research started to interview patients with the explanation of questions and choices without the bias or intervention during the interview.

3.7 Development of Measurement tools

The questionnaire consisted of 4 measurement tools in a form of summated Likert-type scales in Parkinson’s patient empowerment, self-esteem and health locus of control and yes-no questions in Parkinson’s disease related knowledge. The range of Likert Method rating scale was categorized into 5 levels (Strongly disagree = 1, Disagree = 2, Neutral = 3, Agree = 4, Strongly agree = 5). The answers were interpreted accordingly as strongly agree for weighted mean ranging 4.50—5.00, agree for weighted mean ranging 3.50-4.49, neutral for weighed mean ranging 2.50-3.49, disagree for weighted mean ranging 1.50-2.49 and strongly disagree for weighted mean ranging 1.00-1.49 (Kanasutara, 1999).

Parkinson's Patient Empowerment

The 12 items in psychological health empowerment scale from the Menon's study (Menon, 2002) and 2 items in Diabetes Empowerment Scales (Anderson, Funnell, Fitzgerald, & Marrero, 2000) were modified to measure empowerment in Parkinson's patients as shown in **APPENDIX A**. The Parkinson's Patient Empowerment Questionnaire was tested for content validity with the Index of Item-Objective Congruence by five experts (Prof. Dr. Roongroj Bhidayasiri- movement specialist at King Chulalongkorn Memorial Hospital, Dr. Priya Jagota- neurologist from PD clinic at King Chulalongkorn Memorial Hospital, Dr. Onanong Jitkritsadakul- neurologist from PD clinic at King Chulalongkorn Memorial Hospital, Dr. Lanchasak Akkayagorn- psychiatrist at King Chulalongkorn Memorial Hospital and Dr. Siripan Phattanarudee- pharmacist from Faculty of Pharmaceutical Sciences at Chulalongkorn University) in order to modify or delete items if they lacked clarity. All experts work with PwP and PD patient support group at King Memorial Chulalongkorn Hospital. The final version of Questionnaire contained 14 items, which were treated as unidimension for perceived control (5 items) - 1) I can make my own health related decision, 2) I can make decision regarding what is good treatment for me, 3) I can access to health care (health care services, treatment and medications) when I needed, 4) I can decide where I should go to get the support for caring my disease, 5) I can make right self-care decision to maintain my good health and perceived competence (9 items) - 6) I can live normal life or perform daily activities as other people around me, 7) I have knowledge and capability to maintain my healthy lifestyles, 8) I have competence to know when to see a doctor, 9) I am capable of following directions or medical advice given to me by my doctor and other health care services providers, 10) I have capability to openly communicate with doctors and other health care providers, 11) I can understand Parkinson's information given to me by my doctor and other health care services providers, 12) I can cope with stress caused by my Parkinson's disease, 13) I have ability to stay motivated myself to care for my Parkinson's disease, 14) I can ask the support for having and caring for my Parkinson's disease when I need it in empowerment. Each question is scored based on five-choice options scale, from "strongly disagree" coded into 1 to "strongly agree" coded into 5. The final measure of Questionnaire was obtained by sum scores calculation of 14 items.

Health Locus of control

The Multidimensional Health Locus of Control Scale (MHLC Form B) with 18 items was used to assess an individual's belief about what influence health, which measures three discrete dimensions which were as below (B. Wallston et al., 1978).

a) Internal health locus of control means patient’s health is influenced by their own choices and behaviors. It was measured by 6 items which are - 1) If I become sick, I have the power to make myself well again, 2) I am directly responsible for my health, 3) Whatever goes wrong with my health is my own fault, 4) My physical well-being depends on how well I take care of myself, 5) When I feel ill, I know it is because I have not been taking care of myself properly, 6) I can pretty much stay healthy by taking good care of myself.

b) External health locus of control by chance means patient’s health is influenced by chance such as fate or god. It was measured by 6 items - 1) Often I feel that no matter what I do, if I am going to get sick, I will get sick, 2) It seems that my health is greatly influenced by accidental happenings, 3) When I am sick, I just have to let nature run its course, 4) When I stay healthy, I’m just plain lucky, 5) Even when I take care of myself, it’s easy to get sick, 6) When I become ill, it’s a matter of fate.

c) External health locus of control by powerful others means patient’s health is dependent on the competence of their doctor on the behavior of family members. It was measured by 6 items.- 1) If I see an excellent doctor regularly, I am less likely to have health problems, 2) I can only maintain my health by consulting health professionals, 3) Other people play a big part in whether I stay healthy or become sick, 4) Health professionals keep me healthy, 5) The type of care I receive from other people is what is responsible for how well I recover from an illness, 6) Following doctor's orders to the letter is the best way for me to stay healthy.

Each question was scored based on five-choice options scale, from "strongly disagree" to "strongly agree". Thai version of MHLC Form B by Vatinee and Prapaporn which reported a Cronbach's alpha coefficient of 0.80 (Sukmak & Meena, 2003) was used in the current study.

Rosenberg self-esteem scale (RSES)

This standard scale, which was developed by Rosenberg's study (Rosenberg, 1965), includes 10 questions- 1) On the whole, I am satisfied with myself, 2) At times, I think I am no good at all, 3) I feel that I have a number good qualities, 4) I am able to do things as well as most other people, 5) I feel I do not have much to be proud of, 6) I certainly feel useless at time, 7) I feel that I'm a person of worth, at least on an equal plane with others, 8) I wish I could have more respect for myself, 9) All in all, I am inclined to feel that I am a failure, and 10) I take a positive attitude toward myself. Each question was scored based on five-choice options scale, from "strongly disagree" coded into 1 to "strongly agree" coded into 5, with reverse scoring for some questions- 2) At times, I think I am no good at all, 5) I feel I do not have much to be proud of, 6) I certainly feel useless at time, 8) I wish I could have more respect for myself and 9) All in all, I am inclined to feel that I am a failure. A Thai version of RSES by Tinakon and

Nahathai reported a Cronbach's alpha coefficient of 0.86 (Wongpakaran, 2011) used in this study.

Parkinson's disease related knowledge

A questionnaire for measuring Parkinson's disease related knowledge was developed using knowledge content from PD specialists in the Chulalongkorn Parkinson's Disease and Related Disorders Center of Excellence (Bhidayasiri, Phanthumchinda, & Bunnag, 2009) and tested for content validity with Index of Item-Objective Congruence by five experts as shown in **APPENDIX A**. As a result, some questions were deleted for lack of clarity. The final version of Parkinson's disease related knowledge questionnaire contained 26 items, which covered **disease knowledge** (7 items) - 1) PD can be cured, 2) Symptoms of PD make every PD patient disabilities, 3) Motor symptoms of PD such as rest tremor, rigidity, slow movement and postural instabilities can be controlled by appropriate treatment, 4) Non-motor symptoms of PD such as sleep disturbances, cognitive impairment and depression do not require medical attention because they are common symptoms in the elderly, 5) A "Masked face" is a PD symptom and it is not caused by the patient's habits, 6) Stress and anxiety can interfere with body movements, and 7) Dementia is a symptom that is commonly found in every PD patient.; **treatment knowledge** (11 items) - 1) At present, levodopa is the most effective treatment for PD, 2) Levodopa should be taken with an empty stomach or at least 30 minutes before meals, 3) PD patients should take levodopa with protein food such as eggs, milks and beans because these foods increase the absorption of the medication, 4) PD patients should stop taking levodopa immediately if they experience nausea and vomiting, 5) PD patients can take Parkinson's medications according to their own meals without being at the same time every day, 6) PD patients can stop or reduce PD medications when their movements are better, 7) PD patients should take the next dose of PD medication immediately when they experience rigidity during meals, 8) There is no need to inform doctors that PD patients use herbal medicines to increase the effectiveness of the treatment because herbal medicines are safe, 9) Deep Brain Stimulation (DBS) can cure PD, 10) After a DBS operation, PD patients still need to take PD medications continuously, and 11) Stem cell, young cells that are ready to grow and divide themselves into new cells which will replace the dead cells, transplantation can cure PD and **self-care knowledge** (8 items) - 1) Exercising does not help the movements of PD patients, 2) PD patients should not exercise because PD medications will lose their effectiveness sooner, 3) Voice practice, singing, exercising lips can help the stuttering in PD patients, 4) PD patients should take fiber foods such as vegetables and fruits in order to reduce the constipation which is caused by PD or medications, 5) PD patients should avoid stressful feelings because they make body movement worse, 6) PD patients should record their symptoms and side effects of medications in order that doctors can design PD treatment plans more appropriately, 7) Participating in PD patient support groups makes patients feel more stressed and depressed so patients should avoid joining PD patient support groups and 8) PD patients should wear heel strap shoes to prevent falls. Knowledge was assessed with True or False questions. Each answer was coded 1 when correct and 0 when incorrect or not sure.

Validity and Reliability

Before conducting the survey, all measurement tools were tested for validity and reliability. Parkinson's patient empowerment and Parkinson's disease related knowledge questionnaires were checked for content validity as shown in **APPENDIX A**. The final version of questionnaire was shown in **APPENDIX B**.

We conducted pilot test of 18 PwP at clinic on questionnaires and reliability of the questionnaire by Alpha's coefficient (Cronbach's method) and rKR-20 as shown in **APPENDIX C**. The results of reliability test in pilot test were summarized in Table 2.

Table 2: Summary of reliability tests for questionnaires in pilot test

Questionnaires	**Cronbach's alpha**	**rKR-20**
Parkinson's patient empowerment	0.77	
Health Locus of control	0.65	
a) Internal health locus of control	0.48	
b) External health locus of control by chance	0.49	
c) External health locus of control by powerful others	0.62	
Self-esteem	0.71	
Parkinson's disease related knowledge		0.51

3.8 Data analysis

Statistics Hypothesis: Baseline characteristics of patients were summarized using descriptive statistics such as mean, standard deviations, frequencies and percentages as appropriate. To find the extent of relationship between Parkinson's disease related knowledge and Parkinson's patient empowerment, controlling for personality traits and severity of disease, hierarchical multiple linear regression analysis was performed with scores of Parkinson's patient empowerment as dependent variables, and scores of disease knowledge, treatment knowledge, self-care knowledge as explanatory or independent variables and controlling for self-esteem, internal health locus of control, external health locus of control by chance, external health locus of control by powerful others, disease duration and HY staging. The variance inflation factor (VIF) was calculated to check for multicollinearity. Associations between Parkinson's patient empowerment and all related variables were explored by the Spearman rank correlation coefficient. A *p*-value of <0.05 (2-tailed) was considered to be statistically significant. Descriptive analysis was performed to examine Parkinson's perceived acquiring Parkinson's disease related knowledge level via distribution channel from doctors, websites, caregivers and patient support groups. Statistical analyses were performed using the SPSS version 17.0 software (SPSS Inc., Chicago IL).

Statistical hypothesis: Disease knowledge scores, Treatment knowledge scores, Self-care knowledge scores will have regression coefficients significantly in explaining the amount of variation in the scores of Parkinson's patient empowerment, controlling for Internal health locus of control scores, External health locus of control by chance scores, External health locus of control by powerful others scores, self-esteem scores, HY staging and duration of disease.

Hierarchical multiple regression analysis was utilized, a method for determining a fixed order of entry variables in order to control for the effects of covariates. All controlling variables such as self-esteem, internal health locus of control, external locus of control by chance, external locus of control by powerful others, HY stage and duration of disease were entered in step 1 as displayed in the first equation, and then the possible influential independent variables (Parkinson's disease related knowledge) were entered in step 2 as displayed in the second equation.

The statistical model for testing the hypothesis was shown in the equation below.

STEP 1. First equation: PPE = $a + b_4\text{IHLC} + b_5\text{CHLC} + b_6\text{PHLC} + b_7\text{Selfesm} + b_8\text{DisDura} + b_9\text{HY}$

STEP 2. Second equation: PPE = $a + \mathbf{b_1Disk + b_2Treatk + b_3Selfck} + b_4\text{IHLC} + b_5\text{CHLC} + b_6\text{PHLC} + b_7\text{Selfesm} + b_8\text{DisDura} + b_9\text{HY}$

PPE = Parkinson's Patient Empowerment scores

Disk = Disease knowledge scores

Treatk = Treatment knowledge scores

Selfck = Self-care knowledge scores

IHLC = Internal health locus of control scores

CHLC = External health locus of control by chance scores

PHLC = External health locus of control by powerful others scores

Selfesm = Self-esteem scores

DisDura = Disease duration

HY = Hoehn and Yahr Staging

3.9 Ethics

The study protocol received ethical approval from the Institution Review Board of Faculty of Medicine, Chulalongkorn University (IRB No. 509/56) as shown in **APPENDIX E**. All private data were kept confidentially according to the information sheet and consent forms.

CHAPTER IV

RESULTS

The study aimed to find the extent of the relationship between Parkinson's disease related knowledge and Parkinson's patient empowerment, controlling for personality traits and severity of disease, and to examine Parkinson's patient's perceived acquiring Parkinson's disease related knowledge level via distribution channels from doctors, websites, caregivers and patient support groups. A total of 128 PwP who passed the inclusion criteria were interviewed. The final reliability of the questionnaires was tested by Cronbach's alpha's coefficient and rKR-20 as shown in **APPENDIX D**. The results of reliability test in final samples were summarized in Table 3.

Table 3: Summary of reliability tests for questionnaires in final samples

Questionnaires	**Cronbach's alpha**	**rKR-20**
Parkinson's patient empowerment	0.90	
Health Locus of control	0.68	
• Internal health locus of control	0.52	
• External health locus of control by chance	0.60	
• External health locus of control by powerful others	0.61	
Self-esteem	0.83	
Parkinson's disease related knowledge		0.61

4.1 Demographic data and study variables of study samples

A total of 128 PwP (61 male and 67 female) were included in the study. Patients' mean age was 58.3 years (SD ±8.9; range 37–81). According to education level, 57.0 % of patients held Bachelor's Degree or above and 43.0 % of patients held below Bachelor's Degree. The duration of disease reported by patients was 8.1 ± 4.8 years. Other socioeconomic and demographic data were shown in Table 4.

Table 4: Characteristics of study samples (n = 128) and variables

Demographic data PwP (n=128)	**Frequency**	**Mean ± SD**	**Range**
Male gender	61 (47.7%)		
Age (years)		58.3 ± 8.9	37-81
Mean PD disease duration (years)		8.1 ± 4.8	0.5-30
Hoehn and Yahr stage		2.25 ± 0.65	1.0-4.0
Education level			
Below Bachelor's degree	55(43.0 %)		
Bachelor's degree or higher	73(57.0%)		
Marital status			
Single	17 (13.3 %)		
Married	103 (80.5%)		
Divorced	5 (3.9%)		
Widow	3 (2.3%)		
Caregivers			
Has caregivers	99 (77.3%)		
No caregivers	29 (22.7%)		
Caregiver relationship			
Spouses	70 (54.7 %)		
Offspring	16 (12.5%)		
Cousins	9 (7.0%)		
Hired caregivers	4 (3.1%)		

Demographic data PwP (n=128)	Frequency	Mean ± SD	Range
Family income			
Lower than 10,000 baht per month	21 (16.4%)		
≥ 10,000 baht per month	107 (83.6%)		
Employment			
Employment	57 (44.5%)		
Unemployment	71 (55.5 %)		

As shown in Table 5, our samples showed high scores on empowerment (4.24 out of 5), self-esteem (3.80 out of 5) and internal health locus of control scores (3.85 out of 5). Also, the report showed moderate scores on external locus of control by powerful others (3.28 out of 5) and external locus of control by chance (2.90 out of 5). Additionally, the samples had high average scores of disease-related knowledge (84%), which were consisted of disease knowledge 80 %, treatment knowledge 79 % and self-care knowledge 94 %.

Table 5: Descriptive data of study variables

Study variables	Weight mean ranging	Mean ± SD	Scales
Empowerment	4.24 ± 0.47	59.35 ± 6.54	14-70
Self-esteem	3.80 ± 0.54	38.02± 5.38	10-50
Internal Health Locus of Control	3.85 ± 0.50	23.12 ± 2.99	6-30
External Health Locus of Control by Chance	2.90 ± 0.65	17.41 ± 3.91	6-30
External Health Locus of Control by Powerful Others	3.28 ± 0.45	19.66 ± 2.67	6-30

Parkinson’s disease related knowledge	84 ± 10%	21.86 ± 2.63	6-30
Disease Knowledge	80 ± 15%	5.60 ± 1.04	0-7
Treatment Knowledge	79 ± 16%	8.7 ± 1.75	0-11
Self-care Knowledge	94 ± 11%	7.55 ± 0.84	0-8

In Table 6, doctors were the most frequent use of distribution channel to seek for PD information by PwP. On the other hand, patient support groups were the least frequent use of distribution channel to seek for PD information by PwP. Caregivers were the second most frequent use of distribution channel to seek for PD information by PwP. Websites were the third most frequent use of distribution channel to seek for PD information.

Table 6: Cross tabulation between frequent use and distribution channels to seek for PD information

Frequent use of distribution channels	**Websites**	**Doctors**	**Patient support groups**	**Caregivers**
Very frequent	6 (4.7%)	13(10.2%)	4 (3.1%)	7 (5.5%)
Frequent	15 (11.7%)	33 (25.8%)	9 (7.0%)	20 (15.6%)
Medium	24 (18.8%)	60 (46.9%)	13 (10.2%)	30 (23.4%)
Rare	15 (11.7%)	21 (16.4%)	17 (13.3%)	24 (18.8%)
Never	68 (53.1%)	1 (0.8%)	85 (66.4%)	47 (36.7%)
Total	128 (100%)	128(100%)	128(100%)	128(100%)

In Table 7, doctors were the distribution channel that PwP perceived the highest acquiring Parkinson’s disease knowledge. However, patient support group were the distribution channel that most PwP perceived none of acquiring Parkinson’s disease knowledge compared to other distribution channels.

Table 7: Cross tabulation between number of PwP in every level of Parkinson’s disease knowledge and distribution channels

Parkinson’s Disease knowledge	Websites	Doctors	Patient support groups	Caregivers
Very High	10 (7.8%)	43(33.6%)	5 (3.9%)	10 (7.8%)
High	26 (20.3%)	68 (53.1%)	17 (13.3%)	33 (25.8%)
Low	9 (7.0%)	15 (11.7%)	18 (14.1%)	33 (25.8%)
Very low	20 (15.6%)	2 (1.6%)	8 (6.3%)	7 (5.5%)
None	63 (49.2%)	0 (0%)	80 (62.5%)	45 (35.2%)
Total	128 (100%)	128(100%)	128(100%)	128(100%)

In Table 8, doctors were the distribution channel that PwP perceived the highest acquiring Parkinson’s treatment knowledge. However, patient support groups were the distribution channel that most PwP perceived none of acquiring Parkinson’s treatment knowledge compared to other distribution channels.

Table 8: Cross tabulation between number of PwP in every level of Parkinson’s treatment knowledge and distribution channels

Parkinson’s treatment knowledge	Websites	Doctors	Patient support groups	Caregivers
Very High	8 (6.3%)	38 (29.7%)	4 (3.1%)	11 (8.6%)
High	31 (24.2%)	71 (55.5%)	15 (11.7%)	30 (23.4%)
Low	18 (14.1%)	17 (13.3%)	21 (16.4%)	28 (21.9%)
Very low	8 (6.3%)	2 (1.6%)	6 (4.7%)	11 (8.6%)
None	63 (49.2%)	0 (0%)	82 (64.1%)	48 (37.5%)
Total	128(100%)	128(100%)	128(100%)	128(100%)

In Table 9, doctors were still the distribution channel that PwP perceived the highest acquiring Parkinson's self-care knowledge. However, patient support group were the distribution channel that most PwP perceived none of acquiring Parkinson's self-care knowledge compared to other distribution channels.

Table 9: Cross tabulation between number of PwP in every level of Parkinson's self-care knowledge and distribution channels

Parkinson's self-care knowledge	**Websites**	**Doctors**	**Patient support groups**	**Caregivers**
Very High	8 (6.3%)	39 (30.5%)	5 (3.9%)	10 (7.8%)
High	28 (21.9%)	72 (56.3%)	14 (10.9%)	34 (26.6%)
Low	22 (17.2%)	14 (10.9%)	21 (16.4%)	29 (22.7%)
Very low	7 (5.5%)	3 (2.3%)	6 (4.7%)	12 (9.4%)
None	63 (49.2%)	0 (0%)	82 (64.1%)	43 (33.6%)
Total	128(100%)	128(100%)	128(100%)	128(100%)

In summary, PwP perceived that they acquired Parkinson's disease related knowledge level (highest to lowest) from doctors, caregivers, websites and patient support groups, respectively.

4.2 Demographic data of study samples and empowerment

Table 10 displayed the descriptive statistics of empowerment scores and demographic data. The results showed there were no significant differences in empowerment among gender (male and female), education level (below

Bachelor’s degree and above Bachelor’s degree), marital status (single, married, divorced, widow), caregivers (no caregivers and has caregivers), caregiver relationship (spouses, offspring, cousins and hired caregivers), family income (lower than 10,000 baht per month and more than 10,000 baht per month) and employment (employment and unemployment). Also, there were no significant correlation between age, disease duration and empowerment. However, we found Hoehn and Yahr staging were significantly negative correlated with empowerment (*r = -0.19, p-value = 0.036*).

Table 10: Demographic data of study samples (n = 128) and empowerment scores

Demographic data PwP (n=128)	Frequency	Empowerment scores (Mean ± SD)	r	p-value
Gender				
Male	61(47.7%)	59.13 ± 5.93		0.717^{π}
Female	67 (52.3 %)	59.55 ± 7.08		
Age (58.3 ± 8.9; Mean ± SD)			0.07	0.416^{ε}
PD duration (years) (8.0 ± 4.8; Mean ± SD)			-0.02	0.789^{ε}
Hoehn and Yahr staging (HY) (2.25 ± 0.65; Mean ± SD)			**-0.19**	***0.036**** $^{\varepsilon}$
Education level				
Below Bachelor’s degree	55(43.0 %)	59.73 ± 6.32		0.574^{π}
Bachelor’s degree or higher	73(57.0%)	59.07 ± 6.72		
Marital status				
Single	17 (13.3 %)	60.41 ± 7.23		0.336^{Ω}
Married	103 (80.5%)	59.06 ± 6.43		
Divorced	5 (3.9%)	63.60 ± 6.66		
Widow	3 (2.3%)	56.33 ± 4.73		

Demographic data PwP (n=128)	Frequency	Empowerment scores (Mean ± SD)	r	p-value
Caregivers				
Has caregivers	99 (77.3%)	58.52 ± 6.32		0.437 $^{\pi}$
No caregivers	29 (22.7%)	59.60 ± 6.61		
Caregiver relationship				
Spouses	70 (54.7 %)	59.61 ± 6.80		0.805$^{\Omega}$
Offspring	16 (12.5%)	58.56 ± 5.18		
Cousins	9 (7.0%)	61.33 ± 7.42		
Hired caregivers	4 (3.1%)	59.50 ± 8.23		
Family income				
≤ 10,000 baht per month	21 (16.4%)	57.33 ± 7.24		0.122 $^{\pi}$
≥ 10,000 baht per month	107 (83.6 %)	59.75 ± 6.35		
Employment				
Employment	57 (44.5%)	59.51 ± 6.83		0.765$^{\pi}$
Unemployment	71 (55.5 %)	59.16 ± 6.02		

Note * statistically significant ($P < 0.05$); ε Spearman correlation, **π** independent t test, Ω ANOVA

4.3 Correlation and multiple regression analysis of Parkinson’s disease related knowledge, severity of diseases and personality traits on Parkinson’s patient empowerment

As shown in Table 11, there was a significant positive correlation between Parkinson’s patient empowerment and self-care knowledge, self-esteem, internal health locus of control, external health locus of control by powerful others. On the other hand, there was a significant negative correlation between HY stage and Parkinson’s patient empowerment.

Regarding Parkinson’s disease related knowledge, the study found the significant positive correlation between self-care knowledge and disease knowledge, treatment knowledge.

PwP self-esteem had a significant positive relationship with internal health locus of control. However, self-esteem had a significant negative relationship with external locus of control by chance, HY stage and disease duration.

Table 11: Correlation of variables toward Parkinson’s patient empowerment scores

	1	2	3	4	5	6	7	8	9	10
1. Empowerment	1.00									
2. Self-esteem	**0.48***	1.00								
3. Disease knowledge	-0.06	-0.01	1.00							
4. Treatment knowledge	-0.06	0.08	**0.23***	1.00						
5. Self-care knowledge	**0.16***	0.10	**0.26***	**0.27***	1.00					
6. Internal health locus of control	**0.50***	**0.32***	**-0.15***	-0.13	0.01	1.00				
7. External health locus of control by chance	-0.11	**-0.27***	-0.08	**-0.17***	**-0.30***	0.03	1.00			
8. External health locus of control by powerful others	**0.32***	0.13	-0.02	-0.001	**-0.19***	**0.41***	**0.26***	1.00		
9. H&Y	**-0.18***	**-0.19***	**-0.16***	-0.04	-0.07	-0.13	**0.24***	0.07	1.00	
10. Duration of Disease	-0.10	**-0.20***	0.03	0.02	-0.07	-0.14	0.14	-0.01	0.32	1.00

Note * statistically significant ($P < 0.05$)

To find the influence of Parkinson’s disease related knowledge (Parkinson’s disease knowledge, treatment knowledge and self-care knowledge) on Parkinson’s patient empowerment, Hierarchical Multiple regression analysis was utilized, a method for determining a fixed order of entry variables in order to control for the effects of covariates. All controlling variables such as self-esteem, internal health locus of control, external locus of control by chance, external locus of control by powerful others, HY stage and duration of disease were entered in step 1, and then the possible influential independent variables (Parkinson’s disease knowledge, treatment knowledge and self-care knowledge) were entered in step 2.

In Table 12, the results indicated that model 1 (self-esteem, internal health locus of control, external locus of control by chance, external locus of control by powerful others, HY stage and duration of disease) explained 39% of variance in Parkinson’s patient empowerment, F (6, 121) = 12.94, p < 0.05. Furthermore, model 2 showed that Parkinson’s disease knowledge, treatment knowledge and self-care knowledge did not significantly explain an incremental of the variance of Parkinson’s patient empowerment, F (3, 118) = 2.064, P > 0.05.

Table 12: Model summary of Hierarchical multiple regression for Parkinson’s disease knowledge, treatment knowledge and self-care knowledge affecting Parkinson’s patient empowerment* (Controlling for severity of disease and *personality traits)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2120.043	6	353.34	12.94	0.000
	Residual	3305.136	121	27.32		
	Total	5425.180	127			
2	Regression	2284.829	9	253.870	9.54	0.000
	Residual	3140.351	118	26.613		
	Total	5425.180	127			

Model	R	R square	Adjusted R Square	Std. Error	R square change	F Change	Df1	Df2	Sig. F chance
1	0.63	0.39	0.36	5.23	0.39	12.94	6	121	0.000
2	0.65	0.42	0.38	5.16	0.03	2.06	3	118	0.109

Model 1: Predictors: (Constant), Disease duration, HY, Self-esteem, Internal health locus of control, External locus of control by chance, External locus of control by powerful others
Model 2: Predictors: (Constant), Disease duration, HY, Self-esteem, Internal health locus of control, External locus of control by chance, External locus of control by powerful others, Parkinson’s disease knowledge, treatment knowledge and self-care knowledge

According to the analysis in Table 13, the important influential factors on Parkinson’s patient empowerment were self-esteem (β = 0.33, p = 0.000), internal health locus of control (β = 0.29, p = 0.001), external locus of control by powerful others (β = 0.21, p = 0.014) and self-care knowledge (β = 0.19, p = 0.021) had a significant regression coefficients in explaining the amount of variation in Parkinson’s patient empowerment. There were also no multicollinearity problems among influential variables according to VIF and Tolerance analysis.

Table 13: Hierarchical multiple regression results for Parkinson’s disease knowledge, treatment knowledge and self-care knowledge affecting Parkinson’s patient empowerment (Controlling for other variables)

Variables	***B***	***Std. error***	**β**	**Tol.**	**VIF**
Step 1					
Self-esteem	0.40	0.10	**0.33***	0.80	1.25
Internal health locus of control	0.72	0.18	**0.33***	0.75	1.34
External health locus of control by chance	-0.10	0.13	-0.06	0.81	1.23
External health locus of control by powerful others	0.39	0.20	0.16	0.76	1.32
HY staging	-0.87	0.78	-0.09	0.85	1.18
Disease duration	0.07	0.10	0.05	0.88	1.14
Step 2					
Self-esteem	0.40	0.10	**0.33***	0.79	1.27
Internal health locus of control	0.63	0.18	**0.29***	0.70	1.44
External health locus of control by chance	-0.05	0.14	-0.03	0.76	1.32
External health locus of control by powerful others	0.50	0.20	**0.21***	0.72	1.40
HY staging	-1.02	0.79	-0.10	0.81	1.24
Disease duration	0.08	0.10	0.06	0.87	1.15
Parkinson’s Disease knowledge	-0.24	0.48	-0.04	0.84	1.19
Parkinson’s Treatment knowledge	-0.37	0.28	-0.10	0.86	1.17
Parkinson’s Self-care knowledge	1.45	0.62	**0.19***	0.78	1.28

Note. $R^2 = 0.39$ for Step 1; $\Delta R^2 = .03$ for Step 2 (*p*s >.05). * $p < .05$

Based on the results of correlation analysis regarding the significant relationship between self-care knowledge and Parkinson’s patient empowerment in Table 11, we tested self-care knowledge to investigate more on the relationship between Parkinson’s disease related knowledge and self-care knowledge. In Table 14, results indicated that model 1 (self-esteem, internal health locus of control, external locus of control by chance, external locus of control by powerful others, HY stage and duration of disease) explained 39% of variance in Parkinson’s patient empowerment, F (6, 121) = 12.94, p < 0.05. Furthermore, model 2 showed that self-care knowledge significantly contributed to explain an incremental 2 % (R square change) of the variance of Parkinson’s patient empowerment, F (1, 120) = 3.97, P < 0.05.

Table 14: Model summary of Hierarchical multiple regression for Parkinson’s self-care knowledge affecting Parkinson’s patient empowerment (Controlling for severity of disease and personality traits)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2120.043	6	353.34	12.94	0.000
	Residual	3305.136	121	27.32		
	Total	5425.180	127			
2	Regression	2120.056	9	302.87	11.00	0.000
	Residual	3305.123	120	27.543		
	Total	5425.180	127			

Model	R	R square	Adjusted R Square	Std. Error	R square change	F Change	Df1	Df2	Sig. F chance
1	0.63	0.39	0.36	5.23	0.39	12.94	6	121	0.000
2	0.64	0.41	0.38	5.25	0.02	3.97	1	120	**0.049***

Model 1: Predictors: (Constant), Disease duration, HY, Self-esteem, Internal health locus of control, External locus of control by chance, External locus of control by powerful others
Model 2: Predictors: (Constant), Disease duration, HY, Self-esteem, Internal health locus of control, External locus of control by chance, External locus of control by powerful others, Self-care knowledge

According to the analysis in Table 15, the important influential factors on Parkinson’s patient empowerment were self-care knowledge (β = 0.15, p = 0.049), self-esteem (β = 0.33, p = 0.000), internal health locus of control (β = 0.32, p = 0.000) and external locus of control by powerful others (β = 0.18, p = 0.025) had a significant regression coefficients in explaining the amount of variation in Parkinson’s patient empowerment.

Table 15: Hierarchical multiple regression results for self-care knowledge and Parkinson’s patient empowerment (controlling for other variables)

Variables	***B***	***Std. error***	**β**	**Tol.**	**VIF**
Step 1					
Self-esteem	0.40	0.10	**0.33***	0.80	1.25
Internal health locus of control	0.72	0.18	**0.33***	0.75	1.34
External health locus of control by chance	-0.10	0.13	-0.06	0.81	1.23
External health locus of control by powerful others	0.39	0.20	0.16	0.76	1.32
HY staging	-0.87	0.78	-0.09	0.85	1.18
Disease duration	0.07	0.10	0.05	0.88	1.14
Step 2					
Self-esteem	0.40	0.10	**0.33***	0.80	1.26
Internal health locus of control	0.70	0.18	**0.32***	0.75	1.34
External health locus of control by chance	-0.03	0.13	-0.02	0.77	1.31
External health locus of control by powerful others	0.45	0.20	**0.18***	0.74	1.35
HY staging	-0.91	0.77	-0.09	0.84	1.19
Disease duration	0.07	0.10	0.05	0.88	1.14
Self-care knowledge	1.15	0.58	**0.15***	0.89	1.13

Note. R^2 = 0.39 for Step 1; ΔR^2 = .02 for Step 2 (*p*s <.05). * $p < .05$

We also summarized the correct and incorrect answers of Parkinson's disease related knowledge in order to understand the weak area of Parkinson's disease related knowledge.

Table 16: Percentage of incorrect and correct answers of patients in Parkinson's disease knowledge questions

Parkinson's disease knowledge	Answer	Correct	Incorrect
PD can be cured.	No	106 (82.8%)	22 (17.2%)
Symptoms of PD make every PD patient disabilities.	No	108 (84.4%)	20 (15.6%)
Motor symptoms of PD such as rest tremor, rigidity, slow movement and postural instabilities can be controlled by appropriate treatment.	Yes	126 (98.4%)	2 (1.6%)
Non-motor symptoms of PD such as sleep disturbances, cognitive impairment and depression do not require medical attention because they are common symptoms in the elderly.	No	106 (82.8%)	22 (17.2%)
A "Masked face" is a PD symptom and it is not caused by the patient's habits.	Yes	98 (76.6%)	30 (23.4%)
Stress and anxiety can interfere with body movements.	Yes	113 (88.3%)	15 (11.7%)
Dementia is a symptom that is commonly found in every PD patient.	No	60 (46.9%)	68 (53.1%)

In Table 16, the top three most wrong answers of Parkinson's disease knowledge were "Dementia is a symptom that is commonly found in every PD patient.", "A masked face is a PD symptom and it is not caused by the patient's habits.", "PD can be cured", "Non-motor symptoms of PD such as sleep disturbances, cognitive impairment and depression do not require medical attention because they are common symptoms in the elderly.", respectively.

Table 17: Percentage of incorrect and correct answers of patients in Parkinson’s treatment knowledge questions

Parkinson’s treatment knowledge	**Answer**	**Correct**	**Incorrect**
At present, levodopa is the most effective treatment for PD.	Yes	108 (84.4%)	20 (15.6%)
Levodopa should be taken with an empty stomach or at least 30 minutes before meals.	Yes	121 (94.5%)	7 (5.5%)
PD patients should take levodopa with protein food such as eggs, milks and beans because these foods increase the absorption of the medication.	No	98 (76.6%)	30 (23.4%)
PD patients should stop taking levodopa immediately if they experience nausea and vomiting.	No	47 (36.6%)	81 (63.3%)
PD patients can take Parkinson’s medications according to their own meals without being at the same time every day.	No	108 (84.4%)	20 (15.6%)
PD patients can stop or reduce PD medications when their movements are better.	No	122 (95.3%)	6 (4.7%)
PD patients should take the next dose of PD medication immediately when they experience rigidity during meals.	No	111 (86.7%)	17 (13.3%)
There is no need to inform doctors that PD patients use herbal medicines to increase the effectiveness of the treatment because herbal medicines are safe.	No	122(95.3%)	6 (4.7%)
Deep Brain Stimulation (DBS) can cure PD.	No	91 (71.1%)	37 (28.9%)
After a DBS operation, PD patients still need to take PD medications continuously.	Yes	109 (85.2%)	19 (14.8%)
Stem cell transplantation can cure PD. (Stem cells are the young cells that are ready to grow and divide themselves into new cells which will replace the dead cells.)	No	77 (60.2%)	51 (39.8%)

In Table 17, the top three most wrong answers of Parkinson’s disease knowledge were “PD patients should stop taking levodopa immediately if they experience nausea and vomiting.”, “Stem cell transplantation can cure

PD.”, “PD can be cured”, “Deep Brian Stimulation (DBS) can cure PD.”, respectively.

Table 18: Percentage of incorrect and correct answers of patients in Parkinson’s self-care knowledge questions

Parkinson’s Self-care knowledge	**Answer**	**Correct**	**Incorrect**
Exercising does not help the movements of PD patients.	No	112 (87.5%)	16 (12.5%)
PD patients should not exercise because PD medications will lose their effectiveness sooner.	No	125 (97.7%)	3 (2.3%)
Voice practice, singing, exercising lips can help the stuttering in PD patients.	Yes	118 (92.2%)	10 (7.8%)
PD patients should take fiber foods such as vegetables and fruits in order to reduce the constipation which is caused by PD or medications.	Yes	124 (96.9%)	4 (3.1%)
PD patients should avoid stressful feelings because they make body movement worse.	Yes	121 (94.5%)	7 (5.5%)
PD patients should record their symptoms and side effects of medications in order that doctors can design PD treatment plans more appropriately.	Yes	127 (99.2%)	1 (0.8%)
Participating in PD patient support groups makes patients feel more stressed and depressed so patients should avoid joining PD patient support groups.	No	115 (89.8%)	13 (10.2%)
PD patients should wear heel strap shoes to prevent falls.	Yes	125 (97.7%)	3 (2.3%)

In Table 18, the top three most wrong answers of Parkinson’s disease knowledge were “Exercising does not help the movements of PD patients.”, “Participating in PD patient support groups makes patients feel more stressed and depressed so patients should avoid joining PD patient support groups.”, “Voice practice, singing, exercising lips can help the stuttering in PD patients”, respectively.

CHAPTER V

DISCUSSION

The results of the study indicated that only self-care knowledge in Parkinson’s disease related knowledge significantly contributed to Parkinson’s patient empowerment, controlling for personality traits and severity of disease. The finding showed the significant of self-care knowledge in contribution to Parkinson’s patient empowerment since other critical variables were controlled for. Additionally, there were four significant predictors (self-care knowledge, self-esteem, internal health locus of control and external health locus of control by powerful others) that influenced Parkinson’s patient empowerment. Another finding of Parkinson’s disease related knowledge through different distribution channels and empowerment, doctors were the distribution channel that Parkinson’s patient’s perceived acquiring the highest Parkinson’s disease related knowledge level. Meanwhile, patient support groups were the distribution channel that Parkinson’s patient’s perceived acquiring the least Parkinson’s disease related knowledge level.

5.1 Parkinson’s disease related knowledge and Parkinson’s patient empowerment

According to the hierarchical multiple regression analysis results, Parkinson’s disease related knowledge which includes sum scores of Parkinson’s disease, treatment and self-care knowledge together did not significantly affect Parkinson’s patient empowerment after controlling for personality traits and severity of diseases. However, the additional sub-analysis of disease related knowledge in the hierarchical multiple regression analysis, we found self-care knowledge did significantly improve the contribution to Parkinson’s patient empowerment. As a result, self-care knowledge was the essential factor that influenced Parkinson’s patient empowerment after controlling for severity of diseases and personality traits.

Although we did not find the significant relationship between Parkinson’s disease knowledge, Parkinson’s treatment knowledge and Parkinson’s patient empowerment, we found the positive relationship among self-care knowledge, disease knowledge and treatment knowledge in the correlation analysis. Both knowledge of Parkinson’s disease and treatment were also important to be a basic knowledge into self-care knowledge as mentioned in the studies (Anderson et al., 1991; Aujoulat et al., 2007; Feste & Anderson, 1995; Funnell et al., 1991) related to education program to empower patients. Therefore, empowered patient who participated into the program should have a basic knowledge of treatment and disease which will make patients adopt self-care knowledge in the program.

Self-care knowledge can empower PwP because it also contained the knowledge such as patient support group for PD, self-monitoring through PD diary, practical exercise, anxiety and stress management .etc. that PwP can apply to address some psychosocial problems. Thus, the self-care knowledge is important to empower PwP. Many studies (A'Campo, Wekking, Spliethoff-

Kamminga, Le Cessie, & Roos, 2010; Macht et al., 2007; G. Simons et al., 2006) related PD empowerment program in Western countries also identified the objectives of program that empowered Parkinson's patients was to develop psychosocial skills and not specific to disease or treatment knowledge. Our results confirmed PwP in Thailand also needs the PD education program, complementing the medical treatment, to assist PwP to deal with psychosocial problems through self-care knowledge.

Regarding the score results of Parkinson's disease related knowledge, most PwP in the study answered wrong in the self-care knowledge of exercise, stress and anxiety management and patient support group. Thus, we should address those three issues in Parkinson's self-care knowledge for PwP in Thailand, which finally increase their empowerment. Allen and his team's study confirmed the importance of exercise and motor training to improve balance and prevent falls in PwP, which also impacted on the quality of lives (Allen, Sherrington, Paul, & Canning, 2011). Thus, it is important to provide the knowledge of how to exercise appropriately in PwP.

Besides the movement disorders, PwP also have a high risk of facing stress and depression (Hurt et al., 2011). Emotions such as stress and depression in PwP can affect the symptoms and progression of Parkinson's disease (Hemmerle et al., 2012). As a result, self-care knowledge of stress, anxiety and depression management is important to empower PwP. The self-care knowledge that addresses those emotions should combine the psychological knowledge, for example, enhancement the ability of patients know how to find out what causes of their stress along with the methods of coping with problems, support the patients to adapt changes encountered throughout lives, encouragement of emotional sharing each other to learn how to handle or control the same situation (Feste & Anderson, 1995).

Regarding patient support group, the study indicated PwP gained the benefits of support group in the way of sharing experiences and knowledge, building friendships, helping each other cope with challenge of lives for PwP (Attard & Coulson, 2012). However, there is a few patient support groups for PwP in Thailand. As previously mentioned about Parkinson's patient support group in Thailand from the leader of Parkinson's patient support group at King Memorial Chulalongkorn Hospital, she said that there were a few participations in patient support group also related to the difficulties in commute because most of PwP at PD clinic live in upcountry and some of them do not know the existing of patient support group for PwP. Additionally, sometimes PwP do not want to expose themselves as Parkinson's patients due to the embarrassment.

All mentioned above, it can summarize that the self-care knowledge should address the topic of exercise, stress and anxiety management and patient support group into PD education program to empower PwP.

5.2 Severity of diseases, personality traits and Parkinson’s patient empowerment

According to the correlation and descriptive analysis for demographic variables and Parkinson’s patient empowerment, we also found only Hoehn and Yahr stage (HY), indicating the severity of PD in the motor functions and evaluating the patterns of progressive motor impairment, was significantly negative relationship with Parkinson’s patient empowerment. The progression of PD in HY stages were associated with motor decline, decline in quality of life and neuroimaging studies of dopaminergic loss (Bhidayasiri & Tarsy, 2012). Also, there was a study found that the patient empowerment was affected by the number of disease-related symptoms (Hara et al., 2014). Although the subgroup analysis of characteristics of PwP and empowerment scores did not show significant differences among various groups, the demographic variables such as income, caregivers, level of education, age, duration of diseases and employment need to be more investigated on the influence of Parkinson’s patient empowerment due to lack of studies of empowerment in PwP.

For the relationship among self-esteem, internal health locus of control and empowerment, our findings, like other studies (E. Sally Rogers, 1997; Koelen & Lindstrom, 2005; Spreitzer, 1995; K. A. Wallston & Wallston, 1982; Zimmerman, 1995) showed that personality traits such as self-esteem and internal health locus of control were essential influencing factors on empowerment, which can drive individual behaviors. For example, Spreitzer’s study reported self-esteem were significantly related to empowerment and antecedents of empowerment (Spreitzer, 1995). Koelen and Lindstorm's study indicated that health locus of control were important factors that influence empowerment and explained that people with internal health locus of control can influence their own health to perform healthy behaviors (Koelen & Lindstrom, 2005). Additionally, self-esteem and an internal health locus of control were also positively associated with an individual's health and well-being (B. Wallston et al., 1978). A study of the relationships among self-esteem, locus of control, and health perception in African American with cancer concluded that individuals with high self-esteem and an internal health locus of control perceived their state of health and well-being positively (Swinney, 2002). Therefore, the finding of two important personality traits (self-esteem and internal health locus of control) that affected Parkinson's patient important in the current study was considered as the guidance of further empowerment study in patients with degenerative disorders.

For the positive relationship between self-esteem and empowerment, patients with high self-esteem obviously give attention to their own health and they strongly believe their ability to perform the role and responsibilities of taking care of their own health due to their feeling of value and self-worth (Spreitzer, 1995; Swinney, 2002). As a result, the study showed PwP with high self-esteem also had high empowerment. For positive relationship between internal health locus of control and empowerment, patients with internal health locus of control believe that their own actions have a certain impact on their health and they can change their risk behaviors to more healthy ones (Koelen & Lindstrom, 2005; K. A. Wallston & Wallston, 1982). As a result, the study showed PwP with high internal health locus of control also had high empowerment.

People with an internal health locus of control tend to have better health habits and they are more likely to adopt good health behaviors as a result in gaining better health status than people with external health locus of control(Menon, 2002; B. Wallston et al., 1978). However, we found the positive relationship between external health locus of control by powerful others and the empowerment of PwP. Regarding unique characteristics of PD, as the disease progresses, patients suffer from some physical limitations and basic activities of daily living, resulting in the need for close caregiving from people around them such as doctors, family members, and friends, etc (Viwattanakulvanid et al., 2014). In former study, people with physical disabilities seemed to have high external health locus of control by powerful others (K. A. Wallston & Wallston, 1982). As a result, samples in our study who mostly had a long duration of disease showed a moderate external locus of control by powerful others in the analysis.

Although patients with external locus of control are expected to have low empowerment, there are some different health behaviors between patients with an external health locus of control by powerful others and patients with an external health locus of control by chance. For example, patients with external health locus of control by powerful others highly trust their own physicians.

When they have illness or something wrong with their health, they tend to seek care for their illness. On the other hand, patients with external health locus of control by chance tend to delay in seeking care for their illness. Most importantly, patients with external health locus of control by powerful others who have high trust in their physicians, they also believe in taking medications from their physicians rather than patients with external health locus of control by chance (K. A. Wallston & Wallston, 1982). At Chulalongkorn Center of Excellence for Parkinson's disease and Related Disorders, King Chulalongkorn Memorial Hospital, The Thai Red Cross Society, most PwP have high trust and expectations of doctors due to the reputation of PD center at Chulalongkorn Hospital, the only specialized PD center in Thailand. Most patients expected to receive the best treatment and care from the PD center and rely on the doctors. During the interview process of the study, we found that most patients had positive attitudes and a high level of trust in the specialists at the PD center and they were likely to follow the directions by doctors to take responsibilities for their own health such as exercising regularly, taking medicines as directed and coming to see doctors as scheduled. Thus, we assumed that the respect to the influence of medical professionals could possibly have an indirect impact on the empowerment of PwP in a positive relationship.

5.3 The regression model of Parkinson's patient empowerment

According to the regression model results of the influence of Parkinson's disease related knowledge and Parkinson's patient empowerment, the final model identified self-care knowledge, internal health locus of control, external locus of control by powerful others and self-esteem as the key predictors of Parkinson's patient empowerment. Our findings support the prior studies (Koelen & Lindstrom, 2005; Menon, 2002; Spreitzer, 1995) which explained personality traits such as health locus of control and self-esteem were the influential factors of psychological empowerment. Although personality traits and severity of diseases were controlled in the study, the results indicated that personality traits such as self-esteem, internal health locus of control and external locus of control by powerful others should not be ignored to be a part of empowerment strategy for PwP.

The finding of self-care knowledge as one of the key influencing factors of patient empowerment was similar to many studies (Anderson et al., 1991; Aujoulat et al., 2007; Feste & Anderson, 1995; Funnell et al., 1991) that indicated the importance of knowledge in education program to empower patients. The knowledge that can address the issue of psychosocial problems and improve the psychosocial skills and not specific only to disease or treatment knowledge is self-care knowledge.

According to the results of PD sources of information and Parkinson's patient's perceived acquiring Parkinson's disease relate knowledge via different distribution channels, PwP perceived acquiring the highest level of Parkinson's disease related knowledge through doctors and they also ranked doctors as the most favorable distribution channel to seek for PD information compared to other distribution channels. Caregivers were the second most favorable distribution channels for PwP to seek for PD information. Websites were the third most favorable distribution channels for PwP to search for PD information. However, PwP reported the high level of PD knowledge through caregivers was closely similar to websites. Patients support group were the least favorable distribution channel of PD knowledge and PwP obtained the lowest PD knowledge from patient support groups in the current study. The explanation of results of patient support groups was that most patients did not know that there is a patient support group for PwP at Chulalongkorn hospital. Additionally, the leader of PD patient support group at Chulalongkorn hospital gave the researcher the reasons for a few participations in patient support group also related to the difficulties in commute because most of PwP at PD clinic live in upcountry and some of PwP did not want to expose themselves.

Based on the findings of channel distributions of Parkinson's disease related knowledge, it showed that doctors play a key role to inform or advice patients and encourage patients to be partners of the healthcare team, which can empower patients (Lau, 2002). Thus, the relationship between doctors and patients should be considered in the enhancement of empowerment in PwP, especially for PwP with external health locus of control by powerful others.

In summary, if we would like to enhance empowerment in PwP, we need to provide Parkinson's disease related knowledge that emphasizes self-care knowledge along with the psychological topics which can address the issue of self-esteem, internal health locus of control and external health locus of control by powerful others.

CHAPTER VI

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This current study aimed at finding the extent of relationship between Parkinson’s disease related knowledge (disease knowledge, treatment knowledge and self-care knowledge) and Parkinson’s patient empowerment, controlling for personality traits (self-esteem and health locus of control) and severity of disease (HY staging and disease duration) and examining Parkinson’s perceived acquiring Parkinson’s disease related knowledge level via distribution channel from doctors, websites, caregivers and patient support group. The cross-sectional survey study with the interview process was performed at PD clinics at King Chulalongkorn Memorial Hospital. The total sample size was 128 PwP.

The results of hierarchical multiple regression analysis showed that self-care knowledge in Parkinson’s disease related knowledge significantly contributed to Parkinson’s patient empowerment, controlling for personality traits and severity of disease. Meanwhile, there were four significant predictors (self-care knowledge, self-esteem, internal health locus of control and external health locus of control by powerful others) that affected Parkinson’s patient empowerment.

For the most effective distribution channel of Parkinson’s disease related knowledge, the results showed that doctors were the distribution channel that Parkinson’s patient perceived acquiring the highest Parkinson’s disease related knowledge level. Patient support groups were the distribution channel that Parkinson’s patient perceived acquiring the least Parkinson’s disease related knowledge level. Additionally, the distribution channels of disease related knowledge that PwP most frequently used to seek out for PD information were doctors, caregivers, patient support groups and websites, respectively.

6.2 Limitation of this study

A limitation of our study was the generalizability to other populations because we collected data from only central in Thailand. Another limitation was the variability of PwP who used different distribution channels of Parkinson’s disease related knowledge and limited choices of distribution channels that does not involve other health care professionals such as nurses, pharmacists, physical therapists, speech therapist…etc. and other distribution channels such as newspaper, radio, televisions…etc.

Additionally, the medium effect size that we used in the current study was the general value, which possibly did not provide the enough sample sizes to detect the significant in the relationship between Parkinson’s disease related knowledge and Parkinson’s patient empowerment. As a result, we found the small significant in self-care knowledge in Parkinson’s disease related knowledge and Parkinson’s patient empowerment.

6.3 Recommendations

In the past five years, PD care in Thailand has been dramatically improved in term of knowledge and care services. The findings of this study will contribute the additional care for PD patients in Thailand and provide the insights of intrinsic factors such as self-esteem, internal health locus of control and external locus of control by powerful others and Parkinson's patient empowerment that health care providers need to be aware of the strategies to empower Parkinson's patients.

The findings of the study showed that self-care knowledge in Parkinson's disease related knowledge significant contributed to Parkinson's patient empowerment. Meanwhile, self-care knowledge, self-esteem, internal health locus of control and external locus of control by powerful others were important influential factors that affected Parkinson's patient empowerment. Also, doctors were perceived as the distribution channel of Parkinson's disease related knowledge that Parkinson's patient's perceived acquiring the highest Parkinson's disease related knowledge level.

Based on the findings the study, we proposed two strategies to enhance Parkinson's patient empowerment in Thailand as follows.

1) *Emphasis of self-care knowledge in PD education program*

PD education program to empower PwP in Thailand should emphasize on self-care knowledge in the area of exercise, stress and anxiety management and patient support group. According to exercise, stress and anxiety management and patient support group, they were in line with sessions in innovative PD empowerment program called as EduPark in European countries, which aimed to empower PwP and to improve their quality of life by addressing the issues of psychosocial/social problems. (A'Campo et al., 2010; A’Campo, Spliethoff-Kamminga, Macht, The EduPark, & Roos, 2010; Macht et al., 2007; G. Simons et al., 2006). Four sessions in EduPark (A'Campo et al., 2010; G. Simons et al., 2006) were similar to the required areas of self-care knowledge (exercise, stress and anxiety management and patient support group) we found in the current study. Four sessions were self-monitoring, stress management, anxiety and depression and social support. The session of self-monitoring allows participant to learn about an exercise of body awareness focused on breathing and muscular tensions. The session of stress management provides the information about stress and teach participants how to recognize stressful situations and prevent stress. The session of management of depressive moods and anxiety offers information regarding symptoms of depression and anxiety. Participants learned strategies how to cope with negative thoughts and dysfunctional feelings related to Parkinson’s disease. The session of social support delivers the importance of getting support from the formal and informal social network. Participants are taught how to ask for and obtain help.

As mentioned above, PD education program in Thailand can apply EduPark based on the principles of cognitive behavioral therapy, which combined both types of basic self-care knowledge and psychological knowledge which assist PwP to have practical skills and apply their knowledge for self-management of the disease (A'Campo et al., 2010; Macht et al., 2007; G. Simons et al., 2006) .

Regarding the results of self-esteem, internal health locus of control and Parkinson’s patient empowerment, cognitive behavioral therapy (CBT) (Fennell, 1997, 1998) was recognized as a non-pharmacological treatment method designed especially for low self-esteem, which also relieve depression and anxiety symptoms. The strategies of CBT for low self-esteem involve the application of the relationship between thoughts, feelings, and behaviors in patients. As a result, patients will be able to modify their negative core beliefs about themselves into positive new beliefs about themselves. Meanwhile, enhancement of internal health locus of control requires the modification of beliefs that individuals hold about how much they can control various outcomes in their health status (Lachman, Neupert, & Agrigoroaei, 2011).

This confirmatory of the applied cognitive behavioral therapy in PD empowerment program in Western countries also addressed the issues of self-esteem and internal health locus of control in order to empower PwP. In summary, PD education program in Thailand should emphasize self-care knowledge and apply EduPark program to deliver the effective PD education program, which finally empower PwP in Thailand.

2) Establishment of positive patient-doctor relationship

Besides the enhancement of self-esteem and internal health locus of control in Parkinson’s patients, the relationship between doctors and patients which reflects in the results of the correlation between PwP with external health locus of control by powerful others and the results of external health locus of control by powerful others as one of the important predictors of a sense of empowerment in Parkinson’s patients. In the studies (Cherepakho, 2008; K. A. Wallston & Wallston, 1982), it showed that patients with external health locus of control by powerful others tend to seek information and adhere to treatment recommendations. In the sense of psychological health empowerment, PwP with external health locus of control by powerful others possibly view doctors as a trusted advisors with whom they can share and gain information about their conditions. Due to the trust relationship between doctors and patients, they are willing to have a joint responsibility with doctors to obtain positive health outcomes. In Alexander and his team’s study (Alexander, Hearld, Mittler, & Harvey, 2012), it concluded that the positive relationship between doctors and patients affects chronic ill patients in taking a more active role in their health and health care or enhancing the feeling of empowerment. To create a positive doctor-patient relationship, doctors should adopt a new role to encourage or coach patients by listening carefully, treating patients with respect and developing a partnership with patients to improve their health. As a result, positive relationship between doctors and PwP is considered as a strategy to enhance empowerment of PwP especially for PwP with external locus of control by powerful others.

As mentioned about PwP with external health locus of control by powerful others and the analysis results of the most frequent use of doctors channel for Parkinson’s disease related knowledge, the positive relationship between doctors and patients will possibly empower patients because PwP with external health locus of control by powerful others tend to have a high trust and follow the recommendations from the doctors (K. A. Wallston & Wallston, 1982). However, it requires the new roles of doctors to build the positive relationship with patients in order to shape the behaviors and attitudes of patients in ways that empower patients (Alexander et al., 2012). The new roles of doctors are a new paradigm shift to allow patients to be in a partnership in health and health care. The doctors will act as coaches who provide informed advice and allow patients to be responsible for their own health. It possibly might require doctors to listen carefully to the voices of patients, treat patients with respect and building a bond with patients to improve their health. In Aujoulat and his team’s study, they suggested the process of empowerment through doctor-patient relationship such as creating positive conversation without judgment, paying attention to patients with active listening , encouraging patients to involve in the consultation and the health related-decisions, providing an emotional support, allowing patients to take time to make decisions or practice self-care knowledge and facilitating the evaluation of changes in each patient (Aujoulat et al., 2007).

6.4 Future research

Further studies should involve other regions of Thailand and other Asian countries with different cultures in order to view the different perspectives of patient empowerment in Asian countries and Western countries and confirm the relationship between disease related knowledge, personality traits and Parkinson's patient empowerment. Additionally, the implementation of well-designed PD education program to empower PwP in Thailand should be used as intervention and test for quality of life, health outcomes and emotional improvement in PwP.

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APPENDIX 1

Development of Parkinson's patient empowerment questionnaire

Menon (2002) and (Anderson, Funnell et al. (2000)	Psychological health empowerment based on	Modified psychological health empowerment	Thai Translation
Menon (2002)	1) I have the power to make my decisions concerning my health.	I can make my own health related decisions.	ฉันมีอำนาจในการตัดสินใจเรื่องเกี่ยวกับสุขภาพของฉันเอง
Menon (2002)	2) I can make decision regarding what is good treatment for me.	I can make decision regarding what is good treatment for me.	ฉันสามารถตัดสินใจได้ว่าอะไรเป็นการรักษาที่ดีสำหรับฉัน
Menon (2002)	3) I know I can influence my doctor's and other health services providers' decisions regarding my health and health care.	I can influence my doctor’s and other health services providers’ decisions regarding my disease.	ฉันสามารถมีอิทธิพลต่อการตัดสินใจของแพทย์หรือบุคคลากรทางการแพทย์ที่เกี่ยวกับโรคพาร์กินสันของฉัน
Menon (2002)	4) I know I have access to healthcare when I need it.	I can access to health care (health care services, treatment and medications) when I needed.	ฉันสามารถเข้าถึงการดูแลสุขภาพ ตามที่ฉันต้องการได้
Menon (2002)	5) I know how to seek specialized medical assistance when needed.	I can decide where I should go to get the support for caring my disease.	ฉันสามารถตัดสินใจได้ว่าสถานที่ไหนที่ฉันควรจะไปรับความช่วยเหลือในการดูแลโรคของฉัน
Menon (2002)	6) I believe I am able to make the right decisions to maintain good health.	I can make right self-care decision to maintain my good health.	ฉันสามารถตัดสินใจเกี่ยวกับการปฏิบัติตัวได้อย่างถูกต้องเพื่อคงไว้ซึ่งสุขภาพที่ดี
Menon (2002)	7) I believe I can lead a healthy lifestyle.	I can live normal life or perform daily activities as other people around me.	ฉันสามารถดำรงชีวิตได้ปกติหรือดำเนินกิจวัตรประจำวันได้เหมือนคนอื่นๆรอบตัวฉัน
Menon (2002)	8) I have the ability to manage minor ailments that do not require specialized medical assistance.	I have the ability to manage minor ailments that do not require specialized medical assistance.	ฉันสามารถจัดการอาการเจ็บป่วยเล็กๆน้อยๆโดยไม่ต้องอาศัยความช่วยเหลือทางการแพทย์
Menon (2002)	9) I have the capability and knowledge required to maintain a healthy lifestyle.	I have knowledge and capability to maintain my healthy lifestyles.	ฉันมีความรู้ความสามารถที่จะดำรงไว้ซึ่งวิถีสุขภาพที่ดี

Menon (2002)	10) I believe I have the competence to know when to see a doctor.	I have competence to know when to see a doctor.	ฉันสามารถรับรู้ได้ว่าเมื่อไหร่ฉันควรไปพบแพทย์
Menon (2002)	11) I am capable of following directions or medical advice given to me by my doctor and other health service providers.	I am capable of following directions or medical advice given to me by my doctor and other health service providers.	ฉันสามารถปฏิบัติตามแนวทางหรือคำแนะนำของแพทย์หรือบุคลากรทางการแพทย์ที่ให้แก่ฉัน
Menon (2002)	12) I can clearly communicate my needs to my doctor and other health service providers.	I have capability to openly communicate with doctors and other health care providers.	ฉันสามารถเปิดใจคุยกับแพทย์และบุคคลากรทางการแพทย์
Menon (2002)	13) I can understand the information given to me by my doctor and other health service providers.	I can understand Parkinson’s information given to me by my doctor and other health services providers.	ฉันสามารถเข้าใจข้อมูลเกี่ยวกับพาร์กินสันที่ได้รับจากแพทย์และบุคคลากรทางการแพทย์
(Anderson, Funnell et al. (2000)	14) I know the positive ways I cope with diabetes-related stress.	I can cope with stress caused by my Parkinson’s disease.	ฉันสามารถจัดการกับความเครียดที่เกิดจากโรคของฉันได้
(Anderson, Funnell et al. (2000)	15) I know what helps me stay motivated to care for my diabetes.	I have ability to stay motivated myself to care for my Parkinson’s disease.	ฉันสามารถสร้างแรงจูงใจในการดูแลโรคของฉันเอง
Menon (2002)	16) I know I can get the support I need to stay healthy.	I can ask the support for having and caring for my Parkinson’s disease when I need it.	ฉันสามารถขอความช่วยเหลือในการดูแลโรคของฉัน ในยามที่ฉันต้องการ

หลักการดัชนีความสอดคล้องของข้อสอบกับจุดประสงค์ ITEM OBJECTIVE CONGRUENCE INDEX (IOC) เพื่อทดสอบ content validity

ค่า IOC = $\sum$R / N

IOC แทน ดัชนีความสอดคล้องของข้อคำถามกับนิยาม

$\sum$R แทน ผลรวมคะแนนความคิดเห็นของผู้เชี่ยวชาญทั้งหมด

N แทน จำนวนผู้เชี่ยวชาญทั้งหมด

เกณฑ์การให้คะแนนเพื่อหาค่า IOC ของผู้เชี่ยวชาญกำหนดเป็น 3 ระดับ

+1 หมายถึง แน่ใจว่า แบบทดสอบวัดตรงตามวัตถุประสงค์หรือตรงตามเนื้อหา

0 หมายถึง ไม่แน่ใจว่า แบบทดสอบวัดตรงตามวัตถุประสงค์หรือตรงตามเนื้อหา

-1 หมายถึง แน่ใจว่า แบบทดสอบไม่ได้วัดตรงตามวัตถุประสงค์หรือตรงตามเนื้อหา

ข้อคำถามที่มีค่า IOC ตั้งแต่ 0.5 ขึ้นไปถือว่าเหมาะสมแสดงว่าผู้เชี่ยวชาญส่วนใหญ่เห็นสอดคล้องกับวัตถุประสงค์ ส่วนข้อคำถามที่มีค่า IOC ต่ำกว่า 0.5 ขึ้นอยู่กับผู้วิจัยว่าจะพิจารณาตัดทิ้งหรือปรับปรุงแก้ไข แล้วให้ ผู้เชี่ยวชาญลงความเห็นอีกครั้งหนึ่ง

ข้อคำถาม Parkinson's patient empowerment	**ผู้เชี่ยวชาญ**					**คะแนน**
	คนที่ 1	**คนที่ 2**	**คนที่ 3**	**คนที่ 4**	**คนที่ 5**	**IOC**
ฉันมีอำนาจในการตัดสินใจเรื่องเกี่ยวกับสุขภาพของฉันเอง	0	+1	+1	+1	+1	0.8
ฉันสามารถตัดสินใจได้ว่าอะไรเป็นการรักษาที่ดีสำหรับฉัน	0	+1	+1	+1	+1	0.8
~~ฉันสามารถมีอิทธิพลต่อการตัดสินใจของแพทย์หรือบุคคลากรทางการแพทย์ที่เกี่ยวกับโรคพาร์กินสันของฉัน~~	0	+1	0	+1	0	0.2
ฉันสามารถเข้าถึงการดูแลสุขภาพ ตามที่ฉันต้องการได้	+1	+1	+1	+1	0	0.8
ฉันสามารถตัดสินใจได้ว่าสถานที่ไหนที่ฉันควรจะไปรับความช่วยเหลือในการดูแลโรคของฉัน	+1	+1	+1	+1	0	0.8
ฉันสามารถตัดสินใจเกี่ยวกับการปฏิบัติตัวได้อย่างถูกต้องเพื่อให้มี~~คงไว้ซึ่ง~~สุขภาพที่ดี	+1	+1	+1	+1	+1	1
ฉันสามารถดำรงชีวิตได้ปกติหรือดำเนินกิจวัตรประจำวันได้เหมือนคนอื่นๆรอบตัวฉัน	+1	+1	+1	+1	0	0.8
~~ฉันสามารถจัดการอาการเจ็บป่วยเล็กๆน้อยๆโดยไม่ต้องอาศัยความช่วยเหลือทางการแพทย์~~	-1	0	+1	+1	0	0.2
ฉันมีความรู้ความสามารถที่จะดำรงไว้ซึ่งวิถีสุขภาพที่ดี	0	+1	+1	+1	0	0.6
ฉันสามารถรับรู้ได้ว่าเมื่อไหร่ฉันควรไปพบแพทย์	+1	+1	+1	+1	+1	1
ฉันสามารถปฏิบัติตามแนวทางหรือคำแนะนำของแพทย์หรือบุคลากรทางการแพทย์ที่ให้แก่ฉัน	+1	+1	+1	+1	+1	1
ฉันสามารถเปิดใจคุยปัญหาสุขภาพกับแพทย์และบุคคลากรทางการแพทย์	+1	+1	+1	0	0	0.6
ฉันสามารถเข้าใจข้อมูลเกี่ยวกับพาร์กินสันที่ได้รับจากแพทย์และบุคคลากรทางการแพทย์	+1	+1	+1	+1	0	0.8
ฉันสามารถจัดการกับความเครียดที่เกิดจากโรคพาร์กินสันของฉันได้	+1	+1	0	+1	+1	0.8
ฉันสามารถสร้างแรงจูงใจในการดูแลโรคพาร์กินสันของฉัน	+1	+1	0	+1	+1	0.8
ฉันสามารถขอความช่วยเหลือในการดูแลโรคพาร์กินสันของฉัน ในยามที่ฉันต้องการ	+1	+1	+1	+1	+1	1

ข้อคำถาม Parkinson's disease-related knowledge หมวด Disease	**ผู้เชี่ยวชาญ**					**คะแนน IOC**
	คนที่ 1	**คนที่ 2**	**คนที่ 3**	**คนที่ 4**	**คนที่ 5**	
โรคพาร์กินสันสามารถรักษาให้หายขาดได้	+1	+1	+1	+1	+1	1
อาการของโรคพาร์กินสันทำให้ผู้ป่วยทุกคนไม่สามารถช่วยเหลือตนเองได้	+1	+1	0	+1	+1	0.8
อาการหลักของโรคพาร์กินสันที่เกี่ยวข้องกับการเคลื่อนไหว คือ สั่นขณะอยู่เฉย อาการแข็งเกร็ง เคลื่อนไหวช้า และสูญเสียการทรงตัว สามารถควบคุมได้ด้วยการรักษาที่ถูกต้องและเหมาะสม	+1	+1	+1	+1	+1	1
อาการที่ไม่เกี่ยวข้องกับการเคลื่อนไหว เช่น ปัญหาการนอนหลับ ปัญหาความจำ ภาวะซึมเศร้า เป็นต้น ไม่จำเป็นต้องได้รับการรักษา เพราะเป็นอาการปกติที่พบบ่อยในผู้สูงอายุ	+1	+1	+1	+1	+1	1
การมีใบหน้าเฉยเมย (Masked face) เป็นอาการหนึ่งของโรคพาร์กินสัน ไม่ได้เกิดจากการเปลี่ยนแปลงนิสัยของผู้ป่วย	0	+1	0	+1	+1	0.6
~~อาการภาพหลอน หูแว่ว ไม่ได้เป็นอาการของโรคพาร์กินสัน~~	+1	-1	0	+1	+1	0.2
ภาวะเครียดและซึมเศร้าจะทำให้ระบบการเคลื่อนไหวของร่างกายแย่ลงได้	+1	+1	+1	+1	+1	1
~~ผู้ป่วยที่เป็นโรคพาร์กินสันเป็นเวลาเกินกว่า 5 ปี มักจะมีปัญหาเรื่องการเดิน การทรงตัวและอาจต้องใช้อุปกรณ์ช่วยเดิน~~	0	-1	+1	+1	+1	0.4
~~ผู้ป่วยที่เป็นโรคพาร์กินสันเกินกว่า 10 ปี มักจะมีอาการหลงลืม~~	0	-1	+1	+1	0	0.2
ภาวะหลงลืมเป็นอาการที่มักพบได้ในผู้ป่วยพาร์กินสันทุกคน	+1	+1	0	+1	0	0.6

ข้อคำถาม Parkinson's disease-related knowledge หมวด Treatment	**ผู้เชี่ยวชาญ**					**คะแนน IOC**
	คนที่ 1	**คนที่ 2**	**คนที่ 3**	**คนที่ 4**	**คนที่ 5**	
ปัจจุบันยาลีโวโดปาถือว่าเป็นยาที่มีประสิทธิภาพสูงสุดในการรักษาโรคพาร์กินสัน	+1	+1	+1	+1	0	0.8
ยาลีโวโดปาควรรับประทานตอนท้องว่างหรือก่อนรับประทานอาหารอย่างน้อย 30 นาที	+1	+1	+1	+1	+1	1
ควรรับประทานยาลีโวโดปาร่วมกับอาหารจำพวกโปรตีน เช่น ไข่ นม ถั่วต่างๆ เพราะช่วยให้ยาถูกดูดซึมได้มากขึ้น	+1	0	+1	+1	+1	0.8
ควรหยุดยาลีโวโดปาทันที หากมีอาการคลื่นไส้ อาเจียน เวียนศีรษะ	0	+1	0	+1	+1	0.6
การรับประทานยาพาร์กินสัน สามารถรับประทานเวลาใดก็ได้ตามมื้ออาหาร ไม่จำเป็นต้องเวลาเดียวกันทุกวัน	+1	+1	0	+1	+1	0.8
เมื่อรู้สึกว่าการเคลื่อนไหวดีขึ้นมากแล้ว สามารถหยุดหรือลดยาพาร์กินสันเองได้	+1	+1	0	+1	+1	0.8
เมื่อมีอาการแข็งเกร็งระหว่างมื้อ ควรรีบนำยาพาร์กินสันมื้อถัดไปมารับประทานทันที	+1	+1	0	+1	+1	0.8
ไม่มีความจำเป็นที่จะต้องแจ้งให้แพทย์ทราบว่า มีการใช้ยาสมุนไพรเพื่อเพิ่มประสิทธิภาพในการรักษาโรคพาร์กินสัน เพราะสมุนไพรมีความปลอดภัยสูงอยู่แล้ว	+1	+1	-1	+1	+1	0.6
การผ่าตัดฝังเครื่องกระตุ้นสมองส่วนลึก สามารถรักษาโรคพาร์กินสันให้หายขาดได้	+1	+1	0	+1	+1	0.8
หลังการผ่าตัดฝังเครื่องกระตุ้นสมองส่วนลึกแล้ว ก็ยังจำเป็นต้องรับประทานยาพาร์กินสันต่อเนื่อง	0	+1	+1	+1	+1	0.8
โรคพาร์กินสัน สามารถรักษาให้หายขาดได้ด้วยการปลูกถ่ายสเต็มเซลล์ (เซลล์อ่อนที่พร้อมจะเจริญเติบโต แบ่งตัวเองขึ้นมาใหม่ เพื่อทำหน้าที่ทดแทนเซลล์ที่ตายไป)	+1	+1	0	+1	+1	0.8

ข้อคำถาม Parkinson's disease-related knowledge หมวด Self-care	**ผู้เชี่ยวชาญ**					**คะแนน IOC**
	คนที่ 1	**คนที่ 2**	**คนที่ 3**	**คนที่ 4**	**คนที่ 5**	
การออกกำลังกายไม่ได้ช่วยให้การเคลื่อนไหวของผู้ป่วยพาร์กินสันดีขึ้น	+1	+1	+1	+1	+1	1
ไม่ควรออกกำลังกายเพราะการออกกำลังกายจะทำให้ยาพาร์กินสันหมดฤทธิ์เร็วขึ้น	+1	+1	+1	+1	+1	1
การฝึกออกเสียง ร้องเพลงและบริหารริมฝีปาก สามารถช่วยอาการพูดติดขัดในผู้ป่วยพาร์กินสัน	0	+1	+1	+1	+1	0.8
ควรรับประทานอาหารที่มีกากใยเช่น ผัก ผลไม้ เพื่อลดปัญหาท้องผูกซึ่งเกิดจากยาพาร์กินสันหรือโรคพาร์กินสัน	+1	+1	+1	+1	+1	1
ควรหลีกเลี่ยงภาวะเครียด เพราะอาจทำให้การเคลื่อนไหวของร่างกายในโรคพาร์กินสันแย่ลง	+1	+1	+1	+1	+1	1
ควรมีการจดบันทึกอาการและผลข้างเคียงที่สำคัญ ที่เกิดจากการรับประทานยา เพื่อให้แพทย์วางแผนการรักษาโรคพาร์กินสันได้ถูกต้อง	+1	+1	+1	+1	+1	1
การเข้าร่วมกิจกรรม~~กับ~~กลุ่มกับผู้ป่วยพาร์กินสันทำให้เกิดความเครียดหรือมีภาวะซึมเศร้ามากขึ้น ท่านจึงควรหลีกเลี่ยง	+1	0	0	+1	+1	0.6
ผู้ป่วยพาร์กินสันควร~~มีความจำเป็นต้อง~~สวมรองเท้าที่มีการรัดส้นเท้าหรือหุ้มส้นเท้า เพื่อมิให้เกิดการสะดุดหกล้มได้ง่าย ~~เช่นรองเท้าผ้าใบ~~	0	+1	0	+1	+1	0.6

APPENDIX 2

Final Questionnaires

SECTION I PARKINSON'S PATIENT EMPOWRMENT

Please check ✓ in each statement that is true of you.

When I have Parkinson's disease, I feel…	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I can make my own health related decisions.					
I can make decision regarding what is good treatment for me.					
I can access to health care (health care services, treatment and medications) when I needed.					
I can decide where I should go to get the support for caring my disease.					
I can make right self-care decision to maintain my good health.					
I can live normal life or perform daily activities as other people around me.					
I have knowledge and capability to maintain my healthy lifestyles.					
I have competence to know when to see a doctor.					
I am capable of following directions or medical advice given to me by my doctor and other health service providers.					
I have capability to openly communicate with doctors and other health care providers.					
I can understand Parkinson's information given to me by my doctor and other health services providers.					
I can cope with stress caused by my Parkinson's disease.					
I have ability to stay motivated myself to care for my Parkinson's disease.					
I can ask the support for having and caring for my Parkinson's disease when I need it.					

SECTION II HEALTH LOCUS OF CONTROL

Please check ✓ in each statement that is true of you.

Health locus of control	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
If I become sick, I have the power to make myself well again.					
Often I feel that no matter what I do, if I am going to get sick, I will get sick.					
If I see an excellent doctor regularly, I am less likely to have health problems.					
It seems that my health is greatly influenced by accidental happenings.					
I can only maintain my health by consulting health professionals.					
I am directly responsible for my health.					
Other people play a big part in whether I stay healthy or become sick.					
Whatever goes wrong with my health is my own fault.					
When I am sick, I just have to let nature run its course.					
Health professionals keep me healthy.					
When I stay healthy, I'm just plain lucky.					
My physical well-being depends on how well I take care of myself.					
When I feel ill, I know it is because I have not been taking care of myself properly.					
The type of care I receive from other people is what is responsible for how well I recover from an illness.					
Even when I take care of myself, it's easy to get sick.					
When I become ill, it's a matter of fate.					
I can pretty much stay healthy by taking good care of myself.					
Following doctor's orders to the letter is the best way for me to stay healthy.					

SECTION III SELF-ESTEEM

Self-esteem	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
On the whole, I am satisfied with myself					
At times, I think I am no good at all					
I feel that I have a number of good qualities					
I am able to do things as well as most other people					
I feel I do not have much to be proud of					
I certainly feel useless at time					
I feel that I'm a person of worth, at least on an equal plane with others					
I wish I could have more respect for myself					
All in all, I am inclined to feel that I am a failure					
I take a positive attitude toward myself					

SECTION IV DISEASE RELATED KNOWLEDGE

Read each statement below carefully. Place ✓ in front of statement if you think a statement is TRUE. Place × in front of statement if you think the statement is FALSE.

Note: PD = Parkinson's disease

	PD can be cured.
	Symptoms of PD make every PD patient disabilities.
	Motor symptoms of PD such as rest tremor, rigidity, slow movement and postural instabilities can be controlled by appropriate treatment.
	Non-motor symptoms of PD such as sleep disturbances, cognitive impairment and depression do not require medical attention because they are common symptoms in the elderly.
	A "Masked face" is a PD symptom and it is not caused by the patient's habits.
	Stress and anxiety can interfere with body movements.
	Dementia is a symptom that is commonly found in every PD patient.

Read each statement below carefully. Place ✓ in front of statement if you think a statement is TRUE.
Place × in front of statement if you think the statement is FALSE.

	At present, levodopa is the most effective treatment for PD.
	Levodopa should be taken with an empty stomach or at least 30 minutes before meals.
	PD patients should take levodopa with protein food such as eggs, milks and beans because these foods increase the absorption of the medication.
	PD patients should stop taking levodopa immediately if they experience nausea and vomiting.
	PD patients can take Parkinson's medications according to their own meals without being at the same time every day.
	PD patients can stop or reduce PD medications when their movements are better.
	PD patients should take the next dose of PD medication immediately when they experience rigidity during meals.
	There is no need to inform doctors that PD patients use herbal medicines to increase the effectiveness of the treatment because herbal medicines are safe.
	Deep Brain Stimulation (DBS) can cure PD.
	After a DBS operation, PD patients still need to take PD medications continuously.
	Stem cell transplantation can cure PD. (Stem cells are the young cells that are ready to grow and divide themselves into new cells which will replace the dead cells.)

Read each statement below carefully. Place ✓ in front of statement if you think a statement is TRUE.
Place × in front of statement if you think the statement is FALSE.

	Exercising does not help the movements of PD patients.
	PD patients should not exercise because PD medications will lose their effectiveness sooner.
	Voice practice, singing, exercising lips can help the stuttering in PD patients.
	PD patients should take fiber foods such as vegetables and fruits in order to reduce the constipation which is caused by PD or medications.
	PD patients should avoid stressful feelings because they make body movement worse.

	PD patients should record their symptoms and side effects of medications in order that doctors can design PD treatment plans more appropriately.
	Participating in PD patient support groups makes patients feel more stressed and depressed so patients should avoid joining PD patient support groups.
	PD patients should wear heel strap shoes to prevent falls.

How often do you use of these PD information sources (websites, doctors, patient support group, and caregivers)?

1. Website	☐ Very Frequent	☐ Frequent	☐ Medium	☐ Rare	☐ Never
2. Doctors	☐ Very Frequent	☐ Frequent	☐ Medium	☐ Rare	☐ Never
3. Patient support group	☐ Very Frequent	☐ Frequent	☐ Medium	☐ Rare	☐ Never
4. Caregivers	☐ Very Frequent	☐ Frequent	☐ Medium	☐ Rare	☐ Never

SECTION V BACKGROUND

1) Sex

☐ Male ☐ Female

2) Age_____ Years old

3) Level of Education

☐ Below Bachelor's degree ☐ Bachelor's Degree or above

4) Marital status

☐ Single ☐ Married ☐ Divorced ☐ Widow

5) Occupation

☐ Company employees ☐ Licensed ☐ Enterprise employees

☐ Business owners ☐ Government officers ☐ Employees ☐ retired

☐ Unemployed ☐ Others

6) Health care benefits

☐ Civil servants ☐ Social Security Office Scheme ☐ National Health Security Office

☐ Private insurance company ☐ Self-payment

7) Caregivers

☐ Yes ___Spouses ___Offspring __Cousins___Friends___Hired caregivers___Others

☐ No

8) Household income per month (Thai Baht)

☐ < 10,000 ☐ 10,000-50,000 ☐ 50,000-100,000

☐ > 100,000 ☐ No incomes ☐ No answers

9) Have you been on the medications about depression or dementia?

☐ Yes ☐ No

10) Time passed since diagnosis as Parkinson____Years

For staff

Hoehn and Yahr Staging =____________

แบบสอบถามเรื่องการเสริมสร้างพลังอำนาจของผู้ป่วยพาร์กินสัน ความรู้เกี่ยวกับโรคและบุคลิกภาพ

ส่วนที่ 1 กรุณากาเครื่องหมาย √ ในช่องความคิดเห็นที่ตรงกับตัวท่านมากที่สุด

ขณะที่ฉันเป็นโรคพาร์กินสัน ฉันรู้สึกว่า......	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
ฉันสามารถตัดสินใจเรื่องเกี่ยวกับสุขภาพของฉันด้วยตัวเอง					
ฉันสามารถตัดสินใจได้ว่าอะไรเป็นการรักษาที่ดีสำหรับตัวฉัน					
ฉันสามารถเข้าถึงการดูแลสุขภาพ (เช่น การรับบริการทางการแพทย์ การรักษาและยา เป็นต้น) ตามที่ฉันต้องการได้					
ฉันสามารถตัดสินใจได้ว่าสถานที่ไหนที่ฉันควรจะไปรับความช่วยเหลือในการดูแลโรคพาร์กินสันของฉัน					
ฉันสามารถตัดสินใจเกี่ยวกับการปฏิบัติตัวได้อย่างถูกต้องเพื่อให้มีสุขภาพที่ดี					
ฉันสามารถดำรงชีวิตได้ปกติหรือดำเนินกิจวัตรประจำวันได้เหมือนคนอื่นๆรอบตัวฉัน					
ฉันมีความรู้ความสามารถที่จะดำรงไว้ซึ่งวิธีการดูแลสุขภาพที่ดี					
ฉันสามารถรับรู้ได้ว่าเมื่อไหร่ฉันควรไปพบแพทย์					
ฉันสามารถปฏิบัติตามแนวทางหรือคำแนะนำของแพทย์หรือบุคลากรทางการแพทย์ที่ให้แก่ฉัน					
ฉันสามารถเปิดใจคุยปัญหาสุขภาพกับแพทย์และบุคคลากรทางการแพทย์					
ฉันสามารถเข้าใจข้อมูลเกี่ยวกับพาร์กินสันที่ได้รับจากแพทย์และบุคคลากรทางการแพทย์					
ฉันสามารถจัดการกับความเครียดที่เกิดจากโรคพาร์กินสันของฉันได้					
ฉันสามารถสร้างแรงจูงใจในการดูแลโรคพาร์กินสันของฉัน					
ฉันสามารถขอความช่วยเหลือในการดูแลโรคพาร์กินสันของฉัน ในยามที่ฉันต้องการ					

การรับรู้ความสามารถในการควบคุมตนเองด้านสุขภาพ	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
ฉันมีพลังในตัวเองที่ทำให้ฉันหายจากอาการเจ็บป่วยได้					
หากจะมีการเจ็บป่วย ไม่ว่าฉันจะทำอะไรก็ยังต้องเจ็บป่วยอยู่ดี					
ถ้าฉันพบหมอที่เก่งปัญหาสุขภาพของฉันจะลดลง					
ความเจ็บป่วยของฉันเป็นเหตุสุดวิสัย					
การทำให้สุขภาพแข็งแรง ต้องรับการปรึกษากับผู้เชี่ยวชาญเท่านั้น					
ฉันเป็นผู้ที่รับผิดชอบต่อสุขภาพของตัวเอง					
ผู้คนรอบข้างเป็นส่วนสำคัญที่มีผลให้สุขภาพฉันแข็งแรงหรือไม่แข็งแรง					
อาการไม่สบายเกิดจากความผิดพลาดของฉันเอง					
เมื่อเจ็บป่วย ธรรมชาติจะช่วยรักษาโรคให้หายเองได้					
หมอและพยาบาล สามารถทำให้ฉันมีสุขภาพดีได้					
สุขภาพสมบูรณ์เกิดจากความโชคดี					
ร่างกายแข็งแรงเกิดจากการดูแลตัวเอง					
เมื่อฉันรู้สึกไม่สบาย เกิดจากการไม่ดูแลตนเอง					
การช่วยเหลือดูแลจากคนรอบข้างมีส่วนช่วยให้อาการของฉันดีขึ้น					
ถึงแม้ว่าฉันดูแลตัวเองอย่างไรก็ตามฉันก็ยังเจ็บป่วยอยู่เสมอ					
ที่ฉันเจ็บป่วยเกิดจากดวงชะตาได้กำหนดมาแล้ว					
การดูแลตัวเองอย่างดีทำให้ฉันมีสุขภาพดีเสมอ					
ฉันเชื่อฟังและพยายามทำตามหมอบอกเป็นหนทางทำให้สุขภาพฉันแข็งแรงอยู่เสมอ					
ความภาคภูมิใจในตนเอง	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
โดยทั่วไปฉันรู้สึกพอใจตนเอง					
บ่อยครั้งที่ฉันคิดว่าตัวเองไม่มีอะไรดีเลย					
ฉันรู้สึกว่าตัวฉันเองก็มีอะไรดีๆเหมือนกัน					
ฉันสามารถทำอะไรได้ดีเหมือนๆกับคนอื่น					
ฉันรู้สึกว่าตนเองไม่มีอะไรน่าภาคภูมิใจมากนัก					
ฉันรู้สึกบ่อยๆว่าตนเองไร้ค่า					
ฉันรู้สึกว่าตนเองก็มีคุณค่าอย่างน้อยที่สุดก็เท่าๆกับคนอื่น					
ฉันอยากจะภาคภูมิใจในตัวเองให้มากกว่านี้					

โดยรวมแล้วฉันมีแนวโน้มจะรู้สึกว่าตนเองล้มเหลว					
ฉันมีความรู้สึกที่ดีกับตนเอง					

ส่วนที่ 2 กรุณากาเครื่องหมาย √ หน้าข้อความที่ท่านคิดว่าถูกต้อง หรือกาเครื่องหมาย × หน้าข้อความที่ท่านคิดว่าผิด

	โรคพาร์กินสันสามารถรักษาให้หายขาดได้
	อาการของโรคพาร์กินสันทำให้ผู้ป่วยทุกคนไม่สามารถช่วยเหลือตนเองได้
	อาการหลักของโรคพาร์กินสันที่เกี่ยวข้องกับการเคลื่อนไหว คือ สั่นขณะอยู่เฉย อาการแข็งเกร็ง เคลื่อนไหวช้า และสูญเสียการทรงตัว สามารถควบคุมได้ด้วยการรักษาที่ถูกต้องและเหมาะสม
	อาการที่ไม่เกี่ยวข้องกับการเคลื่อนไหว เช่น ปัญหาการนอนหลับ ปัญหาความจำ ภาวะซึมเศร้า เป็นต้น ไม่จำเป็นต้องได้รับการรักษา เพราะเป็นอาการปกติที่พบบ่อยในผู้สูงอายุ
	การมีใบหน้าเฉยเมย (Masked face) เป็นอาการหนึ่งของโรคพาร์กินสัน ไม่ได้เกิดจากการเปลี่ยนแปลงนิสัยของผู้ป่วย
	ภาวะเครียดและซึมเศร้าจะทำให้ระบบการเคลื่อนไหวของร่างกายแย่ลงได้
	ภาวะหลงลืมเป็นอาการที่มักพบได้ในผู้ป่วยพาร์กินสันทุกคน

ท่านได้รับ**ความรู้เรื่องโรคข้างต้นนี้** ผ่านช่องทางต่อไปนี้ มากน้อยเพียงใด (กรุณากาเครื่องหมาย √ ลงใน ☐ ที่ตรงกับท่าน)

เว็บไซต์	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย
แพทย์	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย
กลุ่มผู้ป่วย	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย
ผู้ดูแล	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย

กรุณากาเครื่องหมาย √ หน้าข้อความที่ท่านคิดว่าถูกต้อง หรือกาเครื่องหมาย × หน้าข้อความที่ท่านคิดว่าผิด

	ปัจจุบันยาลีโวโดปาถือว่าเป็นยาที่มีประสิทธิภาพสูงสุดในการรักษาโรคพาร์กินสัน
	ยาลีโวโดปาควรรับประทานตอนท้องว่างหรือก่อนรับประทานอาหารอย่างน้อย 30 นาที
	ควรรับประทานยาลีโวโดปาร่วมกับอาหารจำพวกโปรตีนเช่น ไข่ นม ถั่วต่างๆเพราะช่วยให้ยาถูกดูดซึมมากขึ้น
	ควรหยุดยาลีโวโดปาทันที หากมีอาการคลื่นไส้ อาเจียน เวียนศีรษะ
	การรับประทานยาพาร์กินสัน สามารถรับประทานเวลาใดก็ได้ตามมื้ออาหาร ไม่จำเป็นต้องเวลาเดียวกันทุกวัน
	เมื่อรู้สึกว่าการเคลื่อนไหวดีขึ้นมากแล้ว สามารถหยุดหรือลดยาพาร์กินสันเองได้
	เมื่อมีอาการแข็งเกร็งระหว่างมื้อ ควรรีบนำยาพาร์กินสันมื้อถัดไปมารับประทานทันที
	ไม่มีความจำเป็นที่จะต้องแจ้งให้แพทย์ทราบว่า มีการใช้ยาสมุนไพรเพื่อเพิ่มประสิทธิภาพในการรักษาโรคพาร์กินสัน เพราะสมุนไพรมีความปลอดภัยสูงอยู่แล้ว

	การผ่าตัดฝังเครื่องกระตุ้นสมองส่วนลึก สามารถรักษาโรคพาร์กินสันให้หายขาดได้
	หลังการผ่าตัดฝังเครื่องกระตุ้นสมองส่วนลึกแล้ว ก็ยังจำเป็นต้องรับประทานยาพาร์กินสันต่อเนื่อง
	โรคพาร์กินสัน สามารถรักษาให้หายขาดได้ด้วยการปลูกถ่าย สเต็มเซลล์ (เซลล์อ่อนที่พร้อมจะเจริญเติบโต แบ่งตัวเองขึ้นมาใหม่ เพื่อทำหน้าที่ทดแทนเซลล์ที่ตายไป)

ท่านได้รับ<u>**ความรู้เรื่องการรักษาข้างต้นนี้**</u> ผ่านช่องทางต่อไปนี้ มากน้อยเพียงใด (กรุณากาเครื่องหมาย √ ลงใน ☐ ที่ตรงกับท่าน)

เว็บไซต์	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย
แพทย์	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย
กลุ่มผู้ป่วย	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย
ผู้ดูแล	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย

กรุณากาเครื่องหมาย √ หน้าข้อความที่ท่านคิดว่าถูกต้อง หรือกาเครื่องหมาย × หน้าข้อความที่ท่านคิดว่าผิด

	การออกกำลังกายไม่ได้ช่วยให้การเคลื่อนไหวของผู้ป่วยพาร์กินสันดีขึ้น
	ไม่ควรออกกำลังกายเพราะการออกกำลังกายจะทำให้ยาพาร์กินสันหมดฤทธิ์เร็วขึ้น
	การฝึกออกเสียง ร้องเพลงและบริหารริมฝีปาก สามารถช่วยอาการพูดติดขัดในผู้ป่วยพาร์กินสัน
	ควรรับประทานอาหารที่มีกากใยเช่น ผักผลไม้เพื่อลดปัญหาท้องผูกซึ่งเกิดจากยาพาร์กินสันหรือโรคพาร์กินสัน
	ควรหลีกเลี่ยงภาวะเครียด เพราะอาจทำให้การเคลื่อนไหวของร่างกายในโรคพาร์กินสันแย่ลง
	ควรมีการจดบันทึกอาการและผลข้างเคียงที่สำคัญ ที่เกิดจากการรับประทานยา เพื่อให้แพทย์วางแผนการรักษาโรคพาร์กินสันได้ถูกต้อง
	การเข้าร่วมกิจกรรมกลุ่มกับผู้ป่วยพาร์กินสันทำให้เกิดความเครียดหรือมีภาวะซึมเศร้ามากขึ้น ท่านจึงควรหลีกเลี่ยง
	ผู้ป่วยพาร์กินสันควรสวมรองเท้าที่มีการรัดส้นเท้าหรือหุ้มส้นเท้า เพื่อมิให้เกิดการสะดุดหกล้มได้ง่าย

ท่านได้รับ<u>**ความรู้การดูแลตนเองข้างต้นนี้**</u> ผ่านช่องทางต่อไปนี้ มากน้อยเพียงใด (กรุณากาเครื่องหมาย √ ลงใน☐ ที่ตรงกับท่าน)

เว็บไซต์	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย
แพทย์	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย
กลุ่มผู้ป่วย	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย
ผู้ดูแล	☐ มากที่สุด	☐ มาก	☐ น้อย	☐ น้อยที่สุด	☐ ไม่ได้รับเลย

ส่วนที่ 3 กรุณากาเครื่องหมาย √ ลงในช่อง ☐ ตามความถี่ในการหาข้อมูลจากแต่ละแหล่งความรู้

ท่านค้นหาข้อมูลเกี่ยวกับโรคพาร์กินสันโดยใช้แหล่งข้อมูลต่อไปนี้ บ่อยครั้งแค่ไหน

1.	เว็บไซต์	☐ บ่อยมากที่สุด	☐ บ่อยมาก	☐ ปานกลาง	☐ บ่อยน้อย	☐ ไม่เคยใช้หาข้อมูลเลย
2.	แพทย์	☐ บ่อยมากที่สุด	☐ บ่อยมาก	☐ ปานกลาง	☐ บ่อยน้อย	☐ ไม่เคยใช้หาข้อมูลเลย
3.	กลุ่มผู้ป่วย	☐ บ่อยมากที่สุด	☐ บ่อยมาก	☐ ปานกลาง	☐ บ่อยน้อย	☐ ไม่เคยใช้หาข้อมูลเลย
4.	ผู้ดูแล	☐ บ่อยมากที่สุด	☐ บ่อยมาก	☐ ปานกลาง	☐ บ่อยน้อย	☐ ไม่เคยใช้หาข้อมูลเลย

ส่วนที่ 4 กรุณากาเครื่องหมาย √ ลงในช่อง ☐ หรือเติมข้อความในช่องว่างที่ตรงกับตัวท่าน

1) เพศ ☐ ชาย ☐ หญิง

2) อายุ…………...ปี

1) ระดับการศึกษา ☐ ต่ำกว่าปริญญาตรี ☐ ปริญญาตรีหรือสูงกว่า

2) สถานภาพสมรส ☐ โสด ☐ สมรส ☐ หย่าร้าง ☐ หม้าย

3) อาชีพ ☐ พนักงานบริษัท/ห้างหุ้นส่วน ☐ วิชาชีพ (มีใบประกอบวิชาชีพ) ☐ พนักงานรัฐวิสาหกิจ
☐ เจ้าของกิจการ ☐ ข้าราชการ ☐ ลูกจ้าง ☐ เกษียณ ☐ ไม่ได้ทำงาน ☐ อื่นๆ

4) สิทธิการรักษา
☐ สิทธิข้าราชการ/รัฐวิสาหกิจ ☐ สิทธิประกันสังคม ☐ สิทธิบัตรทอง ☐ ประกันชีวิต ☐ จ่ายเงินเอง

5) มีผู้ดูแล ☐ มี ___คู่สมรส ___บุตร/ธิดา ___ญาติ/เพื่อน ___ลูกจ้าง ___อื่นๆ
☐ ไม่มี

6) รายได้เฉลี่ยของครอบครัวต่อเดือน
☐ < 10,000 ☐ 10,000-50,000 ☐ 50,000-100,000
☐ > 100,000 ☐ ไม่มีรายได้ ☐ ไม่ทราบข้อมูล

7) ขณะนี้ท่านรับประทานยาเกี่ยวกับภาวะซึมเศร้าหรือภาวะความจำเสื่อมอยู่หรือไม่
☐ ใช่ ☐ ไม่ใช่

8) ท่านได้รับการวินิจฉัยว่าเป็นพาร์กินสันมาเป็นระยะเวลานาน…………..ปี

สำหรับเจ้าหน้าที่

Hoehn and Yahr Staging =____________

APPENDIX 3

RELIABILITY OF DEPENDENT AND INDEPENDENT VARIABLES IN PILOT TESTS

(18 PwP)

Parkinson’s Patient Empowerment

Statistics for Scale	**Mean**	**Variance**	**Std Dev**	**N of Variables**
	56.11	35.046	5.920	14

Item Means	**Mean**	**Minimum**	**Maximum**	**Range**	**Max/Min**	**Variance**
	4.008	3.556	4.389	0.833	1.234	0.045

Item Variances	**Mean**	**Minimum**	**Maximum**	**Range**	**Max/Min**	**Variance**
	0.712	0.291	1.438	1.147	4.944	0.118

Item-Total Statistics					
	Scale Mean if Item Deleted	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Squared Multiple Correlation**	**Alpha if Item Deleted**
Em1	52.06	36.173	-0.178	0.893	0.811
Em2	52.00	34.235	0.000	0.905	0.794
Em3	51.89	30.340	0.602	0.840	0.742
Em4	51.89	31.046	0.425	0.946	0.754
Em5	51.72	31.271	0.501	0.971	0.751
Em6	52.56	26.614	0.565	0.931	0.736
Em7	52.22	27.359	0.671	0.962	0.725
Em8	52.06	30.761	0.668	0.866	0.743
Em9	52.06	27.820	0.642	0.988	0.729
Em10	52.06	30.056	0.365	0.978	0.760
Em11	52.33	28.706	0.496	0.939	0.745
Em12	52.17	32.853	0.308	0.705	0.764
Em13	52.11	30.928	0.570	0.776	0.747
Em14	52.33	32.353	0.192	0.741	0.775

N of cases = 18.0, Reliability Coefficients = 14 items, Alpha =0.771, Standardized item alpha =0.796

Health Locus of control (HLC)

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	65.56	39.203	6.261	18

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	3.642	2.444	4.333	1.889	1.773	0.288

Item Variances	Mean	Minimum	Maximum	Range	Max/Min	Variance
	0.851	0.222	1.781	1.559	8.015	0.191

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Alpha if Item Deleted
IHLC1	61.94	35.350	0.249	0.631
CHLC2	61.89	31.987	0.572	0.585
PHLC3	61.94	33.350	0.433	0.605
CHLC4	61.50	34.382	0.397	0.613
PHLC5	61.94	34.173	0.326	0.620
IHLC6	61.22	39.007	-0.006	0.652
PHLC7	61.44	38.261	0.058	0.650
IHLC8	62.44	35.673	0.184	0.641
CHLC9	63.11	38.340	-0.017	0.668
PHLC10	61.61	39.781	-0.122	0.664
CHLC11	62.50	33.088	0.333	0.618
IHLC12	61.44	38.614	0.062	0.647
IHLC13	61.78	34.889	0.437	0.612
PHLC14	61.33	40.353	-0.208	0.667
CHLC15	62.11	38.458	-0.040	0.676
CHLC16	62.94	33.585	0.248	0.634
IHLC17	61.78	31.242	0.732	0.568
PHLC18	61.50	32.029	0.593	0.583

N of cases = 18.0, Reliability Coefficients = 18 items, Alpha =0.645, Standardized item alpha =0.640

Internal Health Locus of control (IHLC)

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	22.72	6.448	2.539	6

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	3.787	3.111	4.333	1.222	1.393	0.178

Item Variances	Mean	Minimum	Maximum	Range	Max/Min	Variance
	0.648	0.222	1.163	0.941	5.235	0.148

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
IHLC1	19.11	4.222	0.315	0.226	0.383
IHLC6	18.39	6.252	-0.016	0.341	0.520
IHLC8	19.61	4.369	0.203	0.456	0.471
IHLC12	18.61	6.134	0.039	0.604	0.503
IHLC13	18.94	4.408	0.489	0.549	0.300
IHLC17	18.94	4.291	0.381	0.153	0.343

N of cases = 18.0, Reliability Coefficients = 6 items, Alpha =0.477, Standardized item alpha =0.454

External health locus of control by chance (CHLC)

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	19.28	12.448	3.528	6

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	3.213	2.444	4.056	1.611	1.659	0.389

Item Variances	Mean	Minimum	Maximum	Range	Max/Min	Variance
	1.226	0.761	1.781	1.020	2.339	0.138

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
CHLC2	15.61	9.075	0.416	0.371	0.366
CHLC4	15.22	11.712	-0.004	0.028	0.546
CHLC9	16.83	10.618	0.110	0.510	0.512
CHLC11	16.22	9.007	0.271	0.616	0.433
CHLC15	15.83	10.265	0.117	0.150	0.515
CHLC16	16.67	6.471	0.618	0.572	0.173

N of cases = 18.0, Reliability Coefficients = 6 items, Alpha =0.491, Standardized item alpha =0.457

External health locus of control by powerful others (PHLC)

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	23.56	8.497	2.915	6

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	3.926	3.611	4.222	0.611	1.169	0.067

Item Variances	Mean	Minimum	Maximum	Range	Max/Min	Variance
	0.680	0.301	1.075	0.775	3.576	0.108

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
PHLC3	19.94	5.703	0.393	0.260	0.566
PHLC5	19.94	5.585	0.375	0.296	0.578
PHLC7	19.44	6.379	0.486	0.671	0.540
PHLC10	19.61	7.193	0.261	0.350	0.612
PHLC14	19.33	7.412	0.263	0.714	0.613
PHLC18	19.50	5.794	0.404	0.472	0.560

N of cases = 18.0, Reliability Coefficients = 6 items, Alpha =0.624, Standardized item alpha =0.644

Self-esteem

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	37.11	15.281	3.909	10

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	3.711	2.278	4.167	1.889	1.829	0.282

Item Variances	Mean	Minimum	Maximum	Range	Max/Min	Variance
	0.549	0.147	0.967	0.820	6.578	0.080

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Se1	32.94	14.526	0.208	0.513	0.711
Se2_R	33.39	11.428	0.567	0.758	0.652
Se3	33.11	12.928	0.607	0.656	0.668
Se4	33.22	15.477	-0.113	0.331	0.742
Se5_R	33.28	10.212	0.791	0.916	0.601
Se6_R	33.22	10.536	0.750	0.897	0.613
Se7	33.56	12.967	0.190	0.737	0.733
Se8_R	34.83	17.088	-0.364	0.715	0.809
Se9_R	33.33	10.118	0.786	0.923	0.600
Se10	33.11	12.458	0.589	0.521	0.661

N of cases = 18.0, Reliability Coefficients = 10 items, Alpha =0.712, Standardized item alpha =0.710

Parkinson’s disease related knowledge

We tested reliability with Kuder-Richardson 20 (KR-20) formula, a measure of internal reliability for dichotomous choices as below.

$$r_{KR\text{-}20} = \frac{k}{k-1}\left[1 - \frac{\sum p(1-p)}{s^2_x}\right]$$

$r_{KR\text{-}20}$ = estimated reliability of the full-length test
k = number of items
S^2 = variance of the whole test
∑pq = Sum of the product of pq for all n items
p = proportion of correct responses to test item
q = proportion of incorrect responses to test item (or 1-p)

Parkinson’s disease related knowledge

$k = 26$; $S^2 = 4.1176$; $\sum pq = 2.0988$

rKR-20 of Parkinson’s disease related knowledge = 0.51

APPENDIX 4

RELIABILITY OF DEPENDENT AND INDEPENDENT VARIABLES IN 128 PwP

Parkinson's Patient Empowerment

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	59.35	42.718	6.536	14

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	4.239	4.023	4.500	0.477	1.118	0.019

Item Variances	Mean	Minimum	Maximum	Range	Max/Min	Variance
	0.510	0.252	0.747	0.496	2.967	0.023

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Em1	55.13	37.339	0.466	0.506	0.896
Em2	55.27	37.016	0.525	0.493	0.893
Em3	55.11	36.586	0.558	0.448	0.891
Em4	55.02	37.370	0.526	0.363	0.892
Em5	55.03	36.456	0.649	0.567	0.887
Em6	55.33	37.561	0.416	0.417	0.899
Em7	55.21	36.372	0.726	0.608	0.884
Em8	55.02	36.425	0.792	0.669	0.882
Em9	54.95	38.014	0.647	0.630	0.888
Em10	54.85	38.663	0.609	0.634	0.890
Em11	55.04	38.006	0.590	0.482	0.890
Em12	55.27	36.594	0.636	0.570	0.887
Em13	55.13	36.730	0.705	0.660	0.885
Em14	55.22	36.629	0.565	0.447	0.891

N of cases = 128, Reliability Coefficients = 14 items, Alpha =0.897, Standardized item alpha =0.905

Health Locus of control (HLC)

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	65.56	39.203	6.261	18

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	3.572	2.453	4.383	1.930	1.787	0.414

Item Variances	Mean	Minimum	Maximum	Range	Max/Min	Variance
	0.966	0.401	1.496	1.095	3.735	0.150

	Item-Total Statistics				
	Scale Mean if Item Deleted	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Squared Multiple Correlation**	**Alpha if Item Deleted**
IHLC1	60.67	45.419	0.170	0.139	0.683
CHLC2	61.13	45.969	0.106	0.198	0.692
PHLC3	60.25	43.732	0.413	0.354	0.657
CHLC4	60.66	42.401	0.358	0.295	0.659
PHLC5	61.05	41.462	0.385	0.267	0.655
IHLC6	60.01	46.496	0.230	0.246	0.675
PHLC7	60.41	46.101	0.171	0.235	0.681
IHLC8	61.20	44.190	0.251	0.262	0.673
CHLC9	61.84	46.857	0.089	0.179	0.690
PHLC10	60.20	43.864	0.466	0.423	0.655
CHLC11	61.58	41.632	0.374	0.471	0.657
IHLC12	59.91	45.906	0.312	0.449	0.670
IHLC13	60.70	46.966	0.057	0.277	0.696
PHLC14	60.16	45.367	0.282	0.344	0.670
CHLC15	61.37	44.486	0.231	0.264	0.676
CHLC16	61.80	43.203	0.290	0.427	0.669
IHLC17	60.16	43.178	0.483	0.553	0.651
PHLC18	59.95	44.628	0.473	0.545	0.658

N of cases = 128.0, Reliability Coefficients = 18 items, Alpha =0.683, Standardized item alpha =0.716

Internal Health Locus of control (IHLC)

Statistics for Scale	**Mean**	**Variance**	**Std Dev**	**N of Variables**
	23.13	8.929	2.988	6

Item Means	**Mean**	**Minimum**	**Maximum**	**Range**	**Max/Min**	**Variance**
	3.854	3.102	4.383	1.281	1.413	0.247

Item Variances	**Mean**	**Minimum**	**Maximum**	**Range**	**Max/Min**	**Variance**
	0.845	0.411	1.204	0.792	2.926	0.145

Item-Total Statistics					
	Scale Mean if Item Deleted	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Squared Multiple Correlation**	**Alpha if Item Deleted**
IHLC1	19.50	6.929	0.151	0.097	0.567
IHLC6	18.84	7.524	0.263	0.182	0.481
IHLC8	20.02	6.448	0.232	0.101	0.499
IHLC12	18.74	7.027	0.438	0.257	0.421
IHLC13	19.53	6.345	0.250	0.137	0.488
IHLC17	18.99	6.512	0.420	0.181	0.405

N of cases = 128, Reliability Coefficients = 6 items, Alpha =0.519, Standardized item alpha =0.567

External health locus of control by chance (CHLC)

Statistics for Scale	**Mean**	**Variance**	**Std Dev**	**N of Variables**
	17.41	15.284	3.909	6

Item Means	**Mean**	**Minimum**	**Maximum**	**Range**	**Max/Min**	**Variance**
	2.905	2.453	3.641	1.188	1.484	0.203

Item Variances	**Mean**	**Minimum**	**Maximum**	**Range**	**Max/Min**	**Variance**
	1.283	0.974	1.495	0.521	1.535	0.033

Item-Total Statistics					
	Scale Mean if Item Deleted	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Squared Multiple Correlation**	**Alpha if Item Deleted**
CHLC2	14.24	11.508	0.303	0.116	0.563
CHLC4	13.77	11.484	0.323	0.152	0.554
CHLC9	14.96	13.833	0.065	0.038	0.642
CHLC11	14.70	9.788	0.523	0.388	0.458
CHLC15	14.48	11.575	0.341	0.132	0.547
CHLC16	14.91	10.646	0.428	0.352	0.507

N of cases = 128, Reliability Coefficients = 6 items, Alpha =0.596, Standardized item alpha =0.583

External health locus of control by powerful others (PHLC)

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	23.76	9.398	3.066	6

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	3.960	3.250	4.344	1.094	1.337	0.142

Item Variances	Mean	Minimum	Maximum	Range	Max/Min	Variance
	0.770	0.401	1.496	1.095	3.735	0.147

Item-Total Statistics					
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
PHLC3	19.71	6.790	0.434	0.230	0.530
PHLC5	20.51	6.441	0.235	0.127	0.644
PHLC7	19.87	6.903	0.351	0.132	0.562
PHLC10	19.66	7.138	0.426	0.298	0.539
PHLC14	19.63	7.528	0.282	0.244	0.588
PHLC18	19.41	7.410	0.461	0.275	0.538

N of cases = 128, Reliability Coefficients = 6 items, Alpha =0.610, Standardized item alpha =0.648

Self-esteem

Statistics for Scale	Mean	Variance	Std Dev	N of Variables
	38.02	28.984	5.384	10

Item Means	Mean	Minimum	Maximum	Range	Max/Min	Variance
	3.802	2.313	4.172	1.859	1.804	0.295

Item Variances	Mean	Minimum	Maximum	Range	Max/Min	Variance
	0.746	0.348	1.067	0.719	3.064	0.063

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha if Item Deleted
Se1	33.98	23.732	0.521	0.342	0.808
Se2_R	34.37	21.274	0.706	0.562	0.786
Se3	33.99	24.605	0.553	0.487	0.807
Se4	33.73	25.157	0.498	0.407	0.812
Se5_R	34.16	23.188	0.568	0.419	0.803
Se6_R	34.12	22.183	0.630	0.497	0.796
Se7	33.95	24.769	0.445	0.375	0.816
Se8_R	35.71	26.601	0.124	0.151	0.855
Se9_R	34.12	22.388	0.671	0.520	0.792
Se10	33.85	25.434	0.538	0.510	0.810

N of cases = 128, Reliability Coefficients = 10 items, Alpha =0.825, Standardized item alpha = 0.835

Parkinson’s disease related knowledge

We tested reliability with Kuder-Richardson 20 (KR-20) formula, a measure of internal reliability for dichotomous choices as below.

$$r_{KR\text{-}20} = \frac{k}{k-1}\left[1 - \frac{\sum p(1-p)}{s^2_x}\right]$$

rKR-20 = estimated reliability of the full-length test
k = number of items
S^2 = variance of the whole test
∑pq = Sum of the product of pq for all n items
p = proportion of correct responses to test item
q = proportion of incorrect responses to test item (or 1-p)

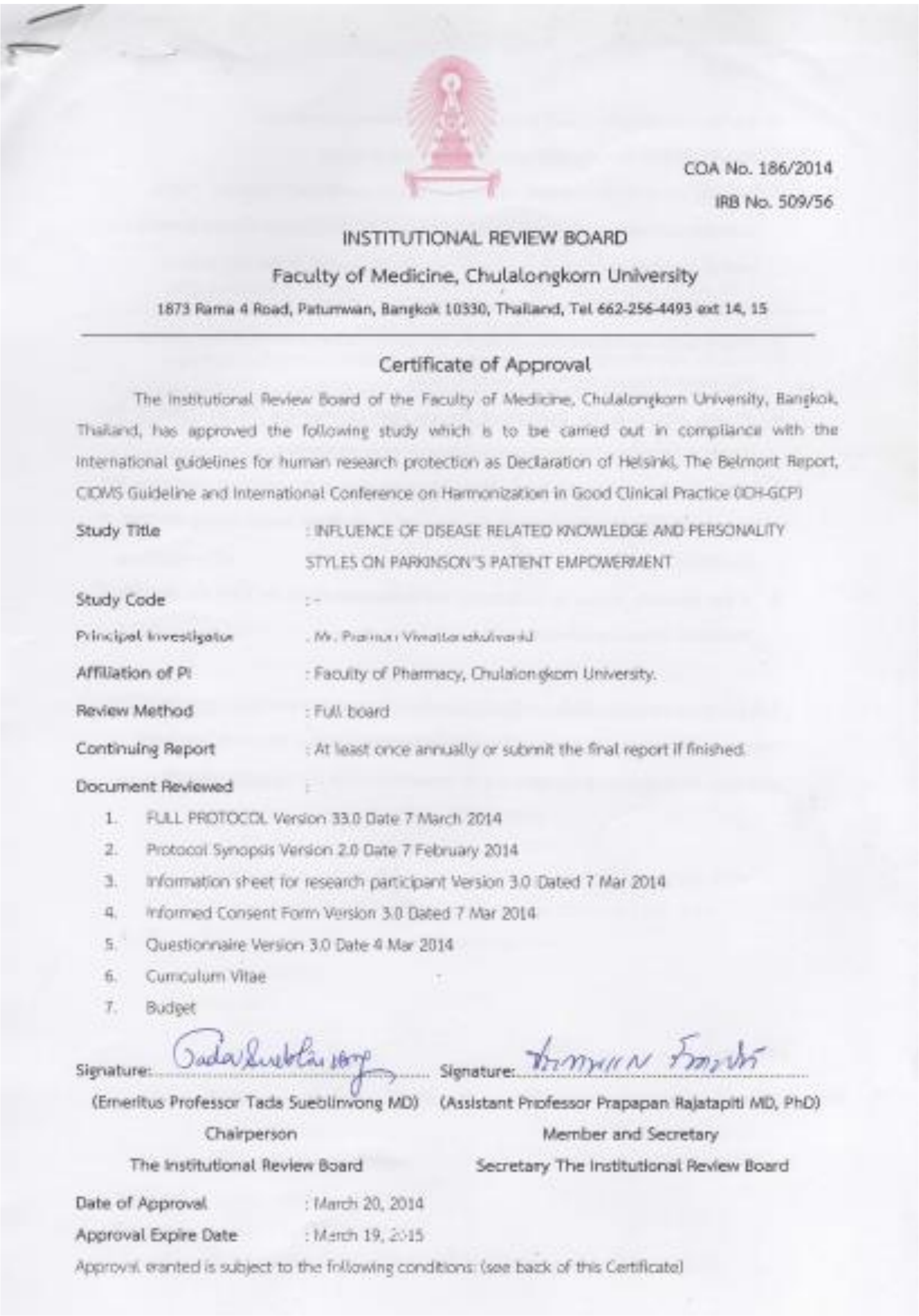
Parkinson’s disease related knowledge

$k = 26$; $S^2 = 6.907$; $\sum pq = 2.859$

rKR-20 of Parkinson’s disease related knowledge = 0.61

APPENDIX 5

ETHICS APPROVAL



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Certificate of Approval

The Institutional Review Board of the Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand, has approved the following study which is to be carried out in compliance with the International guidelines for human research protection as Declaration of Helsinki, The Belmont Report, CIOMS Guideline and International Conference on Harmonization in Good Clinical Practice (ICH-GCP)

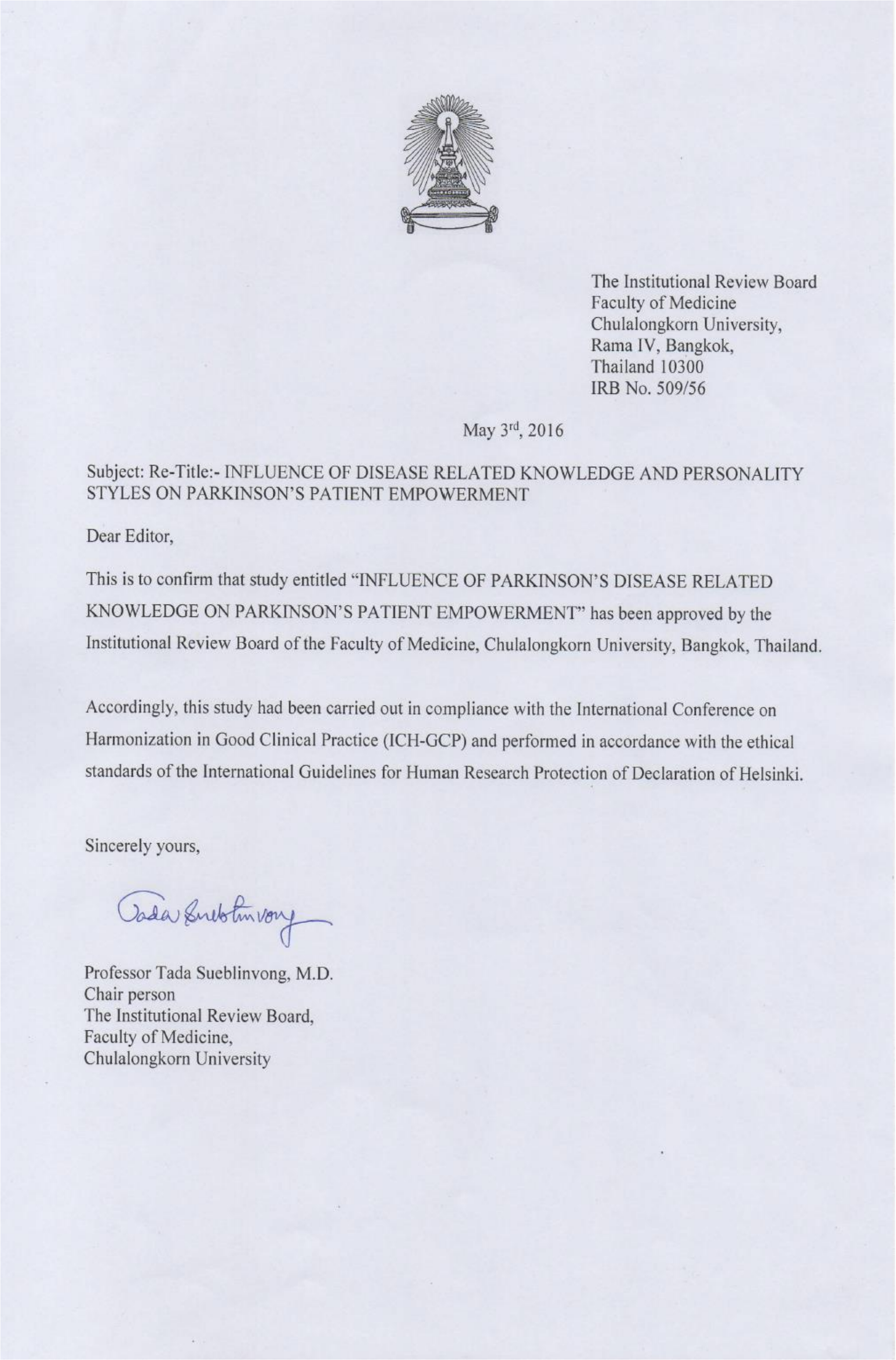
Study Title	: INFLUENCE OF DISEASE RELATED KNOWLEDGE AND PERSONALITY STYLES ON PARKINSON'S PATIENT EMPOWERMENT
Study Code	: -
Principal Investigator	: Mr. Pramon Viwattanakulvanid
Affiliation of PI	: Faculty of Pharmacy, Chulalongkorn University.
Review Method	: Full board
Continuing Report	: At least once annually or submit the final report if finished.
Document Reviewed	:

1. FULL PROTOCOL Version 33.0 Date 7 March 2014
2. Protocol Synopsis Version 2.0 Date 7 February 2014
3. Information sheet for research participant Version 3.0 Dated 7 Mar 2014
4. Informed Consent Form Version 3.0 Dated 7 Mar 2014
5. Questionnaire Version 3.0 Date 4 Mar 2014
6. Curriculum Vitae
7. Budget

Signature: Tada Sueblinvong	Signature:
(Emeritus Professor Tada Sueblinvong MD)	(Assistant Professor Prapapan Rajatapiti MD, PhD)
Chairperson	Member and Secretary
The Institutional Review Board	Secretary The Institutional Review Board

Date of Approval	: March 20, 2014
Approval Expire Date	: March 19, 2015

Approval granted is subject to the following conditions: (see back of this Certificate)



The Institutional Review Board
Faculty of Medicine
Chulalongkorn University,
Rama IV, Bangkok,
Thailand 10300
IRB No. 509/56

May 3rd, 2016

Subject: Re-Title:- INFLUENCE OF DISEASE RELATED KNOWLEDGE AND PERSONALITY STYLES ON PARKINSON'S PATIENT EMPOWERMENT

Dear Editor,

This is to confirm that study entitled "INFLUENCE OF PARKINSON'S DISEASE RELATED KNOWLEDGE ON PARKINSON'S PATIENT EMPOWERMENT" has been approved by the Institutional Review Board of the Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand.

Accordingly, this study had been carried out in compliance with the International Conference on Harmonization in Good Clinical Practice (ICH-GCP) and performed in accordance with the ethical standards of the International Guidelines for Human Research Protection of Declaration of Helsinki.

Sincerely yours,

Tada Sueblinvong

Professor Tada Sueblinvong, M.D.
Chair person
The Institutional Review Board,
Faculty of Medicine,
Chulalongkorn University

VITA

Pramon Viwattanakulvanid

EDUCATION

2001-2003 University of Colorado at Denver

Master's Degree of Business Administration (MBA)

1994-1999 Chulalongkorn University

Bachelor's Degree of Pharmacy

BACKGROUND AND EXPERIENCES

Pramon has multi-skills in the areas of pharmaceutical cares and patient support group. He currently is one of executive committee members for Parkinson's patient support group at King Chulalonkorn Memorial Hospital and Taichi Association at Lumpini Park. During his academic years 2010-2016, he worked as Teaching assistant and research assistant. Meanwhile, he also worked as social worker at PD center, King Chulalongkorn Memorial Hospital, Thai Red Cross society.In 2007, He joined Norvatis as a GIPAP coordinator and PR Manager. Before joining Novartis, He used to work as a project manager/pharmacist at Healthy Max shop and a PR consultant at GolinHarris, an international PR agency. He also worked as a pharmacist in D-Chain Drug Store, Boots retail, Bangkok Christian Hospital, and Bumrungrad Hospital.

Pramon hold a MBA Degree in Entrepreneurship from University of Colorado at Denver in the United States; Bachelor's Degree in Pharmaceutical Science from Chulalongkorn University in Thailand.

PUBLICATIONS

1) Viwattanakulvanid, P., et al. (2014). "The impact of the nocturnal disabilities of Parkinson's disease on caregivers' burden: implications for interventions." J Neural Transm.

2) Bhidayasiri, R., Brenden, N, Viwattanakulvanid, P, et al. (2014). "Identifying gaps in knowledge about Parkinson disease among medical professionals in Thailand." Neurology 82(24): 2238-2240.