FACTORS INFLUENCING QUALITY OF LIFE AMONG FAMILY CAREGIVERS OF PATIENTS WITH ADVANCED CANCER: A CAUSAL MODEL

WARUNEE MEECHAROEN

A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY (NURSING)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2013

Thesis
entitled

FACTORS INFLUENCING QUALITY OF LIFE AMONG FAMILY CAREGIVERS OF PATIENTS WITH ADVANCED CANCER: A CAUSAL MODEL

……………………………..
Miss Warunee Meecharoen
Candidate

…………………………………………..
Assoc. Prof. Yupapin Sirapo-ngam,
D.S.N.
Major advisor

…………………………………………..
Asst.Prof. Supreeda Monkong,
Ph.D.
Co-advisor

…………………………………………..
Prof. Laurel L. Northouse,
Ph.D., F.A.A.N.
Co-advisor

…………………………………………...
Asst. Prof. Pisamai Orathai,
Ph.D.
Co-advisor

…………………………………………..
Prof. Banchong Mahaisavariya,
M.D., Dip Thai Board of Orthopedics
Dean
Faculty of Graduate Studies
Mahidol University

…………………………………………...
Assoc. Prof. Yajai Sitthimongkol, Ph.D.
Acting Program Director
Doctor of Philosophy Program in Nursing
Faculty of Nursing
Mahidol University

Thesis
entitled

FACTORS INFLUENCING QUALITY OF LIFE AMONG FAMILY CAREGIVERS OF PATIENTS WITH ADVANCED CANCER: A CAUSAL MODEL

was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Doctor of Philosophy (Nursing)
on
April 4, 2013

…………………………………………	……………………………..
Assoc. Prof. Yupapin Sirapo-ngam, D.S.N. Member	Miss Warunee Meecharoen Candidate
…………………………………………	…………………………………………..
Asst.Prof. Supreeda Monkong, Ph.D. Member	Prof. Emeritus Somchit Hanucharurnkul, Ph.D. Chair
…………………………………………	………………………………………….
Asst. Prof. Pisamai Orathai, Ph.D. Member	Assoc. Prof. Jiraporn Kespichayawattana, Ph.D. Member
…………………………………………	…………………………………………..
Prof. Laurel L. Northouse, Ph.D., F.A.A.N. Member	Prof. Winit Phuapradit, M.D., M.P.H. Dean Faculty of Medicine, Ramathibodi Hospital Mahidol University
…………………………………………	…………………………………………..
Prof. Banchong Mahaisavariya, M.D., Dip Thai Board of Orthopedics Dean Faculty of Graduate Studies Mahidol University	Assoc. Prof. Fongcum Tilokskulchai, Ph.D. Dean Faculty of Nursing Mahidol University

ACKNOWLEDGEMENTS

My Ph.D. degree would have been achieved with the assistance and support from many people who are significant for me. First, I am enormously grateful to Assoc. Prof. Dr. Yupapin Sirapo-ngam, my major and academic advisor, for her invaluable and thoughtful instruction all the way through the difficult years of my doctoral study. I am also appreciative to Prof. Dr. Laurel L. Northouse, my co-advisor at School of Nursing, the University of Michigan for her valuable advice and sharing of experiences, via e-mail correspondence, with great comments and support. I would like to thank the members of my dissertation committee, Asst. Prof. Dr. Supreeda Monkong, and Asst. Prof. Dr. Pisamai Orathai, for their suggestions and recommendations. I am greatly indebted to Prof. Emeritus Dr. Somchit Hanucharurnkul, chair of my dissertation defence examination committee, and Assoc. Prof. Dr. Jiraporn Kespichayawattana, an external examiner, who gave me thoughtful suggestions.

I am thankful to all the professors of the Doctoral Program in Nursing, Mahidol University and School of Nursing, the University of Michigan who have helped me build my scholarly thinking skill. I am very grateful to Asst. Prof. Dr. Marjorie C. McCullagh, who opened my worldview, for her very warm welcome and kind supports all the time when I was a visiting scholar at the University of Michigan, Ann Arbor. My special thanks to Ann Schafenacker, a study coordinator at School of Nursing, the University of Michigan for her kind friendship and support. I am also thankful to all Thai students at the University of Michigan who have helped me enjoy my life in Ann Arbor.

Special thanks go to Ajarn Suwannee Wangkarn, a statistician at National Statistical Office, and Ajarn Somsiri Punsaksiri, a statistician at Saraburi Hospital, Thailand for their suggestions about data analysis. Also, thanks to Dr. Tassanee Klergkulthorn and Miss Wipasiri Naraphong, my colleagues at Boromarajonani College of Nursing, Saraburi who have also provides great cheerful support. I also appreciate all of my classmates and seniors in the Ph.D. program for their informational and emotional support. I am eternally thankful to the family caregivers who participated in this study as well as all the staff at Saraburi hospital and Lopburi Cancer Center who facilitated my data collection. Moreover, I am thankful to the Ministry of Public Health and Thailand Nursing and Midwifery Council to provide funding for my doctoral study and this research, respectively.

My special thanks go to my family including my mother, my siblings, my grandchildren and Miss Suphanee Apaipim, my close friend, for their great support throughout my doctoral study. Lastly, my deepest gratitude goes to my beloved mother who is my inspiration to do everything in my life forever.

Warunee Meecharoen

FACTORS INFLUENCING QUALITY OF LIFE AMONG FAMILY CAREGIVERS OF PATIENTS WITH ADVANCED CANCER: A CAUSAL MODEL

WARUNEE MEECHAROEN 5137715 NRNS/D

Ph.D. (NURSING)

THESIS ADVISORY COMMITTEE: YUPAPIN SIRAPO-NGAM, D.S.N., LAUREL L. NORTHOUSE, Ph.D., F.A.A.N., SUPREEDA MONKONG, Ph.D., PISAMAI ORATHAI, Ph.D.

ABSTRACT

Caregiving for advanced cancer patients is an overwhelming task that affects all aspects of caregivers' quality of life (QOL). Most of them reported low QOL and high caregiver burden. Therefore, they should receive specific interventions in order to promote or increase a higher level of their QOL. However, there is a paucity of literature regarding factors predicting QOL among family caregivers of patients with advanced cancer in a Thai context. So, this study aimed to examine the causal relationships among caregiver's age, caregiver's education, caregiver's income, caregiver burden, family hardiness, coping, social support, and caregiver's quality of life (QOL) among Thai family caregivers of patients with advanced cancer. The theoretical framework which was used to guide this study was derived from the stress process model and review of the literature. A sample of 275 caregivers was recruited from two tertiary hospitals under the jurisdiction of the Ministry of Public Health in Thailand. The instruments used to collect the data were comprised of the demographic questionnaire, the Zarit Burden Interview, the Family Hardiness Index, the Jalowiec Coping Scale, Social Support Questionnaire, and the Quality of Life Index-Cancer Version III. The data were analyzed by descriptive statistics and Path analysis.

The findings indicated that the final model fit the empirical data and explained 45% of the variance in caregiver's QOL. The family caregivers of patients with advanced cancer perceived high QOL. Caregiver's age, social support and family hardiness had significant direct positive effects on caregiver's QOL. Caregiver burden had a significant negative direct effect on caregiver's QOL, and had a significant indirect effect on caregiver's QOL through social support, and family hardiness.

The results of this study provide information regarding factors influencing QOL among Thai family caregivers of advanced cancer patients and can guide development of an intervention program for this population. The findings suggest that a program for family caregivers of patients with advanced cancer should be focused on maintenance of a high level of QOL and a low level of caregiver burden in the first two years of caregiving. For future study, a longitudinal or experimental study is suggested.

KEY WORDS: FAMILY CAREGIVER/ ADVANCED CANCER/
QUALITY OF LIFE/ SOCIAL SUPPORT/ CAREGIVER BURDEN

200 pages

ปัจจัยที่มีอิทธิพลต่อคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลาม
FACTORS INFLUENCING QUALITY OF LIFE AMONG FAMILY CAREGIVERS OF PATIENTS WITH ADVANCED CANCER: A CAUSAL MODEL

วารุณี มีเจริญ 5137715 NRNS/D

ปร.ด. (การพยาบาล)

คณะกรรมการที่ปรึกษาวิทยานิพนธ์: ยุพาพิน ศิรโพธิ์งาม, D.S.N., LAUREL L. NORTHOUSE, Ph.D., F.A.A.N., สุปรีดา มั่นคง, Ph.D., พิศสมัย อรทัย, Ph.D.

บทคัดย่อ

การดูแลผู้ป่วยมะเร็งระยะลุกลามเป็นงานที่มีความยุ่งยากเป็นอย่างมาก จึงส่งผลกระทบต่อคุณภาพชีวิตในทุก ๆ ด้านของญาติผู้ดูแลญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลามส่วนใหญ่จะรายงานว่ามีคุณภาพชีวิตในระดับต่ำและมีการรับรู้ว่ามีภาระในการดูแลในระดับสูง ซึ่งญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลามควรจะได้รับการดูแลที่เฉพาะเจาะจงเพื่อที่จะได้มีคุณภาพชีวิตที่ดีขึ้น อย่างไรก็ตามพบว่าในประเทศไทยยังมีการศึกษาวิจัยค่อนข้างน้อยเกี่ยวกับปัจจัยทำนายคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลาม ดังนั้นในการศึกษาครั้งนี้จึงมีวัตถุประสงค์เพื่อศึกษาความสัมพันธ์เชิงสาเหตุของอายุ ระดับการศึกษา รายได้ ภาระในการดูแล ความเข้มแข็งของครอบครัว วิธีการเผชิญความเครียด และแรงสนับสนุนทางสังคมต่อคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลาม กรอบแนวคิดที่ใช้พัฒนามาจากstress process model และการทบทวนวรรณกรรม กลุ่มตัวอย่างคือญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลาม จำนวน 275 คน ที่มารับบริการ ณ โรงพยาบาลระดับตติยภูมิ ในสังกัดกระทรวงสาธารณสุข จำนวน 2 แห่ง เครื่องมือที่ใช้เก็บรวบรวมข้อมูลประกอบด้วยแบบสอบถามข้อมูลส่วนบุคคล แบบสัมภาษณ์เกี่ยวกับการแบกรับภาระ แบบสอบถามความเข้มแข็งของครอบครัว แบบสอบถามวิธีการเผชิญความเครียด แบบวัดแรงสนับสนุนทางสังคม และดัชนีคุณภาพชีวิต วิเคราะห์ข้อมูลโดยใช้สถิติขั้นพื้นฐานและการวิเคราะห์อิทธิพล

ผลการศึกษา พบว่า แบบจำลองสุดท้ายที่ปรับมีความสอดคล้องกับข้อมูลเชิงประจักษ์ และสามารถทำนายความผันแปรของคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลามได้ 54% ญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลามรับรู้ว่ามีคุณภาพชีวิตในระดับสูง อายุ แรงสนับสนุนทางสังคม และความเข้มแข็งของครอบครัวมีอิทธิพลโดยตรงทางบวกต่อคุณภาพชีวิต ภาระในการดูแลมีอิทธิพลโดยตรงทางลบต่อคุณภาพชีวิต และมีอิทธิพลทางอ้อมต่อคุณภาพชีวิต ผ่านแรงสนับสนุนทางสังคม และความเข้มแข็งของครอบครัว

ผลการวิจัยชี้ให้เห็นว่าในการจัดโปรแกรมการดูแลสำหรับญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลามควรจัดโปรแกรมที่ส่งเสริมให้มีญาติผู้ดูแลยังคงรับรู้ว่ามีคุณภาพชีวิตในระดับสูงและมีภาระในการดูแลในระดับต่ำในช่วงสองปีแรกของการดูแล นอกจากนี้ ควรจะมีการศึกษาวิจัยในระยะยาวหรืองานวิจัยเชิงทดลองต่อไปในอนาคต

200 หน้า

CONTENTS

Page

ACKNOWLEDGEMENTS **iii**

ABSTRACT (ENGLISH) **iv**

ABSTRACT (THAI) **v**

LIST OF TABLES **ix**

LIST OF FIGURES **x**

LIST OF ABBREVIATIONS **xii**

CHAPTER I INTRODUCTION **1**

1.1 Background and Significance of Study 1

1.2 Theoretical Framework 9

1.3 Hypothesized Model 18

1.4 Research Questions 19

1.5 Purpose of the Study 19

1.6 Research Hypotheses 19

1.7 Definition of Terms 20

CHAPTER II LITERATURE REVIEW **22**

2.1 Advanced Cancer and Its Impact on Patients 22

2.2 Family Caregivers of Patients with Advanced Cancer 26

2.3 Quality of Life among Family Caregivers of Patients with Advanced Cancer 35

2.4 Factors Related to Quality of Life among Family Caregivers of Patients with Advanced Cancer 41

2.4.1 Characteristics of Caregivers 42

2.4.2 Caregiver Burden 44

2.4.3 Family Hardiness 48

2.4.4 Coping 51

2.4.5 Social Support 54

CONTENTS (cont.)

Page

CHAPTER II LITERATURE REVIEW (cont.)

2.5 Conclusion 56

CHAPTER III METHODOLOGY 58

3.1 Research Design 58

3.2 Population and Sample 58

3.3 Research Instruments 61

3.4 Protection of Human Subjects 76

3.5 Pilot Study 76

3.6 Data Collection 79

3.7 Data Analysis 81

3.8 Summary 82

CHAPTER IV RESULTS 83

4.1 Characteristics of Samples 83

4.2 Descriptive Statistics of Study Variables 89

4.3 Results Relevant to Research Hypotheses 94

4.4 Summary 104

CHAPTER V DISCUSSION 105

5.1 Characteristics of the Samples and Study Variables 105

5.2 The Factors Influencing Caregiver's QOL 119

5.3 Strengths and Limitations of this Study 125

5.4 Summary 126

CONTENTS (cont.)

Page

CHAPTER VI CONCLUSION **127**

6.1 Summary of the Research Study 127

6.2 Implications and Contribution of Research Findings 129

6.3 Conclusion 132

REFERENCES **133**

APPENDICES **165**

Appendix A Documentary Proof of Ethical Clearance 166

Appendix B Permission Letters for Using the Stress Process Model and the Instruments 173

Appendix C Permission Letters for Translating the Instrument 181

Appendix D Instruments 182

Appendix E Linearity Testing 196

Appendix F Homoscedasticity Testing 199

BIOGRAPHY **200**

LIST OF TABLES

Table **Page**

3.1 Summarized Variables, Measurements, and Measure 61

3.2 Measurement Model Goodness of Fit Index and Indicator Measures 75

3.3 Summarization of the Reliability Coefficients of the Study Instruments 78

4.1 Characteristics of the Caregivers (n=275) 84

4.2 Characteristics of the Advanced Cancer Patients (n=275) 87

4.3 Descriptive Statistics of the Study Variables (n= 275) 89

4.4 Descriptive Statistics of Five Study Variables and Their Subscales (n= 275) 91

4.5 Range, Means, and *SD* for the relative coping scores (n=275) 92

4.6 Univariate and Multivariate Normality of the Study Variables (n= 275) 95

4.7 Multicollinearity testing: Correlational Matrix of the Study Variables(n=275) 96

4.8 Assessment for Multicollinearity of the Study Variables (n=275) 97

4.9 The Comparison of Goodness of Fit Indices between the Hypothesized Model and the Modified Model 101

4.10 The Comparison of Path Coefficients, Standard Errors, T-values of Parameter Estimates between the Hypothesized Model and the Modified Model 101

4.11 The Comparison of Predictive Factors Effects between the Hypothesize Model and the Modified Model 102

LIST OF FIGURES

Figure **Page**

1.1 The Stress Process Model of Pearlin and Collegues (1990) 12

1.2 Theoretical Substruction: Background & Context, Stressors, Moderating resources, and Outcomes 17

1.3 Hypothesized Model of Factors Influencing Quality of Life among Family Caregivers of Patients with Advanced Cancer 18

3.1 Standardized Factor Loading and Measurement Errors for the Measurement Model of Caregiver Burden 71

3.2 Standardized Factor Loading and Measurement Errors for the Measurement Model of Family Hardiness 71

3.3 Standardized Factor Loading and Measurement Errors for the Measurement Model of Coping 72

3.4 Standardized Factor Loading and Measurement Errors for the Measurement Model of Social Support 73

3.5 Standardized Factor Loading and Measurement Errors for the Measurement Model of Quality of life 74

4.1 A Hypothesized Model of Factors Influencing Quality of Life among Family Caregivers of Patients with Advanced Cancer 99

4.2 A Modified Model of Factors Influencing Quality of Life among Family Caregivers of Patients with Advanced Cancer 100

E 1 A: Scatter Plot Matrix between Caregiver's age and QOL 196

B: Scatter Plot Matrix between Caregiver's education and QOL 196

E 2 A: Scatter Plot Matrix between Caregiver's income and QOL 196

B: Scatter Plot Matrix between Caregiver Burden and QOL 196

E 3 A: Scatter Plot Matrix between Family Hardiness and QOL 196

B: Scatter Plot Matrix between Coping and QOL 196

LIST OF FIGURES (cont.)

Figure **Page**

E 4 A: Scatter Plot Matrix between Social Support and QOL 197
B: Scatter Plot Matrix between Caregiver's age and Social Support 197
E 5 A: Scatter Plot Matrix between Caregiver's income and Social Support 197
B: Scatter Plot Matrix between Caregiver burden and Social Support 197
E 6 A: Scatter Plot Matrix between Caregiver's education and Coping 197
B: Scatter Plot Matrix between Caregiver's income and Coping 197
E 7 A: Scatter Plot Matrix between Caregiver burden and Coping 198
B: Scatter Plot Matrix between Caregiver's age and Coping 198
E 8 Scatter Plot Matrix between Caregiver burden and Family hardiness 198
F 1 Normal P-P Plot for Standardized Residual (n=275) 199
F 2 Scatter Plot Matrix between Standardized Residual and Standardized Predicted Values 199

LIST OF ABBREVIATIONS

A.M.: Ante Meridiem
AGE: Caregiver’s age
AGFI: Adjusted Goodness of Fit Index
b: Unstandardized Factor Loading
Beta: Standardized Factor Loading
BUR: Caregiver burden
CFI: Comparative Fit Index
COP: Coping
CQLI: Caregiver QOL Index
CQOLC: Caregiver QOL Index–Cancer Scale
DE: Direct Effect
df: Degree of freedom
DM: Diabetes Mellitus
EDU: Caregiver’s education
EORTC: European Organization for Research and Treatment of Cancer Pediatric
FHI: Family Hardiness Index
GFI: Goodness of Fit Index
HADS: Hospital Anxiety and Depression Scale
HAR: Family hardiness
HT: Hypertension
IE: Indirect Effect
INC: Caregiver’s income
IPD: Inpatients Department
JCS: Jalowiec Coping Scale

LIST OF ABBREVIATIONS (cont.)

LISREL: Linear Structural Relationship
MFI: Multidimental Fatigue Inventory
MOS SF-36: Medical Outcomes Study 36-Item Short Form
NFCA: National Family Caregivers Association
NHP: Nothingham Health Profile
NI: A number of indicator
ns: Not significant
OPD: Outpatient Department
P.M.: Post Meridiem
PGI: Patient Generated Index of QOL
PTG: posttraumatic growth
QLI-CV: QOL Index–Cancer Version
QLI-CVIII: Quality of Life Index-Cancer version III
QOL: Quality of Life
QOLT: QOL Tool
RMSEA: Root Mean Square Error of Approximation
RNI: Relative Noncentrality Index
SD: Standard Deviation
SE: Standard Error
SF-MPQ: Short-form McGill Pain Questionnaire
SIP: Sickness Impact Profile
SPM: stress process model
SRMR: Standardized Root Mean Square Residual
SSI: Scientific Software International
SSQ Social Support Questionnaire
SUP: Social support

LIST OF ABBREVIATIONS (cont.)

TE: Total Effect
US: the United States
WHO: World Health Organization
ZBI: Zarit Burden Interview

CHAPTER I
INTRODUCTION

1.1 Background and Significance of the Study

Cancer affects not only the quality of life (QOL) of patients who have the disease but also that of their family caregivers (Kim & Given, 2008; Lewis, 2006). Specially, the advanced cancer has been recognized as one of the most overwhelming times for patients and their family caregivers (Northouse et al., 2002). Caregiving for advanced cancer patients is generally a stressful task and hard work which requires a high level of patience from family members (Glajchen, 2004; Sirapo-ngam et al., 2010). Family caregivers of patients with advanced cancer are faced with various problems including conflict among their social roles, restrictions of activities, strain in marital and family relationships, psychological distress, and diminished physical health (Given et al., 2001; Kim, Baker, Spillers, & Wellisch, 2006; Kim & Schulz, 2008; Nijboer et al., 1998; Weitzner, McMillan, & Jacobsen, 1999). The demands on family caregivers of patients with advanced cancer are especially great because the patients are often sicker, and more functionally dependent than patients in the early stage of cancer (Weitzner et al., 1999). Thai caregivers, in particular report physical, psychological, financial, family, and social problems from taking care of advanced cancer patients (Maneewan, Panutat, Sudjinda, & Paisalsuthidaj, 1994; Prechavittayakul, 2006). Thus, caregiving for advanced cancer is a demanding and overwhelming process that impacts all aspects of a caregiver's life (Attasara & Buasom, 2010; Grunfeld, Glossop, McDowell, & Danbrook, 1997).

Currently, the number of cancer survivors has grown from 9.8 in 2001 to 12.7 million in 2008 worldwide, and the relative five-year survival rates at diagnosis for all cancer sites in the United States (US) have improved from 54% to 68% because of advances in medicine and better practices in early detection (American Cancer Society, 2011; Centers for Disease Control and Prevention, 2011; Jemal et al., 2011; Jemal et al., 2009; Jemal, Siegel, Xu, & Ward, 2010). In Thailand, cancer is still a critical health problem because it has been the leading cause of death for more than ten years (Bureau of Policy and Strategy, Thailand, 2010). The numbers of cancer patients has grown every year and will increase more than 50% in the next decade (National Cancer Institute (NCI), Thailand, 2009). In 2010, there were 3,136 new cancer patients (1,189 men and 1,947 women) which were equal to 12.3% of new patients receiving treatments at the National Cancer Institute. The stage of those new cancer patients consisted of 14% stage I, 22.8% stage II, 23.4% stage III, 25.3 % stage IV, and 14.5% unknown stage (National Cancer Institute, 2011). The numbers of outpatients seen in hospitals increased from 14% in the year 2007 to 20% (> 100,000 cases) in 2009 (Bureau of Policy and Strategy, Thailand, 2010).

Moreover, there are the ongoing changes in the health care system (American Cancer Society, 2010; Jemal, et al., 2010). This change has resulted in a shift of chronic care including cancer care from hospital to home settings in order to decrease length of stay in hospitals and expenses of caring (Girgis & Lambert, 2009; Phuwarawutipanich, 2007). This shift has increased the family's involvement in caring for the person with cancer and might reflect the greater impact of cancer on the family caregivers (Given, Given, & Kozachik, 2001; Phuwarawutipanich, 2007). Advanced cancer patients have physical restrictions from metastatic cancer (Cassileth et al., 1985). They have functional dependence and poorer mental health while receiving outpatient treatment (Stanton, 2006). They are in need of help from family caregivers to provide them with physical and psycho-emotional care, and to assist them to deal with behavioral problems in order to maintain their health and well-being at home (Sirapo-ngam et al., 2010; Stajduhar, Martin, Barwich, & Fyles, 2008). Clearly, family caregivers are important people who have responsibilities to improve or maintain the QOL of patients with advanced cancer at home (Gaugler et al., 2009).

Family caregivers of cancer patients experience high levels of stress, burden and diminished QOL (McMillan et al., 2005). Specifically, caregivers of patients with advanced cancer had poorer QOL than caregivers of the patients in the acute survivorship phase (one to two years post diagnosis) (Mellon, Kershaw, Northouse, & Freeman-Gibb, 2007; Mellon, Northouse, & Weiss, 2006). Additionally, the research findings have shown that there is a significant relationship between the QOL of cancer patients and their caregivers (Bakar, Yusoff, & Omar, 2008; Gill, Kaur, Rummans, Novotnyd, & Sloan, 2003). Caregivers who had physical, emotional, instrumental and social problems associated with caregiving for cancer patients had also poorer emotional well-being, QOL, and were at risk of psychiatric health problems themselves (Bakar et al., 2008). Furthermore, a decrease in the QOL of caregivers negatively influenced the quality of care and the QOL of the patients (Alptekin, Gonullu, Yucel, & Yarıs, 2009; Cameron, Shin, Diane Williams, & Stewart, 2004; Hacialioglu, Ozer, karabulutlu, Erdem, & Erci, 2010). Negative caregiver experiences might affect their abilities to care for the patient, resulting in restricted roles and activities and increased psychosomatic, anxious, or depressive symptoms (Cameron et al., 2004; Mancini et al., 2010; Nijboer et al., 1998; Schulz & Beach, 1999). For this reason, if caregivers have better QOL, cancer patients are more likely receive a higher level of quality of care and higher level of QOL.

Although, most research on cancer and caregiving has focused on the negative outcomes of caregiving during the past decade, some studies indicate that there are positive outcomes of caregiving reported by family caregivers (Girgis & Lambert, 2009). For example, the experts in family caregiving community of Michigan State University Extension summarized the literature and found that there were some surprising positive outcomes associated with caregiving. These positive outcomes included: spending more time with a family member, improving relationships with other family members who share in the caregiving, having the opportunity to make a difference (i.e., give back to a family member in return for gifts received over a lifetime), connecting with other caregivers to increase their ability as caregivers, and gaining personal and spiritual growth (Cotton et al., 2011). Similarly, Hunt (2003) reported in a review article that several studies reported on the positive aspects of caregiving. Positive aspects of caregiving were comprised of caregiver esteem, uplifts of caregiving, caregiver satisfaction, finding or making meaning through caregiving, and gaining in the experience.

Thornton and Perez (2006) described posttraumatic growth (PTG) that occurred in men treated for prostate cancer and their partners one year after surgery. They defined PTG as “the positive changes in life philosophy, relationships, and personal growth that people frequently attribute to having endured a stressful or traumatic experience” (p. 285). The investigators found that one year after the patients' surgery, higher PTG was in partners who were employed spouse of the patients, less educated, endorsed higher cancer-specific avoidance symptoms of stress at presurgery, and used positive reframing coping. A study by Kim, Schulz, and Carver, (2007) revealed that there were six domains of benefit finding in caregiving which was reported by 896 family caregivers who participated in the American Cancer Society QOL Survey for Caregivers. Those domains comprised of acceptance, empathy, appreciation, family, positive self-view, and reprioritization.

In the Thai culture, the family has a crucial role when a serious problem affects one of its members. All family members share the responsibility for the problem, and a Thai patient with cancer's problem is viewed as a family problem and a problem of the kinship network as well (Lundberg & Trichorb, 2001). Furthermore, women are always expected to take care of a loved one in their family because Thais believe that caregiving is a natural occurrence accompanied with women (Adulyanonte, 2012). Therefore, a mother is expected to look after her children, and care for a grandmother and a grandfather, and a grandmother is expected to care for her nephew or nieces. These values and beliefs in family solidarity motivate them to provide the best care for their family member who is ill. The care of the ill has been an integral part of a family system. As a result, family members are a significant part of health care system.

Although, there was no study that focused on the positive outcomes of cancer caregiving in Thai context, Thongprateep (2006) stated that some of Thai family caregivers of patients with terminal stage cancer were proud of their responsibility because they enjoyed caring for their loved ones. Caffrey (1992) also stated that affective rewards and a strong norm of filial obligation may be the motivating forces for children to continue to care for parents in the context of cultural change in Thailand. Kespichayawattana (1999) found that positive consequences of the caregiving situation for Thai family caregivers of frail elderly parents were composed of caregiver's having happiness, sense of self-pride, recognition of praise from others, attainment of merit, feelings of being lucky, and warmth in their caregiving situation. Furthermore, Vithayachockitikhun (2009) found that Thai caregivers of persons living with Human Immunodeficiency Virus reported positive consequences of caregiving including an abiding sense of fulfillment that was associated with loving humankind, self-value, and knowledge gained through their experiences. Yiengprugsawan, Seubsman, and Sleigh (2012) also found that Thai caregivers reported higher positive mental health (i.e., self-esteem and content with life), higher positive mental capacity (i.e., coping with crises), and higher positive mental quality (i.e., helping others) when compared to non-caregivers. However, little attention has been focused on the benefits of the caregiving experience. The positive aspects associated with the caregiving experience may act as a buffer against overwhelming burden and traumatic grief of caregivers (Salmon, Kwak, Acquaviva, Brandt, & Egan, 2005).

Even though family caregivers are overwhelmingly affected by caregiving for a loved one with cancer, they receive only minimal attention from most healthcare providers who are focused primarily upon the patients' needs (Ferrell et al., 2011). In addition, family caregivers, especially family caregivers of cancer patients, are seldom prepared to provide care at home (Cameron et al., 2004; Given, Given, & Kozachik, 2001). They are a vulnerable and at-risk population that remains neglected by the health care system (Blum & Sherman, 2010). Thus, they usually experience stress and burden, which can have a negative impact on their own health and well-being and can also compromise the quality of care provided to the loved one. If health care providers do not care about the health and QOL of family caregivers, family caregivers will be at risk of health problems or become ‘‘hidden patients’’ (Bakar et al., 2008; Parks & Novielli, 2000).

Therefore, the assessment of QOL among family caregivers of patients with advanced cancer is very important (Kitrungrote & Cohen, 2006; Sherman et al., 2007) because patients' quality of care and QOL depend on the family caregivers' QOL (Blum & Sherman, 2010; Cameron et al., 2004). QOL is one of the positive outcomes of caregivers' experience (Candy, Jones, Williams, Tookman, & King, 2009; Demiris, Oliver, & Wittenberg-Lyles, 2009; Northouse, Kershaw, Mood, & Schafenacker, 2005). It is also the ultimate outcome to maintain health status of caregivers (Ferrans, 2005). Improving caregiver's QOL has been widely recognized as an important goal of cancer care (Edwards & Ung, 2002; McMillan et al., 2005; Roila & Cortesi, 2001). Additionally, evaluating caregiver's QOL was identified as one of the content areas and priority topics for research between 2009 and 2013 by the

Oncology Nursing Society. Research findings will help to examine the quality of cancer care and QOL in cancer patients and their caregivers (Berger, 2010). Therefore, to evaluate caregivers' QOL and related factors will help health care providers to understand the phenomena and plan to reduce negative outcomes or improve positive outcomes of caregiving (Berger, 2010).

From a review of the literature, it was found that family caregivers of cancer patients experienced negative changes in their QOL (Caqueo-Urízar, Gutiérrez-Maldonado, & Miranda-Castillo, 2009). In addition, the impact on various aspects of the family caregivers' QOL was significant throughout the trajectory of the illness (Clark et al., 2006; Kim & Given, 2008; Lewis, 2006). In the past two decades, studies which focused on caregivers of cancer patients have evolved from embryonic to adolescence (Lewis, 2006, 2009). The literature is comprised of studies that identify the importance of cancer's impact on the family which includes descriptive or hypothesis-testing studies. Studies moved from primarily stress-adaptation-coping models to family systems models within which the family moved from mere "context" to foreground. Furthermore, studies focused on rigorous intervention studies for caregivers or family members. Those studies are data-based, theory informed intervention studies with the goal of improving family members' adjustment to cancer (Lewis, 2006, 2009).

Moreover, those studies demonstrated that there was a difference in the level of QOL of caregivers who had various characteristics. For instance, caregivers of cancer patient had a poorer global QOL than caregivers of non-cancer patients (Kershaw et al., 2008; Luria, 2000; Ross, Mosher, Ronis-Tobin, Hermele, & Ostroff, 2010; Scherbring, 2002), family caregivers of patients receiving palliative care had lower QOL scores than those receiving curative treatment (Weitzner et al., 1999), family caregivers of cancer patients who were post-treatment had higher QOL than those of cancer patients undergoing active treatment (Ross et al., 2010), and caregivers of advanced cancer patients had significantly poorer physical, emotional, functional, and total QOL than those of newly diagnosed patients (Northouse et al., 2007). In addition, previous research has found that caregivers of patients with advanced cancer had poor to moderate level of QOL (Gaston-Johansson, Lachica, Fall-Dickson, &

Kennedy, 2004; Iconomou, Viha, Kalofonos, & Kardamakis, 2001; Lee, 2000; Weitzner et al., 1999).

The literature also identified several variables associated with QOL among cancer caregivers. Some of previous studies identified the factors that related to caregiver's QOL including caregiver's age (Alptekin et al., 2009; Awadalla et al., 2007; Kershaw et al., 2008; Rivera-Navarro et al., 2009), caregiver's education (Awadalla et al., 2007; Luria, 2000; Northouse et al., 2002; Tang, 2009), caregiver's income (Kim & Spillers, 2009; Luria, 2000; Song et al., 2010), caregiver burden (Gaston-Johansson et al., 2004; Wagner et al., 2006), family hardiness (Han et al., 2006; Mellon & Northouse, 2001; Northouse et al., 2002), coping (Kershaw et al., 2008; Wagner et al., 2006), and social support (Bergelt, Koch, & Petersen, 2008; Fitzell & Pakenham, 2009; Mellon & Northouse, 2001; Tang, 2009; Wagner et al., 2006). Although these factors may influence caregiver's QOL, they may not alone influence caregiver's QOL. Those factors may conjointly influence caregiver's QOL and possibly have some interaction among them. So, it is interesting to develop a causal model to test that how those factors work to influence caregiver's QOL.

In Thai context, there are 23 studies that focused on caregivers of patients with cancer. Concepts in those studies were both negative and positive concepts, such as the concepts from western studies including coping, stress, distress, burden, QOL, health status, need, sense of coherence, and problem. Of these 23 studies, they consisted of 15 quantitative studies, and 8 qualitative studies. There were only three Thai theses that studied QOL of caregivers of cancer patients receiving active treatments including surgery, chemotherapy, and radiotherapy (Chansirimong-kol, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007). From the studies in Thai context, the research findings have reported on the experiences, problems, needs, and burden of family caregivers of patients with advanced cancer but not QOL of the caregivers. These studies also found that there were certain variables and factors that can predict outcomes of caregiving. However, these findings were from studies on caregivers of patients with cancer receiving active treatments not advanced cancer patients. In caregivers of advanced cancer, Thai researchers focused on experience, problems, needs, burden, and adaptation of the caregivers. More research is needed with caregivers of patients with advanced cancer in Thai context.

Even though caregivers' QOL has an effect on quality of care of patients with advanced cancer, the QOL of caregivers has not been clearly investigated in Thailand. There were only three Thai theses that studied QOL of caregivers of cancer patients who received active treatments including surgery, chemotherapy, and radiotherapy (Chansirimongkol, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007). The findings have shown that caregivers perceived a fairly good level of QOL and that caregivers' QOL was related to their level of social support and stress. However, further information is needed about the QOL of caregivers of patients with advanced cancer and related factors in Thai context.

Little information is available about factors influencing QOL in Thai caregivers. Most studies have been conducted in western culture which is different from Thai context. Even though studies from Western cultures indicated that social and cultural factors play an important role in people's perceptions of their health and QOL (Saxena, Carlson, Billington, & Orley, 2001). These studies may not be relevant to Thai caregivers. The relationship between socio-cultural factors and QOL among Thai family caregivers of patients with advanced cancer has not been reported. In Thai society, the stress of family caregivers is not addressed because people think that caring for the loved one with chronic illness including cancer is the responsibility to the caregivers who are family members (Sirapo-ngam, 2003; Sirapo-ngam et al., 2010). Therefore, the stress of Thai family caregivers of advanced cancer patients is still neglected and need to be supported from other family members and health care providers.

Clearly, the state of knowledge from the previous studies can describe, explain, predict, and control the QOL of caregivers of patients with advanced cancer. However, the findings from research conducted in Western counties may not be appropriate to Asian countries, especially Thailand, because the perception of people in Western countries are constructed in a socio-cultural and religious context that is different from that in Thailand. Such contextual differences may make caregivers in these two regions perceive and think about their lives differently (Kitrungrote, Wonghongkul, Chanprasit, Sutharangsee, & Cohen, 2008).

Hence, the purposes of the present study were to describe the level of caregivers' QOL and to validate the causal model displaying the relationship between the selected factors and caregiver's QOL in Thai context. It is expected that findings from this study will provide new nursing knowledge about QOL of Thai caregivers and related factors. Exploring the level of caregivers' QOL will provide the knowledge base for describing and explaining phenomenon in the area of care giving for the advanced cancer patients. Understanding and evaluation of caregivers' QOL is particularly important given the increasing responsibility to patient care shouldered by family caregivers. Family caregivers have been identified as key persons who provide care for patients with advanced cancer at home.

Health care providers, especially nurses, have responsibility to promote or maintain health of patients and their families including family caregivers (Hanucharurnkul, 2001). If family caregivers have poor to moderate level of QOL, health care providers, especially nurses will plan for improving caregivers' QOL. On the other hand, if family caregivers have high QOL, nurses will plan for maintenance for caregivers' QOL so that they can take care of the loved one with advanced cancer continuously.

The findings from this study will fill the gap of knowledge about QOL of caregivers and related factors in Thai context. The findings will provide a knowledge base for description, explanation, and prediction of the phenomenon of QOL of caregivers who provide care giving for the advanced cancer patients at home. Moreover, the findings from this study will help determine if factors that influence the QOL in Western culture are the same as those in Thai culture. This knowledge will guide future directions that are needed for family-focused research in cancer nursing for nurse researchers and nurses in clinical practice. Especially, conducting intervention with caregivers can produce changes in the QOL of caregivers and cancer patients.

1.2 Theoretical Framework

The conceptual framework that serves as a guide for this study is based on the conceptualization of the stress process model (SPM) developed by Pearlin, Mullan, Semple, and Skaff (1990). Previously, Pearlin, Lieberman, Menaghan, and Mullan, (1981) described the stress process that was comprised of three major conceptual domains including the sources of stress, the mediators of stress, and the manifestations of stress. Pearlin and his colleagues described how stressful life events and more chronic life strains diminish individuals' self-concept and their sense of mastery. This model provides structure to examine predictors of caregiver's outcomes that occur from one phase of the illness trajectory to another (Blum & Sherman, 2010).

Pearlin has revisited the stress process model periodically over the years (Avison, Aneshensel, Schieman, & Wheaton, 2010). The 1990 version of the SPM is a modification of the earlier stress and coping work of Lazarus and Folkman in 1984 (Carter, 1999; Papastavrou, Kalokerinou, Papacostas, Tsangari, & Sourtzi, 2007). It is broad in scope and potentially applicable to various chronic illnesses (Menne, 2006). Although it was originally designed for caregivers of Alzheimer's patients, its foundation in sociological concepts of stress and coping make it highly applicable to other disease contexts including caregivers of cancer patients (Carter, 1999; Gaugler et al., 2008; Gaugler et al., 2005, Gaugler et al., 2009; Kim et al., 2007; Tang, Li, & Liao, 2007). Juratovac (2009) stated that assumptions implicit in the description of the model by Pearlin et al. in 1990 were that stressors were a naturally-occurring part of family caregiving, and that family caregivers deal with stressors both within and external to their caregiving roles. Further, moderating factors were assumed to operate in family caregiving, and these include psychological, social, and practical supports. Avison et al. (2010) also stated that there were three key assumptions of this model including 1) the stress process is dynamic in nature: changes in one set of factors produce changes in others, 2) social stress is by no means unusual or abnormal; indeed, it is typical of ordinary life. Stress arises out of commonly held social roles of everyday life and in typical social contexts, and 3) the origins of stress are in the social world.

From the 206 studies in cancer caregiver population reviewed by the researcher for the proposed study, the conceptual framework that was used to guide the most research (17 studies including 6 Thai studies) was stress and coping model developed by Lazarus and Folkman (1984). Similarly, Sirapo-ngam (2003) found that the stress and coping model was one of the conceptual frameworks used in caregiver research in Thailand. The SPM was used to guide two studies on caregivers of patients with dementia and schizophrenia in Thai context (Ondee, 2011; Thunyadee, 2011).

Although, the SPM was not used to guide the research in Thai cancer caregivers, it was selected to guide the proposed study for the following two reasons: 1) this model serves as a guide to consider and understand the short or long-term complexities of the illness experience for caregivers of cancer patients, and b) this model provides specific hypotheses by outlining key stressors in the caregiving experience and by positing relationships among stressors and outcomes.

This conceptual model describes how the caregiver's personal and environmental factors interact with and result in specific caregiver outcomes. In other words, caregivers' well-being is affected by a multiplicity of factors that are related to the care situation, the characteristics of the care recipient and care providers, the burden experienced by the caregiver, and the resources available to the caregiver. Pearlin and colleagues stated that caregiver stress is not a unitary occurrence but a mix of circumstances, experiences, responses, and resources that vary considerably among caregivers and that consequently vary in their impact on caregiver health and behavior. Providing care to patients with advanced cancer involves several interrelated factors. Each of these factors taken alone may be stressful, but when combined they can become unmanageable and result in QOL of caregivers. A description of where the variables of interest to this study fit into the domain of the stress process model is now presented.

The four core components of this model include: 1) background and context of stress that include demographic and socioeconomic status of the caregiver, 2) the stressors, including primary and secondary stressors, objective and subjective factors, 3) the mediators of stress, including coping strategies and social support, and 4) the outcomes of stress that relate to the impact of the stressors on the well-being of the caregiver (Figure 1.1).

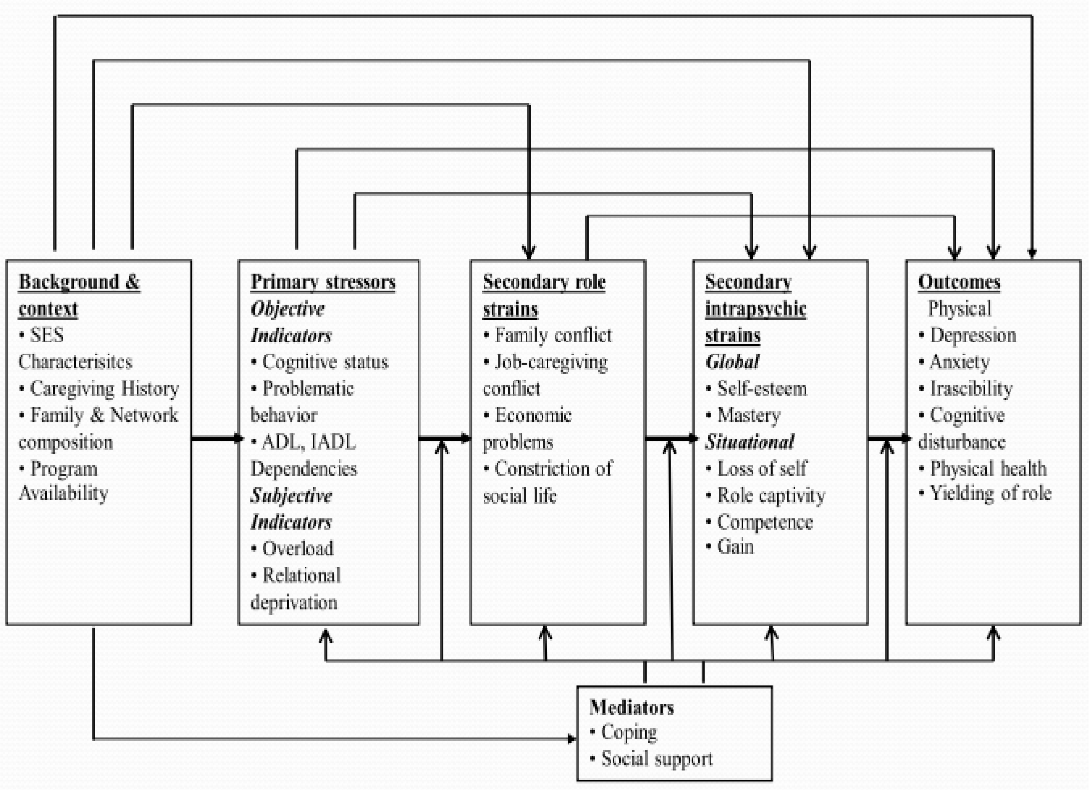


Figure 1.1: The Stress Process Model of Pearlin and Collegues (1990)

1.2.1 Background and Context of Stress

Background and context of stress refers to the characteristics of the caregiver and care recipient (sociodemographic characteristics), the context within which the care is provided (caregiving history), family and network composition, and program availability. The sociodemographic characteristics of the caregiver include age, gender, ethnicity, and marital status. Caregiving history refers to the living arrangements, the relationship of the caregiver to the care-recipient, the quality of the relationship between the caregiver and the care-recipient prior to the caregiving experience, and the duration of the caregiving experience. The family and network composition in the SPM was referred to networks to which caregivers have attachments, and the nature and frequency of contacts with their members. Program availability is represented by community-based formal program created to benefit patients, caregivers, or both.

From the studies on cancer caregiver population, there was evidence to support that background and context of stress was associated with QOL. For example, caregivers who were older had significantly lower physical QOL scores than those who were younger (Alptekin et al., 2009; Kershaw et al., 2008; Kim & Spillers, 2009; Rivera-Navarro et al.,2009). On the other hand, Awadalla et al. (2007) and Song et al. (2010) found that caregivers who were older had significantly higher physical QOL score than those who were younger. Additionally, the family members' age was positive related to their SF-36 mental summary scores and negative related to their SF-36 physical summary scores (Northouse et al., 2002). Caregivers who had at least high school education had significantly higher QOL scores (Awadalia et al., 2007), or caregivers who were low education level had experienced more negative effects on their QOL (Alptekin et al., 2009; Iconomou, Vagenakis, & Kalofonos, 2001). However, Northouse et al. (2002) found that family member who had higher education reported lower mental QOL. Caregivers' income was significant predictors of their QOL (Kim & Spillers, 2009) and caregivers who were unemployment had lower QOL (Alptekin et al., 2009). Moreover, Luria (2000) found that higher family income had a significant positive relationship with higher family QOL. Hence, the relationship between caregivers' age, education, income, and caregivers' QOL were tested in this study.

1.2.2 Stressors

Stressors are defined as conditions that threaten, thwart efforts, and defeat the dreams of people (Pearlin et al., 1990). Stressors are the experiences that challenge the caregiver's ability to adjust to the demands of care giving (Kelly, 2007). Pearlin and colleagues also conceptualized stressors as falling into two categories: primary and secondary stressors.

Primary stressors are directly related to the needs of the patient, including the nature and magnitude of the care demands, and they can be objective or subjective. *Primary objective stressors* refer to the cognitive status, problematic behaviors, and dependencies (e.g., activities of daily living), as they are based on the impaired person's health, behavior, and functional abilities. These objective stressors are measured indirectly by assessing the care-recipient's illness characteristics (stage of illness, treatments taken, symptoms, and functional level) and time spent per day by the caregiver providing care. *Primary subjective stressors* refer to the subjective experience of the caregiver, such as role overload (caregiver burden) and relational deprivation. Pearlin and colleagues described how these primary stressors were usually durable and tend to intensify over time producing secondary stressors.

Secondary stressors were outside the immediate caregiving situation including role strains and intrapsychic strains. Role strains were related to the caregiver's other relationships and responsibilities. Role strains incorporate several types of conflict, such as family conflict, work conflict, and constriction of social life, illustrating the impact of competing demands placed upon caregivers who try to balance several different roles. Intrapsychic strains operated internally as the caregiver's internal stressors and issues. Intrapsychic strains also refer to dimensions of self-concept (e.g., self-esteem, mastery) that are global in nature and psychological states (e.g., role captivity, loss of self, competence) that are more directly connected to the caregiving situation (Aneshensel, Pearlin, Mullan, Zarit, & Whitlach, 1995; Pearlin et al., 1990).

From previous studies, the findings have shown that there was the relationship between caregiver burden as a primary stressor and caregiver's QOL as a caregiver's outcome such as caregivers who perceived high level of caregiver burden had poorer QOL than those who perceived low level of caregiver burden (Gaston-Johansson et al., 2004; Wagner, Bigatti, & Storniolo, 2006; Winslow, 1997). Additionally, there was evidence that strongly supported the relationship between caregiver burden and other factors including caregiver's characteristics, coping, and social support. For instance, caregiver's age had a significant negative association with caregiver burden (Gaston-Johansson et al., 2004; Gaugler et al., 2005; Townsend, Ishler, Shapiro, Pitorak, & Matthews, 2010); education and income of caregivers had a significant negative correlation with caregiver burden (Francis, Worthington, Kypriotakis, & Rose, 2010; Given et al., 2004; Papastavrou, Charalambous, & Tsangari, 2009; Sharpe, Butow, Smith, Mcconnell, & Clarke, 2005; Yusuf, Adamu, & Nuhu, 2010); caregivers who perceived high burden used different coping strategies ($p < .001$) than those who reported low burden (Papastavrou el al., 2009); low available support perceived by caregivers of patients with advanced cancer predicted negative aspects of caregiver burden (Sharpe et al., 2005); family caregivers' social support was the major predictor of caregiver burden (Chen et al., 2009). From the literature, there has been no evidence to support that self-concept in secondary stressors were related to caregivers' QOL. So, in this study, the researcher focused on caregiver burden which is as one of the primary subjective stressors in the SPM.

1.2.3 Mediators of Stress

In 1990, Pealrin and colleagues stated that the mediators of stress refer to the individual caregiver characteristics or activities assumed by the caregiver in an attempt to ward off the negative outcomes of the stress process. Pearlin and colleagues recognized that the stressors do not occur in a vacuum situation and included mediating conditions (e.g., coping, social support) in their framework to describe how these factors provide a buffering effect to stressors through direct and indirect pathways. Such mediating conditions help explain the discrepant responses to the responsibilities of caregiving, as some caregivers are more protected via these conditions than others. In 1999, Pearlin changed the wording from the mediators of stress to the moderating resources because most of his studies revealed that coping, social support, and self-concepts were the variables that influenced the strength of a relationship between stressors and outcomes. He stated that moderating resources were regarded as having the capacity to hinder, prevent, or cushion the development of the stress process and its outcomes. The moderating resources were composed of three resources including coping, social support, and self-concepts. Pearlin and colleagues stated that social support and coping play important roles in protecting individuals from the consequences of their stressful experiences. Moreover, Wheaton (2010) stated that moderating resources can be divided into social and personal resources. She also stated that hardiness is one of self-concepts which was personal resources. In this study, the researcher focused on family hardiness as a personal resource. Pearlin and colleagues stated that people exposed to similar stressors are not necessarily similarly affected by them. In the general stress and coping literature, social support and coping are both considered mediators or moderators between stressors and outcomes and they typically have been examined as such in the psycho-oncology literature and in a variety of family caregiver populations as well (Bigatti, Wagner, Lydon-Lam, Steiner, & Miller, 2010; Raina et al., 2004; Schumacher, Stewart, & Archbold, 2007).

From previous studies, the researchers found that social support and coping were associated with and the strong predictors for family caregivers' QOL (Kershaw et al., 2004; Kershaw et al., 2008; Mellon et al., 2006; Morris, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007; Wagner et al., 2006). In addition, the research findings have shown that the stressors were related to the moderators. For instance, the caregivers who used negative religious coping strategies which assessed punishing God appraisals, interpersonal religious discontent, demonic appraisals, spiritual discontent and questioning God's powers reported more burden (Pearce, Singer, & Prigerson, 2006), and high levels of burden were significantly associated with absence of financial support (Yusuf et al., 2010). More hardiness correlated significantly with greater social support (Nicholas & Leuner, 1999), and lower available support predicted negative aspects of caregiver burden (Sharpe et al., 2005). Although, there was no study to test the concepts of coping and social support as moderators in family caregiver population, this study focused on them as potential moderators between characteristics of caregivers, caregiver burden, and caregivers' QOL.

For the concept of family hardiness, the research findings revealed that higher family hardiness related to the caregivers' better QOL (Han et al., 2006; Mellon & Northouse, 2001; Northouse et al., 2002). Furthermore, family hardiness was significantly negative related to caregiver burden (Tamtup, 2004). So, this proposed study focused on social support, coping, and family hardiness as the moderator variables.

1.2.4 Outcomes of Stress

Outcomes of stress refer to the effect or consequence of caregiver stress on the health of the caregivers. Initial caregiver research focused mostly on the burdens experienced by the caregiver. Numerous studies report detrimental effects on the caregivers' emotional well-being, such as anxiety, depression, and other forms of psychological distress (Kelly, 2007). In this study, the researcher focused on caregivers' QOL as an outcome. QOL is a salient aspect of well-being for individuals with chronic illness, and in particular caregivers of patients with advanced cancer. QOL is an outcome of caregivers' experience and also the ultimate outcome to maintain health status of caregivers (Candy et al., 2009; Demiris et al., 2009; Ferrans, 2005; Northouse et al., 2005).

In conclusion, based on the conceptual framework, as well as an extensive review of related literature on caregiving and QOL of caregivers, the researcher has applied the concept in the stress process model of Pearlin and colleagues to study different variables in the proposed research. That is, whether caregivers of patients with advanced cancer have poorer QOL depended on several factors including background and context (i.e. age, education, and income), stressors (i.e. caregivers' burden), and moderating resources (i.e. social support, coping, and family hardiness). These factors are considered pooled effects which eventually led to change of caregivers' QOL. In order to explicate the linkage among conceptual framework, theoretical and operational level of knowledge development, theoretical substruction was displayed as the hierarchical model from abstract to concrete construct in Figure 1.2

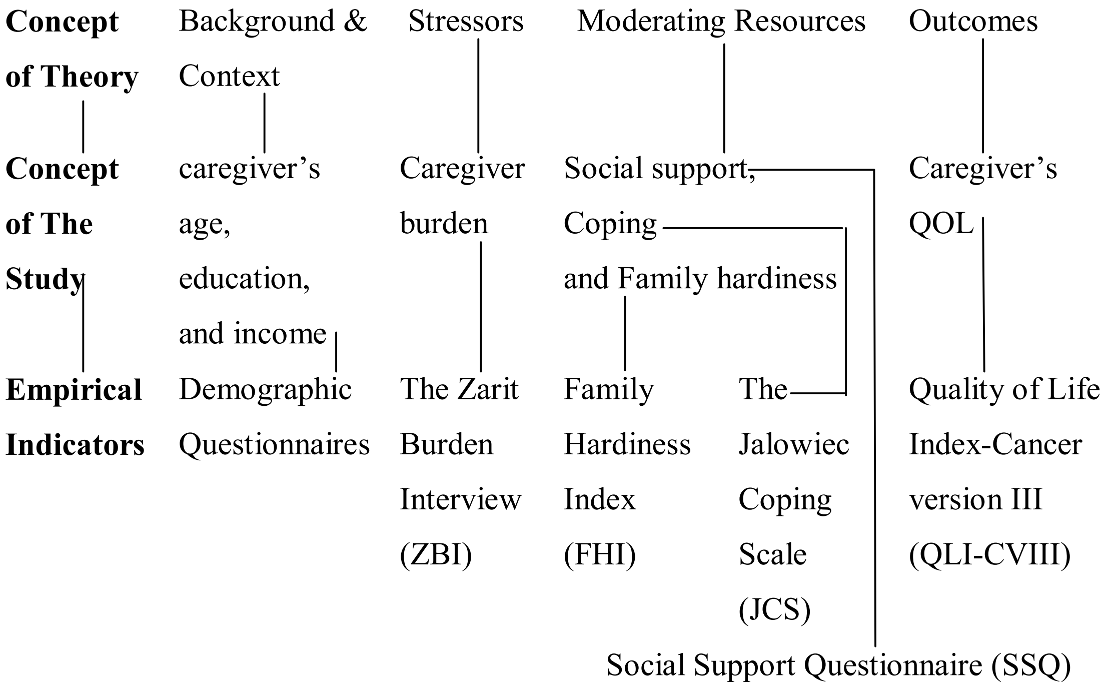


Figure 1.2: Theoretical Substruction: Background & Context, Stressors, Moderating Resources, and Outcomes

1.3 Hypothesized Model

In order to validate the causal model which displayed the relationship among caregiver's age, caregiver's education, caregiver's income, caregiver burden, family hardiness, coping, social support, and caregiver's QOL, a hypothesized model was proposed in Figure 1.3. The model was composed of four exogeneous observed variables including caregiver's age, caregiver's education, caregiver's income, and caregiver burden, and four endogeneous observed variables including family hardiness, coping, social support, and caregiver's QOL. The proposed model was considered as a testing model of the stress process model of Pearlin and his colleagues. This model explained the QOL among family caregivers of patients with advanced cancer and its influencing factors. The support for the model through testing was contributed the understanding of cancer caregivers' QOL. It would strengthen the stress process model in explaining the phenomena of family caregivers of patients with advanced cancer in Thai context. Additionally, it would guide health care providers including nurses to develop an appropriate intervention for enhancing or improving caregivers' QOL.

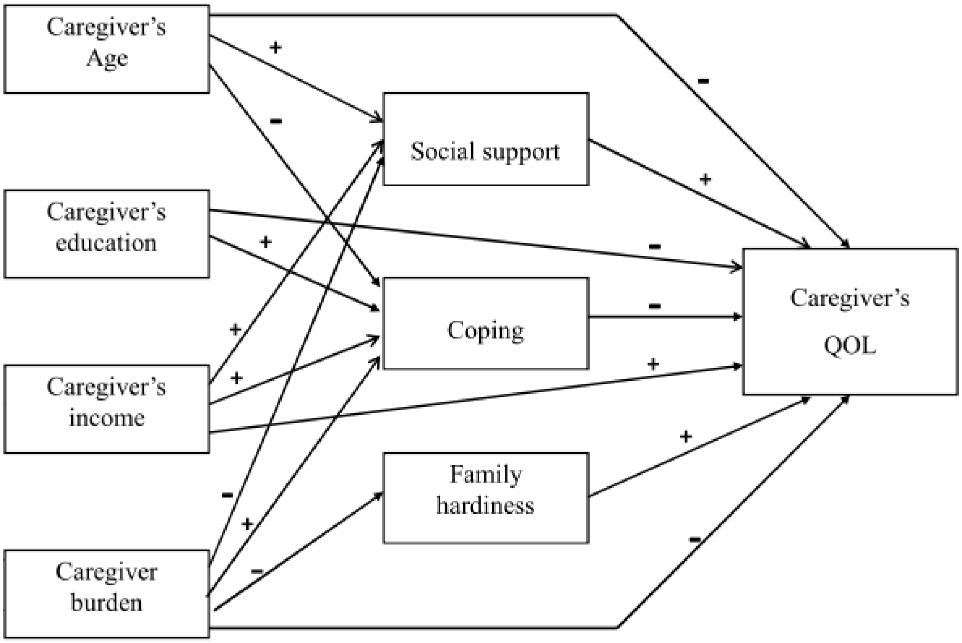


Figure 1.3: Hypothesized Model of Factors Influencing QOL among Family Caregivers of Patients with Advanced Cancer

1.4 Research Questions

The research questions of this study are:

1. What is the level of QOL among family caregivers of patients with advanced cancer?
2. Does the causal model displaying the relationship among caregiver's age, caregiver's education, caregiver's income, caregiver burden, family hardiness, coping, social support, and explain a significant amount of variance in caregiver's QOL?

1.5 Purposes of the Study

The purposes of this research study are:

1. To describe the level of QOL among family caregivers of patients with advanced cancer.
2. To validate the causal model displaying the relationship among caregiver's age, caregiver's education, caregiver's income, caregiver burden, family hardiness, coping, social support, and caregiver's QOL.

1.6 Research Hypotheses

This study has five hypotheses which are identified as follows:

1. Social support, coping, and family hardiness would have direct effects on caregiver's QOL.
2. Caregiver's age would have a direct effect on caregiver's QOL and an indirect effect on caregiver's QOL through coping, and social support.
3. Caregiver's education would have a direct effect on caregiver's QOL and an indirect effect on caregiver's QOL through coping.
4. Caregiver's income would have a direct effect on caregiver's QOL and an indirect effect on caregiver's QOL through coping and social support.

5. Caregiver burden would have a direct effect on caregiver's QOL, an indirect effect on caregiver's QOL through family hardiness, coping, and social support.

1.7 Definition of Terms

Family caregiver is defined as the family member or significant other identified by the patient as his or her primary caregiver who provides unpaid home care or arranges care for the patient during the advanced phase of cancer and confirmed by the designated individual.

Caregiver's age is the physical age of caregiver. It is measured by the subjects' reported age in year.

Caregiver's education is defined as the number of year of formal education. The subjects were asked what level of education that they finished then converted to the number of completed years of education.

Caregiver's income is defined as the amount of money in baht that family caregivers received per month.

Caregiver burden refers to the subjective perceptions of caregivers about personal strain and role strain. In this study, the researcher used the Zarit Burden Interview developed by Zarit, Reever, and Bach-Peterson (1980) and performed into Thai version by the MAPI Institute (2009) in France to assess the level of caregiver burden of advanced cancer patients' caregivers. A high score is indicative of a high level of caregiver burden.

Family hardiness is defined as family caregivers' perception of family resources including 3 domains: commitment, challenge, and control. The family hardiness index of McCubbin and colleagues (1996) modified by Niyomthai and colleagues (2003) was used to measure family hardiness in this study. A high score is indicative of a high level of family hardiness.

Coping is defined as constantly changing cognitive and behavioral efforts to manage the stress caused by caring for a family member with advanced cancer. The Jalowiec Coping Scale (Jalowiec, 1988) translated into Thai version by Suthayakorn (1988) and modified by Priengdach (1990) was used to measured coping in this study. A high score is indicative of a high level of using coping.

Social support is defined as caregivers' perception of emotional support, informational support, and tangible support from three sources: 1) family members, 2) friends, and 3) health care professionals. In this study, the researcher used the social support questionnaire developed by Schaefer and colleagues (1981) and modified by Kaveevivitchai (1993) to assess social support. A high score is indicative of a high level of social support.

QOL is defined as the perception of satisfaction and importance in advanced cancer patients' caregivers including four domains: health and functioning, social and economic, psychological/spiritual, and family. In this study, QOL of family caregivers was measured by QOL index-Cancer version III developed by Ferrans & Powers (1984 & 1998) and translated into Thai by Sukornthasarn (2007). A high score is indicative of a high level of QOL.

CHAPTER II
LITERATURE REVIEW

This descriptive correlation study was conducted to determine the amount of variance that caregivers' characteristics (i.e., age, education, and income), caregiver burden, family hardiness, coping, and social support can predict in the QOL of Thai family caregivers of patients with advanced cancer. In this chapter, the research literature on the following topics were reviewed.

2.1 Advanced cancer and its impact on patients
2.2 Family caregivers of patients with advanced cancer
2.3 QOL among family caregivers of patients with advanced cancer
2.4 Factors related to QOL among family caregivers of patients with advanced cancer
2.5 Conclusion

2.1 Advanced Cancer and Its Impact on Patients

Cancer is a word that causes negative feelings in individuals who have cancer such as fearfulness, suffering, and death. It is a diagnosis of an incurable disease that can create a profound psychological disturbance and a life changing experience for cancer patients and their families (Sherman, Norman, & McSherry, 2010). Moreover, it can have significant unfavorable physical, psychological, and economic consequences for both the individual with cancer and their family members (Caress, Chalmers, & Luker, 2009; Doumit, Huijer, Kelley, & Nassar, 2008; Jensen & Given, 1993). There are different stages of cancer which have an effect on patients and caregivers, but in the proposed study, the focus was on the advanced stage of cancer.

2.1.1 Definition of advanced cancer

The National Cancer Institute of U.S. stated that advanced cancer is cancer that has spread to other places in the body and usually cannot be cured or controlled with treatment (National Cancer Institute, 2010) Similarly, the American Cancer Society defined advanced cancer as cancers that cannot be cured and as metastatic cancers that have usually spread from the part of the body where it started (the primary site) to other parts of the body. Additionally, the American Cancer Society stated that advanced cancer can often be treated. The treatment can help patients with advanced cancer live longer, but not necessarily cure the cancer. Some people can live many years with advanced cancer. All advanced cancers are not metastatic. For instance, some cancers that start in the brain may be considered advanced because they are not curable and are life-threatening even though they have not spread to other parts of the body. In the same way, all metastatic cancers are not necessarily advanced cancers. Some cancers, such as testicular cancer, may spread to other parts of the body but may still be curable (American Cancer Society, 2010a). From the literature review, it was found that most researchers did not provide a definition of advanced cancer in their articles. There was only one in fifty-nine studies that stated a definition of advanced cancer. In that article, Sherman et al. (2007) stated that "Patients diagnosed with advanced cancer had a solid tumor that metastasized (stage IV) and had disease progression despite chemotherapy, radiation, or hormonal therapy, and were likely to die within one year of participation" (p. 352). Therefore, the definition of advanced cancer patients that was used in the proposed study was patients who have a solid tumor that metastasized (stage III & IV) and who received palliative care.

2.1.2 Impact of advanced cancer on patients

From the definition of advanced cancer, it is possible that the cancer can lead to physical and psychological problems in the patients. The problems reported by advanced cancer patients were often the symptoms resulting from the advanced cancer. There were several articles that studied problems or symptoms of advanced cancer perceived by patients. Those studies found that there were ten top symptoms reported by advanced cancer patients including fatigue, pain, dry mouth, constipation, mood changes, trouble sleeping, weight loss, coordination problems, poor appetite, and nausea (Aranda & Hayman-White, 2001; Tsai, Wu, Chiu, Hu, & Chen, 2006; Walsh, Donnelly, & Rybicki, 2000). The prevalence of these symptoms in patients ranged from 50% to 84% (Oi-Ling, Man-Wah, & Kam-Hung, 2005). Moreover, the most frequent symptoms/problems were fatigue, reduced role function, insomnia and pain (Johnsen, Petersen, Pedersen, & Groenvold, 2009). Interesting, in patients, fatigue was physiologically induced by both the disease process and the treatment regimen (Jensen & Given, 1993).

Similarly, Esper (2010) summarized in a review article that a list of the most frequently noted symptoms experienced by patients with advanced cancer were pain, constipation, dyspnea, fatigue, weight loss, forgetfulness, weakness, anorexia, taste changes, dry mouth, decreased energy, and depression. These symptoms were primarily identified in patients not currently undergoing cancer therapy. Moreover, the author summarized common symptom clusters seen in advanced cancer patients that comprised seven categories: aerodigestive, affective, general gastrointestinal, menopausal, neuropsychological, pain, and respiratory distress.

In regard to the needs of advanced cancer patients, Marcusen (2010) stated in a review article that advanced cancer patients often need information resources to understand their disease and find hope. The literature indicated that if patients receive information clearly, they will have more satisfaction with their participation in medical consultations, decreased anxiety, and increased ability to cope. Marcusen summarized that patients have common informational needs throughout all stages of cancer. They include: 1) type, stage, and prognosis of the cancer, 2) the degree of disability that the cancer and/or the treatment will/may cause, 3) the intensity of the treatment, 4) past experiences, 5) current psycho/social/bio/spiritual situation, 6) the person's unique emotional make-up, 7) degree of social support and caregiver availability, and 8) typical ways of coping with stressful situations. Significantly, in advanced cancer patients, they need to receive more information than other phases of the illness including: to discuss about survivorship issues, to identify long-term symptoms and their management, and to prepare end-of-life.

In Thai context, the problems reported by advanced cancer patients are the same as those in western context. For instance, a study developed by Maneewan et al. (1994) found that problems of advanced cancer patients were fatigue, anorexia, sleeplessness, and low physical ability. They also stated that patients needed help to maintain their physical ability and psychological well-being. They reported problems among terminal-stage cancer patients in four categories including physical suffering, having symptoms/complications, psychological problems, and communication problems. Srikumnerd (2008) studied terminal stage cancer patients in the community. The study findings revealed that terminal patient's problems were related to physical suffering, symptoms/complications, psychological problems and communication problems. Thai cancer patients' needs included having an oncologist in a nearby community, having staff to provide care at home, extended boundary for providing analgesic drugs, will power, information related to their illness, and financial support.

In the same way, a review article by Paisalsuthidach (2006) revealed that most problems of patients with terminal stage cancer in Thai environment were divided into four categories including physical problems, psycho-spiritual problems, self-care deficit, and economic problems. Physical problems were physical and comfort issues, movements of the body, problems with respiratory system, imbalance of food and water, nausea, vomiting, pain, and digestive problems. Psycho-spiritual problems were emotional disturbance, fear of abandonment from their family, fear of suffocation, fear of death, and fear of loss from a love one. Self-care deficit included problems which were related to activity of daily living of the patients. Patients did not take care of themselves and their activity of daily living because of the effects of the illness. Economic problems referred to unemployed status resulting from the illness. Patients were not earning an income but they needed to pay expenses. Furthermore, Thongprateep (2006) summarized that spiritual needs of terminal-stage patients were love and connectedness, seeking meaning of life and illness, asking forgiveness, religious practice, and hope.

In summary, advanced cancer patients have several problems and needs which received care from both family caregivers and health care providers. The problems and needs are causes of family caregivers' burden because they need to provide physical care, emotional/psychological support for the patients and other love ones. It is important that family caregivers understand patients' needs. They can provide patients with better care. Moreover, understanding advanced patients' problems and needs will help health care providers to address the needs of family caregivers and to help caregivers cope with their problems effectively. The next section reported the review of literature regarding the concept of family caregivers of patients with advanced cancer including family caregivers' definition, family caregivers' needs, and impact of caring for advanced cancer on family caregivers.

2.2 Family Caregivers of Patients with Advanced Cancer

Family caregivers are very significant persons who care for patients with advanced cancer at home. The literature uses "informal caregivers," or "family caregiver" to differentiate between professional caregivers (i.e., healthcare provider). Understanding the definition of informal caregivers or family caregiver, their characteristics, the needs of caregivers, and the impact of caregiving on family caregivers of advanced cancer patients, are important areas of study.

2.2.1 Definition of family caregivers of patients with advanced cancer

There was consistency in the definition of the term, family caregivers, in most published articles that studied the cancer caregiver population. The researchers defined the family caregiver as a spouse, parent, child, friend or significant other of a care recipient, who is an important person in caring for cancer patients at home or in the community, who does not receive payment or receive wages in return for their care (Gaugler, Kane, & Langlois, 2003; Haley, LaMonde, Han, Burton, & Schonwetter, 2003; Hendrix, Abernethy, Sloane, Misuraca, & Moore, 2009; Ornstein, Smith, & Boal, 2009; Sirapo-ngam, 1996; Steele, 1994; Weinland, 2009). Moreover, family caregivers referred to those who assist ill loved ones with self-care, financial management, and medical care tasks as well as those who provide informational and emotional support (Ross et al., 2009). The National Family Caregivers Association (NFCA; 2010) stated that defining the meaning of family caregivers was complicated and varied according to the people who defined it. For instance, physicians may define it different from social workers and researchers. NFCA stressed that America's family caregivers refers to family, friends, partners, and neighbors who take care of someone who is chronically ill or disabled and no longer able to care for themselves.

From the literature, the words "family caregiver" and "informal caregiver" were almost interchangeable with the same meaning. Family caregivers was defined based on the level of responsibility or care provided to the patients as follows (Horowitz, 1985): 1) primary caregiver refers to the person who is directly responsible for providing care to the patient in a more continuous and consistent manner than others, and 2) secondary caregiver refers to the person who provides other types of care rather than direct care to the patients, such as helping with certain activities including arranging for transportation for treatment or substituting for the primary caregiver when they are unavailable. Put another way, secondary caregivers provide care to the patients occasionally when primary caregivers are not available, but they do not do it continuously or consistently. In some cases, they are only assistants to primary caregivers. Some patients may have only primary caregivers, while others may have both primary and secondary caregivers.

From the literature, most worldwide studies (47 in 102 studies) that focused on family caregivers of cancer patients revealed that 53.2 - 100% family caregivers were adult females. The average age for caregivers was between 51 and 60 years old (minimum age=17, maximum age=99). Most of them were spouses of cancer patients who were employed and graduated from high school or had lower education. Similarly, the National Alliance for Caregiving and AARP reported that there are 44.4 million American caregivers. Most caregivers were female adults who were 18 years of age and older. They were married or living with a partner (62%), and most had worked and managed caregiving for the love one at the same time (59%) (Belden, Russonello, & Stewart, 2004). In Thailand, there were 12 in 23 studies on the cancer caregiver population that showed that Thai family caregivers were young adult female (31-50 years old). Additionally, Donprapeng (2006) stated that Thai studies regarding family caregivers as well as those in many other countries revealed that 70-80% of family caregivers were middle aged female, adult children and elderly wives. Family caregivers in the proposed study will be defined as the family member or significant other identified by the patient as his or her primary caregiver who provides unpaid home care or arranges care for the patient during the advanced phase of cancer and confirmed by the designated individual.

2.2.2 Needs of family caregivers of patients with advanced cancer

Advanced cancer is a chronic disease that is a health problem of people worldwide because it is the cause of loss and extreme suffering. Family members often need to take on the role of caregiver and provide care for patients at home (Paisalsuthidach, 2006). Although, caring for the love one with advanced cancer always been a cherished value, it can affect the health, well-being and other roles of family caregivers because they have to quit many activities to take care of patients (Weinland, 2009).

Caregivers of terminal cancer patients face several stresses owing to the patients' multiple symptoms and their own suffering. So, caregivers have wide-ranging needs for assistance to help them cope with their role. Many studies indicated that knowledge and information needs were the greatest needs of family caregivers (Docherty et al., 2008; George, 1997; Hileman, 1990; Lin & Tsao, 2004; Steele, 1994). The needs of caregivers were categorized into several domains including information, emotional/psychological, physical, social/relationship, spiritual, and financial needs (George, 1997; Hileman, 1990; Kim, Kashy, Spillers, & Evans, 2010; Lin & Tsao, 2004; Parlee, 1999). Even though family caregivers of cancer patients have a variety of types of needs, one study reported that their needs were at a moderate level (Wannasiri, 2005). The detail of several types of needs reported from those studies will be presented in the following paragraphs.

George (1997) and Hileman (1990) conducted a correlational study which focused on the needs of cancer caregivers. They found that the needs of caregivers were informational, psycho-social, physical, spiritual, and household needs. Caregivers' greatest needs were for information and psychological support. Moreover, Hileman stated that caregivers living with their patients had increased personal needs, and caregiver age was inversely related to both psychological and personal needs. Caregiver income was inversely related to household needs. Women had more household needs than men. Caregivers' psychological well-being, patient care, personal, and household needs were all inversely related to the activity levels of their patients. Similarly, the study of Steele (1994) found that caregivers of terminally ill cancer patients had twenty-four unmet needs. They were in the categories of information, household, patient care, personal and psychological needs. Fifty-percent of the unmet needs were information and patient care needs.

According to other researchers, the top five unmet caregivers needs were concerns about cancer recurrence, accessible hospital parking, reducing stress in the survivors' life, having an ongoing case manager, and up-to-date information (Girgis & Lambert, 2009). Caregivers' unmet needs had a negative impact on both the quality of terminal cancer care and caregivers' workplace performance (Park et al., 2010). There were six domains for which family members of terminal cancer patients in Taiwan needed specific information which included the basic tenets of caregiving, the disease, the social welfare of the patient, psychosocial issues, palliative care, and spirituality/religion. This study indicated that information about the disease itself was of greatest importance, with the least importance attached to spiritual and religious information (Lin & Tsao, 2004). In a systematic review, there were thirty-four studies from eight different countries. The findings from the review revealed that the studies focused on caregiver knowledge-related needs, including communication, information and education. The researchers reported that caregivers had multiple concerns and areas of inadequate knowledge in relation to pain management including understanding of side effects, disease progression, addiction and tolerance. Concerns were greatest among older caregivers and those with less education (Docherty et al., 2008).

Bee, Barnes, and Luker (2009) conducted a systematic review that explored the practical information needs of informal caregivers who provided home-based palliative and end-of-life care to people with advanced cancer. The findings revealed that there were eight categories of the informational, supportive and educational needs of caregivers undertaking home-based care. They were comprised of: 1) medication and pain management (i.e., knowledge of pain types, assessment and management), 2) physical symptoms and comfort (i.e., management of weakness and fatigue, wound and skin care, symptom recognition), 3) nutrition (i.e., provision of dietary advice, management of weight or appetite loss, feeding techniques, prevention of dehydration), 4) personal hygiene and elimination (i.e., bathing, bowel management, coping with incontinence, changing a catheter), 5) positioning (i.e., patient ambulation, lifting and handling, sorting pillows), 6) technical equipment (i.e., awareness of availability, access, optimal positioning and use), 7) professional/local support (i.e., access to night services or 24-hour support, signposting to local resources and/or agency help), and 8) emergency measures (i.e., recognizing signs of imminent death, knowledge of emergency measures and provision of emergency contacts).

In Thai context, there were only three in twenty-three studies of patients with advanced cancer that focused on problems and needs of family caregivers (Duandaw, 2004; Maneewan et al., 1994; Prechavittayakul, 2006). A phenomenological study developed by Duandaw (2004) revealed that family caregivers' health needs when caring for a patient who was terminally ill could be categorized into six major themes. These themes were titled as follows: 1) wanting to take a nap, 2) needing a helping hand, 3) finding moral support, 4) being with the patient until the last minute, 5) being hopeful, and 6) wanting to stay healthy as a caregiver but not being able to take time away. The second study by Maneewan and others (1994) found that physical problems of the caregivers were decreased appetite and fatigue, and psychological problems were mental disturbance, depression, and worry about the patients' survival. Moreover, they found that needs of family caregivers were to have more knowledge of caregiving, and to have more time for decreasing their own stress.

The third Thai study of caregivers of advanced cancer patients by Preechavittayakul (2006) found that there were 11 types of problems and obstacles that the relatives faced in caring for advanced head and neck cancer patients receiving radiotherapy and staying at Yensira Hostel. They consisted of 1) misunderstanding and conflicts with the patients, 2) inability to communicate for understanding, 3) financial and work problems which decreased moral strength, 4) patients having emergency condition while staying there, 5) being old making it physically difficult to care for the patients, 6) becoming sick while taking care of patients, 7) deserting the patients to go with their own friends, 8) feeling stressed from many causes, 9) language problems which obstructed the learning, 10) the absence of physicians to care for the patients when the primary responsible person was away, and 11) traveling to the hospital made the patients' condition worse.

From the literature, it is clear that family caregivers have several kinds of needs for caring for advanced cancer patients. Specially, knowledge and information needs were the greatest needs of family caregivers that health care providers need to know and understand in order to facilitate or assist family caregivers to maintain their role continuously.

2.2.3 Impact of caring for advanced cancer on family caregivers

From a western perspective, researchers are increasingly recognizing the impact of cancer on family caregivers of cancer patient. Caregivers may be struggling to find optimal coping strategies and to adjust to potential disruptions in their day-to-day routines and activities. Despite efforts to manage care giving demands, these may inadvertently exceed caregivers' capabilities and result in caregivers' feeling burdened and exhausted (Girgis & Lambert, 2009). Many studies have documented the negative impact of cancer on family caregivers (Kim & Spillers, 2009). The examples of those studies will be presented below.

There were several qualitative studies that described the impact of cancer on caregivers. For instance, one study conducted by Coristine, Crooks, Grunfeld, Stonebridge, and Christie (2003) found that the themes of the psychosocial impact of caring for women with advanced breast cancer were organized into six categories including: 1) assuming the caregiving role; 2) putting caregiving for the patient with advanced breast cancer in context; 3) the care tasks over time; 4) understanding and managing the patient's medical needs; 5) medical management during the terminal stages; and 6) emotions and their consequences to the patient–caregiver relationship. Juarez (2003) developed an ethnographic study to describe the perceptions of the caregiving experiences and QOL among Mexican American caregivers who provided care to patients with advanced cancer. The findings revealed that there were eight subcategories of caregiver's life or overall QOL. They included physical effects, psychological effects, employment/work adjustments, best/positive aspects, difficult/ worst aspects, social effects, effect on spiritual beliefs, and caregiver needs.

Weinland (2009) conducted a phenomenological study to describe the lived experience of African American men providing care to a relative within the home and also explore their definition of caregiver distress. The findings revealed that common themes included commitment, family support and formal health-related support, spirituality, and caregiver burden (stress, time strain, and financial strain). A phenomenological study by Doumit et al. (2008) explored the lived experience of

Lebanese family caregivers of cancer patients. The findings revealed that there were eight core themes describing the caregivers' lived experience including living with fears and uncertainty, loss of happiness, feeling of added responsibility, living in a state of emergency, sharing the pain, living the dilemma of truth telling, disturbed by being pitied, and reliance on God.

There were several studies that focused on the psychological impact of cancer on caregivers including distress, strain, depression, burden, anxiety, and others. For example, one study revealed that family caregivers of patients with cancer in an urban Nigerian setting have a high level of caregiver burden, psychological morbidity and financial strain (Yusuf et al., 2010). Ross et al. (2010) found that thirty-eight percent of family caregivers of head and neck cancer survivors at 6–24 months post-treatment reported moderate to high distress. Furthermore, there was a study that was conducted to compare anxiety, and sleep problems in female caregivers of patients with AIDS, dementia, and advanced cancer. The results demonstrated that caregivers of patients with advanced cancer had higher levels of anxiety and fewer hours of uninterrupted sleep than did caregivers in the other groups (Flaskerud, Carter, & Lee, 2000). A study by Miaskowski, Kragness, Dibble, and Wallhagen (1997) found that family caregivers of oncology outpatients with pain reported significantly more tension, depression, and total mood disturbance than family caregivers of pain-free outpatients.

Weitzner et al. (1999) found that family caregivers had increased symptoms of depression, anxiety, psychosomatic symptoms, restrictions of roles and activities, strain in marital relationships, and diminished physical health. They also found that between 32% to 70% of caregivers of advanced cancer patient experienced a high level of distress or depressive symptoms. Aranda and Hayman-White (2001) also found that the caregiver role had a negative impact on caregiver health, schedule, anxiety, and energy. Although, caregiving could be a positive experience for family caregivers such as caregivers feeling satisfied with their roles, family caregivers usually faced uncertainty about the future, lifestyle changes, a sense of helplessness, fear, loneliness, sleep problems, weight loss, anxiety, and fatigue when they took a caregiver's role (Parlee, 1999). A study by Iconomou et al. (2001) found that female caregivers with low education, spouses, and those living with the patient were more likely to report heightened symptoms of anxiety and depression, severe impact of caregiving on their lives, poor health and low QOL. In addition, the researchers found in multivariate analyses that psychological distress was the sole predictor of overall health and global QOL.

Additionally, some researchers summarized the state of knowledge about the impact of cancer on family caregivers in review articles (Girgis & Lambert, 2009; Klemm & Wheeler, 2005; Stenberg, Ruland, & Miaskowski, 2010). Girgis and Lambert (2009) reviewed the state of caregivers of cancer survivors. They found that there has been an increasing body of evidence documenting the negative physical, financial and psychosocial outcomes associated with caregiving throughout the past decade. Klemm and Wheeler (2005) also summarized the literature and found that there were common physical, emotional, and psychological responses to caregiving. Physical responses were comprised of alcohol abuse, appetite changes, back pain, exhaustion, fatigue, gastrointestinal distress, headache, hypertension, etc. Emotional and psychological responses consisted of alienation, anxiety, anger, depression, denial, difficulty making decisions, fear, feeling alone, feeling trapped, feeling under-appreciated, blame, etc. Stenberg et al. (2010) summarized that problems and responsibilities experienced by family caregivers of cancer patients consisted of: 1) physical, social, or emotional problems, 2) social problems and need for information, 3) responsibilities and impact on daily life, 4) emotional problems, and 5) physical health problems and QOL.

National Family Caregivers Association (2010) summarized the findings from research on how caregiving affected family caregivers' health. They reported that: 23% of family caregivers caring for loved ones for five years or more reported their health was fair or poor, 72% of family caregivers reported not going to the doctor as often as they should, 55% said they skipped doctor appointments for themselves. Sixty-three percent of caregivers report having poorer eating habits than non-caregivers, 58% indicated worse exercise habits than before caregiving responsibilities, 20% of employed female caregivers over 50 years old reported symptoms of depression compared to eight percent of their non-caregiving peers, 40% to 70% of family caregivers had clinically significant symptoms of depression with approximately one quarter to one half of these caregivers meeting the diagnostic criteria for major depression, and 11% of family caregivers reporting that caregiving has caused their physical health to deteriorate.

From a literature review which focused on end-of-life cancer patients being cared for at home, extensive international and Australian research confirmed that caregiving can negatively affect the caregiver's health, well-being, immune system, risk for disease (e.g. heart disease and metabolic syndromes) and life expectancy when compared to non-caregivers. Additionally, the physical and psychological well-being of caregivers has been found to be interrelated with patient psychological and physical suffering, particularly at the end of life. This affects the caregiver's psychological adjustment and morbidity during caregiving and in bereavement (Wilkinson, 2010).

In Thai context, there were five studies which measured cancer's impact on family caregivers. The first study, focused on the health status of family caregivers of cancer patients undergoing chemotherapy. The findings revealed that 38.9 percent of the family caregivers developed health problems after caregiving (Phligbua, 2005). In the second study, Kasinpila (2007) examined caregiver burden with cancer patients. She found that caregivers' burden in providing care varied depending upon the type of activity. The average level of care burden perceived by caregivers was moderate. The most burdensome caring activity had to do with the patients' behaviors and emotions. The final three studies, focused on stress of cancer caregivers (Chansirimongkol, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007). The findings revealed that the mean score of family caregivers' stress was at moderate to high level. Two types of stress situations were stress situations related to direct care for the persons with cancer, and stress situations related to the impact of caregiving on the family caregivers' life.

In conclusion, advanced cancer has an impact on holism of family caregivers including physical, psychological, social, financial, and spiritual well-being. Family caregivers need to get help from other people and health care providers to maintain their well-being and to be able to maintain their role as family caregivers. To increase understanding about caregivers' QOL, the definition, measurement, and level of QOL in caregivers of advanced cancer will be reviewed in next session.

2.3 QOL among Caregivers of Patients with Advanced Cancer

QOL is not a new concept. It was identified in Greek philosophy. At 384-322 BC, the earliest definition of QOL appeared in the Nichomachean Ethics which Aristotle wrote (Fayers & Machin, 2007). QOL is an ill-defined term. In 1947, the World Health Organization attempted to address QOL by defining health as “not only the absence of infirmity and disease but also a state of physical, mental, and social well-being” (Fayers & Machin, 2007; Zhan, 1992). The term “QOL” came into popular use in the 1960s. During this period, social scientists collected data on socioeconomic status, education, housing, and neighborhoods as a way to evaluate QOL (Zhan, 1992).

The assessment of QOL came into research fields and the health-related QOL assessment became popular a decade later (Mandzuk & McMillan, 2005). During the 1970s, QOL research which focused on subjective indicators was purported to be the more accurate measure of QOL. In the 1980s, several theorists had proposed gaps in theories of QOL (Fayers & Machin, 2007; Haas, 1999b; King & Hinds, 2003). The review of the Cumulative Index to Nursing and Allied Health Literature (CINAHL) showed that QOL was first used as subject heading in 1983. Moreover, in this period a number of other theoretical models for QOL have been proposed. In 1994, the international professional society promoted QOL research and scientific study of QOL relevant to health and health care throughout the International Society for QOL Research. A multitude of concept analyses were undertaken in an effort to engender some conceptual clarity in the late 20th century (King & Hinds, 2003; Plummer & Molzahn, 2009).

In the proposed study, the researcher focused on QOL of caregivers of patients with advanced cancer. Thus, definition, measurement, and level of QOL in cancer caregivers were reviewed in this session.

2.3.1 Definition of QOL

In the past, there was no universally accepted definition for QOL. Despite QOL being a commonly-used concept, it was often not clearly defined or understood. From the literature, the meaning of QOL was defined in different way. Five categories of the definition of QOL have been proposed. First, QOL was as a state of well-being

(Haas, 1999a). Second, QOL was defined as the degree of satisfaction/ life satisfaction (Zhan, 1992). Third, QOL was life experiences (Grant, Padilla, Ferrell, & Rhiner, 1990; Puavilai, 2000). Fourth, QOL was the impact of the disease/health (Clinch & Schipper, 1993; Varni & Rode, 1999). Finally, QOL was an individual's perception (Ferrans & Powers, 1985; WHO, 1993).

Additionally, the review of QOL literature related the conceptual components of the construct identified five categories of QOL including: a) ability to live a normal life, b) happiness/satisfaction, c) achievement of personal goals, d) ability to lead a socially useful life, and e) physical and/or mental capabilities (Ferrans, 1990). Furthermore, Taylor, Gibson, and Franck (2008) stated that to ensure clarity and coherence between the concept, its measures and outcomes, the specific perspective from which QOL was being viewed needed to be made explicit. Five perspectives of QOL have been proposed: 1) the philosophical perspective that relates to the nature of human existence, providing a definition of a good life, 2) the ethical perspective that focuses on the sanctity of life, 3) the economic perspective that equates QOL to the assessment of economic growth, gross national product and a rise in life expectancy, 4) the sociological perspective that emphasizes the social aspect of QOL, the relationship between individual circumstances and culture, and 5) the psychological perspective that relates QOL to an individual's appraisal of life and fulfilling life goals.

There were two qualitative studies that focused on cancer caregivers' QOL. The first, Juarez (2003) conducted an ethnographic study to describe perceptions of QOL among Mexican American caregivers who provided care to patients with advanced cancer. The findings revealed that the general meaning of QOL for caregivers of advanced cancer patients was "having the patients feel better, being happy, and being with the family" (p.75). The second study conducted by Schachter (1999) was a phenomenological study that described the experiences of dying cancer patients and their family caregivers. There were five major categories of QOL for dying patients and their family caregivers. They were comprised of social well-being, psychological well-being, physical well-being, existential well-being, and financial concerns.

Kitrungrote and Cohen (2006) reported in a review article that between 1991 and 2004, most researchers did not give an operational definition of family caregivers' QOL because QOL was a multifaceted and intangible construct. However, there were two studies in which researchers provided an operational definition of QOL. First, Lee (2000) reported that "QOL was the subjective components of physical well-being, psychological well-being, social well-being, and spiritual well-being" (p. 6). Second, Luria (2000) stated that "QOL was the subjective perception of the positive versus negative mental, physical, and social nature of one's life, as measured by the Cancer QOL Inventory (CQOLI)" (p. 99).

Similarly, 51 studies that measured cancer caregivers' QOL in 1999 to 2010 did not provide a conceptual definition of QOL among family caregivers of cancer patients. Some researchers offered the definition of family caregivers' QOL by using the meaning of QOL's measurement. For example, Awadalla et al. (2007) measured QOL of patients with breast cancer and gynecologic cancers and their family caregivers by using the WHOQOL instrument. They presented the WHO definition of QOL as "individuals' perception of life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns" in their study (p. 3). Harden et al. (2008) provided Zahn's definition of QOL that "Health-related QOL has been defined as an overall experience of physical, functional, psychological and social well-being" (p. 3).

Researchers reported that QOL is a subjective and multidimensional construct that consists of the physical, psychological, social, and financial well-being of caregivers (Clark et al, 2006; Edwards & Ung, 2002; Ferran, 2005). Hence, the definition of family caregiver's QOL for this study is defined as the perceptions of family caregivers of patients with advanced cancer related to their physical, mental, social, and financial well-being.

2.3.2 Measurement of QOL

There are many instruments for QOL assessment. Fayers and Machin (2007) identified three categories of QOL instruments including: 1) generic instruments: Sickness Impact Profile (SIP), Nothingham Health Profile (NHP), Health survey standard version (SF-36v2), EuroQoL (EQ-5D), A Patient Generated Index of

QOL (PGI), 2) disease-specific instruments: European Organization for Research and Treatment of Cancer QLQ-C30 (EORTC QLQ-C30), EORTC head and neck module (EORTC QLQ-H&N35), QOL in Epilepsy QOLIE-89), Paediatric Asthma QOL Questionnaire (PAQLQ), and 3) domain-specific Instruments: Hospital Anxiety and Depression Scale (HADS), Short-form McGill Pain Questionnaire (SF-MPQ), Multidimental Fatigue Inventory (MFI-20).

From the literature review, there were several measurements that were developed specifically for cancer caregivers' QOL such as 1) the Caregiver QOL Index–Cancer Scale (CQOLC) developed by Weitzner, Meyers, Steinbruecker, and Jacobsen (1996), 2) the Caregiver QOL Index (CQLI) developed by McMillan and Mahon (1994), 3) the QOL Tool (QOLT) developed by Padilla, Ferrell, Grant, and Rhiner (1990), and 4) the QOL Index–Cancer Version (QLI-CV) developed by Ferrans and Powers (1985). These instruments were used to measure cancer caregivers QOL in several studies (Carter, 2006; Deeken, Taylor, Mangan, Yabroff, & Ingham, 2003; Edwards & Ung, 2002; Lee, 2000; Luria, 2000; Ross et al., 2010; Weitzner, Jacobsen, Wagner, Friedland, & Cox, 1999; Weitzner, McMillan, et al., 1999). Edwards and Ung (2002) analyzed the psycho-metric characteristics of the 4 measures (CQOLC, CQLI, QOLT, and QLI-CV) by using content analysis. They found that there were 6 major dimensions of QOL of cancer caregivers including physical, social, financial, psychological, caregiver burden, and family issues. Additionally, there was a consensus that the physical, social, financial, and psychological dimensions of a caregiver's QOL were important, as all 4 measures addressed these dimensions.

Nevertheless, the generic measurements of QOL also were used to measure caregiver's QOL in many studies. This was shown by the following examples, *1) the Medical Outcomes Study 36-Item Short Form Health Survey-MOS SF-36* (Bakar, Yusoff, & Omar, 2008; Bergelt, Koch, & Petersen, 2008; Grov, Dahl, Fosså, Wahl, & Moum, 2006; Kershaw, Northouse, Kritpracha, Schafenacker, & Mood, 2004; Kim, Baker, & Spillers, 2007; Kim & Spillers, 2009; Northouse, Kershaw, Mood, & Schafenacker, 2005; Northouse, Mood, Montie et al., 2007; Wagner, Bigatti, & Storniolo, 2006; Weitzner et al., 1999), *2) MOS SF-12* (Fleming et al., 2006; Harden et al., 2008; Hodgkinson et al., 2007; Kershaw et al., 2008; Kim et al., 2010; Kim & Spillers, 2009; Northouse, Mood, Schafenacker et al., 2007), *3) the*

Functional Assessment of Chronic Illness Therapy Scale-FACT (Northouse et al., 2005; Northouse et al., 2002; Northouse, Mood, Montie, et al., 2007; Northouse, Mood, Schafenacker, et al., 2007), and *4) the WHO-QOL- Brief* (Alptekin et al., 2009; Awadalla et al., 2007; Chang, Tsai, Chang, & Tsao, 2007; Hacialioglu et al., 2010).

From 51 studies on cancer caregivers' QOL reviewed for this chapter, the most common measurement of QOL was MOS SF-36 and CQOLC, respectively. All of these instruments were developed with a western perspective. It is still questionable whether they are relevant for measuring QOL of cancer caregiver in Thai culture. Moreover, the construct validity of the CQOLC was different across Korean, Taiwanese, Turkish and American culture (Bektas & Ozer, 2009; Edwards & Ung, 2002; Ozer, Firat, & Bektas, 2009; Rhee et al., 2005; Tang, Tang, & Kao, 2009). It may also overlap with some factors in the proposed study such as caregiver burden. There was only one instrument that was used in Thai cancer caregiver studies (Chansirimongkol, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007). It was the QLI-CV developed by Power and Ferran (1985) and modified into Thai version by Sirapo-ngam, Putwatana, and Sitthimongkol (1999). Its validity and reliability was adequate. The Cronbach's alpha of it from previous studies was .94 - .96 (Chansirimongkol, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007). However, this instrument may not appropriate for using in this study because it was modified from the origin version with adding seven items and not used back translation. So, the researcher modified this instrument into Thai version by using the same wording of the Thai version of the QLI-cardiac version IV to use for collecting data in this study.

2.3.3 Level of QOL among caregivers of patients with advanced cancer

Several studies demonstrated that caregivers of cancer patients perceived a low or fair level of QOL (Chansirimongkol, 2007; Gaston-Johansson et al., 2004; Iconomou et al., 2001; Lee, 2000; Pitimana-aree, 2007; Ungwattansirikul, 2007). Gaston-Johansson et al. (2004) studied QOL in primary caregivers of patients with breast cancer undergoing autologous bone marrow transplantation. The findings revealed that the mean QOL scores of caregivers were a low level. Similarly, Iconomou et al. (2001) studied impact of cancer on Greek primary caregivers of patients receiving radiation therapy. They found that Greek primary caregivers had the relatively low scores for global QOL.

On the other hand, the results of Lee's study (2000) revealed that primary caregivers of patients with cancer receiving home palliative care services perceived moderate QOL. Kim and Spillers (2009) also found that family caregivers of cancer patients at 2 years after the diagnosis reported normal levels of QOL after 2 years post-diagnosis. Moreover, three studies were conducted in Thailand examined caregivers of patients with several stage of cancer receiving radiotherapy, surgery, and chemotherapy. The findings from these theses revealed that Thai family caregivers perceived a fairly good level of QOL (Chansirimongkol, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007).

The findings of studies also have shown that caregivers who had different characteristics had differences in level of QOL. For instance, caregivers of cancer patient had a poorer global QOL than caregivers of non-cancer patients (Kershaw et al., 2008; Luria, 2000; Ross et al., 2010; Scherbring, 2002), family caregivers of patients receiving palliative care had lower QOL scores than those receiving curative treatment (Weitzner et al., 1999). In contrast, family caregivers of outpatients with breast cancer and gynecologic cancers had higher QOL scores than general population groups (Awadalla et al., 2007), family caregivers of cancer patients who were post-treatment had higher QOL than those of cancer patients undergoing active treatment (Ross et al., 2010), Additionally, a study found that mean score of physical domain of QOL in family members was similar to the mean score of that in the normal population, but their mental domain score was worse than the mean in the normal population (Northouse et al., 2002).

Commonly, cancer survivorship was composed of three phases including: 1) acute phase (covering from diagnosis to the completion of initial treatment), 2) extended phase (beginning with the completion of initial treatment for the primary disease, remission of disease, or a phase of watchful waiting), and 3) permanent phase (evolved from extended disease to free survival with no moment of cure) (Mullan, 1985). Kim and Given (2008) reviewed literature on the QOL of family caregivers in different survivorship phases. They reported that the QOL of family caregivers of patients with cancer varied along the trajectory of illness. The middle- to long-term survivorship phases included remission, recurrence, palliative care, and end-of-life phases. They reported that caregivers of patients with advanced cancer had poorer QOL than cancer patients (Kim & Given, 2008). They also stated that caregivers' QOL was examined less than psychological distress aspects during the advanced phase. Although cancer has an effect on various aspects of the family caregivers' QOL throughout the illness trajectory, studies that examined aspects of the QOL of cancer caregivers were sparse.

In sum, there were several instruments to measure QOL. The study findings indicated that the QOL varies according to characteristics of family caregivers and according to the phases of cancer. Reviewing the definition of caregivers' QOL and instruments to measure QOL will assist health care providers or the researcher to understand the concept of family caregivers' QOL clearly. Therefore, this study examined the QOL among Thai family caregivers of patients with advanced cancer and explored factors that influence the QOL in this population. Next section presents the literature regarding factors that related to caregivers' QOL.

2.4 Factors Related to QOL among Family Caregivers of Patients with Advanced Cancer

This section will present the evidence of studies on caregivers' QOL and also indicate the factors that are related to QOL among caregivers of patients with advanced cancer. The literature review has been done through an electronic database and manual searching from 1990 to 2010. From the search, 51 out of 206 studies were identified that assessed QOL of cancer caregivers and related factors and another 140 studies focused on several concepts that related to psychological impact of caring for cancer patients such as distress, stress, and needs of caregivers. These 51 studies consisted of 44 published articles (86.3%) and 7 dissertations/theses (13.7%). Most studies were descriptive-correlational design (41 studies = 80.4%) and the others were intervention studies (7 studies = 13.7%), qualitative studies (2 studies = 3.9%), and mixed method study (1 study = 2%).

Thirty-two of the fifty-one studies (62.7%) were conducted in the United State of America or Canada. Seven of the fifty-one studies (13.7%) were performed in

European countries. Eleven of the fifty-one studies (21.6%) were performed in Asian countries including Thailand and only one study (2.0%) was conducted in Australia (Hodgkinson et al., 2007). Although, there were multiple factors influencing QOL among caregivers of patients with advanced cancer, in this study the researcher will focus only on the selected variables that correspond with the stress process model, and the literature review. The review identified five main categories of factors associated with QOL among caregivers of advanced cancer patients. These five factors were characteristics of caregivers, caregiver burden, family hardiness, coping and social support.

2.4.1 Characteristics of caregivers

Based on the stress process model of Pearlin et al. (1990), characteristics of caregivers are the background and context that are associated with caregivers' QOL, an outcome of stress events. Several studies that examined the relationship between characteristics of caregivers and QOL were presented in the following section.

Previous studies on cancer caregivers indicated that caregivers' age was associated with QOL of caregivers and it was a significant predictor of caregiver's QOL. For example, Kershaw et al. (2008) and Kim, Carver, et al. (2010) found that older caregivers reported lower physical QOL of the caregivers ($r = - .24$, $p < .05$ and $r = -.37$, $p < .001$, respectively). Likewise, a study of Alptekin et al. (2009) and Rivera-Navarro et al. (2009) found that caregivers' age had negative relationship to QOL among primary caregivers of cancer patients. On the other hand, caregivers who were older had significantly higher physical QOL scores than those who were younger (Awadalla et al., 2007); partners of prostate cancer patients who were older had better QOL ($p < .001$; Song et al., 2010).

A research study that focused on the influence of developmental life stage on QOL among patients with prostate cancer and their partners was developed by Harden et al. (2008). The findings revealed that the spouses in the middle age group (50–64 years old) had better physical QOL than spouses in the old-old group (75–84 years old) but not better than spouses in the young-old age group (65–74 years old). As well as, Kim and Spillers (2009) and Kim, Spillers and Hall (2010) found that caregivers' age was one of the significant predictors of caregivers' QOL. Moreover, Northouse et al. (2002) found that the family members' age was positive related to their SF-36 mental summary scores ($r = .15, p < .05$) and negative related to their SF-36 physical summary scores ($r = -.17, p < .05$). Although, family member age had significantly positive relationships with family QOL ($r = .40, p < .001$), it was not statistically significant predictors of caregivers' QOL (Luria, 2000).

There was evidence to confirm that QOL of cancer caregivers varied according to gender of family caregivers. Male caregivers had significantly higher QOL scores than female caregivers ($p < .01$) (Alptekin et al.,2009; Awadalia et al., 2007; Bakar et al., 2008; Bergelt et al., 2008; Iconomou et al. (2001). In contrast, Luria (2000) found that caregiver' gender was not statistically significant predictors of caregivers' QOL. Caregivers' education also correlated with caregiver's QOL. Caregivers who had high school education had higher QOL scores ($p < .01$) (Awadalla et al., 2007; Tang, 2009). Family members who had higher education reported lower mental QOL ($r = - .11, p < .05$; Northouse et al., 2002) but Luria (2000) found that education level of caregiver was not statistically significant predictors of caregivers' QOL.

Furthermore, caregivers' income and the types of relationship between caregivers and patients with cancer were associated with caregivers' QOL. Luria (2000) found that higher family income had a significant positive relationship with higher family QOL ($r = .32, p <.001$). Song et al. (2010) found that partners of prostate cancer patients who had higher family income also had a better QOL ($p < .05$). Kim & Spillers (2009) found that caregivers' higher income was one of the significant predictors of caregivers' QOL at 2 years post-diagnosis. Sherman, et al. (2006) and Awadalla et al. (2007) found that the relationship between patients and caregivers significantly associated with QOL of cancer caregivers. Additionally, Lu et al. (2010) found that overall spousal relationship with patients had the strongest positive association with caregiver's QOL.

The research findings also revealed that caregiver's QOL varied according to their marital status and employment status. The QOL's scores of married caregivers were lower in all domains except the social domain than those of unmarried caregivers (Alptekin et al., 2009). In contrast, Awadalla et al. (2007) found that the caregivers who were married had higher caregiver QOL scores ($p < .01$). For the relationship between the work status and caregivers' QOL, Alptekin et al. (2009) found that the QOL's scores of employed caregivers were higher in all domains than the scores of unemployed caregivers. In contrast, Luria (2000) found that the marital status, and employment status of caregivers were not statistically significant predictors of caregivers' QOL.

From the studies presented above, several characteristics of caregivers emerged that were related to caregivers' QOL. Those variables will be selected for testing the stress process model and predicting QOL among family caregivers of patients with advanced cancer. The variables that will be selected for the hypothesized model of predicting caregivers' QOL were based on the research evidence on cancer caregivers and the compatibility with the SPM. These characteristics are caregivers' age, education, and income. The relationship of these factors to caregivers' QOL are presented in the hypothesized model (Figure 1.3)

2.4.2 Caregiver burden

Caregiver burden is one of the most common variables assessed in caregiving or caregiver research, both as a predictor and as an outcome. It has been given different meanings, depending on the rationale of the users (Braithwaite, 1992; Montgomery, Stull, & Borgatta, 1985). From the literature, the concept of burden and the concept of caregiver burden were usually used interchangeably. The concept of burden was used to refer to the subjective perceptions of caregivers related to the degree of problems experienced in relation to the patient's specific impairments (Schene, 1990). Caregiver burden has been defined as ''a multidimensional bio-psychosocial reaction resulting from an imbalance of care demands relative to caregivers' personal time, social roles, physical and emotional states, financial resources, and formal care resources given the other multiple roles they fulfill'' (Given, Kozachic, Collins, Devoss, & Given, 2001, p. 679-680).

There were several studies on cancer caregivers that described the definition of caregiver burden. For instance, "caregiver burden refers to people's emotional response to the changes and demands of giving support to another" (p.2) (Higginson & Gao, 2008). In a phenomenological study by Weinland (2009), the researcher stated that “caregiver burden was conceptualized by the informal caregivers’ reaction resulting from an imbalance of care demands related to personal time, social roles, physical and emotional states, and financial resources given the other multiple roles they are expected to fill” (p.17). The results of this study revealed that one of the four common themes of the lived experience of caregivers of African American men was caregiver burden that referred to stress, time strain and financial strain.

Caregiver burden in the proposed study refers to the subjective perceptions of caregivers about personal strain and role strain. From the literature, there were thirty-six studies that measured caregiver burden reported by cancer caregivers. The most common measurement of caregiver burden was Caregiver Reaction Assessment (CRA) developed by Given et al. (1992; 12 studies), the Zarit Burden Interview (ZBI) developed by Zarit, Reever, and Bach-Peterson (1980; six studies) and the Caregiving Burden Scale (CBS) developed by Oberst, Hughes, Chang, and McCubbin (1991; four studies), respectively. There were only four in thirty-six studies which measured caregiver burden in Thai culture. They used the ZBI (Tamtup, 2004) and the CBS (Cheewapoonphon, 1998; Kasinpila, 2007; Wannasiri, 2005) to measure caregiver burden of Thai family caregivers of cancer patients.

From the literature, the average level of caregiver burden perceived by caregivers was from moderate to high (Barg et al., 1998; Cheewapoonphon, 1998; Chen et al., 2009; Kasinpila, 2007; Papastavrou et al., 2009; Scherbring, 2002; Wannasiri, 2005). Moreover, cancer caregivers perceived greater levels of physical burden than other caregivers (Kim & Schulz, 2008) and spousal caregivers experienced greater burden when a family member was near death than did non-spousal caregivers (Doorenbos et al., 2007). On the other hand, a study in 148 partners of newly diagnosed colorectal cancer patients who recently underwent surgery over a 6-month period found that the mean scores of overall caregiver burden were small or had no change over time (Nijboer et al., 2000). Additionally, there were no differences between caregivers of advanced cancer patients receiving the multidisciplinary intervention compared to the caregivers not receiving the intervention and caregiver burden essentially remained unchanged over the 6-month duration of the study (Clark et al., 2006). The mean score of caregiver burden perceived by 89 caregivers of women with advanced breast cancer receiving care (measured by using the Zarit Burden Inventory) did not significantly change in the period of the entire palliative care ($p = .45$; Grunfeld et al., 2004) .

From the findings of previous studies, caregiver burden as a primary subjective stressor was found as a negative contributor to QOL among caregivers of patients with advanced cancer (Gaston-Johansson et al., 2004; Wagner et al., 2006). Gaston-Johansson et al. (2004) studied the effects of burden on QOL in primary caregivers of patients with breast cancer undergoing autologous bone marrow transplantation. The results showed that subjective burden had the highest correlation with total QOL ($r = –.42$, $p < .01$), and objective burden had the highest correlation with health subscale of the QOL ($r = .48$, $p < .001$). Caregivers who perceived higher burden had lower QOL. In the same way, Wagner et al. (2006) studied QOL among husbands of women with breast cancer (HBC). The results showed that less caregiver burden related to higher QOL in HBC.

Furthermore, caregiver burden has been related to other factors including caregiver characteristics, coping and social support perceived by cancer caregivers. In regard to caregiver characteristics, older caregivers reported lower subjective burden ($r = –.27$, $p < .01$) and it was one of the significant predictors of subjective burden (Gaston-Johansson et al., 2004). Likewise, a study by Gaugler et al. (2005) revealed that caregiver's age had a significant negative association with role overload, a primary subjective stressor in the SPM ($r = - .20$, $p < .05$). Caregivers' age can be a significant risk factor or protective factors for caregiver strain depending on the age of the caregivers. Older caregivers reported lower strain than younger caregivers (Townsend et al., 2010).

Female caregivers and patient's lower gross family income predicted higher financial burden ($F = 6.159$, $p = .0007$) and accounted for 28% of the variance (Sharpe et al., 2005). Spouses of patients with cancer at the end of life reported virtually no burden (mean = 1.6), whereas non-spouses (mean = 2.0) and adult children (mean = 2.8) reported considerably more feelings of burden. Female caregivers reported a stronger burden (mean = 2.4) than male caregivers (mean = 1.9) (Given et al., 2004). In contrast, Yusuf et al. (2010) found that male caregivers were more likely to experience high burden ($\chi^2 = 5.20$, $p = .028$).

Papastavrou el al. (2009) found that caregivers who had lower income, and education were the most important predictors of burden. A study by Francis, Worthington, Kypriotakis, and Rose (2010) revealed that caregivers' age, gender, income, living arrangement, and religiosity correlated with caregiver burden in the early treatment phase for late-stage cancer. Older caregivers had lower scheduling burden ($r = -.052$, $p <.01$). Women reported more health burden than did men ($r = .924$, $p<.01$). Higher income caregivers reported lower financial strain ($r = -.531$, $p<.001$) and less family abandonment ($r = -.278$, $p<.05$).

There was research evidence to confirmed that coping has also been a factor related to caregiver burden. Pearce et al. (2006) investigated the relationship between religious coping (RC), mental health and the caring experience among 162 informal caregivers of patients with terminally ill cancer. The findings revealed that caregivers who had greater use of positive RC reported greater caregiving burden ($\beta = 0.21$). Similarly, Papastavrou el al. (2009) found that caregivers who perceived high burden used different coping strategies ($p < .001$) than those who reported low burden.

Social support is another factor related to caregiver burden. Yusuf et al. (2010) found that high level of caregiver burden reported by poor caregivers of patients with cancer in an urban African setting related significantly to the absence of financial support ($\chi^2 = 9.30$, $p = 0.003$). A study by Sharpe et al. (2005) showed that low available support perceived by caregivers of patients with advanced cancer predicted negative aspects of caregiver burden. Chen et al. (2009) also found that family caregivers' social support was the major predictor of caregiver burden. Additionally, social support, and emotion-focused coping significantly predicted mental health QOL of husbands of women with breast cancer (Gaston-Johansson et al., 2004).

From previous studies, it is suggested that there was the relationship between caregiver burden, a subjective primary stressor and caregivers' QOL. Additionally, there was evidence that strongly supported the relationship between caregiver burden and other factors including caregiver's characteristics, coping, and social support in the SPM. Thus, caregiver burden is one of the factors that effects on cancer caregivers' QOL in this study.

2.4.3 Family hardiness

Hardiness is a construct that was developed by Kobasa (Kobasa, 1979; Kobasa, Maddi, & Kahn, 1982). Kobasa defined the meaning of individual hardiness that referred to the personal characteristics of individuals which composed of commitment, control and challenge. Hardiness has function as protective factors of stress or a resistance resource when individual faced with stressful life event. Kobasa (1982) also described the detail of each characteristic that " a) the belief that they can control or influence the events of their experience, b) an ability to feel deeply involved in or committed to the activities of their lives, and c) the anticipation of change as an exciting challenge to further development" (p. 3). Moreover, Wheaton (2010) stated that hardiness was one of the personal resources in the current version of the SPM.

M. A. McCubbin, McCubbin, and Thompson (1996) defined the family hardiness as "the internal strengths and durability of the family unit and is characterized by a sense of control over the outcomes of life events and hardships, a view of change as beneficial and growth producing, and an active rather than passive orientation in adjusting to and managing stressful situations" (p. 239). McCubbin et al. developed the family hardiness index (FHI) in 1986 to measure the characteristics of hardiness as a stress resistance and adaptation resource in families, and a facilitator of family resiliency adjustment and adaptation over time. The developing of The FHI was guided by the concept of individual hardiness developed by Kobasa (1979). In the proposed study, family hardiness is defined as family caregivers' perception of family resources including 3 domains: commitment, challenge, and control.

From the literature, the researcher found that there were two types of hardiness including individual hardiness and family hardiness. Family hardiness is used to represent the general atmosphere of the interaction of the family unit (McCubbin & Thompson, 1991). In this study, the researcher focused on family hardiness because taking care of patients with advanced cancer had to use three of family resources including commitment, challenge, and control.

A literature review has been performed in order to find the evidence that supports the relationship between family hardiness and cancer caregivers' QOL and other factors. The review indicated a scarcity of studies on family hardiness of cancer caregivers. However, studies focused on family hardiness of other population were included in the review and reported in the following section.

Clark (2002) stated that individuals who had hardiness were people who had high levels of commitment to their lives, a sense of control, and a perception of change as a positive challenge. Clark also summarized past research and found that hardiness was related to better outcomes in stressful situations. H. I. McCubbin, Thompson, and McCubbin (1996) stated that caregivers who perceived a high level of family hardiness had four characteristics for caring for their love ones including co-oriented commitment, confidence, challenge, and control.

Although, the concept of family hardiness is associated with the positive outcomes of caregiving, there were only few studies that explored family hardiness in cancer caregivers and others. These were the examples of the studies focused on family hardiness of caregivers. A study that assessed QOL among patients with breast cancer and their family members within 1 month after recurrence found that more social support, and family hardiness had a positive effect on QOL. The family hardiness of family members significantly correlated with both their mental (r =.23, p< .05) and physical QOL (r = .28, p< .05; Northouse et al., 2002). A study by Han et al.(2006) explored family functioning and QOL among 137 family caregivers of patients with cancer. Results showed that the family's sense of coherence, hardiness, and family resources were factors that had a significant effect on the QOL of the family caregiver caring for a cancer patient. Moreover, a research by Mellon and Northouse (2001) revealed that family hardiness had a significant positive relationship to family QOL (r= .37, p < .001).

Clark (2002) conducted a cross-sectional study that focused on the effects of individual and family hardiness on depression and fatigue in 67 caregivers of disabled older adults including hypertension, cerebrovascular disease, Alzheimer's disease, and arthritis. The results showed that caregivers who reported low individual and family hardiness had more depression than those who reported high individual and family hardiness. One study examined the relationship between psychological hardiness and coping outcomes in cholangiocarcinoma patients showed that the patients perceived a moderate level of overall psychological hardiness (mean = 121.2, S.D. = 11.41), a high level of commitment and challenge (mean = 20.2, S.D. = 2.08

and mean = 56.9, S.D. = 5.61, respectively), and a moderate level of control (mean = 44.0, S.D. = 6.21). Overall psychological hardiness, commitment, control, and challenge had a significant positive association with coping outcomes among the patients (r = .46, *p*< .001, r = .19, *p* = .030, r = .45, *p*< .001, r = .32, *p*< .001, respectively; Sorasit, 2005).

Nicholas and Leuner (1999) conducted a study examining the relationships among hardiness, social support and health status in older African-American and Anglo-American adult. They found that more hardiness had a significant association with more social support (r = .41, *p* < .01), better perceived health status (r = .78, *p*<.001), increasing age (r = .32, *p* = .002), and low income (r = -.26, *p* = .02). Social support also had a significant relationship with better perceived health status (r = .66, *p* < .001), increasing age (r = .61, *p*<.001), and higher income (r = .43, *p* = .01). Older Anglo-American adults had significantly higher scores on hardiness and older African-American adults had significantly higher scores on social support.

In Thai context, there was only one study that examined the family hardiness in cancer caregivers. Tamtup (2004) studied the effect of perceived family hardiness on subjective burden among caregivers of head and neck cancer patients receiving radiotherapy. The findings revealed that the mean of family hardiness score reported by caregivers was 38.2 (S.D. = 9.52, range 21-58, total score = 66). Family hardiness had a significant negative correlation with subjective burden (r = -.61, *p* < .01). Family hardiness predicted subjective burden (R^2 = .376, *p*< .01). Perceived family hardiness and depression in patients explained 42.7% of the variance in subjective burden of caregivers.

However, there were two Thai studies that explored the relationship between hardiness and QOL among cancer patients. One study examined the relationship between hardiness and QOL among 63 women with cervical cancer undergoing radiotherapy and chemotherapy. The researcher found that the mean score hardiness and QOL perceived by the patients were high. The hardiness had a significant positive relationship to the QOL of the patients (r= .60, *p* < .01) (Sangatid, 2003). A second study examined the effects of age, education, feminine-hardiness, and social support in predicting QOL among 117 women after hysterectomy. Findings revealed that education, feminine-hardiness, and social support significantly correlated with the QOL of the patients (r = .22, .22, and .38, $p <$ .05, respectively; Sayoungkul, 2007).

Moreover, there were two studies that examined the correlation between hardiness and social support of patients and family members. First, a descriptive study that examined the relationship between hardiness, social support and self-care agencies among 377 elderly who lived in the two provinces in Thailand. The findings revealed that personal hardiness of the elderly was at a high level but social support was at a moderate level. Additionally, there was a significantly positive correlation between hardiness and self-care agencies (r = .73, $p < .01$). Hardiness and social support significantly predicted self-care agencies (Kulwai, 2009). Second, the researcher stated that hardiness was a personal factor that advantaged to family members of cardiac patients in coronary care unit. This study explored hardiness and stress of family members of cardiac patients who were admitted in coronary care unit. The results showed that 51.43 percent of the family members perceived a low level of hardiness and 71.43 percent of them perceived a moderate level of stress (Onphu, 2002).

Even though, there were few studies that supported the relationship between family hardiness and caregiver's QOL, family hardiness and caregiver burden, and family hardiness and social support, it is important to explore family hardiness in this study because it is one of the internal resources among family caregivers who need to cope with stressful situations while taking care of their love ones with cancer. If these relationships are confirmed in Thai culture, they will contribute the new knowledge for health care provider and family caregivers.

2.4.4 Coping

In the stress process model developed by Pearlin and colleagues (1990), coping and social support were described as a buffering effect to stressors through direct and indirect pathways. From the literature review, there was no study to test them as a mediator in the family caregiver population. Pearlin (1999) stated that "coping refers to the behaviors that individuals employ in their own behalf in their efforts to prevent or avoid stress and its consequences" (p.403). Lazarus and Folkman (1984) used a definition of coping that was a "constantly changing cognitive and behavioral effort to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). Two specific coping strategies are problem-focused coping and emotion-focused coping. In the proposed study, coping is defined as constantly changing cognitive and behavioral efforts to manage the stress caused by caring for a family member with advanced cancer.

From the studies that were reviewed, there were several factors that related to coping of cancer caregivers. A mix-method study focused on factors that influenced family caregiver coping. The qualitative findings revealed that there were five factors that influenced caregivers' ability to cope including 1) the caregiver's approach to life, 2) the patient's illness experience, 3) the patient's recognition of the caregivers' contribution to their care, 4) the quality of the relationship between the caregiver and dying person, and 5) the caregiver's sense of security. The quantitative findings showed that the three most prominent ways of coping reported by the caregivers in this study were: 1) planful problem-solving, 2) seeking social support, and 3) self-controlling (Stajduhar et al., 2008).

A study by Wagner et al. (2006) showed that higher use of emotion-focused coping was associated with lower role physical ($r = -.34$, $p < .01$), lower general health ($r = -.27$, $p < .05$), lower vitality ($r = -.24$, $p < .05$), lower social functioning ($r = -.24$, $p < .05$), lower role-emotional ($r = -.30$, $p < .01$), and lower mental ($r = -.37$, $p < .01$) QOL. Higher use of problem-focused coping was associated with lower role physical ($r = -.25$, $p<0.05$), and lower social functioning ($r = 0.24$, $p< .05$) QOL. Social support, and emotion-focused coping significantly predicted mental health QOL of breast cancer patients' husbands. This was consistent with a study by Kershaw et al. (2008). They found that use of avoidant coping among the spouses of prostate cancer patients had a significant negative correlation with mental QOL of the caregivers ($r = -.39$, $p < .05$).

Carter and Action (2006) examined the relationships between coping, depression and sleep in 51 adult caregivers of patients with cancer. The findings revealed that caregivers' use of less functional coping strategies had a significant positive association with caregiver depression ($r = .66$, $p = .001$). A study of Kershaw et al. (2004) indicated that male and female caregivers had significantly different profiles of coping. Family caregivers who used more avoidant coping were less educated (r = -.23, *p* <. 05), and had lower mental QOL (r = -.34, *p* > .01). The use of more avoidant coping by family caregivers was related to their lower mental QOL. Family caregiver active coping did not relate to mental QOL scores. Family caregiver coping also was not significantly related to family caregivers' physical QOL.

Fitzell and Pakenham (2009) examined relations between stress and coping predictors and negative (distress) and positive (positive affect, life satisfaction, positive states of mind, health) adjustment outcomes in 622 caregivers of colorectal cancer. They found that the caregivers who used avoidance and used substance coping were inversely related to life satisfaction (r = -.20, and -.19, *p*>.05, respectively). Steele (1994) found that there was a significant difference in coping strategies used by men and women caregivers of terminally ill cancer patients (u = 22.5, *p* = .05). Evasive coping strategies were more effective for male caregivers than for female caregivers. Caregivers who had higher education used confrontive coping more frequently than caregivers who had less education (r = .46, *p* = .04). Caregivers with higher incomes used confrontive strategies more frequently and more effective than caregivers with lower incomes (r= .55, *p* = .01). Younger caregivers used emotive coping more frequently than older caregivers (r = - .45, *p* = .05).

A study by Pearce et al. (2006) investigated the relationship between religious coping, mental health and the caring experience among 162 informal caregivers of patients with terminally ill cancer. They found that more use of negative religious coping strategies was related to poorer QOL. Papastavrou el al. (2009) found caregivers who perceived high burden were significantly different in the use of coping strategies (*p* < .001). Bigatti et al. (2010) study revealed that lower escape-avoidance coping (r = −.321, *p*< .01), lower distancing coping (r = −.360, p< .01), more seeking support coping (r = .243, *p* < .05), and accepting responsibility coping (r = −.347, *p* < .01) were significantly associated with higher social support perceived by husbands of women with breast cancer. Escape-avoidance coping was a mediator between social support and depression in husbands of patients with breast cancer.

A study of Mccoll, Lei, and Skinner (1995) revealed that the perceived availability of social support at one month had a direct positive effect on coping at four months, and social support at four months had a negative effect on coping at 12 month in patients with spinal cord injury. Greenglass, Fiksenbaum and Eaton (2006) also found that social support was positively associated with proactive coping in the elderly. A study of Lian and Geok (2006) indicated that there was a significant positive relationship between perceived social support and coping capability in young adult.

There were four Thai studies that explored the coping of cancer caregivers (Chansirimongkol, 2007; Oiemhno, 2003; Pitimana-aree, 2007; Ungwattansirikul, 2007). The findings revealed that the most common coping styles used by family caregivers were confrontive coping, palliative coping and emotional coping, respectively. Moreover, the majority of coping strategies used by the spouses of breast cancer patients included seeking social support, planful problem solving, and positive reappraisal. Coping and social support accounted for 17.7 % of the variance of perceived QOL in family caregivers of person with cancer receiving chemotherapy after adjusting the effect of caregiver age and duration of care.

2.4.5 Social support

For the construct of social support, McCubbin and colleagues (1996) stated that past research has focused on the significance of social support as a buffer against family crisis factors or as a mediator of family stress. Pender, Murdaugh, and Parsons (2011) presented the definition of social support that is “a network of interpersonal relationships that provide psychological and material resources intended to benefit an individual’s ability to cope” (p.219). Pender and colleagues also stated that social support was perceived (emotional support) and tangible (supportive acts). There were four types of social support including 1) emotional support which referred to the demonstration of caring, empathy, love, and trust, 2) instrumental support which consisted of tangible support or actions, 3) informational support which provided advice or suggestion for individuals to cope with stressful event, and 4) appraisal support which provide constructive feedback that is useful for self-evaluation. Turner (2010) stated that there was evidence to support for testing to the direct and stress moderating significance of social support in relation to physical and mental health. In the proposed study, social support will refer to caregivers’ perception of emotional support, informational support, and tangible support from three sources: 1) family members, 2) friends, and 3) health care professionals. The review indicated a scarcity of studies on social support of cancer caregivers. However, the studies focused on social support of other population were included in the review and reported in the following section.

A research study that examined potential predictors of partners' QOL found that social support reported by both male and female partners correlated with partner's mental QOL (Bergelt et al., 2008); caregivers' social support had a significant positive relationship to caregivers' QOL (r= .49, $p < .001$; r = .37, $p < .01$; Mellon & Northouse, 2001; Tang, 2009). This was consistent with a study of Wagner et al. (2006) that showed that higher social support was correlated with better mental health QOL among husbands of women with breast cancer (r = .34, $p < .01$). Fitzell and Pakenham (2009) examined relations between stress and coping predictors and negative (distress) and positive (positive affect, life satisfaction, positive states of mind, health) adjustment outcomes in 622 caregivers of colorectal cancer. They found that the caregivers who used avoidance and used substance coping were inversely related to life satisfaction (r = -.20, and -.19, $p > .05$, respectively). Moreover, a study by Scherbring (2002) found that caregivers who were not married were more likely to perceive greater family support than married caregivers. Furthermore, the research findings revealed that social support had a significantly negative relationship to caregiver burden in 120 spouses of people with lung cancer. (r = -.43, $p < .001$; Kim, Duberstein, Sorensen, & Larson, 2005) and perceived lower social support was a significant predictor of more depression and anxiety in the caregivers of women with ovarian cancer (Price et al., 2010).

In Thai culture, there were three studies that examined the relationship between social support and QOL of cancer caregivers (Chansirimongkol, 2007; Oiemhno, 2003; Pitimana-aree, 2007; Ungwattansirikul, 2007). The results showed that the mean score of social support was at a moderate level. The biggest source of support the family caregivers received was from their family members in the forms of emotional support, and service and tangible support. The type of social support used most often by the caregivers was informational support, emotional support, and acceptance and valuable support, respectively. Social support and the stress level accounted for 12.8 % of the variance of perceived QOL in caregivers of surgical oncology patients after adjusted for the effect of age and education level.

In conclusion, this section of the review showed that the factors that possibly influence caregivers' QOL and its related concepts as caregiver's characteristics (i.e. age, education, and income), caregiver burden, family hardiness, coping and social support. Even though, the literature review manifested that there was the association between those factors and caregivers' QOL, the causal relationship among those factors to caregiver's QOL was not tested in Thai context. Hence, this study is developed to examine the causal relationship between those factors and QOL among caregivers of patients with advanced cancer.

2.5 Conclusion

This chapter has presented the literature review on the topic of advanced cancer and its impact on patients, family caregivers of patients with advanced cancer, QOL among caregivers of advanced cancer patients, and factors related caregivers' QOL. This empirical evidence supported the appropriateness of the factors that were selected to predict the QOL in this study including caregiver's age, caregiver's education, caregiver's income, caregiver burden, family hardiness, coping, and social support.

Moreover, the review pointed out that caring for advanced cancer patients has an effect on the QOL of family caregivers. It is very important to understand the factors influencing QOL of family caregivers of patients with advanced cancer in order to develop interventions to improve caregivers' QOL. However, there are the gaps in knowledge regarding QOL of family caregivers of patients with advanced cancer in Thai context. No study of causal relationships between caregiver's characteristics (i.e. age, education, and income), caregiver burden, family hardiness, coping, social support and caregiver's QOL guided by the stress model developed by Pearlin and others which has never been tested in cancer caregiver in Thailand.

Therefore, the proposed study will fill these knowledge gaps by testing the causal relationship between caregiver's characteristics (i.e. age, education, and income), caregiver burden, family hardiness, coping, social support and caregiver's QOL based on the stress process model. The findings from this study will improve understanding of caregiver's QOL and its contributing factors and enable researchers to develop an appropriate intervention program to improve QOL among caregivers of patients with advanced cancer in Thai context in the future.

CHAPTER III
METHODOLOGY

This chapter focuses on the research design and method used for this study. The topics include the details of research design, population and sample, research instruments, protection of human subjects, pilot study, data collection, and data analysis.

3.1 Research Design

A correlational, cross-sectional design was used to describe the QOL of caregivers of advanced cancer patients and to validate the causal model which displayed the relationship among caregiver's age, caregiver's education, caregiver's income, caregiver burden, family hardiness, coping, and social support on the QOL among family caregivers of patients with advanced cancer.

3.2 Population and Sample

The population of this study was Thai family caregivers of patients with advanced cancer.

3.2.1 Sample and setting

Data were collected from primary caregivers of advanced cancer patients who took care of the patients at the Outpatient Department (OPD) or the Inpatients Department (IPD) of a Cancer Center and a tertiary hospital. Subjects were recruited according to the inclusion criteria by directly asking. If they were primary caregivers of patients with advanced cancer and met the inclusion criteria, they would be approached to the study.

Criteria for inclusion in this study were:

1. 18 years old or older
2. Identified by the patient or themselves as a primary family caregivers who provide caring for the loved ones with advanced cancer
3. No diagnosis of cancer
4. Giving continuous care to patients for at least 3 months
5. Perceive patients have advanced cancer which has been received palliative care
6. Mentally and physically able to participate in this study
7. Able to speak, read and understand Thai

3.2.1.1 Sample size

In this study, the sample size was calculate by using a general rule of thumb for the Structural Equation Modeling that is to have 10 as many observations as estimated parameters (Klem, 1995; Tabachnick, 2007). From the hypothesized model (see in Figure 1.3), there were 23 estimated parameters including: 15 paths, and eight error terms associated with observed variables. The sample size for this study was equal to 230 subjects. Moreover, Polit and Hungler (1995) stated that the return rate of collecting data by using questionnaire was 45-98%. From Thai previous studies in cancer caregivers, there was 80-95 percent for the return rate (Cheewapoonphon, 1998; Kaweewiwitchai, 1993). The researcher added 20 percent more participants for the proposed study. So, the estimated sample size in this study was 275 subjects. According to recommendation of Nunnally and Bernstein (1994 cited in Munro, 2005) regarding the sample size for path analysis should be 30 subjects per independent variables in the model to increase the likelihood that findings can be replicated and are not mere artifact. In this study there were seven independent variables, so, at least 210 subjects were needed. Therefore, the number of subjects in this study, which was 275, was appropriate for path analysis approach.

3.2.1.2 Setting

A convenience sampling technique was used to select two hospitals under the jurisdiction of the Ministry of Public Health in the central region of Thailand including a tertiary hospital and a cancer center for collecting data. These two hospitals have oncologists who specialized in cancer.

a) A tertiary hospital

A tertiary hospital serves 2,741 outpatients, and 124 inpatients visits per day and has 700 beds for the tertiary care of severely ill and complicated patients in various specializing departments and unit (Saraburi hospital, 2011). Moreover, there were 258 cancer outpatients and 226 cancer inpatient visited per month. The hospital provides clinical services at Outpatients Departments (OPDs) during every weekday from 8:30 A.M. to 8:00 P.M. and weekend from 8:30 A.M. to 12:00 (noon). Most patients from the central and northeastern regions of Thailand come to receive the services from this hospital.

There are several departments that provide the service for cancer patients including the OPD and IPD departments. In the OPD departments, the researcher recruited the participants at chemotherapy clinic, and surgical clinic. For the IPD departments, the researcher recruited the participants at a chemotherapy ward, male and female medical wards, male and female surgical wards, and eight private wards. Most clinics or wards have a private room or area for the researcher to collect data.

b) A cancer center

A cancer center serves 394 outpatients, and 60 inpatients visits per day and has 187 beds for the tertiary care of cancer patients in several departments and unit (Lopburi Cancer Center, 2011). This Center provides clinical services at OPDs during every weekday from 8:30 A.M. to 4:30 P.M. There are six wards for inpatients including two male wards, two female wards, and two private wards. Most patients from the Central region of Thailand come to receive the services from this Center. The researcher recruited the subjects at the chemotherapy and radiotherapy clinic in the OPD department. Moreover, the researcher also recruited the subjects at male, female, and private wards. At the clinic, a private room or area was available for the researcher to perform data collection.

.3.3 Research instruments

This study contained six instruments to obtain data on the study variables which included the demographic questionnaire, the Zarit Burden Interview (ZBI), the Family Hardiness Index (FHI), the Jalowiec Coping Scale (JCS), the Social Support Questionnaire (SSQ), and the Quality of Life Index (QLI). All instruments are self-report questionnaires which were reported in the following section (Table 3.1).

Table 3.1 Summarized Variables, Measurements, and Measure

Variables	**Measurements**	**Measure**
Demographic data	The demographic questionnaire was developed by the researcher for this study.	Demographic characteristics
Caregiver burden	The Zarit Burden Interview (ZBI) developed by Zarit, Reever, and Bach-Peterson (1980) and translated into a Thai version by the MAPI Institute (2009).	Caregiver burden score
Family hardiness	The Family Hardiness Index (FHI) developed by McCubbin Thompson, and McCubbin (1996) and modified into Thai version by Niyomthai, Putwatana, and Panpakee (2003).	Family hardiness score
Coping	The Jalowiec Coping Scale (JCS) developed by Jalowiec (1984, 1988) and translated into Thai language by Suthayakorn (1988)	Coping score
Social support	The Social support questionnaire (SSQ) developed by Schaefer, et al (1981) and modified into Thai version by Kaweewiwitchai (1993)	Social support score
Quality of life	The Quality of life index (QLI) developed by Ferrans & Powers (1984 & 1998) and translated into Thai version by Sukonthasarn (2007)	Quality of life score

3.3.1 The demographic questionnaire was developed by the researcher for this study. This questionnaire was used to collect demographic and socioeconomic data of family caregivers and advanced cancer patients. The demographic characteristics of caregivers was 15 items included age, gender, marital status, educational level, working status, monthly income, religion, health status, relationship to patient, duration of caregiving, timing of caregiving, a number of family members, caregiving for other family members, and availability of a secondary caregiver. Information regarding demographic characteristics of advanced cancer patients included 10 items comprised of age, gender, marital status, medical payment, educational level, religion, cancer site, time since diagnosis, stage of cancer, and type of treatment. Subjects had to write or choose the answer that was corrected for them and their love one.

3.3.2 The Zarit Burden Interview (ZBI) developed by Zarit, Reever, and Bach-Peterson (1980). The ZBI was used to measure the variable of caregiver burden. It was translated into a Thai version by the MAPI Institute in France in 2009. Although, the ZBI was designed to assess caregiver burden of elderly and demented patients, it has also been used in cancer caregiving research (Chappell & Reid, 2002; Gilbar, 1999; Goldstein et al., 2004; Grunfeld et al., 2004; Higginson and Gao, 2008; Papastavrou et al., 2007; Tamtup, 2004; Yusuf et al., 2010). The ZBI is composed of 22 items using a 5-point Likert scale (never = 0, rarely=1, sometimes=2, quite frequently=3, nearly always = 4). Twenty-one of the items are supposed to measure several aspects of caregiver burden, whereas item 22 is a global measure of caregiver burden. The ZBI was divided into two dimensions by using factor analysis (Whitlatch, Zarit & von Eye, 1991). The two domains are:

a) Personal strain is comprised of 12 items which measure the negative feeling of the caregivers who may have regarding her caregiving responsibilities. The 12 items were 1, 4, 5, 8, 9, 14, 16, 17, 18, 19, 20, and 21. The example items were “Do you feel that your relative asks for more help than he/she needs?”, “Do you feel embarrassed over your relative’s behavior?”, etc.

b) Role strain is comprised of six items which measure the effects of caregiving which have had on the caregiver’s health and other relationships.

The six items were 2, 3, 6, 11, 12, and 13. The example items were "Do you feel that because of the time you spend with your relative that you don't have enough time for yourself?", "Do you feel stressed between caring for your relative and trying to meet other responsibilities for your family or work?", etc.

Moreover, the findings of Whitlatch et al. (1991) revealed that the items of 7, 10, 15, and 22 are not included in any domains. Therefore, in this study a total burden score was obtained by adding the scores for 18 items with a range of 0 to 72. Higher scores indicate greater caregiver burden. The degree of caregiver burden composed of five levels including very low (a range of 0 to 14.40), low (a range of 14.41 to 28.80), moderate (a range of 28.81 to 43.20), high (a range of 43.21 to 57.60), and very high (a range of 57.61 to 72.00). The cut off interpreting scores were analyzed by using range of the scores divided by five levels of interpretation.

The internal consistency reliability coefficient of the ZBI was .83 - .93 for the family caregivers of cancer patients in prior studies (Chappell & Reid, 2002; Higginson and Gao, 2008; Papastavrou et al., 2007). Papastavrou et al. (2007) tested the construct validity of the ZBI in 172 caregivers of patients with Alzheimer's type dementia, by using exploratory factor analysis. They found that factor analysis gave four factors that explained 63.92% of the variation. These factors were taken as the dimension of burden and were: personal strain, role strain, relational deprivation and management of care. In Thailand, Tamtup (2004) tested content validity of the ZBI in Thai version by using three nursing experts' opinion. This translated Thai version of the scale was used in a previous study on caregiver burden with 80 family caregivers of patients with head and neck cancer. The reliability, as measured with Cronbach's alpha coefficient, was high, at 0.83 (Tamtup, 2004). Moreover, Toonsiri, Sunsern & Lawang (2011) developed the Thai Burden Interview for caregivers of patients with chronic illness by using a blind back translation method. They found that the Cronbach's alpha coefficient of the ZBI in Thai version was .92.

3.3.3 The Family Hardiness Index (FHI) was developed by McCubbin Thompson, and McCubbin (1996) and modified into Thai version by Niyomthai, Putwatana, and Panpakee (2003). The FHI was used to measure the construct of family hardiness which was perceived by caregivers. It is composed of three domains and 20 items using a 4 – point Likert scale. The three domains are:

a) Commitment is comprised of eight items which measure the family's sense of internal strengths, dependability, and ability to work together. The eight items are 4, 5, 6, 7, 8, 9, 11, and 18. The example items were "In the long run, the bad things that happen to us are balanced by the good things that happen", "We have a sense of being strong even when we face big problems", etc.

b) Challenge is comprised of six items which measure the family's efforts to be innovative, active, to experience new things and to learn. The six items were 12, 13, 14, 15, 16, and 17. The example items were "When our family plans activities, we try new and exciting things", "We listen to each other's problems, hurts, and fears", etc.

c) Control is comprised of six items which measure the family's sense of being in control of family life rather than being shaped by outside events and circumstances. The six items were 1, 2, 3, 10, 19, and 20. The example items were "Trouble results from mistakes we make", "It is not wise to plan ahead because things do not turn out anyway", etc.

The criteria for describing participants' degree of agreement with each statement consisted of false (0), mostly false (1), mostly true (2), or true (3). Moreover, there were nine of the items including 1, 2, 3, 8, 10, 14, 16, 19, and 20 which were negative items that need to be reversed before summing (i.e., false=3, mostly false=2, mostly true=1, and true=0). A total score for FHI ranged from 0 to 60. A high score indicated a high level of family hardiness. Moreover, five levels of family hardiness including very low (a range of 0 to 12.00), low (a range of 12.01 to 24.00), moderate (a range of 24.01 to 36.00), high (a range of 36.01 to 48.00), and very high (a range of 48.01 to 60.00), were used to interpret the total score of family hardiness. The cut off interpreting scores were analyzed by using range of the scores divided by five levels of interpretation.

The reliability and validity of the FHI from previous studies were reported in the article of McCubbin et al. (1996). The internal reliabilities of each subscales (Commitment, Challenge, and Control) are .81, .80., and .65 (Cronbach's alpha coefficient) respectively. In this article also reported that in 12 previous studies, the internal consistency reliability coefficient was more than .80. From the literature, the researcher found that the internal consistency reliability coefficient was .79 - .80 for the family caregivers of cancer survivors (Carey, Oberst, McCubbin, & Hughes, 1991; Mellon, Kershaw, Northouse, & Freeman-Gibb, 2007; Mellon & Northouse, 2001). In Thailand, Niyomthai, et al. (2003) used the FHI to measure family hardiness of 120 caregivers of stroke patients. They found that its Cronbach's alpha coefficient was .80. Tamtup (2004) confirmed content validity of the FHI by using three nursing experts' opinion. She also used the FHI to measure family hardiness of 80 caregivers of head and neck cancer patients receiving radiotherapy. She found that its Cronbach's alpha coefficient was .89.

3.3.4 The Jalowiec Coping Scale (JCS) used in this study is the revised version of JCS developed by Jalowiec (1988). The JCS was translated into Thai language by Suthayakorn (1988) and modified by Priengdach (1990). The JCS was used to measure coping strategies of family caregivers. This measurement consisted of 36 items in three subscales on a 5 – point Likert scale (1 = never used, 2 = seldom used, 3 = sometimes used, 4 = often used, 5= almost always). The three subscales are:

a) Confrontive coping is comprised of 13 items which measure caregivers' constructive problem-solving, facing up to and confronting the problem or situation. The 13 items are 2, 5, 11, 15, 16, 17, 22, 27, 28, 29, 31, 32, and 34. The example items were "Activity/exercise", "Consider different solutions", etc.

b) Emotive coping is comprised of nine items which measure caregivers' expressing or releasing emotions. The nine items are 1, 6, 9, 12, 13, 19, 21, 23, and 24. The example items were "Worry", "Eat/smoke", etc.

c) Palliative coping is comprised of 14 items which measure things caregivers do to make themselves feel better or a way of modulating tension and making the situation more tolerable or keeping it under control without directly taking care of the problem. The 14 items are 3, 4, 7, 8, 10, 14, 18, 20, 25, 26, 30, 33, 35, and 36. The example items were "Optimism", "Humor", etc.

A total coping score was obtained by adding the raw scores for all items with a range of 36 to 180. The greater the score, the more frequent the coping strategies used. The score was interpreted as very low (a range of 36.00 to 64.80), low (a range of 64.81 to 93.60), moderate (a range of 93.61 to 122.40), high (a range of 122.41 to 151.20), and very high (a range of 151.21 to 180). The cut off interpreting scores were analyzed by using range of the scores divided by five levels of interpretation. Additionally, the relative coping scores of each subscale were computed in order to interpret the most used coping strategies for this group. The relative score should be done in order to eliminate bias resulting from differences in the number of items on each scale. The relative scores were calculated by dividing the mean score for the particular scale by the sum score of the mean score for each of the scales (Vitaliano et al., 1987). For example, if we have to compute the relative score of confrontive coping, the formula used to compute it was:

$$CF = \frac{ME_{CF}}{ME_{CF} + ME_{EM} + ME_{PA}}$$

When CF = The relative score of confrontive coping

ME_{CF} = The average score of confrontive coping

ME_{EM} = The average score of emotive coping

ME_{PA} = The average score of palliative coping

The relative score of each subscale was ranged from 0 – 1 score. If the relative score of confrontive coping is the highest score, it means this subscale is the most used coping strategy.

Jalowiec (1988) tested the construct validity of the JCS by conducting a confirmatory factor analysis in 1,400 subjects including 790 patients with chronic illness (i.e., hypertensive, cardiac, diabetic, cancer, and other patients), 353 nurses, 133 patients' family members, and 124 students. The findings revealed that there was a trichotomous subscale of the coping items on the JCS and there were four items which were deleted. The subscales consisted of confrontive, emotive, and palliative coping styles. Jalowiec (1988) also reported that the internal consistency reliability coefficient for the overall JCS, and its subscale was .95, .85, .75, and .75, respectively. In Thailand, Suthayakorn (1988) translated the JCS (version 1979) into Thai language. She administered the JCS in 30 caregivers of patients with stroke and found that the Cronbach's alpha coefficient was .88. In 1990, Priengdach modified this version by deleting the four items followed by Jalowiec's study in 1988. She administered the scale to 60 patients with hypertension and found that the Cronbach's alpha was .84. Then, Sithimongkol (1998) used this Thai version to measure coping among 100 caregivers of dependent elderly. The Cronbach's alpha coefficient was .83. From previous studies in Thai cancer caregivers, the findings revealed that the Cronbach's alpha coefficient for the overall score was .78 - .88 (Chansirimongkol, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007).

3.3.5 The Social Support Questionnaire (SSQ) used in this study was originally developed by Schaefer et al (1981). The SSQ Part II was modified into a Thai version by Hanucharurnkul (1988). In 1993, this Thai version was again modified by Kaveevivitchai (1993). Therefore, this questionnaire was used to measure support from family members, friends, and health care providers. It consisted of 15 items which was divided into three parts according to sources of support. Each part is comprised of 5 items including three types of support: one item for informational support, two items for emotional support, and two items for tangible support. The example items were "providing you information and guidance during your caregiving that you found it helpful", "boosting your spirits when you feel low during your caregiving", etc. Subjects indicated on five point rating scale from 0 = never received support to 4 = almost always received support. The score for each support source was 0 to 20 and the total score ranging from 0 to 60. A high score indicates higher perceived social support. Furthermore, the researcher divided the social support into five levels including very low (a range of 0 to 12.00), low (a range of 12.01 to 24.00), moderate (a range of 24.01 to 36.00), high (a range of 36.01 to 48.00), and very high (a range of 48.01 to 60.00).

Schaefer, Coyne & Lazarus (1981) tested the internal consistency of the SSQ in 100 middle-aged persons. The findings revealed that the Cronbach's alpha coefficient of informational support, emotional support, and tangible support was .81, .95, and .31, respectively. They also tested test-retest reliability of the SSQ in the same persons. The findings revealed that the test-retest correlations ranged from .56 for tangible support to .66 for emotional support; informational support was not reported.

In Thailand, the internal consistency reliability of the SSQ in different population was .77 to .89 (Kaveevivitchai, 1993; Khuwatsamrit, 2006; Pattayakorn, 2009; Santawaja, 2002). Moreover, the Cronbach's alpha coefficient from previous Thai studies in cancer caregivers ranged from .85 - .88 (Chansirimongkol, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007).

3.3.6 The Quality of life index (QLI) cancer version (CV)-III was originally developed by Ferrans & Powers (1984 & 1998). The QLI CV-III was used to measure QOL among family caregivers of patients with advanced cancer. The QLI CV-III was translated into Thai version by using the same wording of the QLI cardiac version translated by Sukonthasarn (2007). This instrument consisted of 66 items which were comprised of two sections including one that measures satisfaction with various domains of life, and the other that measures the importance of each domain. Both the satisfaction and importance section have 33 items which were divided into four subscale including 1) Health/Function, 2) Socioeconomic, 3) Psycho/Spiritual, and 4) Family QOL. The example items were "Your health?", "Your health care?", "The amount of pain that you have?", etc. Subjects had to respond to each item on a 6- point Likert scale ranging from "very satisfied=6" to "very dissatisfied=1" for the satisfaction items, and from "very important=6" to "very unimportant=1" for the importance items. The score were ranging from 0 -30. High scores indicated higher QOL. Moreover, three levels of QOL including low (a range of 0 to 10.00), moderate (a range of 10.01 to 20.00), and high (a range of 20.01 to 30.00) were used to interpret the total score of QOL. The steps for calculating the overall QOL scores were described as follow (http://www.uic.edu/orgs/qli/questionaires/pdf/cancerversionIII/cancerscoring.pdf):

1) Recode satisfaction scores: To center the scale on zero, subtract 3.5 from satisfaction response for each item.

2) Weight satisfaction responses with the paired importance responses: Multiply the recoded satisfaction response by the raw importance response for each pair of satisfaction and importance items.

3) Obtain preliminary sum for the overall (total) score: Add together the weighted responses obtained in step 2 for all of the items.

4) Obtain final overall (total) QLI score: To prevent bias due to missing data, divide each sum obtained in step 3 by the number of items answered by that

individual. (At this point the possible range for scores is –15 to +15.) Next, to eliminate negative numbers for the final score, add 15 to every score. This will produce the final overall (total) QLI score. Moreover, the computer syntax for SPSS was provided for calculation of the four subscales and total scale of QLI.

The content validity, construct validity, and internal consistency reliability for the QLI (total scale) were reported in the Ferrans and Powers Quality of Life Index (QLI)'s website (Ferrans and Powers, 2011). For example, the internal consistency reliability for the QLI in cancer patients was supported by Cronbach's alpha coefficients ranging from .87 to .97 across 9 studies. In caregiver population, the Cronbach's alpha coefficient was .92 to .93 across two studies. The content validity for the Thai QLI was confirmed by three experts' opinion (Sithimongkol, 1998). The Cronbach's alpha coefficient from previous Thai studies in caregivers of cancer patients was .94 to .96 (Chansirimongkol, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007).

3.3.7 Testing of the construct validity of the instruments

Although the ZBI, FHI, JCS, SSQ, and QLI were used to measure the variables in the population of cancer caregivers, all five of them were not tested construct validity in Thai context. In this study, the construct validity of the instruments were analyzed through the confirmatory factor analysis (CFA) and employed through LISREL 8.80 (Student Edition) to confirm that the theoretical constructs in each instrument were acceptably determined by observed variables. In the assessment of the construct validity, two types of model fitting should be considered: the overall model fit and the individual parameter estimate.

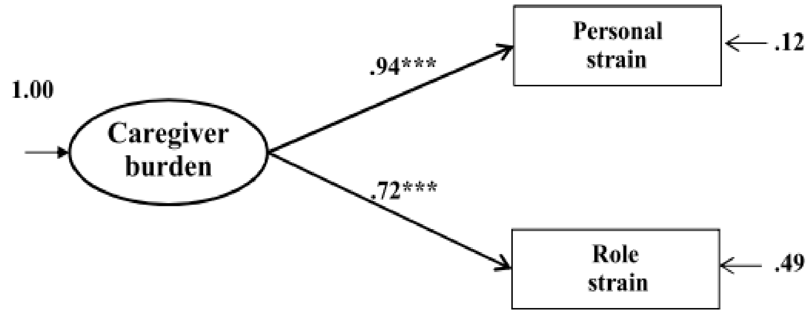
According to Hair and others (2010) the overall model fit indexes composed of: 1) the likelihood ratio chi-square (χ^2); 2) the relative or norm chi-square (χ^2/df); 3) the goodness of fit index (GFI); 4) the adjusted goodness of fit index (AGFI); 5) the root mean square error of approximation (RMSEA); and 6) the standardized root mean square residual (SRMR). The overall model fit when the test indicated: 1) non-significant chi-square; 2) the relative or norm chi-square (χ^2/df) less than 2; 3) RMSEA and SRMR values less than .05; and 4) GFI and AGFI values greater than 0.90 (Hair et al., 2010).

After the overall model was accepted, each of the indicators was evaluated separately by 1) examining the indicator loading for statistical significance and 2) the construct reliability and variance extracted (Hair et al., 2010). The indicator loading for statistical significance were estimated by *t*-values that exceeded the critical values of ±1.96, ±2.58 and ±3.29 for the .05, .01, and .001 significant levels respectively. For the construct reliability, the squared multiple correlation (R^2) was used to detect the construct reliability with the acceptable suggestion at the level of .70 or higher; however, the values below .70 were acceptable if the research is exploratory in nature (Hair et al., 2010). Moreover, the variance extracted should be exceeded the threshold value of .50.

The construct validity of five measurement models including caregiver burden, family hardiness, coping, social support, and quality of life were analyzed and presented in this section.

3.3.7.1 Measurement model of caregiver burden

Caregiver burden was measured by the Zarit Burden Interview (ZBI) and composed of two indicators: personal strain and role strain. The measurement model of caregiver burden had a construct validity and fitted to the empirical data at $\chi^2 = 1.58$, $df = 1$, $\chi^2/df = 1.58$, $p = 0.21$, RMSEA=0.05, SRMR = .03, GFI = .99, and AGFI = .98. Two factor loadings were statistical significance at $p < .001$ and the values of standard factor loading ranged from .72 to .94. Personal strain was the most important indicator of caregiver burden. The construct reliabilities were at high level (R^2= .51 - .88). Findings were displayed in the Figure 3.1 and Table 3.2.

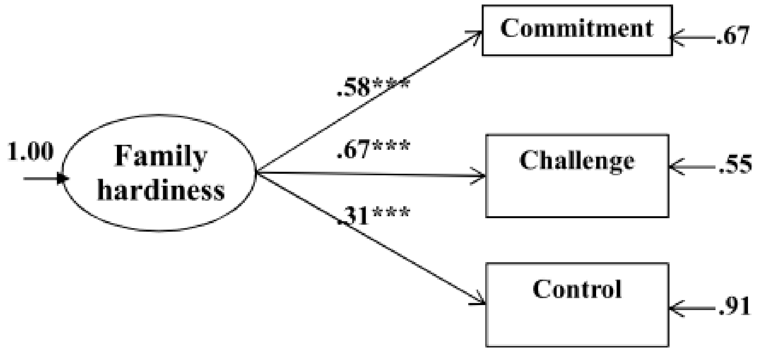


$\chi^2 = 1.58$, $df = 1$, χ^2/df =1.58, $p = 0.21$, RMSEA=0.05, GFI = .99, and AGFI = .98

Figure 3.1: Standardized Factor Loading and Measurement Errors for the Measurement Model of Caregiver Burden

3.3.7.2 Measurement model of family hardiness

Family hardiness was measured by the Family Hardiness Index (FHI) which comprised three indicators: commitment, challenge, and control. The measurement model of family hardiness had a construct validity and nicely fitted to the empirical data at $\chi^2 = 0.19$, $df = 1$, $\chi^2/df = 0.19$, $p = 0.66$, RMSEA=0.00, SRMR = .01, GFI = 1.00, and AGFI = 1.00. The three indicators showed a significant factor loading value of $p < .001$. They also displayed low to moderate standardized factor loading values (.31-.67). The most important indicator of family hardiness was challenge, subsequently were commitment and control, respectively. The construct reliabilities were ranged from low to moderate (R^2 = .09-.45). Findings were displayed in the Figure 3.2 and Table 3.2.

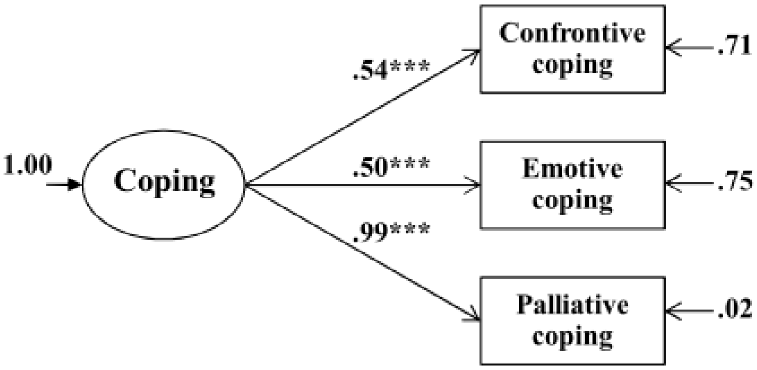


$\chi^2 = 0.19$, $df = 1$, $\chi^2/df = 0.19$, $p = 0.66$, RMSEA=0.00, GFI = 1.00, and AGFI = 1.00

Figure 3.2: Standardized Factor Loading and Measurement Errors for the Measurement Model of Family Hardiness

3.3.7.3 Measurement model of coping

Coping was measured by the Jalowiec Coping Scale (JCS) which composed of three indicators: confrontive coping, emotive coping, and palliative coping. The measurement model of coping had a construct validity and fitted nicely to the empirical data at $\chi^2 = 0.46$, $df = 1$, $\chi^2/df = 0.46$, $p = 0.50$, RMSEA=0.00, SRMR = .01, GFI = 1.00, and AGFI = .99. Three factor loadings were statistical significance at $p < .001$ and the values of standard factor loading ranged from .50 to .99. The most important indicator of coping was palliative coping, subsequently, were confrontive coping and emotive coping, respectively. The construct reliabilities were ranged from moderate to very high (R^2 = .25 - .98). Findings were displayed in the Figure 3.3 and Table 3.2.

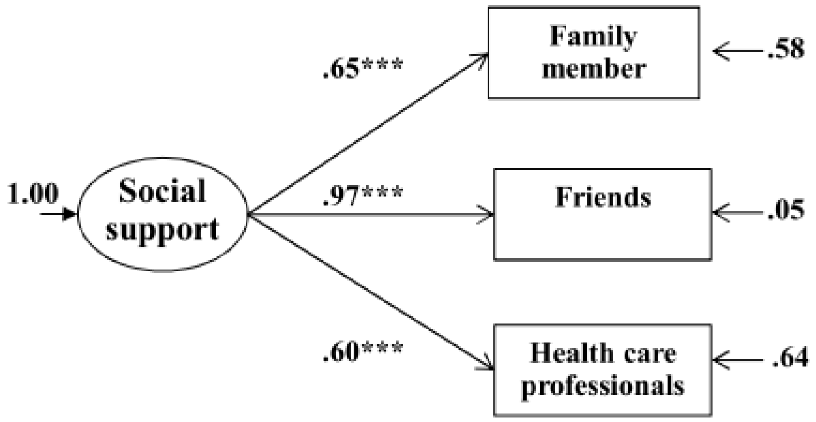


χ^2 = 0.46, df = 1, χ^2/df = 0.46, p = 0.50, RMSEA=0.00, GFI = 1.00, and AGFI = .99

Figure 3.3: Standardized Factor Loading and Measurement Errors for the Measurement Model of Coping

3.3.7.4 Measurement model of social support

Social support was measured by the Social Support Questionnaire (SSQ) which composed of three indicators: family members, friends, and health care professionals. The measurement model of family hardiness had a construct validity and fitted to the empirical data at χ^2 = 0.09, df = 1, χ^2/df = *0.09*, p = 0.77, RMSEA=0.00, SRMR = .00, GFI = 1.00, and AGFI = 1.00. The three indicators showed a significant factor loading value of p < .001. They also displayed moderate to high standardized factor loading values (.60-.97). The most important indicator of social support was friends, subsequently, were family members and health care professionals, respectively. The construct reliabilities were ranged from moderate to very high (R^2 = .36 - .95). Findings were displayed in the Figure 3.4 and Table 3.2

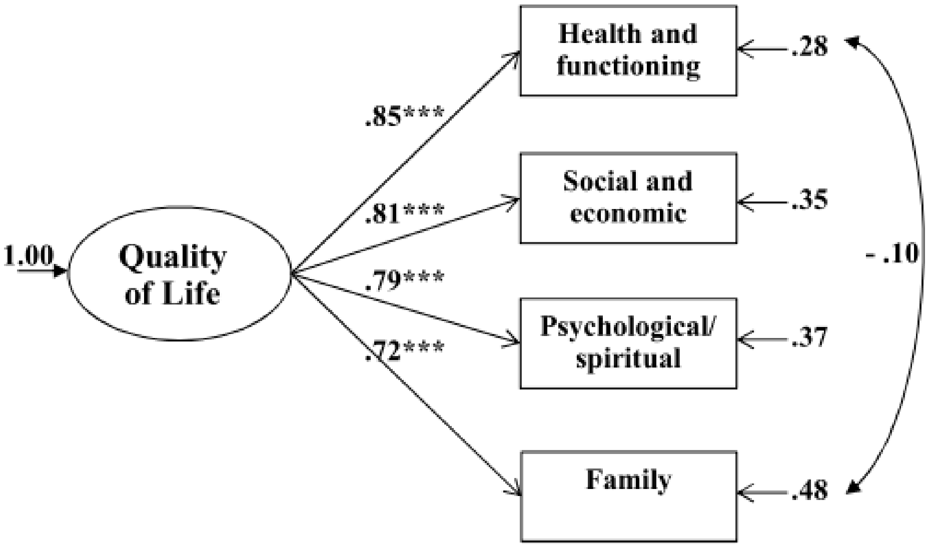


$\chi^2 = 0.093$, $df = 1$, $\chi^2/df = 0.09$, $p = 0.77$, RMSEA=0.00, GFI = 1.00, and AGFI = 1.00

Figure 3.4: Standardized Factor Loading and Measurement Errors for the Measurement Model of Social Support

3.3.7.5 Measurement model of quality of life

Quality of life was measured by the Quality of life index (QLI) which comprised four indicators: health/function, socioeconomic, psycho/spiritual, and family. The measurement model of quality of life had a construct validity and fitted nicely to the empirical data at $\chi^2 = 0.04$, $df = 1$, $\chi^2/df = 0.04$, $p = 0.85$, RMSEA=0.00, SRMR = .00, GFI = 1.00, and AGFI = 1.00. The four factor loadings were statistical significance at $p < .001$ and the values of standard factor loading ranged from .72 to .85. The most important indicator of quality of life was health and functioning subscale, subsequently, were socioeconomic, psycho/spiritual, and family subscale, respectively. The construct reliabilities were at high level ($R^2 = .52 – 72$). Findings were displayed in the Figure 3.5 and Table 3.2.



$\chi^2 = 0.04$, $df = 1$, $\chi^2/df = 0.04$, $p = 0.85$, RMSEA=0.00, GFI = 1.00, and AGFI = 1.00

Figure 3.5: Standardized Factor Loading and Measurement Errors for the Measurement Model of Quality of Life

In summary, the findings of measurement model assessment indicated that most of model indicators (observed variables) were represented the major variables (latent variables): caregiver burden, family hardiness, coping, social support, and quality of life in this study. However, several indicators showed low construct reliabilities (< .7). They should be more tested in the future.

Table 3.2 Measurement Model Goodness of Fit Index and Indicator Measures (n=275)

Variables	**b/Beta**	**SE of b**	***t*-value**	R^2	**Factor Score Regression**
Caregiver Burden					
Personal strain	1.00/.94***	.04	18.24	.88	.77
Role strain	.44/.72***	.03	16.46	.51	.26
$\chi^2 = 1.58$, $df = 1$, $\chi^2/df = 1.58$, $p = 0.21$, RMSEA=0.05, SRMR = 0.03, GFI = .99, AGFI = .98					
Family Hardiness					
Commitment	.99/.58***	.24	7.17	.33	.20
Challenge	1.00/.67***	.23	7.09	.45	.34
Control	.59/.31***	.17	3.67	.09	.07
$\chi^2 = 0.19$, $df = 1$, $\chi^2/df = 0.19$, $p = 0.66$, RMSEA=0.00, SRMR = 0.01, GFI = 1.00, AGFI = 1.00					
Coping					
Confrontive coping	.92/.54***	.54	11.62	.29	.01
Emotive coping	.30/.50***	.25	7.92	.25	.02
Palliative Coping	1.00/.99***	.32	21.29	.98	.96
$\chi^2 = 0.46$, $df = 1$, $\chi^2/df = 0.46$, $p = 0.50$, RMSEA=0.00, SRMR = 0.01, GFI = 1.00, AGFI = .99					
Social Support					
Family members	.68/.65***	.24	12.47	.42	.05
Friends	1.00/.97***	.17	25.19	.95	.89
Health care professionals	.75/.60***	.29	11.14	.36	.03
$\chi^2 = 0.093$, $df = 1$, $\chi^2/df = 0.09$, $p = 0.77$, RMSEA=0.00, SRMR = 0.00, GFI = 1.00, AGFI = 1.00					
Caregivers' QOL					
Health/Function	1.00/.85***	.30	12.71	.72	.34
Socioeconomic	.91/.81***	.25	11.77	.65	.22
Psycho/Spiritual	.94/.79***	.30	13.05	.63	.19
Family	.92/.72***	.29	9.40	.52	.19
$\chi^2 = 0.04$, $df = 1$, $\chi^2/df = 0.04$, $p = 0.85$, RMSEA=0.00, SRMR = 0.00, GFI = 1.00, AGFI = 1.00					

Note: b = Unstandardized Factor Loading, Beta = Standardized Factor Loading, SE = Standard Error, *** $p < .001$, R^2 = Construct reliability

3.4 Protection of Human Subjects

After the proposal was approved by the Committee on human rights related to research involving human subjects of Faculty of Medicine, Ramathibodi hospital, Mahidol University, Saraburi hospital, and Lopburi Cancer Center, the data were collected. Objectives, the procedures for data collection, potential benefit and risks of participants, and the duration of this study was given to eligible subjects. The subjects were informed that participation in the study was voluntary and they can decline without being penalized or losing any benefits to themselves and/or their relatives. Additionally, participants were assured that they could terminate their participation at any time. The researcher used this protection of human rights standard in both the pilot and main studies.

There may be anticipated benefits which included the opportunity to evaluate their quality of life and to recognize factors related to QOL. However, there may be minimal risk for participation in the study. A potential disadvantage for the subject's participation may be that the questionnaire could be time consuming. The participants were asked to sign the consent form before the study begins. The participants could decline to answer questions at any time if they feel uncomfortable. All data is going to be strictly confidential, and reported as a group. Codes were used instead of the names and addresses of participants. After finishing the data analysis, the codes were going to be destroyed.

3.5 Pilot Study

In the proposed study, a pilot study was conducted for determining the study feasibility and examining the reliability of research questionnaires. Moreover, the objectives of performing the pilot study were to decrease random errors by assessing a subject's responses to the instruments; appraise accurate time to complete the instrument; and increase confidence in collecting data and using the instruments (Frank-Stromborg & Olsen, 2004).

A convenient sample of 28 family caregivers of patients with advanced cancer at the tertiary hospital who met the inclusion criteria was selected to be part of this pilot study. The participants were asked to sign their name on the consent form, and to complete the questionnaires in a specific room at the Hospital or a convenient place for the researcher and the participants. The participants were encouraged to share their opinions regarding the relevance of the items and the concepts, and the appropriateness of items pertaining to family caregivers of patients with advanced cancer living in Thai culture. The researcher recorded the amount of time spent on the questionnaires in order to complete them, the problems related to questionnaires completion, and comments offered by the participants. After that, the internal consistency reliability of each instrument was calculated by using SPSS program version 18.

3.5.1 Pilot study results

The pilot study was carried out at chemotherapy clinic, surgical clinic in OPD and chemotherapy ward, male and female medical wards in IPD of the hospital in October 2011. The subjects were 28 primary caregivers of patients with advanced cancer; age ranged between 25 to 73 years (mean = 47.82, median = 48.50, SD = 14.47). Most of them were female (78.6%) and married (78.6%). The education ranged from primary school to bachelor degree and higher; 42.9% of them graduated at the level of primary school (mode = 4 years). A half of them (50%) were farmers and laborers. The monthly income ranged from 0 – 30,000 Baht (mean = 9,774.29, median = 7,600, SD = 8,853.18). All of them were Buddhist. A majority of them were fair health status (46.4%) and no health problems (64.3%). Most of them were spouses (42.9%) and adult child (35.7%) of the patients. The duration of caregiving ranged from 3 to 106 months (mean=16.64, median=9, *SD*=22.25). Approximately 61% of them used all day and night time on caregiving per day. Most of them did not provide care for other family members (60.7%) and have no a secondary caregiver (53.6%).

The subjects preferred structured interview rather than self-administered questionnaires because of the problems of visual acuity in the elderly and their education and knowledge. The time consuming varied from 35 to 50 minutes per case. In the pilot study, overall the questionnaires got the value of Cronbach's alpha coefficients between .75 and .97. The numbers of items and reliabilities of the instruments are summarized in Table 3.3.

Table 3.3 Summarization of the Reliability Coefficients of the Study Instruments

Instruments	**Scale**	**Number of Items**	**Previous Studied Reliability**	**Pilot Studied Reliability (n=28)**	**Current Studied Reliability (n=275)**
The Zarit Burden Interview	0 - 4	18	.83 - .93	.89	.86
Family Hardiness Index	0 - 3	20	.79 - .80	.75	.68
The Jalowiec Coping Scale	1 - 5	36	.78 - .88	.89	.88
Social Support Questionnaire	0 - 4	15	.85 -. 88	.92	.91
Quality of Life Index	1 - 6	66	.94 - .96	.97	.93

3.5.2 Reliability testing for the study instruments

In this current study, the internal consistency reliability testing of ZBI, FHI, JCS, SSQ, and QLI are reported in this section. DeVellis (2003) suggested that an alpha value below .60 was unacceptable; between .60 and .65 was undesirable; between .65 and .70 was minimally acceptable; between .70 and .80 was respectable; between .80 and .90 was very good; and much above .90 was too long scale. The results showed that the Cronbach's alpha coefficients of all instruments ranged from .68 to .93, which were minimally acceptable to too long scale as showed in Table 3.3.

3.6 Data Collection

In this study, data were collected by the researcher. Convenience sampling technique was used in the data collecting process. Data collection was proceeded in the following steps:

1) After the proposal was approved by the department review committee of the Faculty of Medicine Ramathibodi Hospital, Mahidol University, the researcher sent out the information letter from the Faculty of Graduate Studies, Mahidol University to the directors of the two settings.

2) After the proposal was approved by the department review committee of the two settings, the researcher introduced herself to the director of each setting, or the related health care providers in order to explain the research's purposes and how this study will benefit the community as a whole.

3) Subjects were recruited by screening the stage of cancer directly from the patients' charts by a screening nurse and the researcher. The participants who met the inclusion criteria were recruited into this study.

4) The researcher contacted primary caregivers by directly asking the primary caregivers of advanced cancer patients in order to introduce herself, explain the objective of the study, and inform them of the protection of human. If they agreed to participate, the researcher brought them to a private area in order to sign an informed consent form.

5) The researcher explained information about the questionnaires and how to answer each question. The subjects who were willing to join in this study were interviewed by the researcher or self-administration with the questionnaires. For the subjects who preferred to answer the questionnaires by self-report, the researcher provided the questionnaires with an envelope and stamp for sending the questionnaires back to the researcher by mailing.

6) After finishing the interview or receiving the questionnaires, the researcher checked the completion of the questionnaires, and recompleted the missing data before leaving the subjects. Then, all the participants received remunerative gifts from the researcher. If the mailing questionnaires were the missing data, the researcher called to the subjects to confirm and complete the data.

Planned of data collection

The convenience sampling technique was used in the data collection process. The estimated number of family caregivers of patients with advanced cancer from two hospitals was about 3,800 persons per month with approximately 300 cases from the tertiary hospital, and 3,500 cases from the Cancer Center. Moreover, there were some limitations for collecting data at the tertiary hospital. Firstly, the chemotherapy clinic for the patients with solid tumor provides the service only on Monday and Wednesday between 8:30 A.M. to 12:00 (noon). Secondly, most patients with solid tumor at surgical clinic usually meet the doctor between 8:30 A.M. to 12:00 (noon). According to the limitations at the tertiary hospital, the researcher set the schedule to collect the data at the tertiary hospital on Monday, Wednesday, and Friday; at the Cancer Center on Tuesday and Thursday. The process of data collection finished when the researcher can recruit total 275 family caregivers from the two settings.

Results of data collection

Three hundred and seventy-nine potential subjects who met the inclusion criteria were approached from two settings including a tertiary hospital and a cancer center in the central region of Thailand. All of them signed in the informed consent form. One hundred and seventeen subjects were interviewed by the researcher and another 262 of them answered the questionnaires by using self-administration. The attrition rate was 27.2 % because 103 of the subjects using self-administration did not return the questionnaires. Some of them felt inconvenient to answer the questionnaires and others did not provide the reasons. In sum, a total of subjects in this study were 276 including 100 subjects from a tertiary hospital and 176 subjects from a Cancer Center.

3.7 Data Analysis

Data were analyzed using the Statistical Package of the Social Science (SPSS) for Windows version 18.0 which was provided by Mahidol University and the Linear Structural Relationship (LISREL) statistical package version 8.80 (Student Edition) which was provided by Scientific Software International (SSI). Data were analyzed using statistics as follows:

1. Descriptive statistics were used to describe the characteristics of theparticipants including frequency, percentages, means, range and standard deviation. Moreover, the distribution properties (skewness, and kurtosis) were used to examine the demographic variables and the study variables.
2. Confirmatory factor analysis (CFA) was employed through LISREL 8.80 (Student Edition) in order to test the construct validity of the latent variables for this study.
3. Path analysis was conducted with the LISREL program, version 8.80 (Student Edition), and was used to test the research hypotheses as follows:

   3.1) Data were checked for missing information and were cleaned to ensure the accuracy by using descriptive statistics (run frequencies and explore characteristics of the variables). If there is something incorrect, the researcher will re-check the input with the raw data and correct the data entry error.

   3.2) Assumptions of path analysis were tested. Because path analysis consists of a series of regression equations; therefore, the assumptions which are related to multiple regression, including the assumptions of normal distributions, homoscedasticity, linearity and multicollinearity were tested (Hair et al., 2010; Munro, 2005).

   3.3) Then, the hypothesized model was tested through the goodness goodness of fit test statistics. If the model did not fit the data, the model would be modified based on modification indices and the theoretical supports. In this model, there are four exogenous variables which are caregiver's age, caregiver's education, caregiver's income, and caregiver burden. There are also four endogenous variables which are family hardiness, coping, social support, and caregivers' QOL which is the outcome variable.

3.8 Summary

A correlational, cross-sectional design was used to describe the QOL of caregivers of advanced cancer patients and to validate the causal model displaying the relationship among caregiver's age, caregiver's education, caregiver's income, caregiver burden, family hardiness, coping, and social support on the QOL among family caregivers of patients with advanced cancer. A pilot study was conducted using twenty-eight family caregivers receiving the treatment at a tertiary hospital. Convenience sampling was employed to obtain the participants receiving the treatments from the two setting in central path of Thailand. The participants were requested to complete questionnaires about caregivers' characteristics, caregiver burden, family hardiness, coping, social support, and caregivers' QOL. The demographic and the selected variables were analyzed by descriptive statistics with SPSS for Windows version 18.0 and the research hypotheses were tested by analyzing path analysis with the LISREL program, version 8.80 (Student Edition).

CHAPTER IV

RESULTS

This chapter presents the findings in three sections. The first section illustrates the characteristics of samples. The second section demonstrates the characteristics of the study variables. The third section shows the results that are relevant to the research questions and hypotheses.

4.1 Characteristics of Samples

There were 276 subjects who returned the questionnaires to the researcher. However, in the process of data screening, the results revealed that there was one subject who did not perceive caregiver burden (the total raw score of caregiver burden was zero). In the stress process model, caregiver burden, one of the stressors, was served as antecedent of moderating resource and outcomes of caregiving. Caregiver burden would have to have an influence on coping, social support, and caregiver's QOL in this study. If the score of caregiver burden is zero, it is impossible to determine the influence of it on coping, social support, and caregiver's QOL. Hence, this subject was excluded from the data analysis. A total of subjects in this study were 275 including 100 subjects from a tertiary hospital and 175 subjects from a Cancer Center.

4.1.1 Characteristics of the caregivers

Subjects ranged in age from 19 to 74 years (mean=47.14, median=48, *SD*=13.02). Over half of the subjects were adult age ranged from 40 to 60 years. The subjects were comprised of 213 females (77.5%) and 62 males (22.5%). The majority of the subjects were married (83.6%). A number of formal years of education ranged from 0-19 years (median=6.00). Over 50% of the subjects finished primary school (52.7%) and were agriculturalists and laborers (53.1%). Their monthly income ranged from 0 to 200,000 baht (mean=11,657.72, median=6,500, *SD*=17,809.34). Most of them (60%) had income ≤ 17,861 baht/month which was less than average monthly income of Thai people, while 8.4% were poor people who had income less than 1,678 baht/month. Moreover, 43.3% of them perceived that their income was insufficient. The majority of them (98.9%) were Buddhists, whereas 1.1% was Christian and Muslim.

A half of them reported fair health status, while 37.8% of them reported good to very good health status. Most of the subjects (61.1%) had no health problems, whereas 38.9% had at least one health problem such as Diabetes Mellitus, Hypertension, Asthma, and other health problems. Over 50% of the subjects were spouses. The duration of caregiving ranged from 3 to 106 months (median=8.00). Most of them (80.7%) cared for the patients less than two years. The majority of them (64.4%) reported that timing of the caregiving were all day and night. Moreover, 61.8% of the caregivers stayed with 3-5 family members. Fifty-six percent of them did not provide caring for other family members, and 57.1% of them had a secondary caregiver (Table 4.1).

Table 4.1 Characteristics of the caregivers (n=275)

Variables	**Number**	**%**
Age (Mean= 47.14, Median=48, *SD*= 13.02 , Range = 19-74)		
< 40 years old	83	30.2
40- 60 years old	141	51.3
> 60 years old	51	18.5
Gender		
Male	62	22.5
Female	213	77.5

Table 4.1 *(continued)*

Variables	**Number**	**%**
Marital status		
Single	33	12.0
Married	230	83.6
Divorce	6	2.2
Widow	2	0.7
Separated	4	1.5
Educational level (Mean=8.34, Median=6, *SD*=4.69, Range = 0-19)		
No school attendance	4	1.5
Primary school	145	52.7
Secondary school	67	24.4
Diploma	13	4.7
Bachelor and Graduate degree	46	16.7
Working status		
Unemployment	52	18.9
Agriculturalist	67	24.4
Laborer	79	28.7
Self-employed business	32	11.6
Government officer	23	8.4
Employee	20	7.3
No specify	2	0.7
Monthly income		
(Mean=11,657.72, Median = 6,500, *SD*=17,809.34, Range=0-200,000)		
No income	17	6.2
≤ 1,678 Baht	6	2.2
1,679-17,861 Baht	165	60.0
17,862- 30,000 Baht	27	9.8
≥ 30,001 Baht	21	7.6
No specify	39	14.2
Sufficiency of income		
Insufficient	119	43.3
Sufficient	151	54.9
- Savings	*54*	*19.6*
- No savings	*97*	*35.3*
No specify	5	1.8
Religion		
Buddhism	272	98.9
Christianity	2	0.7
Islam	1	0.4

Note: 30 Baths = 1 USD

Table 4.1 *(continued)*

Variables	**Number**	**%**
Health status		
Poor	33	12.0
Fair	138	50.2
Good	97	35.3
Very good	7	2.5
Health problem		
No health problem	168	61.1
Have an illness*	107	38.9
- DM	19	6.9
- HT	37	13.5
- Asthma	9	3.3
- Allergy	6	2.2
- Hpperlipidemia	5	1.8
- Peptic/stomach ulcer	5	1.8
- Others (i.e., disease of heart, bone & joint, stroke)	12	4.4
- No specify	23	8.4
Relationship to patient		
Spouse (husband=40, wife=110)	150	54.5
Adult child	85	30.9
Parent	12	4.4
Sibling	15	5.5
Relative or friend	13	4.7
Duration of caregiving		
(Mean=13.93, Median = 8.00, *SD*=16.54, Range = 3 – 106 months)		
< 2 years	222	80.7
2-5 years	46	16.7
> 5 years	7	2.6
Timing of the caregiving		
All day & night time	177	64.4
At night time	46	16.7
At day time	32	11.6
Uncertainty in time	20	7.3
A number of family members living at home		
2 persons	53	19.3
3-5 persons	170	61.8
≥ 6 persons	52	18.9
Caregiving for other family members		
Yes	122	44.4
No	153	55.6
Available of secondary caregiver		
Yes	157	57.1
No	118	42.9

Note: * = one person reported more than one illness

4.1.2 Characteristics of the patients

The age of advanced cancer patients ranged from 23 to 90 (mean=59.32, median = 60, *SD* = 12.10). Most of the patients were middle adults (a range of 40 to 60 years old, 47.6%) and late adult (> 60 years old, 47.6%). The patients were comprised of 155 males (56.4%) and 120 females (43.6%). The majority of them (78.9%) were married, while 9.8% were divorce and 11.3% were other status. A number of formal years of education ranged from 0 to 18 years (median=4.00). Most of them finished primary school (70.5%) and paid for their treatments by using universal coverage card (65.5%). The majority of them (99.3) were Buddhists, whereas 0.7% was Muslim. The three most common cancer sites were lung (25.8%), colon and stomach (21.1%), and head and neck (16.7%), respectively. Most of them were at stage 4 (77.1%), and diagnosed less than two years (76.4%). Moreover, 58.5% of them received chemotherapy, and 22.9% received radiotherapy at the time of data collection as show in Table 4.2.

Table 4.2 Characteristics of the advanced cancer patients (n=275)

Variables	**Number**	**%**
Age		
(Mean = 59.32, Median=60, *SD*= 12.10 , Range = 23 - 90)		
< 40 years old	13	4.8
40- 60 years old	131	47.6
> 60 years old	131	47.6
Gender		
Male	155	56.4
Female	120	43.6
Marital status		
Single	16	5.8
Married	217	78.9
Divorce	27	9.8
Widow	8	2.9
Separated	7	2.6

Table 4.2 *(Continued)*

Variables	**Number**	**%**
Educational level		
(Mean=5.93, Median = 4.00, *SD*=4.00, Range = 0 – 18)		
No school attendance	15	5.5
Primary school	194	70.5
Secondary school	36	13.1
Diploma	10	3.6
Bachelor and Graduate degree	20	7.3
Medical payment		
Civil servant medical benefits scheme	68	24.7
Social security	22	8.0
Universal coverage card	180	65.5
Self service	1	0.4
No specify	4	1.4
Religion		
Buddhism	273	99.3
Islam	2	0.7
Cancer site		
Lung	71	25.8
Colon and Stomach	58	21.1
Head and Neck	46	16.7
Breast	36	13.1
Cervix, Endometrium and Ovary	23	8.4
Liver and bile duct	22	8.0
Prostate and Penis	9	3.3
Bladder and renal	5	1.8
Others (i.e., bone, thigh, brain)	5	1.8
Stage of cancer		
Stage 3	63	22.9
Stage 4	212	77.1
Time since diagnosis		
(Mean = 15.62, Median=12.00, *SD*= 17.80 , Range = 3 - 106)		
< 2 years	210	76.4
2-5 years	55	20.0
> 5 years	10	3.6
Type of treatment		
Chemotherapy	161	58.5
Surgery	6	2.2
Radiotherapy	63	22.9
Supportive treatment	45	16.4

4.2 Descriptive Statistics of Study Variables

The variables of this study included eight major variables: caregiver's age (AGE), caregiver's education (EDU), caregiver's income (INC), caregiver burden (BUR), family hardiness (HAR), coping (COP), social support (SUP), and caregiver's QOL (QOL). The range, mean, median, standard deviation, skewness and kurtosis for all study variables were demonstrated in Table 4.3. The results showed no missing data for all study variables except caregiver's income. Skewness and kurtosis values of the variables ranged from -.83 to 6.83 and -1.11 to 67.10, respectively. Overall, the data were approximately non normality. So, univariate and multivariate normality are required in further analysis.

Table 4.3 Descriptive statistics of the study variables (n= 275)

Variable	**Possible Range**	**Actual Range**	**Mean**	**Median**	***SD***	**Skewness (SE=.147)**	**Kurtosis (SE=.293)**
AGE	18-highest as possible	19-74	47.14	48.00	13.02	-.13	-.85**
EDU	0-highest as possible	0-19	8.34	6.00	4.69	.50**	-1.11**
INC	0-highest as possible	0-200000	11,694.29	8,000.00	16,493.51	6.83**	67.10**
BUR	0-72	1-55	16.81	15.00	10.25	.86**	.88**
HAR	0-60	24-59	45.31	46.00	6.38	-.46**	.06
COP	36-180	57-141	91.90	91.00	18.25	.22	-.81**
SUP	0-60	2-59	30.03	30.00	12.10	.03	-.79**
QOL	0-30	7.80-28.92	21.95	22.22	3.82	-.83**	1.04**

Note: **$p < .01$

AGE=caregiver's age, EDU=caregiver's education, INC=caregiver's income, BUR=caregiver burden, HAR=family hardiness, COP = coping, SUP = social support, QOL = caregiver's QOL

4.2.1 Caregiver's age

As showed in Table 4.3, age of caregivers ranged from 19 to 74 years (mean=47.14, *SD*=13.02). The skewness coefficient value was negative and close to zero (-.13). However, the kurtosis value was also negative and not close to zero (-.85) indicating a non-normal distribution.

4.2.2 Caregiver's education

A number of formal years of caregiver's education ranged from 0 to 19 years (mean=8.34, *SD*=4.69). The skewness coefficient and the kurtosis value were positive and negative, respectively and not close to zero (.50 and -1.11) indicating a non-normal distribution as showed in Table 4.3.

4.2.3 Caregiver's income

In the process of data screening, the result showed that there were missing data for the caregiver's income (n=39, 14.2% of 275 subjects). Hair et al. (2010) stated that if the amount of missing data is not more than 15%, it is appropriate to run path analysis. Therefore, the values of the missing data were estimated by using regression method which was analyzed through missing value analysis. After replacing the missing value with the value of 11,915.6, an average monthly income was 11,694.29 (median=8,000.00, *SD*=16,493.51). The skewness coefficient and the kurtosis value were positive and very far from zero (6.86 and 67.62) indicating a non-normal distribution as showed in Table 4.3.

4.2.4 Caregiver burden

The total scores of caregiver burden ranged from 1 to 55 (mean=16.81, *SD*=10.25). The mean total score of the caregiver burden were at a low level (a range of 14.41 to 28.80). The skewness coefficient and the kurtosis value were positive and not close to zero (.86 and .88) indicating a non-normal distribution as showed in Table 4.3. Furthermore, it was noticed that some subjects did not perceive caregiver burden both from personal and role strain subscales because the minimum raw scores of actual range were zero as showed in the table 4.4. So, the additional analysis revealed that a number of the caregivers who perceived both personal strain and role strain were 230 subjects; a number of the caregivers who perceived only personal strain were 43 subjects, and that who perceived only role strain was two subjects.

Table 4.4 Descriptive statistics of five study variables and their subscales (n= 275)

Variables	**Possible Range**	**Actual Range**	**MEAN**	***SD***
Caregiver burden	**0-72**	**1.00-55.00**	**16.81**	**10.25**
Personal strain	0-48	0.00-37.00	12.10	7.07
Role strain	0-24	0.00-18.00	4.71	3.98
Family hardiness	**0-60**	**24.00-59.00**	**45.29**	**6.38**
Commitment	0-24	9.00-24.00	20.43	3.04
Challenge	0-18	6.00-18.00	13.12	2.60
Control	0-18	1.00-18.00	11.76	3.33
Coping	**36-180**	**57.00-141.00**	**91.90**	**18.25**
Confrontive coping	13-65	16.00-65.00	37.33	11.58
Emotive coping	9-45	10.00-30.00	18.21	4.07
Palliative coping	14-70	21.00-61.00	36.36	6.91
Social support	**0-60**	**2.00-59.00**	**30.03**	**12.10**
Family members	0-20	0.00-20.00	12.41	4.60
Friends	0-20	0.00-20.00	9.64	4.47
Health care professionals	0-20	0.00-20.00	7.98	5.47
Caregivers' QOL	**0-30**	**7.80-28.92**	**21.95**	**3.82**
Health and functioning subscale	0-30	5.92-28.65	21.86	4.47
Social and economic subscale	0-30	6.25-30.00	21.58	4.29
Psychological/spiritual subscale	0-30	4.43-30.00	22.10	4.48
Family subscale	0-30	6.60-30.00	23.40	4.80

4.2.5 Family hardiness

The total scores of family hardiness ranged from 24 to 59.The mean total score of the family hardiness was at a high level (mean=45.29, *SD*=6.38, a range of 36.01 to 48.00). The kurtosis value was positive and close to zero (.06), but the skewness coefficient value was negative (-.46) and not close to zero. So, they were indicated that family hardiness was a non-normal distribution (Table 4.3).

4.2.6 Coping

The total scores of coping ranged from 57 to 141 (mean=91.90, *SD*=18.25). A mean total score of the caregivers' coping was at a low level (a range of 64.81 to 93.60). The skewness coefficient and the kurtosis value were positive and negative (.22 and -.81); and not close to zero indicating a non-normal distribution (Table 4.3). The caregivers in this study used all three coping strategies because the actual range of the raw scores in all coping strategies was higher than the minimum score of the possible ranges (Table 4.4). Additionally, data in Table 4.5 provided range of score, means, and standard deviation for the relative scores of coping's subscales. The finding also revealed that the use of the confrontive coping (mean=.38, *SD*=.07) and palliative coping (mean=.35, *SD*=.04) was similar.

Table 4.5 Range, means, and *SD* for the relative coping scores (n=275)

Coping subscales	**Possible Range**	**Actual Range**	**Mean**	***S.D.***
Confrontive coping	0-1	.22-.54	.38	.07
Emotive coping	0-1	.14-.46	.27	.05
Palliative coping	0-1	.23-.47	.35	.04

4.2.7 Social support

The total scores of social support ranged from 2 to 59 (mean=29.99, *SD*= 12.10). A mean total score of the social support was at a moderate level (a range of 24.01 to 36.00). Although, the skewness coefficient value was positive and close to zero (.03), the kurtosis value was negative and not close to zero (-.79). Thus, they were indicated that social support was a non-normal distribution (Table 4.3). As showed in Table 4.4, the sources of social support that the caregivers perceived accordingly from highest to the lowest were family members (mean=12.41, *SD*=4.60), friends (mean=9.64, *SD*=4.47), and health care professionals (mean=7.98, *SD*=5.47). In this study, it was also noticed that some subjects did not perceived support from every source because the minimum actual range of the raw scores of each source was zero. So, the additional analysis revealed that one person did not perceive support from family members; five persons did not perceive support from friends; and 47 persons did not perceive support from health care providers.

4.2.8 Caregiver's QOL

The total scores of caregiver's QOL ranged from 7.80 to 28.92 (mean=21.95, *SD*=3.82). A mean total score of the QOL was at a high level (a range of 20.01 to 30.00). The skewness coefficient and the kurtosis value were negative and positive (-.83 and 1.04) and not close to zero indicating a non-normal distribution (Table 4.3). Moreover, the subscales of QOL which the caregivers perceived accordingly from highest to the lowest were family (mean=23.40, *SD*=4.80), psychological/spiritual (mean=22.10, *SD=4.48*), health and functioning (mean=21.86, *SD*=4.47), and social and economic subscale (mean=21.58, *SD*=4.29) as showed in Table 4.4.

4.3 Results Relevant to Research Hypotheses

In this study path analysis was used to explain direct and indirect effects of the selected variables (caregiver's age, caregiver's education, caregiver's income, caregiver burden, family hardiness, coping, and social support) on the QOL among family caregivers of patients with advanced cancer. The next section presented the assessment of the statistical assumptions and the results of path analysis.

4.3.1 Preliminary analysis: Testing assumptions

Path analysis is based on simple regression technique that consists of a series of regression equations; hence, the statistical assumptions related to multiple regression including normality, linearity, homoscedasticity and multicollinearity were tested before data analysis (Munro, 2005).

4.3.1.1 Normality

Normality, the most fundamental assumption in multivariate analysis, refers to "the shape of the data distribution for an individual metric variable and its correspondence to the normal distribution" (Hair et al., 2010, p.71). Ideally, both univariate and multivariate normality is required; however, multivariate normality is difficult to test, univariate normality testing is accepted (Hair et al., 2010). Two components of normality are skewness and kurtosis. When a distribution obtains normality, the value of skewness and kurtosis are zero (Hair et al., 2010; Tabachnick & Fidell, 2007). Moreover, a formula for Fisher's skewness and kurtosis statistic were used to calculate a Z-score by using the values of skewness or kurtosis divided by its standard error (Munro, 2005). The scores in range of ±1.96 are normal distribution at .05 and ±2.58 are at .01 probability level (Hair et al., 2010; Munro, 2005). On the other hand, the value of univariate skewness greater than 3 and univariate kurtosis greater than 20 are interpreted as extreme non normal distribution (Kline, 2011). In this study, all study variables show reasonably non normal distribution because the values of univariate skewness and kurtosis were not close to zero and the Z-scores were not in range of ±2.58 (Table 4.6). Moreover, the result of multivariate normality testing confirmed that all study variables were non normal distribution which the Z-scores of skewness and kurtosis were 43.03 and 16.01 (*p*<.01), respectively.

Table 4.6 Univariate and Multivariate Normality of the Study Variables (n= 275)

Variables	**Univariate Normality**				**Multivariate Normality**	
	Skewness (SE=.147)	**Kurtosis (SE=.293)**	**Z-Score**		**Z-Score**	
			Skewness	**Kurtosis**	**Kurtosis**	**Kurtosis**
Caregiver's age	-0.13 ^{ns}	-0.85**	-0.92 ^{ns}	-5.09**	43.03**	16.01**
Caregiver's education	0.50**	-1.11**	3.26**	-9.26**		
Caregiver's income	6.86**	67.62**	16.40**	11.19**		
Caregiver burden	0.86**	0.88**	5.22**	2.35*		
Family hardiness	-0.46**	0.06 ^{ns}	-3.03**	0.33 ^{ns}		
Coping	0.22 ^{ns}	-0.81**	1.52 ^{ns}	-4.65**		
Social support	0.03 ^{ns}	-0.79**	0.16 ^{ns}	-4.46**		
Quality of life	-0.83**	1.04**	-5.06**	2.65**		

Note: * *p*<.05, ***p*<.01, ^{ns} = not significant

Commonly, the non-normal distribution variables should be transformed in order to achieve normality. Hair and others (2010) stated that normality can have serious effects in small sample which are fewer than 50 cases, but the impact is effectively reduced when the sample size is equal to or more than 200. Moreover, their rule of thumb regarding transforming data; data transformation may change the interpretation of the variables. Using variables in their original (untransformed) format should be done when profiling or interpreting results (Hair et al., 2010). Similarly, Munro (2005) suggested that multiple regressions is somewhat robust to mild to moderate violations of normality, especially as the sample size increases. In this study, the sample size was 275 which were more than 200. So, the researcher still executed the original data without implementing and rectification.

4.3.1.2 Linearity

Linearity is defined as a straight line relationship between two variables representing the degree to which the change in the one variable is associated with the other variable. Linearity can be tested from scatter plots of two variables (Hair et al., 2010; Tabachnick & Fidell, 2007). In this study, the scatter plot of the study variables was examined and presented in Appendix E. The results revealed that most of the scatter plots (10/15 pairs) showed linearity except the scatter plot between 5 pairs of variables including: 1) caregiver's education and QOL, 2), caregiver's income and QOL, 3) caregiver's income and social support, 4) caregiver's education and coping, and 5) caregiver's income and coping. Moreover, the findings showed that each variable has a statistically significant correlation (Table 4.7). Therefore, it can be concluded that the linearity was found in this study.

Table 4.7 Multicollinearity testing: Correlational Matrix of the Study Variables (n=275)

	AGE	EDU	INC	BUR	HAR	COP	SUP	QOL
AGE	1.00							
EDU	-.51**	1.00						
INC	.04	.28**	1.00					
BUR	-.07	-.07	-.06	1.00				
HAR	-.01	.17**	.19**	-.32**	1.00			
COP	-.31**	.33**	.05	.36**	.01	1.00		
SUP	-.14*	.29**	.07	-.19**	.25**	.31**	1.00	
QOL	.29**	-.06	.10	-.47**	.49**	-.20**	.27**	1.00
Mean	47.14	8.34	11,694.29	16.81	45.31	91.90	30.03	21.95
SD	13.02	4.69	16,493.51	10.25	6.38	18.25	12.10	3.82

Note: ** $p<.01$, * $p<0.05$
AGE=Caregiver's age, EDU= Caregiver's education, INC=Caregiver's income, BUR=Caregiver burden, HAR=Family hardiness, COP=Coping, SUP=Social support, QOL=Caregivers' quality of life

4.3.1.3 Homoscedasticity

Homoscedasticity is referred to the assumption that dependent variable (s) display equal levels of variance across the range of the predictor variable (s) (Hair et al., 2010). To check the assumption, the residuals can be plotted against the predicted values and against the independent variables. The dependent variables show equal levels of variance across the range of the predictor variables when the data form a straight line from the lower-left corner to the upper-right corner (Munro, 2005). In this study, even though the actual data scores vary around the prediction line, in general they cluster fairly close to the line. Therefore, it can be assumed that homoscedasticity was found (Appendix F).

4.3.1.4 Multicollinearity

Multicollinearity is refers to the relationship among three or more variables which can reduce independent variables predictive power by extent to which it associated with other independent variables (Hair et al., 2010). If multicollinearity increases, the ability to define any variable's effect is reduced. It can be tested by three measures: 1) Pearson's correlation coefficients, 2) calculating the tolerance and variance inflation factor (VIF) values, and 3) using the condition indices and decomposing the regression coefficient variance (Hair et al., 2010). Pearson's correlation coefficients is higher than .85 indicated a high correlation between variables or had multicollinearity. Tolerance value ranged from 0 to 1. If the tolerance value was lower than 0.19 and VIF was higher than 5.30, it was indicated multicollinearity (Munro, 2005).

Pearson correlation coefficients were computed to measure the relationship among the variables including caregiver's age, caregiver's education, caregiver's income, caregiver burden, family hardiness, coping, and social support. As showed in Table 4.7, the values of the correlation coefficients were not greater than .85 which was indicated no multicollinearity. Also, the tolerance values ranged from .59 to .86 and VIF values were between 1.16 and 1.71; hence, no multicollinearity was found in this study (Table 4.8).

Table 4.8 Assessment for multicollinearity of the study variables (n=275)

Variable	**Tolerance Value**	**Variance Inflation Factor**
Caregiver's age	.68	1.47
Caregiver's education	.59	1.71
Caregiver's income	.86	1.16
Caregiver burden	.71	1.42
Family hardiness	.83	1.21
Coping	.65	1.54
Social support	.75	1.34

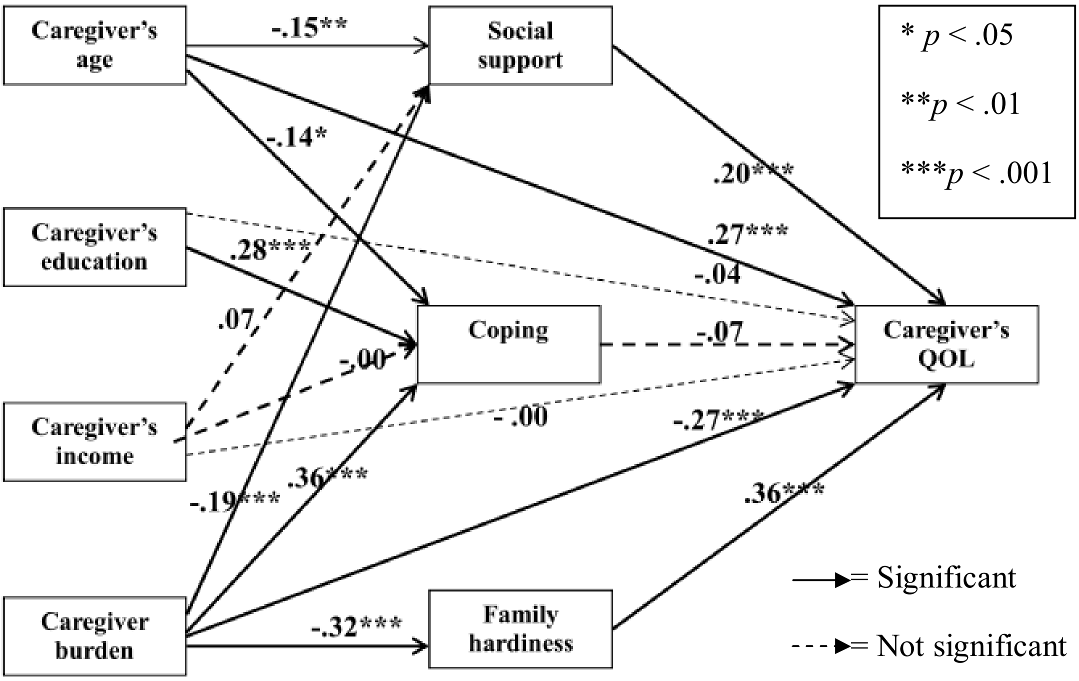
4.3.2 The model testing

Path analysis was executed through LISREL 8.80 (Student Edition) for testing the hypothesized model which comprised four exogenous variables: caregiver's age, caregiver's education, caregiver's income, and caregiver burden; and four endogenous variables: social support, coping, family hardiness, and caregiver's quality of life. To assess the model, parameter estimates, overall model fit, and residual, standardized residual, and modification indices were identified. According to Hair and others (2010) the overall model fit for models with sample size ≥ 250 and a number of indicators (NI) ≤ 12 when the test indicated: 1) non-significant chi-square; 2) the relative or norm chi-square(χ^2/df) less than 2; 3) GFI and AGFI values greater than 0.9; 4) RMSEA and SRMR values less than .05; 5) Comparative Fit Index (CFI) values ≥ .95; and 6) Relative Noncentrality Index (RNI) values ≥ .97 (Hair et al., 2010). Significantly, the Satorra-Bentler scaled chi-square was used to indicate the model fit for the non-normal distribution of the variables in this study (Schumacker & Lomax, 2010). The results of model testing were showed in Table 4.9, 4.10, and 4.11.

4.3.2.1 Hypothesized Model Estimates

In this study, the researcher specified the model with four exogenous observable variables and four endogenous observable variables. The researcher also fixed the model specification followed by the default of the program. The robust maximum likelihood (RML) method of parameter estimation was employed because the study variables were the non-normal distribution (Schumacker & Lomax, 2010).

The result showed that most paths in the hypothesized model were statistically significant with the proposed direction. However, there were five paths in the hypothesized model were not significant with the proposed direction including: 1) caregiver's education and caregiver's QOL, 2) coping and caregiver's QOL, 3) caregiver's income and caregiver's QOL, 4) caregiver's income and coping, and 5) caregiver's income and social support as show in Figure 4.1



χ^2= 15.22, *df* = 14, χ^2/df = 1.09, *p* = 0.36, RMSEA = 0.02, GFI = .94, AGFI = .85.

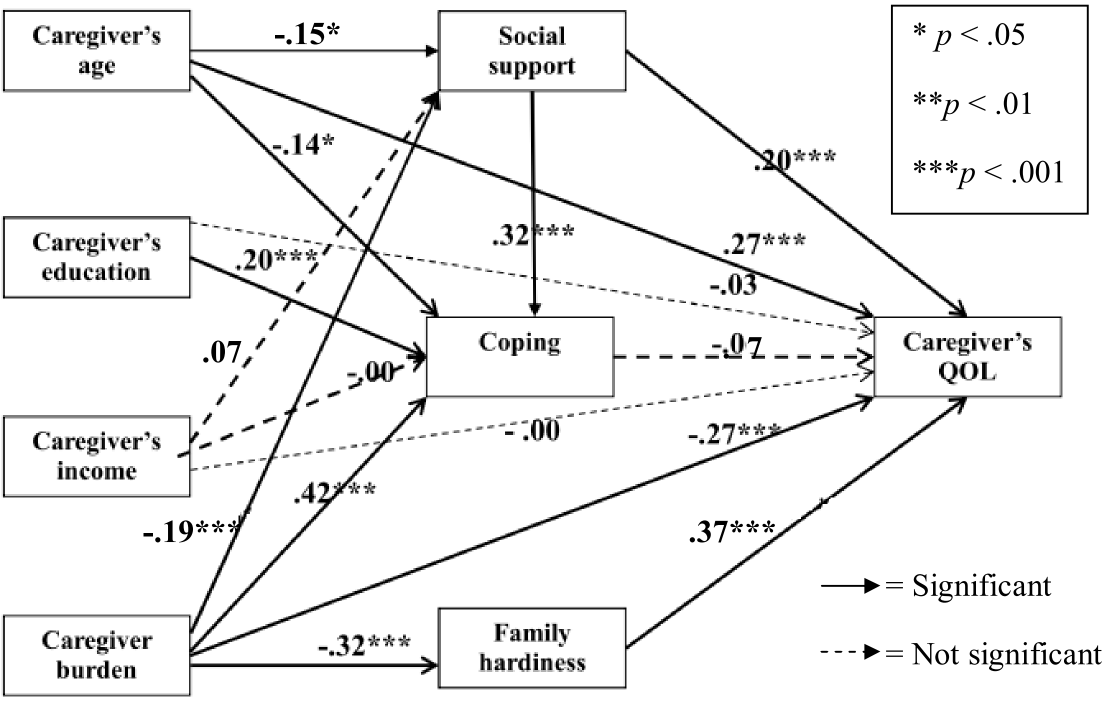
Figure 4.1: A Hypothesized Model of Factors Influencing Quality of Life among Family Caregivers of Patients with Advanced Cancer

Moreover, the results show that the hypothesized model was fit to the data at χ^2 = 15.22, *df* = 14, χ^2/df = 1.09, *p* = 0.36, RMSEA = 0.02, SRMR = 0.09, GFI = .94, AGFI = .85, CFI = 1.00, RNI = .94. Consequently, the hypothesized model was modified using the modification indices of the program and the theoretical support in order to be better fit to the data.

4.3.2.2 Modification Model

The SPM developed by Pearlin et al. (1990) was served as the conceptual framework for this study. This model is a modification of Lazarus and Folkman's model of stress and coping. In the model, social support was as a coping resource in stress research (Lazarus & Folkman, 1984). Moreover, Wheaton (2010) stated that social support had a direct effect on coping in the original stress process model. There are also previous studies that provided evidence for the effects of social support on coping (Bigatti et al., 2010; Greenglass, Fiksenbaum & Eaton, 2006; Lian

& Geok, 2006; McColl, Lei, & Skinner, 1995). According to the related literatures, it made theoretical sense to add the path between social support and coping. Hence, the researcher modified the model following the theoretical support and modification indices of the LISREL program as show in Figure 4.2.



χ^2= 4.83, *df* = 13, χ^2/df = 0.37, *p* = 0.98, RMSEA = 0.00, GFI = .97, AGFI = .91.

Figure 4.2: A Modified Model of Factors Influencing Quality of Life among Family Caregivers of Patients with Advanced Cancer

Therefore, this path was drawn, finally the model fit nicely with the data at χ^2 = 4.83, *df* = 13, χ^2/df = 0.37, *p* = 0.98, RMSEA = 0.00, SRMR = .06, GFI = .97, AGFI = .91, CFI=1.00, RNI=.98. Moreover, the comparison of significant statistics between the hypothesized model and the modified model was presented in Table 4.9, 4.10, and 4.11.

Table 4.9 The comparison of goodness of fit indices between the hypothesized model and the modified model

Structural model	χ^2	*df*	χ^2/df	*p*	**GFI**	**AGFI**	**RMSEA**	**SRMR**
Hypothesized model	15.22	14	1.09	0.36	.94	.85	0.02	.09
Modified model	4.83	13	0.37	0.98	.97	.91	0.00	.06

Table 4.10 The comparison of path coefficients, standard errors, t-values of parameter estimates between the hypothesized model and the modified model

Path diagram	**The hypothesized model**			**The modified model**		
	b/Beta	**SE of b**	***t*-values**	**b/Beta**	**SE of b**	***t*-values**
BETA						
SUP-QOL	.06/ .20	.01	4.27***	.06/.20	.02	3.76** *
COP-QOL	-.01/-.07	.01	-1.15 ^{ns}	-.01/-.07	.01	-1.03 ^{ns}
HAR-QOL	.22/ .36	.03	7.20***	.22/.37	.03	7.20***
SUP-COP	-	-	-	.47/.32	.08	6.06***
GAMMA						
AGE-SUP	-.14/-.15	.05	-2.61**	-.14/-.15	.05	-2.61**
AGE-COP	-.19/-.14	.08	-2.43*	-.19/-.14	.08	-2.40*
AGE-QOL	.08/ .27	.02	4.62***	.08/ .27	.02	4.39***
EDU-COP	1.10/ .28	.23	4.74***	.77/ .20	.23	3.34***
EDU-QOL	-.03/-.04	.05	-0.58 ^{ns}	-.03/-.04	.05	-0.85 ^{ns}
INC-SUP	.00/.07	.00	0.83 ^{ns}	.00/ .07	.00	0.83 ^{ns}
INC-COP	-.00/-.00	.00	0.02 ^{ns}	.00/.00	.00	0.05 ^{ns}
INC-QOL	.00/-.00	.00	-0.01 ^{ns}	.00/-.00	.00	-0.21 ^{ns}
BUR-SUP	-.23/-.19	.06	-3.72***	-.23/-.19	.06	-3.71***
BUR-COP	.65/.36	.11	6.05***	.75/.42	.10	7.61***
BUR-HAR	-.20/-.32	.04	-5.54***	-.20/-.32	.04	-5.54***
BUR-QOL	-.10/-.27	.02	-5.13***	-.10/-.27	.02	-9.31***

Note: b = Unstandardized Factor Loading, Beta = Standardized Factor Loading, SE = Standard Error, *** $p < .001$, ** $p < .01$, * $p < .05$, ns= not significant

Table 4.11 The comparison of predictive factors effects between the hypothesized model and the modified model

Causal Variables	The Hypothesized Model			The Modified Model		
	DE	IE	TE	DE	IE	TE
SUP-QOL	.20***	-	.20***	.20**	-.02	.18**
COP-QOL	-.07^{ns}	-	-.07^{ns}	-.07^{ns}	-	-.07^{ns}
HAR-QOL	.36***	-	.36***	.37***	-	.37***
SUP-COP	-	-	-	.32***	-	.32***
AGE-SUP	-.15**	-	-.15**	-.15**	-	-.15**
AGE-COP	-.14*	-	-.14*	-.14*	-.05*	-.19*
AGE-QOL	.27***	-.02^{ns}	.25***	.27***	-.02^{ns}	.25***
EDU-COP	.28***	-	.28***	.20***	-	.20***
EDU-QOL	-.04^{ns}	-.01^{ns}	-.05^{ns}	-.04^{ns}	-.01^{ns}	-.05^{ns}
INC-SUP	.07^{ns}	-	.07^{ns}	.07^{ns}	-	.07^{ns}
INC-COP	.00^{ns}	-	-.00^{ns}	.00^{ns}	.02^{ns}	.02^{ns}
INC-QOL	-.00^{ns}	.01^{ns}	.01^{ns}	.00^{ns}	.01^{ns}	.01^{ns}
BUR-SUP	-.19***	-	-.19***	-.19***	-	-.19***
BUR-COP	.36***	-	.36***	.42***	-.06 **	.36***
BUR-HAR	-.32***	-	-.32***	-.32***	-	-.32***
BUR-QOL	-.27***	-.18***	-.45***	-.27***	-.18***	-.45***

Note: *p < .05, **p< .01, ***p< .001, ns = not significant, AGE=Caregiver's age, EDU= Caregiver's education, INC=Caregiver's income, BUR=Caregiver burden, HAR=Family hardiness, COP=Coping, SUP=Social support,
QOL=Caregivers' quality of life, SE = Standard errors, DE = Direct Effect,
IE = Indirect Effect, TE = Total Effect

4.3.3 Hypothesis testing results

Hypothesis I: Social support, Coping, and family hardiness would be have direct effects on caregiver's QOL.

The findings partially supported that social support (β=.20, *p*<.001) and family hardiness (β=.37, *p*<.001) had significant direct effects on caregiver's QOL but coping did not have a significant direct effect on caregiver's QOL (β=-.07, *p*>.05).

Hypothesis II: Caregiver's age would be have a direct effect on caregiver's QOL and have an indirect effect on caregiver's QOL through coping, and social support.

This findings partially supported that caregiver's age had a significant direct effect on caregiver's QOL (β=.27, *p*<.001) but it did not have a significant indirect effects on caregiver's QOL through coping and social support.

Hypothesis III: Caregiver's education would be have a direct effect on caregiver's QOL and have an indirect effect on caregiver's QOL through coping.

This findings did not supported this hypothesis in that caregiver's education did not have a significant direct effect on caregiver's QOL (β=-.04, *p*>.05) and it did not have a significant indirect effect on caregiver's QOL through coping.

Hypothesis IV: Caregiver's income would be have a direct effect on caregiver's QOL and have an indirect effect on caregiver's QOL through coping and social support.

This findings did not support this hypothesis in that caregiver's income did not have a direct effect on caregiver's QOL (β=-.00, *p*>.05) and it did not have a significant indirect effect on caregiver's QOL through coping and social support.

Hypothesis V: Caregiver burden would be have a direct effect on caregiver's QOL and have an indirect effect on caregiver's QOL through social support, coping, and family hardiness.

This finding partially supported this hypothesis in that caregiver burden had a significant direct effect on caregiver's QOL (β=-.27, *p*<.001), and had a significant indirect effect on caregiver's QOL through social support (β= -.19, *p*<.001), and family hardiness (β=-.32, *p*<.001). Moreover, it did not have a significant indirect effect on caregiver's QOL through coping.

Furthermore, the researcher created one path of the relationship between coping and social support in the model according to the modification indices of LISREL program also supporting the theory. The findings revealed that social support had a significant positive direct effect on coping (β=.32, *p*<.001). Finally, the final model explained 45% of the variance in caregiver's QOL, 10% of the variance in family hardiness, 34% of the variance in coping, and 6% of the variance in social support. In conclusion, the older caregivers who reported lower burden, greater social support and family hardiness perceived higher QOL.

4.4 Summary

This chapter demonstrated the characteristics of the samples, the answer to research question and the hypotheses of the study. The demographic data was analyzed by SPSS 18.0 program; the statistical assumption of path analysis was examined through SPSS and PRELIS program and presented before the principle analysis by path analysis through LISREL 8.80 program. The hypothesized model was estimated. Lastly, the model was modified in order to obtain a goodness-of-fit.

In conclusion, the model of quality of life among family caregivers of patients with advanced cancer showed a good fit to the empirical data and explained 46% of the variance in QOL. The finding partially supported the three hypotheses including 1) social support and family hardiness had significant direct effects on caregiver's QOL, 2) caregiver's age had a significant direct effect on caregiver's QOL, and 3) caregiver burden was mediated by family hardiness, and social support to increase more caregiver's QOL. Moreover, there were two hypotheses that were not supported in this study in that caregiver's age and caregiver's income did not have significant direct and indirect effects on caregiver's QOL.

CHAPTER V
DISCUSSION

This chapter presents a discussion of research results in three main sections. The first section discusses the characteristics of the samples and the study variables. The second section discusses the factors influencing caregiver's QOL. The last section discusses the strengths and limitations of this study.

5.1 Characteristics of the Samples and Study Variables

5.1.1 Characteristics of the samples

The result revealed that most caregivers were females (77.5%), and spouses (54.5%). This finding was congruent with previous Thai studies of Kunsabal (2007), Phligbua (2005), Tamtub (2004), and Wannasiri (2005) which found that most of cancer caregivers were females and spouses. This was associated with the characteristics of the patients in that the majority of advanced cancer patients was males (56.4), and married (78.9%). Most caregivers and their loved ones with advanced cancer were spouse to each other. When a husband was ill, his wife usually took care of him. The report of Thai NCI in 2010 presented that a number of new cancer patients were male more than female. This statistics was the same direction with the estimated new cancer cases of developing country in 2012 in that a number of male cancer patients were more than those of female (men=3,654,000 cases, women=3,453,600 cases; Jemal et al., 2011). Moreover, the National Family Caregivers Association (NFCA, 2012) in the United States reported that approximately 66% of family caregivers are women. Furthermore, the survey of family caregiving research in Thailand by Sirapo-ngam (2003) revealed that most of the caregivers were females (95%) and adult children (90%). This survey was also congruent with the study of Chansirimongkol (2007), Pitimana-aree (2007), and Ungwattansirikul (2007) which found the same results.

The reason why most of the caregivers were female might be from the nature of Thai population. The report of Thai National Statistical Office (2010) showed that the number of Thai population was 65,900,000 persons which composed of 51 % females and 49% males. The number of females is more than males because it might be related to the life expectancies at birth of females are longer than males (76.3 VS 69.5) (Institute for Population and Social Research, Mahidol University, 2011). Moreover, the Poll of Assumption University (2012) revealed that that 68.7% of Thai women are responsible for the health care of family members. In Thai context, women are always expected to provide care to a loved one in their family because Thai people believe that caregiving is a natural occurrence accompanied with women (Adulyanonte, 2012). So, it is not surprised that most of the caregivers in this study were female.

Furthermore, the Thai family size has changed from an extended family to nuclear family consisting of husband, wife, and one-two children. Thai National Statistical Office (2010) also reported that Thai family size was smaller than during the last ten years (family members decreased from 3.8 in 2000 to 3.2 persons in 2010). So, the Thai caregivers were changed from adult children to spouses. From more than 200 studies from 2000 to 2010 that the researcher reviewed for this study, the findings revealed that most of the caregivers (>50%) were females and spouses (Aslan, Sanisoglu, Akyol, & Yetkin, 2009; Chen et al., 2009; Gorji et al., 2012; Kim et al., 2010; Northouse et al., 2010; Park et al., 2010; Ross et al.; 2010; Spillers et al., 2008; Tang, 2009; Tang and Li, 2008; Wong, Lam, Chan, & Chan, 2012). Additionally, systematic review studies by Stenberg et al. (2010) and Waldron, Janke, Bechtel, Ramirez, and Cohen (2012) revealed that most of cancer caregivers were female. According to the studies of the cancer caregiver in Western context, their results supported this finding that the majorities of the caregivers were females and spouses. As foreseen, female is still the primary caregiver worldwide including Thailand. So, it can be assumed that a burden of care for the patients at home falls on female family caregivers continuously.

Regarding working status, over half of the caregivers were agriculturalists (24.4%) and laborers (28.7%). It is not consistent with the report of Thai National Statistical Office (2010) which reported that most of Thais who have worked were employee of government, state enterprise or private companies (40.9%). The reason why most of the caregivers were agriculturalists and laborers might be due to the characteristics of the data collection's settings and the accessibility in the health care services of the subjects. Saraburi hospital and Lopburi Cancer Center are the tertiary hospitals under the jurisdiction of the Ministry of Public Health in the rural area of Thailand that support the services for all patients including the patients who have universal coverage card. In 2010, universal coverage card was the most common type of health insurance (79.2%) which Thais have been received from the government (Thai National Statistical Office, 2010). Most agriculturalists and laborers have a universal coverage card. In this study, the results showed that most of the patients (65.5%) paid for their treatment by using universal coverage card. Generally, Thailand is well known as agricultural country. Most of agriculturalists usually use their free time to do special works including laborers. Thus, it is not surprised that most of the subjects were agriculturalists or laborers.

In regards to the duration of caregiving and timing of caregiving, most of the caregivers cared for the patient for two years or less (80.7%) and spent all day and night (64.4%) providing care to the patients. This result was congruent with time since diagnosis of the patients. The researcher found that 76.4% of the patients were diagnosis for two years or less. These findings were consistent with studies by others (Aslan et al., 2009; Chen, Chu, & Chen,2004; Hacialioglu et al., 2010; Stajduhar et al., 2008; Tang & Li, 2008) who found that most caregivers spent 24 hour per day in caregiving and the duration of care was less than two years. The NFAC of the US (2012) reported that caregivers spent an average of 20 hours per week providing care for their loved one with a chronically ill, disabled or aged family member. Additionally, advanced cancer patients have multifaceted needs, including personal care, emotional support, and others. So, family caregivers need to offer more time to caring for their patient with advanced cancer (Given, Given, & Kozachik, 2001).

A reason why most caregivers spent all day and night providing care to the patients might be from advanced cancer patients have high levels of distress. The patients irregularly expressed negative emotion to others such as their primary caregivers or their oncologists. The types of emotion expressed were anxiety (46%), fear (25%), depression (12%), anger (9%), and other (8%) (Anderson et al., 2008). Caregivers of patients with advanced cancer need to provide emotional support for their loved ones in order to help them cope with their situation. The ways to provide emotional support to the patients were 1) being with him or her, 2) allowing him or her to express their fears and concerns, 3) being willing to listen to him or her, etc. (National Cancer Institute, 2012). As foreseen, the activities of emotional care were the tasks that require a lot of time. Moreover, in Thai context the patients needed help to maintain their physical ability and psychological well-being to solve their physical suffering and psychological problems (Maneewan et al., 1994; Srikumnerd, 2008). The caregivers have to provide both physical and emotional support for the patients. So, it is possible that most caregivers spent all day and night for caregiving their loved one.

Another possible explanation for these findings is that caregivers may be faced with double jeopardy during taking care of their loved ones. Mullan (1985) stated that the first two years of cancer patients and their family was the acute phase of survival that was extended from diagnosis to the completion of initial treatment encompassing issues dominated by treatment and its side effects. During this period, caregivers may know that their loved one had cancer and also that the patients were in the advanced stage. In this situation, caregivers had to deal with an acute survivorship phase and the palliative care period at the same time. The caregivers may have to adjust both their own new caregiving roles, and help support for their loved ones with advanced stage of disease. Moreover, caring for advanced cancer patients is usually a stressful task and hard work which needs a high level of patience of family caregivers (Glajchen, 2004; Sirapo-ngam et al., 2010). From the characteristics of the patients, the results showed that most of the patients in this study were at stage 4 (77.1%), and received palliative chemotherapy (58.5%). The caregivers also have many activities to take care of the patients in this period of time (Weinland, 2009). Accordingly, because of the patient's disease condition and their caregiver's responsibilities, they spent 24 hours per day for taking care of the patients.

Moreover, a meta-analysis of 116 empirical studies by Pinquart and Sorensen (2005) revealed that Asian American caregivers were found to provide more caregiving hours than white, African American, and Hispanic caregivers. They explained that cultural beliefs play a significant factor influencing the concerns of family caregivers of cancer patients. Kim and Theis (2000) found that Korean caregivers had their strong sense of obligation to fulfill their filial duty and responsibility for their parents or spouses. In Thai culture, a filial piety is also a strong norm (Caffrey, 1992; Thongprateep, 2006). When a loved one has cancer, other family members attend to take care of their lover because it is a good opportunity of them to be grateful to their loved one. Therefore, they spent all time of them to care for the patients.

5.1.2 Characteristics of the study variables

The characteristics of the variables included caregiver's age, caregiver's education, caregiver's income, caregiver burden, family hardiness, coping, social support, and caregiver's QOL were discussed and reported in this section as follows:

a) Caregiver's age

In this study, the average age of the caregivers is 47.14 years and the majority of them (51.3%) were in the middle adult ages 40-60 years. This might be that most of caregivers in this study were spouses who were in the same age with the patients. As foreseen, the majority of the patients were the middle adults (47.6%), and older adults (47.6%). The report of Thai NCI in 2010 also stated that the majority of cancer patients (>50%) ranged in age from 40 to 60 years. From 23 studies of cancer caregiver published from 1994 to 2009 in Thailand, the finding revealed that the average age of the caregivers was less than 47 years (Chansirimongkol, 2007; Issarapanit, 2006; Kasinpila, 2007; Phligbua, 2005; Pitimana-aree, 2007; Ungwattansirikul, 2007).

From the literature in western culture, the results showed that most of the studies (85.1%, 80/94 studies) displayed that the average age of the caregivers was more than 50 years (Francis et al., 2010; Ross et al., 2010; Sherman et al., 2010; Spillers et al., 2008; Stajduhar et al., 2008; Winterling et al., 2010). Moreover, the findings of a systematic review by Stenberg et al. (2010) and Waldron et al. (2012) showed that the mean age of cancer caregiver was 54.1 and 56.5 years, respectively. As foreseen, the average age of the caregivers in this study was younger than in western studies. This suggested that the Thai caregivers are younger than the Western caregivers.

b) Caregiver's education

Unsurprisingly, the average number of years of caregiver's education was 8.34 years and over half of the caregivers (52.7%) finished primary school. This result was consistent with the report of Thai National Statistical Office (2010) which reported that most of Thais (47.3%) finished primary school and lower. Moreover, this finding was supported by the study of Chantrasarn (2010) that revealed that the average number of years of education was 6.6 years which was relatively short compared to other countries. This can be explained that a number of years for the compulsory education are 9 years for Thai children (Compulsory Education Act of Thailand, 2002). However, some Thai children (20%) have not been educated under the compulsory education because of the poverty, lack of schools, the disabled, and the homeless (Phongpaiboon, 2000). Due to poverty or the family's finances, in childhood, the caregiver's parent may not support or send them to school. They may help their parent generate income or take care of their home or younger siblings. Hence, some caregivers were obliged to leave school prior to the required 9 years. For the western studies, the researcher found that most of the caregivers finished high school and higher (Aslan et al., 2009; Chen et al., 2009; Kim et al., 2010; McLean, Walton, Matthew, & Jones, 2010; Park et al., 2010). Additionally, Pinquart and Sorensen (2005) who performed a meta-analysis of 116 empirical studies found that Asian American caregivers were lower levels of education than white, African

American, and Hispanic caregivers. According the literature, Thai caregivers in the rural area were lower education than those from western culture.

c) Caregiver's income

The average monthly income of the caregivers was 11,657.72 Baht and 68.4% of them had income less than the average monthly family income (17,862 Baht) in 2009 (National Statistical Office, 2010). Although, most of the caregivers (80.4%) have worked, 43.3% of them perceived that their income was insufficient. This is because Thailand's income inequality is relatively high compared to other countries (Chantrasarn, 2010). As foreseen, the range of income greatly varied from 0 to 200,000 Baht/month. This finding suggested that most of the caregivers in this study were faced with the financial problems in their lives.

This finding was congruent with several previous studies which found that the Thai caregivers had average monthly income less than 20,000 baht/month (< 700 US$, Chansirimongkol, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007). Additionally, Yiengprugsawan, Seubsman, and Sleigh (2012) found that Thai full-time caregivers tended to be in the lowest household income group in rural areas. In contrast, a study in Hong Kong reveled that most caregivers of persons with mental illness had monthly income greater than 700 US dollars (Wong, Lam, Chan, & Chan, 2012). In addition, the researcher found that in Western studies, caregiver's income was more than 10,000 US$. For instance, Kim, Spillers, & Hall (2010) and Song et al. (2010) presented that the first range of caregiver's income was < 20,000 US dollars, and < 30,000 US dollars, respectively. However, it is difficult to compare the caregiver's income because the context of Thailand is different from Hong Kong or Western country.

d) Caregiver burden

The average total score of caregiver burden was 16.81 indicated that the caregivers perceived low levels of caregiver burden. This finding was not congruent with the study of Barg et al. (1998), Cheewapoonphon (1998), Chen et al. (2009), Kasinpila (2007), Papastavrou et al. (2009), Scherbring (2002), and Wannasiri (2005) that found that the caregivers perceived the moderate or high level of caregiver burden. Because of Thais' belief and culture, caregivers may think that caregiving for the patients who were their spouses or parents was a way to show appreciation and as a result they were more grateful for the opportunity to care for their loved ones. Taking care of family member is an affective reward and a strong norm of familial obligation in the Thai culture (Caffrey, 1992; Thongprateep, 2006) Furthermore, Paisalsuthidach (2006) stated that the caregivers of patients with terminal stage cancer in Thai context had to do several tasks to solve the four patient's problems including physical problems, psycho-spiritual problems, self-care deficit, and economic problems. Those responsibilities may be not new tasks for the caregivers because they had to do those tasks when their loved one was healthy.

In Thai culture, religion, culture, and traditional ways of life played major roles in the commitment to taking care of family members. Especially, Buddhist caregivers believed that caregiving was a way to repay their past deeds, to gain merit, and to return gratitude to their relatives. Thai caregiving for a loved one with illness was as an integral part of a caregiver's life, an unavoidable task that was provided with love, sympathy, and attachment (Subgranon & Lund, 2000). On the other hand, the Western people are normally independent more than people in Asian country. When they took role as a primary caregiver, they may be more suffering because they did not familiar with new roles of caregivers. Therefore, the caregivers in this study reported low burden because caregiving is a normal duty of family members. However, most of the caregivers (80.7%) in this study cared for the patients less than two years which was a short time period. In the long-term of caregiving, this group of caregivers may perceive caregiver burden at any level. So, it is very interesting to conduct a longitudinal study to follow the perception of caregiver burden in this group.

In this study, it was noticed that there were forty-three caregivers who reported that a total raw score of role strain, which was one of the subscales of caregiver burden, were zero. This means that this group of the caregivers did not perceive effects of caregiving on the caregiver's health and other relationships. This finding was consistent with the results of the additional analysis that found that almost of them (42 in 43 caregivers) reported moderate to very good health status. There were

13 caregivers who had at least one health problem. Moreover, most of them were spouses (26 in 43 caregivers), a range of 40-60 years old (27 in 43 caregivers) who cared for their loved one. It was reflected that the relationship between the caregivers and their love one was not a problem. Even though, the reliability of caregiver burden was very good, it might not be appropriate to measure caregiver burden in Thai context because some caregivers did not perceive role strain which was one of the two subscales of caregiver burden. It is suggested that a future study should be concern the influences of culture and religion belief on the perceived caregiver burden in Thai context. Moreover, the meaning of caregiver burden and its measurements in Thai culture should be more explored.

e) Family hardiness

The caregivers reported high levels of family hardiness (mean=45.29, *SD*=6.38). This may suggest that caregivers are supported from other family members, which may help them evaluate the caregiving situation more positively. From the demographic data, most of the caregivers (>80%) in this study stayed with more than three family members at their home and 57.1% of all caregivers in this study had a secondary caregivers. Moreover, the caregivers may perceive that cancer is a serious disease which causes of the patient's death recently. They may try to be strong in order to be a good caregiver and to encourage the patient to deal with their illness continuously. In the countryside of Thai context, their neighbors are usually their relatives who caregivers can ask for help at any time. This finding also reflected that the caregivers had the family's sense of internal strengths, dependability, and ability to work together which was the definition of family hardiness in this study. Because of support from their family, the caregivers perceived high family hardiness.

This result was consistent with studies that have supported similar findings in that the mean of family hardiness was above the midpoint on the scale indicated that caregivers reported high levels of family hardiness (Carey et al., 1991; Oberst et al., 1991). Clark (2002) also found that caregivers with higher family hardiness possibly receiving more assistance. In Thai context, Niyomthai et al. (2003) found that the caregivers of stroke patients perceived family hardiness in commitment subscale at high level because they received financial support and got assistance from secondary caregivers.

f) Coping

The caregivers reported that they used the coping strategies at a low level (mean=91.90, *SD*=18.25). The most frequently used coping strategy perceived by the caregivers was confrontive and palliative coping. The reason might be that most of the caregivers may evaluate that taking care of their loved one with cancer was the situation which they can directly manage or handle. They may try to solve, face up to and confront their problem or situation directly. They may want their loved one with cancer to do well. They may try to do everything in order to make the patients and themselves happier. This was consistent with the definition of coping in the stress process model. Pearlin (1999) stated that coping was one of the moderating resources which was the personal behaviors that was employed in order to prevent or avoid stressful situation and its outcomes. Additionally, some items in palliative subscale of the JCS which was used to measure coping in this study were consistent with Buddhist caregivers' believes. The example of those items were item 3 (Optimism), item 14. (Acceptance), item 18 (Pray/trust God), item 35 (Don't worry), and item 36 (Settle for next best thing). Those items represented the belief that caregiving situation was related to the concept of karma which they need to face every day. This may be the reason why most caregivers reported that they used the coping strategies at a low level.

Moreover, the results revealed that the caregivers in this study used all three of coping strategies which was congruent with Lazarus & Folkman (1984) stated that no one strategy is considered inherently better than any other. However, it can assume that confrontive coping may be the most appropriate coping strategies for caring of the advanced cancer patients. This finding was congruent with three previous Thai studies that revealed that the mean score of coping was at a moderate level and the most common coping strategy used by family caregivers was confrontive coping (Chansirimongkol, 2007; Oiemhno, 2003; Pitimana-aree, 2007; Ungwattansirikul, 2007).

g) Social support

The caregivers reported that they received the social support at a moderate level (mean=29.99, *SD*=12.10). The highest source of social support perceived by the caregivers was from family members. Possible reasons might be Thai culture affects the life style of Thais. When a family member is ill, other family members take on the role of caregiver because this is a family's responsibility. Moreover, the filial piety is crucial importance in Thai context. The taking care of an ill family member with loving bond is positive and important way that family members can show their filial piety to their parent, their spouses, or their relatives. When a father or mother is ill, the child is often the caregiver who take care of his/her parent; if a husband is ill, his wife will be a carer. As foreseen, most of caregivers were spouses and adult child of the patients in this study. This finding was consistent with a study of Chansirimongkol (2007), Pitimana-aree (2007), and Ungwattansirikul (2007) in that the mean score of social support perceived by the cancer caregivers was at a moderate level, and the biggest source of social support reported by the family caregivers was from their family members.

Furthermore, the findings revealed that there were forty-seven caregivers (17%) who did not perceive support from health care providers. This may reflect some problems of health care management in this population. From the literature, caregivers of patients with advanced cancer have a variety types of needs such as information, emotional/psychological, physical, social/relationship, spiritual, and financial needs (George, 1997; Hileman, 1990; Kim, Kashy, Spillers, & Evans, 2010; Lin & Tsao, 2004; Parlee, 1999). Especially, knowledge and informational needs, the greatest needs, which were provided from health care providers. In Thailand, the cancer centers, the secondary and tertiary hospitals under the jurisdiction of the Ministry of Public Health have friendship therapy centers to promote self-management support, friendship support and the participation of patients with chronic conditions and their family in all of the treatment process underpinning the chronic care model since 2006 (National Health Security Office, 2010). This center is cooperation between health care providers, patients, their family, and volunteers. The activities of the center are comprised of emotional support, information support, occupational therapy, and others. The two settings for collecting data in this study have a friendship therapy center for the cancer patients and their family. All new cancer patients and their family were received information support and others from health care providers when they were received the first treatment at the hospital. They also asked for help by call directly to a health care provider when they stayed at home. Moreover, there is a referral system for the cancer patients from the secondary or tertiary hospital to a primary care unit in the community.

In this study, the researcher focused on the social support from health care providers who have worked in the community of cancer patients. Although, the friendship therapy center has not been set formally at the primary care unit in the communities at that time, most of caregivers perceived support from health care providers. During the data collection, some caregivers called the researcher when they stayed at home in order to ask how to deal with their patient' problems. They also gave the information that health care providers at the primary care unit in their communities did not conduct home visits, or did not know that their loved one had cancer. This finding reflected that the caregivers may have had inadequate health information or that a communication gap between health care providers and the patients. Furthermore, the caregivers may want to receive information and support from others continuously during their caregiving period. Therefore, the health care providers have to focus more on the caregiver's needs and improve the patient-health care provider's communication to promote support from health care team continuously.

h) Caregiver's QOL

The mean total score of the QOL was at a high level suggesting that the majority of the caregivers perceived a high level of QOL. This result was consistent with the report of National Institute of Development Administration (2011) that the QOL of Thai people in year 2011 was high on working, family, and environmental subscales. There were three previous Thai studies developed by Chansirimongkol (2007), Pitimana-aree (2007), and Ungwattansirikul (2007) which also revealed that the caregivers perceived a fairly good level of QOL. Moreover, Yiengprugsawan, Seubsman, and Sleigh (2012) found that when compared to non-caregivers, Thai caregivers reported higher positive mental health (i.e., self-esteem and content with life), higher positive mental capacity (i.e., coping with crises), and higher positive mental quality (i.e., helping others). A combination of factors may explain the high level of QOL among caregivers. First, the caregivers reported low caregiver burden and moderate social support and these two factors may have contributed to their high QOL. A study of Gaston-Johansson et al. (2004) and Wagner et al. (2006) revealed that lower caregiver burden was related to higher QOL in family caregivers of cancer patients. Second, the caregivers may have been able to engage in more positive thinking about their life events from their Buddhist view, possibly enhancing their quality of life.

Most of the caregivers (98.9%) in this study were Buddhist which is the National religion of Thailand. Buddhist believes that the meaning of diseases was defined as all kinds of human sufferings (i.e., physical or psychological diseases). One’s health status is a collective product of kamma for each individual. Every situation including good health, poor health, or death is recognized as valuable opportunities to develop our mind for the ultimate destination which is nibbāna, a state of perfect health or free from all suffering (Paonil & Sringernyuang, 2002). The methods to cure or reduce sufferings are not only medicines and other physical treatments, but also Dhamma and mind practice (i.e., practicing meditation, practicing the Noble Eightfold Path). Buddhism helped the patients with cancer and their family to understand the reality of life under the law of karma. This understanding helped them to remain calm when they faced difficulties (Lundberg & Trichorb (2001).

According to Buddhist view, the caregivers may understand their life events including caregiving their loved one with cancer. They may practice hard and do everything to develop them to live with wisdom in order to maintain body and mind of them and their loved ones. Another Buddhist principle that helped Thai elders maintain a sense of peace was the avoidance of holding on to negative thoughts (Ingersoll-Dayton, Saengtienchai, Kespichayawattana, & Aungsuroch, 2001). Furthermore, the QOL in this study was focused on the caregivers’ perception about the satisfaction and importance of four areas in their life including health/function, socioeconomic, psycho/spiritual, and family. Therefore, the high level of QOL may reflect the fact that most caregivers were very satisfied with each area in their life events and they also highly rated the importance of each area in their life style.

In regard to the demographic data, most of caregivers were early and middle adult (52.4%) and had fair to very good health status (88%) and no health problems (61.1%). They were able to adapt and had the ability to take care of the patients. They still had a high level of their QOL. Conversely, several studies showed that the caregivers perceived a low or moderate level of QOL (Gaston-Johansson et al., 2004; Iconomou et al., 2001; Lee, 2000). Grov et al. (2005) found that physical QOL of the caregivers were significantly higher than norm, while mental QOL of them were significantly lower than norm. A study of Frost et al. (2012) also revealed that spiritual well-being among spouses of women with ovarian cancer was diminished over time, and their QOL were most problematic at the 3-year measurement.

Moreover, Chantrasarn (2010) studied the quality of life of Thai people by using the Human Development Index (HDI) to measure human quality of life in three dimensions including health, education and standard of living. The finding revealed that Thai people had moderate quality of life. This is because each study used different an instrument to measure the QOL. The differences culture may affect the perception of the caregivers' QOL. In this study, the caregivers were younger than those in the Western studies which found that older caregivers often have lower physical QOL because they often get health problems of their own. Moreover, the duration of caregiving may have effect on the perception of QOL. Most of caregivers in this study cared for the patients less than two years but those in previous studies cared for the patients more than two years. So, these are the reason why the level of caregivers' QOL in this study was different to those in previous studies.

5.2 The Factors Influencing Caregiver's QOL

This section discussed the factors influencing caregiver's QOL regarding their position in the model presented in chapter four. The causal effects of all variables were evaluated according to the criteria for the interpretation of correlations in the social science by Cohen (1988). These criteria were the interpretation of the absolute magnitudes of correlation or path coefficients. The standardized path coefficients with absolute values equal to 0.20 indicated a small effect, while values around 0.30 - 0.50 indicated a medium effect and the values > 0.50 indicated a large effect.

In this study, the effects of the study variables in the model were considered as small to medium effects: positive direct effects of social support (0.20) and family hardiness (0.37) on caregiver's QOL, a positive direct effect of caregiver's age on caregiver's QOL (0.27), a negative direct effect of caregiver burden on caregiver's QOL (-0.27), an indirect effect of caregiver burden on caregiver's QOL through social support (-0.19), and family hardiness (-0.32). This part of discussion was presented as follows:

5.2.1 The findings that supported the hypotheses

Findings of the final model revealed that caregiver's age, social support, and family hardiness had significant positive direct effects on caregiver's QOL. Moreover, caregiver burden had a significant negative direct effect on caregiver's QOL. Those mean that the older caregivers who reported lower burden, greater social support and family hardiness perceived higher QOL. This finding was congruent with the study of Awadalla et al. (2007), Song et al. (2010), and Wong et al. (2012) in that the caregivers who were older had significantly higher physical QOL scores than those who were younger. Conversely, several studies revealed that older caregivers reported lower QOL (Alptekin et al., 2009; Kershaw et al., 2008; Kim, Carver, et al., 2010; Rivera-Navarro et al., 2009). However, caregivers' age was one of the significant predictors of caregivers' QOL (Kim and Spillers, 2009; Kim, Spillers & Hall, 2010). This can be explained that the older people will have the more experience for their survival. The older caregivers may have more experience to be able to adapt for using solving their problems (Pechphichatecheern, 2011). Kim, Spillers, & Hall (2010) also stated that older caregivers reported better psychosocial adjustment than younger caregivers. The caregivers may understand the change of their life more than those who were younger. They may think that caring for cancer patients was the responsibility which they can manage it. So, the older caregiver still reported a high level of QOL.

Moreover, this result was consistent with several previous studies (Bergelt et al., 2008; Han et al., 2006; Mellon and Northouse, 2001; Northouse et al., 2002; Pitimana-aree, 2007; Tang, 2009; Ungwattansirikul, 2007; Wagner et al., 2006) which revealed that social support and family hardiness had significant positive direct effects on caregiver's QOL. Conversely, Kershaw et al. (2008) found that baseline social support did not predict QOL 8 months later among spouses of patients with prostate cancer because they may have different support needs at different phases of survivorship. In the stress process model, Pearlin (1999) stated that social support and family hardiness were moderating resources which played important roles in protecting persons from the consequences of their stressful situations. If the individuals reported greater social support and family hardiness, they will perceive higher positive or lower negative outcomes of their stressful experiences. The caregivers in this study perceived moderate social support and high family hardiness, so, they reported high QOL. As reported, social support and family hardiness were significant factors influencing caregiver's QOL in Thai context. Thus, social support and family hardiness will need to be promoted in order to maintain a high level of QOL among family caregivers of patients with advanced cancer because if they are able to obtain more support and have more family hardiness they are likely to experience a higher QOL.

Another finding in this study also revealed that caregiver burden had a significant negative direct effect on caregiver's QOL, and had a significant indirect effect on caregiver's QOL through social support, and family hardiness. This means, the caregivers who perceived lower burden, they perceived higher social support and higher family hardiness, and then they reported higher QOL. This finding was consistent with the results of a study of Song et al. (2011) in that caregiver burden had a negative influence on the health-related QOL and mental health among the family caregivers of patients with terminal cancer in Korea. Several previous studies revealed that caregivers who perceived high level of caregiver burden had poorer QOL than those who perceived low level of caregiver burden (Gaston-Johansson et al., 2004; Wagner, Bigatti, & Storniolo, 2006; Winslow, 1997). Chen et al. (2009), Sharpe et al. (2005), and Yusuf et al. (2010) also found that the caregivers who perceived higher caregiver burden reported absence of financial support or lower available support. Pearce et al. (2006) also found that caregivers who reported greater caregiving burden had greater use of coping. Additionally, Chronister, Chan, Sasson-Gelman, and Chiu, (2010) studied the association of stress-coping variables to quality of life among caregivers of individuals with traumatic brain injury, and found that social support mediated the relationship between perceived burden and QOL.

Additionally, social support had a positive direct effect on coping. This means that the caregivers who perceived higher social support, they used greater coping strategy. This finding confirmed the theoretical framework that social support was an antecedent of coping. This finding was congruent with previous studies that revealed that social support influenced on coping (Bigatti et al., 2010; Greenglass, Fiksenbaum & Eaton, 2006; Lian & Geok, 2006). McColl, Lei, and Skinner (1995) also found that the perceived availability of social support was seen to have direct effects on future coping. Moreover, Rafiyah, Suttharangsee, and Sangchan, (2011) studied the relationship between coping and social support of family caregivers caring for persons with schizophrenia. They found that there were significant positive correlation between social support and confrontive coping ($r = .68$, $p < .01$). Contrary to three previous studies among Thai caregivers of cancer patients (Chansirimongkol, 2007; Pitimana-aree, 2007; Ungwattansirikul, 2007), social support was not correlated with coping.

5.2.1 The findings that did not support the hypotheses

This study found that caregiver's education, caregiver's income, and coping did not have significant direct effects on caregiver's QOL. For caregiver's education, this finding was consistent with a study of Luria (2000) found that education level was not statistically significant predictors of caregiver's QOL.

Possible reasons that why caregiver's education did not have an effect on caregiver's QOL might be related to a number of educational year among Thai people. In this study, the researcher found that the average number of years of caregiver's education was 8.33 years which was lower than those in western context. From the literature, the Western caregivers finished high school and higher (Aslan et al., 2009; Chen et al., 2009; Kim et al., 2010; McLean et al., 2010; Park et al., 2010). Moreover, caregiving for cancer patients requires intellectual and cognitive intricacy (Hudson, 2004). Therefore, if the caregivers are too low level of education, it may not detect the effects on QOL. This finding was not congruent with several previous studies in that caregivers who had higher education had higher QOL scores (Awadalla et al., 2007; Tang, 2009). Moreover, Northouse et al. (2002) found that family members who had higher education reported lower mental QOL. The results of a study by Wong et al. (2012) also indicated that the caregiver's education had significant impacts on their QOL. Therefore, the effects of caregiver's education on caregiver's QOL were still questionable and have to be tested in the future. The reasons why caregiver's education did not have an indirect effect on caregiver's QOL through coping may be from the effects of coping on caregiver's QOL. Although, the caregiver's education was correlated with coping, coping did not have effect on caregiver's QOL in this study.

For caregiver's income, the reasons for explaining the finding in that caregiver's income did not have significant direct effects on caregiver's QOL may be related to the welfare state in the health patients. Most patients (65.2%) in this study used universal coverage card to pay any expenses when they went to receive treatments at hospitals. The caregivers were not responsible for the cost of patients' treatment except private expense (i.e., food, travel) which was not much for them. Moreover, it might be from the measurement error and the missing data for caregiver's income in the process of data collection. Most caregivers were not sure about their monthly income because they did not record their actual monthly income. They had to report by estimating their monthly income and 14.2% of the caregivers did not report their monthly income. So, the inaccurate caregiver's income might affect the results in that caregiver's income did not have both a direct effect and an indirect effect on caregiver's QOL in this study. This result was not consistent with the study of Kim & Spillers (2009), Luria (2000), and Song et al. (2010) in that the caregivers who had higher income had a significant positive relationship with QOL. Moreover, several studies revealed that income was one of the best predictors of QOL among family caregivers of patients with cancer and non-cancer (Dunn, Bonner, Lewis, & Meize-Grochowski, 1994; Li, Lambert, & Lambert, 2007). Song et al. (2010) stated that more income allows family caregivers to afford materials and human resources to better manage cancer and caregiving and thus gives the caregivers a sense of security that reduces stress and improves their QOL.

For coping, the finding was not congruent with a study of Fitzell & Pakenham (2009), Kershaw et al. (2004), Myaskovsky et al. (2005), Ungwattansirikul (2007), and Wagner et al. (2006) who found that coping had an direct effect on caregiver's QOL. Pearlin (1999) stated that coping was one of the moderating resources which affected caregiver's QOL which was a positive outcome of caregiving situations in the stress process model. However, Chansirimongkol (2007) and Pitimana-aree (2007) found that coping did not have a direct effect on caregiver's QOL in Thai context. Possible reasons that why coping did not have an effect on caregiver's QOL might be from the characteristics of coping strategies. The Jalowiec Coping Scale (JCS) used in this study was comprised of three subscales which were both positive and negative coping strategies. From the literature, the research found that using different coping styles affects the caregiver's QOL in different way. For example, Morris (2007) found that negative coping skills were negatively correlated with caregiver's QOL, but positive coping skills were not associated with caregiver's QOL. In this study, most caregivers perceived confrontive coping strategy which was positive coping skill, so probably that is the reason that coping was not related to QOL among the caregivers. Puymbroeck & Rittman (2005) also stated that coping was a personality trait and was not differentially influenced by a dynamic concept or a static concept. This finding may support this theory because quality of life was a dynamic construct. Additionally, the researcher found that the caregivers who are different in age used significantly different coping strategies in this study. This may be a reason that why coping did not effect on caregiver's QOL.

Additionally, it may be from the problem of measurement error and data normality. The researcher tested the construct validity of the JCS by conducting a confirmatory factor analysis. The researcher found that the standardized factor loadings and the construct reliability for 2 indicators including confrontive and emotive coping were lower than .70. This means that there may be a measurement error in this study. The researcher may not be able to conclude that the JCS can actually reflect the concept of “coping” in Thai context. Moreover, the scores of coping were non-normal distribution because the subjects were homogeneous which can affect the validity of the measurement. Lei & Lomax (2005) stated that if the assumptions of multivariate analysis were violated, the parameter estimates will be inaccurate and it will lead to unreasonable interpretation of the results. So, the measurement error and the non-normality in coping may effect to the finding in that coping did not have a direct effect on caregiver’s QOL.

Moreover, the finding revealed that caregiver’s age and caregiver’s income did not have significant indirect effects on caregiver’s QOL through coping and social support, and caregiver’s education did not have significant indirect effects on caregiver’s QOL through coping. A possible reason to explain this finding is that coping did not have a direct effect on caregiver’s QOL. For the indirect effect of caregiver’s income on caregiver’s QOL, it can be explained that this finding may support the theory that coping is a personality trait and is not differentially influenced by a static concept like caregiver’s income or a dynamic concept like caregiver’s QOL (Puymbroeck & Rittman, 2005). In this study, caregiver’s income did not have direct effect on coping, and coping did not have direct effect on caregiver’s QOL. So, the finding revealed that caregiver’s income did not have a significant indirect effect on caregiver’s QOL through coping and social support. It just needs to be more examined in a future study.

5.3 Strengths and Limitations of this Study

This study has both strengths and limitations which are presented in this section.

A strength of this study was the use of path analysis to test a causal model of factors influencing quality of life among family caregivers of patients with advanced cancer. Although, this study is a correlational, cross-sectional design which limits the ability to draw causal explanations for the findings, it can explain the causal relationship of the study variables in the model. Because of a theoretical model that was used to guide this research, the stress process model developed by Pearlin et al. (1990) which provided structure to test predictors of caregiver' outcomes that occur from one phase of the illness trajectory to another (Blum & Sherman, 2010). A rigorous test of the stress process model by using path analysis was a necessary process to move forward our understanding of the dynamic interaction between caregiver's contexts, stressors, the moderating resources, and caregiver outcomes in Thai context. Therefore, this study developed based on the stress process model was acceptable in testing a causal hypothesis which had been deduced from and established theory by using correlational research design (Polit & Beck, 2008). If a prospective or longitudinal study was conducted, the study would be stronger because it provides more validity for interpreting the causal relationship.

The sample was selected by using convenience sampling from the two tertiary hospitals, thus limiting the generalizability of the findings to more diverse population. These research findings cannot be generalized to the caregivers of cancer patients in other settings. Therefore, a study with a more diverse sample of family caregivers of patients with advanced cancer should be conducted to enable us to broaden the generalizability of the findings. Moreover, the moderate response rate, where 27.2% of the subjects who preferred self- report refused to participate in this study, reflects that this group was the caregivers who reported a low level of QOL. So, it is challenge to conduct research in this group of family caregiver.

Some of the non-significant results could be a result of a risk of selection bias and the measurement errors of caregiver's income. In the future study, the researcher should find strategies for reporting caregiver's income accurately. During the process of data collection, the researcher found that there may be differences in symptom burden and self-care ability of the patients. Although the majority of the patients had stage IV cancer, some of the patients seem to have more disease burden than others. So, the care tasks of the caregivers may be differences. A further study should screen self-care ability of cancer patients and the care tasks of the caregivers which may affect the perceptions of caregivers on caregiver burden, coping, social support, and QOL.

In this study, the research used both in person interviews and mailed self-report questionnaires to collect the data because this population is usually a very difficult sample to obtain. It may have an effect on internal validity of this study. A future study should be more concern the confounding effects of the different method to collect the data. Although, the Cronbach's alpha coefficients of all instruments in this study were acceptable to very good, the construct reliability of some indicators of them were less than .70 in Thai context. Specially, three indicators of the Family Hardiness Index were ranged from low (.09) to medium (.45). Therefore, a further study should retest the construct reliability of the Family Hardiness Index. Moreover, in this study the total score of the caregiver burden was obtained by adding the scored for 18 items which were different from other studies. It was difficult to compare the findings of other studies. A qualitative research design should be conducted to develop the measurement of caregiver burden in order to be better fit in Thai context.

5.4 Summary

This chapter presented discussion regarding findings, characteristics of the sample, characteristics of the study variables, the causal model of QOL and strengths and limitations of the study. The findings partially supported the theoretical framework which emphasized social support, coping, and family hardiness as the moderating factors between antecedent and outcome factors in the model. The overall model explained 45% of the variance in caregiver's QOL, 10% of the variance in family hardiness, 34% of the variance in coping, and 6% of the variance in social support.

CHAPTER VI

CONCLUSION

This chapter summarizes the research study and describes the implications, contribution of research findings and the recommendations for future study.

6.1 Summary of the Research Study

The purpose of this cross-sectional descriptive design is to examine the factors predicting quality of life among family caregivers of patients with advanced cancer. The proposed model is derived from the stress process model developed by Pearlin et al. (1990) and literature review. Five hypotheses were explored; (1) social support, coping, and family hardiness would be have direct effects on caregiver's QOL; (2) Caregiver's age would be have a direct effect on caregiver's QOL and have an indirect effect on caregiver's QOL through coping, and social support; (3) Caregiver's education would be have a direct effect on caregiver's QOL and have an indirect effect on caregiver's QOL through coping; (4) Caregiver's income would be have a direct effect on caregiver's QOL and have an indirect effect on caregiver's QOL through coping and social support; and (5) Caregiver burden would be have a direct effect on caregiver's QOL and have an indirect effect on caregiver's QOL through social support, coping, and family hardiness.

Three hundred and ninety-three potential subjects were approached from two settings during October 2011 to May 2012. One hundred and seventeen potential subjects consented but did not return the questionnaires because of several reasons. So, 275 subjects remained in this study. Six instruments included demographic questionnaire, the Zarit Burden Interview, the Family Hardiness Index, the Jalowiec Coping Scale, Social Support Questionnaire, and the Quality of Life Index – Cancer version III were used to collect the data. The reliability of the instruments was minimally acceptable to too long scale with the value of Cronbach's alpha coefficients ranged from .89, .75, .89, .92, and .97 respectively for this study.

Characteristics of the sample and the study variables were analyzed through descriptive statistics executed by the SPSS 18.0, Mahidol University license. Pearson's correlation coefficient was used to explore the relationships among study variables. Lastly, path analysis executed with the LISREL program version 8.80 (student edition) which was provided by Scientific Software International (SSI), was used to test the hypotheses.

The findings revealed that the subjects were 213 females (77.5%) and 62 males (22.5%) with ages ranging from 19-74 (mean=47.14, *SD*=13.02). Most of them (54.5%) were spouses. The majority of them (80.7%) cared for the patients less than two years. Over 50% of the subjects finished primary school. Their monthly income ranged from 0-200,000 baht (mean = 11,657.72, *SD*=17,809.34). Most of them (60%) had income ≤ 17,861 baht/month which was less than average monthly income of Thai people, while 8.4% were poor people who had income less than 1,678 baht/month. Moreover, the results showed that the caregivers perceived a high level of family hardiness and QOL.

For testing the hypothesized model, first the model was fit with the empirical data. Then, the researcher modified it following the modification indices and supporting literature in order to be better fit to the data, by adding the path between social support and coping. The modified model fit the data ($\chi^2 = 4.83$, $df = 13$, $\chi^2/df = 0.37$, $p = 0.98$, RMSEA = 0.00, SRMR = .06, GFI = .97, AGFI = .91, CFI=1.00, RNI=.98) and explained 45% of the variance in caregiver's QOL, 10% of the variance in family hardiness, 34% of the variance in coping, and 6% of the variance in social support.

The results indicated that caregiver's age had a significant direct positive effect on caregiver's QOL. Social support and family hardiness had significant direct positive effects on caregiver's QOL. Caregiver burden was moderated by family hardiness, and social support to increase more caregiver's QOL. Moreover, the finding also revealed that social support had a significant positive direct effect on coping.

6.2 Implications and Contribution of Research Findings

The findings of this study are useful to guide future nursing research, nursing practice, and contribute to health care system as presented in the following.

6.2.1 Implications for Future Nursing Research

Although these findings confirmed that the stress process model could be used to explain and predict the phenomena of QOL among family caregivers of patients with advanced cancer in Thai context, a repeat testing of this causal model in other samples of cancer family caregivers should be conducted in future study to strengthen the model and expand the degree of generalizability. Furthermore, it will strengthen the model if it is repeated with a longitudinal study or even examined while conducting the intervention study in a future study. This study is a cross-sectional design which may limit interpretation of causality, future studies which duplicate testing using this model with a longitudinal design are needed to strengthen evidence of causality.

For the program development, the findings suggested that the future intervention for Thai family caregivers of patients with advanced cancer should be focused on maintenance or promoting of QOL, social support, and family hardiness in the acute phase of survival (less than two years) because most of caregivers in this study cared for the patients less than two years. If the researcher will develop the program for the Thai family caregivers, the researcher needs to concern the period of time which may have effect on QOL, social support, and family hardiness.

In this study, the levels of caregiver burden, family hardiness, coping, social support, and QOL were perceived by most of caregivers who cared for the patients less than two years which was a short time period. In a long time, we do not know that this group will report the same level of those variables or not. A prospective or longitudinal study should be conducted to monitor the perception of those variables in this group of caregivers.

Accordingly to the findings that the caregivers perceived a high level of QOL which was not consistent with the results from Western context that caregivers of advanced cancer patients reported low to moderate QOL. Hence, it is very interesting to study what are the factors that influence QOL among Thai family caregivers of patients with advanced cancer by using qualitative design in a future study. Additionally, the meaning of QOL among Thai family caregivers of patients with advanced cancer should be explored in the future.

The Family Hardiness Index (FHI) which was used to measure the variable of family hardiness was modified by Niyomthai, Putwatana, and Panpakee (2003) in order to fit within Thai context. In this study, its reliability was minimally acceptable that the Cronbach's alpha coefficient was .75 in the pilot study and .68 in the current study. To addition, the testing of its construct validity by using the CFA revealed that the standardized factor loadings of all indicators and the value of construct reliability were lower than .70. This may be from the process of the FHI's translation. The significant issues may be lost because of the different contexts. Therefore, this measurement is needed to modify or develop in Thai context.

6.2.2 Implications for Nursing Practice

The results showed that most caregivers in this study perceived their QOL at a high level that was not congruent with the QOL among family caregivers in other contexts including Western culture. Nurses or other health care providers who take care of the advanced cancer patients and their caregivers should monitor caregiver's QOL to maintain or promote a high level of QOL in the caregivers continuously especially in the acute phase of survival.

Although, most of the caregivers perceived a moderate level of social support and a high level of family hardiness, the findings revealed that social support and family hardiness had significant positive direct effects on caregiver's QOL. So, nurses or other health personnel should facilitate to find more social support for the caregivers who reported low social support or develop interventions that enhance higher level of social support and family hardiness in order to maintain a high level of QOL among the caregivers.

The findings also revealed that the caregivers who were older perceived higher QOL than those who were younger. Therefore, the caregivers who are young adult may risk reporting low QOL and are needed to promote a higher level of QOL. The health care providers should conduct a self-help group for cancer caregivers to promote exchange their experience between younger and older caregivers. The experience of the older caregivers may help the younger caregivers to face with their role effectively. Then, the younger caregivers may report higher QOL.

In this study, the caregiver burden had a significant negative direct effect on caregiver's QOL and had a significant indirect effect on caregiver's QOL through social support and family hardiness. Hence, nurses or other health care providers should pay attention to the caregivers who perceived a high level of caregiver burden because this group will report low QOL.

The findings revealed that there were 17% of the caregivers who did not perceive support from health care providers. Therefore, the health care providers in the community have to more focus on the caregiver's needs and improve the patient-health care provider's communication to promote support from health care team continuously.

6.2.3 Implications for Health Policy

This research finding can serve as a basis for development of a program to promote or maintain QOL among family caregivers of advanced cancer patients. The program of promoting caregiver's QOL should be tailored to the contexts of this population in order to increase and/or maintain their QOL. If the caregivers are a high level of QOL, they will not be risk to be a patient and still be a good carer for the cancer patients. In Thailand, cancer, a chronic condition, is still the first leading cause of death continuously (Bureau of Policy and Strategy, Thailand, 2012). If the health of family caregivers of cancer patients is not concerned from health care providers, the caregivers may risk being patients from taking care of cancer patients at their home. This situation may cause to increase burden of care for the government. So, the findings of this study will be the basis data to encourage the health care team to more focus on this population. For example, a cancer clinic should have the assessment of QOL, social support, family hardiness, or caregiver burden among caregivers in any period of caregiving. It should be established a caregiver center or a friendship therapy center in all hospitals to have evidence for health care providers who have to focus more on the caregivers of cancer patients.

6.3 Conclusion

This study tested the model of QOL in family caregivers of patients with advanced cancer underpinning the stress process model and the literature. The findings of this study provide information regarding factors predicting QOL among family caregivers of patients with advanced cancer. The knowledge gained from this study can be used to develop an effective intervention for advanced cancer caregivers that should focus on enhancing QOL, social support, and family hardiness or decreasing caregiver burden. This finding can also be the basis in nursing research and practice as well as used as a source for health care policy development.

REFERENCES

Adulyanonte, W. (2012). Woman's role in the health management of them and their Family. Retrieved August 9, 2012, from http://www.thaihealth.or.th /healthcontent/news_thaihealth

Alptekin, S., Gonullu, G., Yucel, I., & Yarıs, F. (2009). Characteristics and quality of life analysis of caregivers of cancer patients. *Medical Oncology*. doi:10.1007/s12032-009-9256-2

American Cancer Society. (2010a). Advanced cancer. Retrieved November 20, 2010, from http://www.cancer.org/acs/groups/cid/documents/webcontent/003082 -pdf.pdf

American Cancer Society. (2010b). Cancer facts & figures 2009. Atlanta: American Cancer Society. Retrieved September 2, 2011, from http://www.cancer .org/acs/groups/ content/@nho/documents/document/acspc-024113.pdf

American Cancer Society. (2011). Cancer facts & figures 2011. Atlanta: American Cancer Society. Retrieved June 28, 2011, from http://www.cancer.org/acs/ groups/content/@epidemiologysurveilance/documents/ document/acspc-029771.pdf

American Cancer Society. (2012). Cancer facts & figures 2012. Atlanta: American Cancer Society. Retrieved November 28, 2012, from http://www.cancer. org/acs/groups/content/@epidemiologysurveilance/documents/document/acspc-031941.pdf

Anderson, W. G., Alexander, S. C., Rodriguez, K. L., Jeffreys, A. S., Olsen, M. K., Pollak, K. I., et al. (2008). “What concerns me is…” Expression of emotion by advanced cancer patients during outpatient visits. *Support Care Cancer, 16*(7), 803-811.

Aranda, S. K., & Hayman-White, K. (2001). Home caregivers of the person with advanced cancer: An Ausstrarian perspective. *Cancer Nursing, 24*(4), 300-307.

APPENDICES

APPENDIX A
DOCUMENTARY PROOF OF ETHICAL CLEARANCE

บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล

ขอมอบประกาศนียบัตรนี้ เพื่อแสดงว่า

วารุณี มีเจริญ

ได้เข้าอบรมเรื่อง จริยธรรมการวิจัยในคน

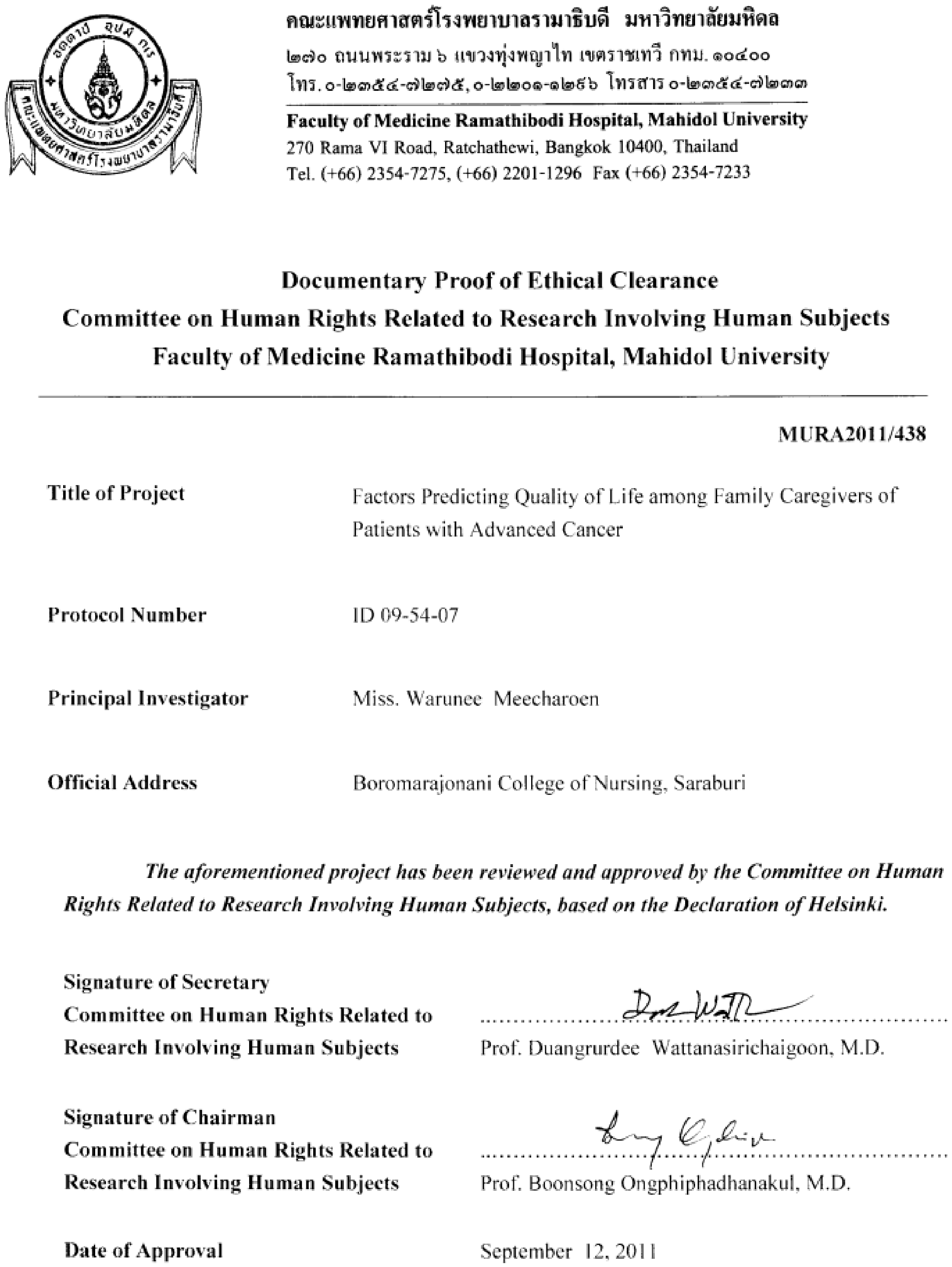
วันศุกร์ที่ ๒๗ พฤศจิกายน พ.ศ. ๒๕๕๒

ณ อาคารภาษาและวัฒนธรรมสยามบรมราชกุมารี มหาวิทยาลัยมหิดล ศาลายา

ขอให้นำความรู้และประสบการณ์ที่ได้รับไปใช้เป็นหลักในการปฏิบัติเพื่อให้เกิดประโยชน์สูงสุด

รองศาสตราจารย์ ทพญ. ธารยา พงษ์ธาญยุทธ
รองคณบดีบัณฑิตวิทยาลัยฝ่ายวิจัย

ศาสตราจารย์ นพ. บรรจง มไหสวริยะ
คณบดีบัณฑิตวิทยาลัย



คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล
๒๗๐ ถนนพระราม ๖ แขวงทุ่งพญาไท เขตราชเทวี กทม. ๑๐๔๐๐
โทร. ๐-๒๓๕๔-๗๒๗๕, ๐-๒๒๐๑-๑๒๙๖ โทรสาร ๐-๒๓๕๔-๗๒๓๓

Faculty of Medicine Ramathibodi Hospital, Mahidol University
270 Rama VI Road, Ratchathewi, Bangkok 10400, Thailand
Tel. (+66) 2354-7275, (+66) 2201-1296 Fax (+66) 2354-7233

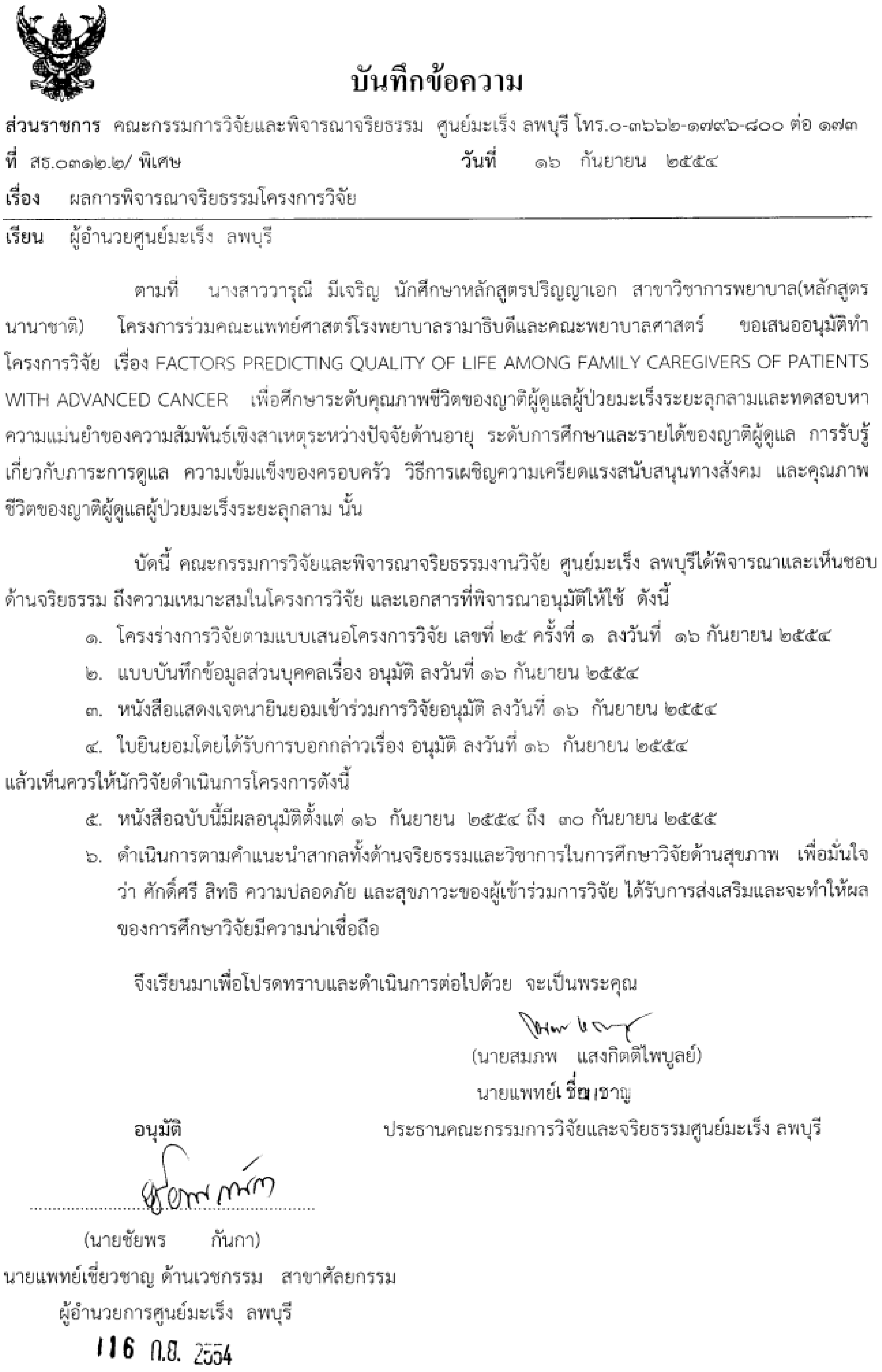
Documentary Proof of Ethical Clearance
Committee on Human Rights Related to Research Involving Human Subjects
Faculty of Medicine Ramathibodi Hospital, Mahidol University

MURA2011/438

Title of Project	Factors Predicting Quality of Life among Family Caregivers of Patients with Advanced Cancer
Protocol Number	ID 09-54-07
Principal Investigator	Miss. Warunee Meecharoen
Official Address	Boromarajonani College of Nursing, Saraburi

The aforementioned project has been reviewed and approved by the Committee on Human Rights Related to Research Involving Human Subjects, based on the Declaration of Helsinki.

Signature of Secretary **Committee on Human Rights Related to** **Research Involving Human Subjects**	…………………………………………… Prof. Duangrurdee Wattanasirichaigoon, M.D.
Signature of Chairman **Committee on Human Rights Related to** **Research Involving Human Subjects**	…………………………………………… Prof. Boonsong Ongphiphadhanakul, M.D.
Date of Approval	September 12, 2011



บันทึกข้อความ

ส่วนราชการ คณะกรรมการวิจัยและพิจารณาจริยธรรม ศูนย์มะเร็ง ลพบุรี โทร.๐-๓๖๖๒-๑๗๙๖-๘๐๐ ต่อ ๑๗๓

ที่ สธ.๐๓๑๒.๒/ พิเศษ **วันที่** ๑๖ กันยายน ๒๕๕๔

เรื่อง ผลการพิจารณาจริยธรรมโครงการวิจัย

เรียน ผู้อำนวยศูนย์มะเร็ง ลพบุรี

ตามที่ นางสาววารุณี มีเจริญ นักศึกษาหลักสูตรปริญญาเอก สาขาวิชาการพยาบาล(หลักสูตรนานาชาติ) โครงการร่วมคณะแพทย์ศาสตร์โรงพยาบาลรามาธิบดีและคณะพยาบาลศาสตร์ ขอเสนออนุมัติทำโครงการวิจัย เรื่อง FACTORS PREDICTING QUALITY OF LIFE AMONG FAMILY CAREGIVERS OF PATIENTS WITH ADVANCED CANCER เพื่อศึกษาระดับคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลามและทดสอบหาความแม่นยำของความสัมพันธ์เชิงสาเหตุระหว่างปัจจัยด้านอายุ ระดับการศึกษาและรายได้ของญาติผู้ดูแล การรับรู้เกี่ยวกับภาระการดูแล ความเข้มแข็งของครอบครัว วิธีการเผชิญความเครียดแรงสนับสนุนทางสังคม และคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลาม นั้น

บัดนี้ คณะกรรมการวิจัยและพิจารณาจริยธรรมงานวิจัย ศูนย์มะเร็ง ลพบุรีได้พิจารณาและเห็นชอบด้านจริยธรรม ถึงความเหมาะสมในโครงการวิจัย และเอกสารที่พิจารณาอนุมัติให้ใช้ ดังนี้

๑. โครงร่างการวิจัยตามแบบเสนอโครงการวิจัย เลขที่ ๒๕ ครั้งที่ ๑ ลงวันที่ ๑๖ กันยายน ๒๕๕๔
๒. แบบบันทึกข้อมูลส่วนบุคคลเรื่อง อนุมัติ ลงวันที่ ๑๖ กันยายน ๒๕๕๔
๓. หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัยอนุมัติ ลงวันที่ ๑๖ กันยายน ๒๕๕๔
๔. ใบยินยอมโดยได้รับการบอกกล่าวเรื่อง อนุมัติ ลงวันที่ ๑๖ กันยายน ๒๕๕๔

แล้วเห็นควรให้นักวิจัยดำเนินการโครงการดังนี้

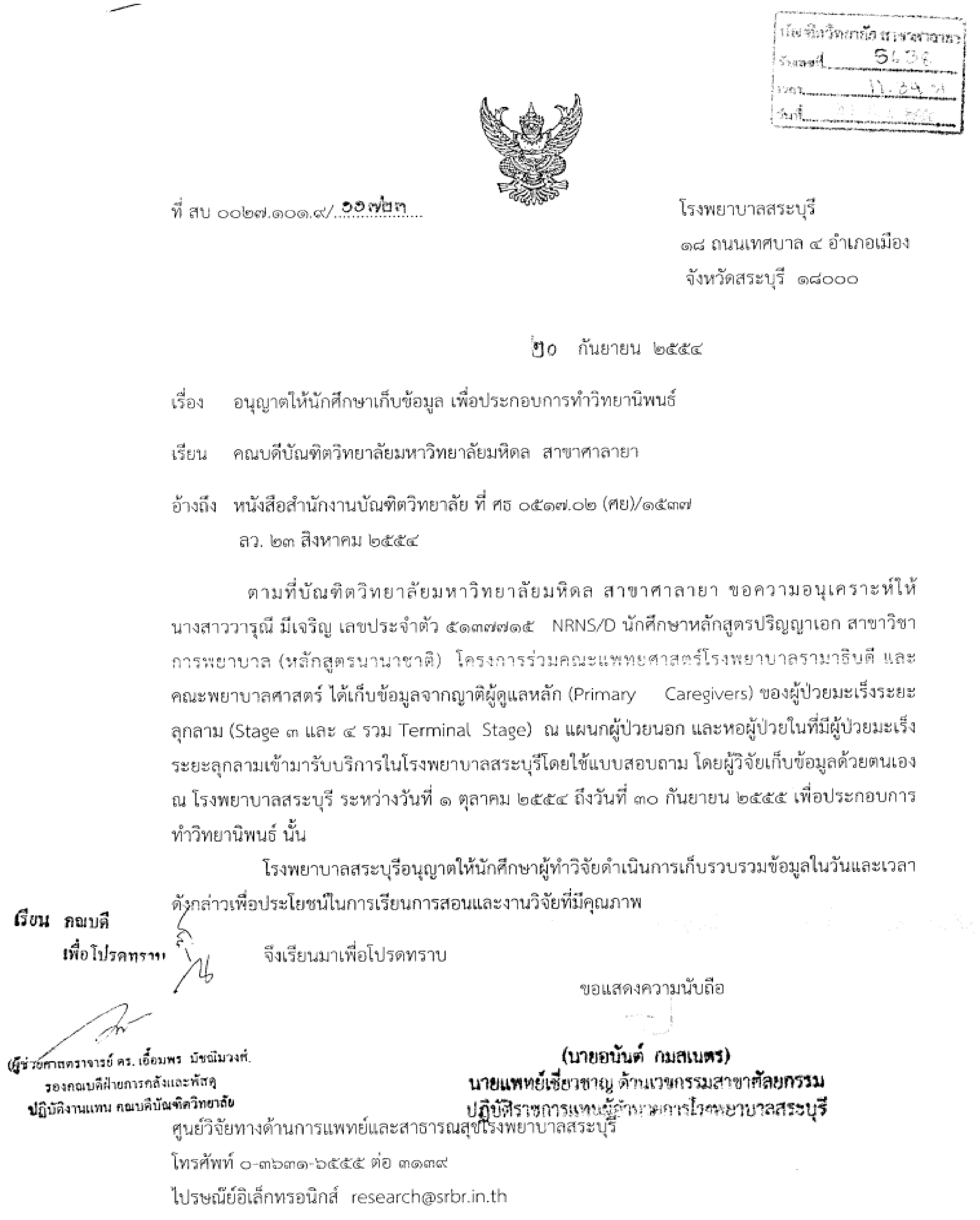
๕. หนังสือฉบับนี้มีผลอนุมัติตั้งแต่ ๑๖ กันยายน ๒๕๕๔ ถึง ๓๐ กันยายน ๒๕๕๕
๖. ดำเนินการตามคำแนะนำสากลทั้งด้านจริยธรรมและวิชาการในการศึกษาวิจัยด้านสุขภาพ เพื่อมั่นใจว่า ศักดิ์ศรี สิทธิ ความปลอดภัย และสุขภาวะของผู้เข้าร่วมการวิจัย ได้รับการส่งเสริมและจะทำให้ผลของการศึกษาวิจัยมีความน่าเชื่อถือ

จึงเรียนมาเพื่อโปรดทราบและดำเนินการต่อไปด้วย จะเป็นพระคุณ

(นายสมภพ แสงกิตติไพบูลย์)
นายแพทย์เชี่ยวชาญ
ประธานคณะกรรมการวิจัยและจริยธรรมศูนย์มะเร็ง ลพบุรี

อนุมัติ

....
(นายชัยพร กันกา)
นายแพทย์เชี่ยวชาญ ด้านเวชกรรม สาขาศัลยกรรม
ผู้อำนวยการศูนย์มะเร็ง ลพบุรี
16 ก.ย. 2554



ที่ สบ ๐๐๒๗.๑๐๑.๙/๑๑๗๒๓

โรงพยาบาลสระบุรี
๑๘ ถนนเทศบาล ๔ อำเภอเมือง
จังหวัดสระบุรี ๑๘๐๐๐

๒๐ กันยายน ๒๕๕๔

เรื่อง อนุญาตให้นักศึกษาเก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์

เรียน คณบดีบัณฑิตวิทยาลัยมหาวิทยาลัยมหิดล สาขาศาลายา

อ้างถึง หนังสือสำนักงานบัณฑิตวิทยาลัย ที่ ศธ ๐๕๑๗.๐๒ (ศย)/๑๕๓๗
ลว. ๒๓ สิงหาคม ๒๕๕๔

ตามที่บัณฑิตวิทยาลัยมหาวิทยาลัยมหิดล สาขาศาลายา ขอความอนุเคราะห์ให้นางสาววารุณี มีเจริญ เลขประจำตัว ๕๑๓๗๗๑๕ NRNS/D นักศึกษาหลักสูตรปริญญาเอก สาขาวิชาการพยาบาล (หลักสูตรนานาชาติ) โครงการร่วมคณะแพทยศาสตร์โรงพยาบาลรามาธิบดี และคณะพยาบาลศาสตร์ ได้เก็บข้อมูลจากญาติผู้ดูแลหลัก (Primary Caregivers) ของผู้ป่วยมะเร็งระยะลุกลาม (Stage ๓ และ ๔ รวม Terminal Stage) ณ แผนกผู้ป่วยนอก และหอผู้ป่วยในที่มีผู้ป่วยมะเร็งระยะลุกลามเข้ามารับบริการในโรงพยาบาลสระบุรีโดยใช้แบบสอบถาม โดยผู้วิจัยเก็บข้อมูลด้วยตนเอง ณ โรงพยาบาลสระบุรี ระหว่างวันที่ ๑ ตุลาคม ๒๕๕๔ ถึงวันที่ ๓๐ กันยายน ๒๕๕๕ เพื่อประกอบการทำวิทยานิพนธ์ นั้น

โรงพยาบาลสระบุรีอนุญาตให้นักศึกษาผู้ทำวิจัยดำเนินการเก็บรวบรวมข้อมูลในวันและเวลาดังกล่าวเพื่อประโยชน์ในการเรียนการสอนและงานวิจัยที่มีคุณภาพ

เรียน คณบดี
เพื่อโปรดทราบ

จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ

(นายอนันต์ กมลเนตร)
นายแพทย์เชี่ยวชาญ ด้านเวชกรรมสาขาศัลยกรรม
ปฏิบัติราชการแทนผู้อำนวยการโรงพยาบาลสระบุรี

(ผู้ช่วยศาสตราจารย์ ดร. เอื้อมพร มัชฌิมวงศ์)
รองคณบดีฝ่ายการคลังและพัสดุ
ปฏิบัติงานแทน คณบดีบัณฑิตวิทยาลัย

ศูนย์วิจัยทางด้านการแพทย์และสาธารณสุขโรงพยาบาลสระบุรี
โทรศัพท์ ๐-๓๖๓๑-๖๕๕๕ ต่อ ๓๑๓๙
ไปรษณีย์อิเล็กทรอนิกส์ research@srbr.in.th

เอกสารประกอบ 4

เอกสารชี้แจงข้อมูล/คำแนะนำแก่ผู้เข้าร่วมการวิจัย

(Patient/Participant Information Sheet)

ชื่อโครงการ ปัจจัยทำนายคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลาม

ชื่อผู้วิจัย นางสาววารุณี มีเจริญ

สถานที่วิจัย แผนกตรวจผู้ป่วยนอกและหอผู้ป่วยใน ของโรงพยาบาลสระบุรี และศูนย์มะเร็งลพบุรี

บุคคลและวิธีการติดต่อเมื่อมีเหตุฉุกเฉินหรือความผิดปกติที่เกี่ยวข้องกับการวิจัย

- นางสาววารุณี มีเจริญ (ผู้วิจัย)

วิทยาลัยพยาบาลบรมราชชนนี สระบุรี
18/64 ถ. เทศบาล 4 ต. ปากเพรียว อ. เมือง จ.สระบุรี 18000
โทรศัพท์ 086-7089646

- รองศาสตราจารย์ ดร. ยุพาพิน ศิรโพธิ์งาม (อาจารย์ที่ปรึกษาวิทยานิพนธ์)

โรงเรียนพยาบาลรามาธิบดี คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี
มหาวิทยาลัยมหิดล 10400 โทรศัพท์ 02-2010697

ผู้สนับสนุนการวิจัย อยู่ระหว่างการดำเนินการขอทุนวิจัยจากสภาการพยาบาล

ความเป็นมาของโครงการ

โรคมะเร็งเป็นโรคที่ไม่ได้ส่งผลกระทบต่อเฉพาะตัวผู้ป่วยเท่านั้น แต่ยังมีผลกระทบต่อครอบครัวของผู้ป่วยหรือญาติผู้ดูแลอีกด้วย หรืออาจกล่าวได้ว่าโรคมะเร็งไม่ได้เป็นเพียงการวินิจฉัยโรคในผู้ป่วย แต่เป็นภาวะความเจ็บป่วยของครอบครัว จากการทบทวนวรรณกรรมพบว่าญาติผู้ดูแลจะต้องเผชิญกับปัญหาต่าง ๆ มากมายจากการดูแลผู้ป่วยมะเร็งระยะลุกลาม มีภาวะเครียดในระดับสูงและมีคุณภาพชีวิตที่แย่ลง นอกจากนี้ยังพบว่าญาติผู้ดูแลผู้ป่วยมะเร็งที่มีการรับรู้ว่ามีคุณภาพชีวิตไม่ดีจะส่งผลทำให้คุณภาพการดูแลและคุณภาพชีวิตของผู้ป่วยมะเร็งลดลงได้ ดังนั้นญาติผู้ดูแลจำเป็นต้องได้รับการดูแลจากทีมสุขภาพอย่างเป็นระบบชัดเจนเพื่อป้องกันการเกิดปัญหาสุขภาพของสมาชิกในครอบครัวผู้ป่วยมะเร็ง โดยเฉพาะญาติผู้ดูแลหลัก แต่ในระบบการดูแลผู้ป่วยมะเร็งในปัจจุบัน เจ้าหน้าที่ในทีมสุขภาพส่วนใหญ่มุ่งความใส่ใจไปที่ปัญหาและความต้องการของผู้ป่วยมะเร็งมากกว่าปัญหาหรือความต้องการของญาติผู้ดูแล รวมทั้งขาดการเตรียมพร้อมของญาติในการรับบทบาทการเป็นผู้ดูแลผู้ป่วยมะเร็งที่บ้าน จึงทำให้ญาติผู้ดูแลผู้ป่วยมะเร็งส่วนใหญ่เป็นประชากรกลุ่มเสี่ยงที่จะมีปัญหาสุขภาพหรืออาจเรียกว่าเป็น ผู้ป่วยแอบแฝง (hidden patients) นอกจากนี้ยังพบว่าคุณภาพชีวิตของญาติผู้ดูแลมีอิทธิพลต่อคุณภาพการดูแลและคุณภาพชีวิตของผู้ป่วยมะเร็ง ดังนั้นการศึกษาคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลามและปัจจัยที่เกี่ยวข้องจะช่วยให้เจ้าหน้าที่ในทีมสุขภาพมีความรู้และเข้าใจถึงคุณภาพชีวิตของญาติผู้ดูแลและปัจจัยต่าง ๆ ที่เกี่ยวข้อง ซึ่งจะนำไปสู่การพัฒนาแนวทางในการช่วยเหลือดูแลญาติผู้ดูแลผู้ป่วยมะเร็งที่มีประสิทธิภาพต่อไป

วัตถุประสงค์

วัตถุประสงค์ของงานวิจัยมีดังต่อไปนี้

1) เพื่อศึกษาระดับคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลาม
2) เพื่อทดสอบหาความแม่นยำของความสัมพันธ์เชิงสาเหตุระหว่างปัจจัยด้านอายุ ระดับการศึกษา และรายได้ของญาติผู้ดูแล การรับรู้เกี่ยวกับการภาระการดูแล ความเข้มแข็งของครอบครัว วิธีการเผชิญความเครียด แรงสนับสนุนทางสังคม และคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลาม

รายละเอียดที่จะปฏิบัติต่อผู้เข้าร่วมการวิจัย

ภายหลังจากที่ผู้วิจัยได้รับการอนุมัติจากคณะกรรมการจริยธรรมการวิจัยในคนของคณะแพทยศาสตร์โรงพยาบาลรามาธิบดี และได้รับอนุญาตให้เก็บข้อมูลกับญาติผู้ดูแลผู้ป่วยมะเร็งในโรงพยาบาลสระบุรี ศูนย์มะเร็งชลบุรี และศูนย์มะเร็งลพบุรีแล้ว ผู้วิจัยจะประสานงานกับเจ้าหน้าที่ที่เกี่ยวข้องเพื่อขอความร่วมมือในการเก็บข้อมูล โดยศึกษาข้อมูลพื้นฐาน และข้อมูลเกี่ยวกับการเจ็บป่วยจากเวชระเบียนผู้ป่วย หลังจากนั้นผู้วิจัยจะถามความสมัครใจในการเข้าร่วมโครงการของญาติผู้ดูแลผู้ป่วยที่มีคุณสมบัติตามที่ต้องการ และอธิบายวัตถุประสงค์และขั้นตอนการเก็บข้อมลแก่ญาติผู้ดูแลผู้ป่วยโดยสรุป ผู้วิจัยจะเปิดโอกาสให้ญาติผู้ดูแลผู้ป่วยซักถามในสิ่งที่ไม่เข้าใจ เมื่อญาติผู้ดูแลเข้าใจวัตถุประสงค์ของการศึกษาครั้งนี้ และสมัครใจที่จะเข้าร่วมในการศึกษา ผู้วิจัยจะให้ญาติผู้ดูแลผู้ป่วยลงชื่อในหนังสือยินยอมโดยได้รับการบอกกล่าวและเต็มใจ

ผู้วิจัยจะดำเนินการเก็บรวบรวมข้อมูลโดยการสัมภาษณ์หรือให้ญาติผู้ดูแลผู้ป่วยมะเร็งตอบแบบสอบถามด้วยตนเอง โดยใช้แบบสอบถาม จำนวน 6 ชุด ได้แก่ แบบสอบถามข้อมูลส่วนบุคคล แบบสัมภาษณ์เกี่ยวกับภาระการดูแล แบบสอบถามเกี่ยวกับความเข้มแข็งของครอบครัว แบบสอบถามเกี่ยวกับการเผชิญปัญหา แบบสอบถามเกี่ยวกับแรงสนับสนุนทางสังคม และแบบสอบถามเกี่ยวกับดัชนีคุณภาพชีวิตของญาติผู้ดูแล โดยจะใช้เวลาในการสัมภาษณ์เป็นเวลาประมาณ 40-50 นาที

ประโยชน์และผลข้างเคียงที่จะเกิดแก่ผู้เข้าร่วมการวิจัย

การศึกษาครั้งนี้อาจไม่เกิดประโยชน์แก่ญาติผู้ดูแลผู้ป่วยมะเร็งโดยตรงในขณะนี้ แต่ผลของการวิจัยจะส่งผลต่อการดูแลญาติผู้ดูแลผู้ป่วยมะเร็งต่อไป โดยผลของการวิจัยจะทำให้พยาบาลและเจ้าหน้าที่ในทีมสุขภาพเข้าใจถึงปัจจัยที่เกี่ยวข้องกับคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็ง และนำไปสู่การพัฒนาการดูแลญาติผู้ดูแลผู้ป่วยมะเร็งให้มีประสิทธิภาพต่อไป

การศึกษาในครั้งนี้เป็นการตอบแบบสอบถาม จึงไม่มีผลข้างเคียงที่กระทบต่อด้านร่างกายของญาติผู้ดูแลผู้ป่วยมะเร็ง แต่อาจมีบางคำถามที่อาจกระทบความรู้สึกของญาติผู้ดูแลได้ ดังนั้นญาติผู้ดูแลผู้ป่วยมะเร็งจึงมีสิทธิที่จะปฏิเสธการตอบแบบสอบถามหรือถอนตัวออกจากการศึกษาครั้งนี้ได้ทุกเวลาที่ผู้ป่วยต้องการ

การเก็บข้อมูลเป็นความลับ

ข้อมูลส่วนตัวของญาติผู้ดูแลและผู้ป่วยมะเร็งจะได้รับการเก็บรักษาไว้ ไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวม การเปิดเผยข้อมูลเกี่ยวกับญาติผู้ดูแลผู้ป่วยต่อหน่วยงานต่าง ๆ ที่เกี่ยวข้อง กระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น และข้อมูลในแบบสอบถามญาติผู้ดูแลผู้ป่วยมะเร็งเก็บไว้เป็นความลับ ผู้วิจัยจะทำลายแบบสอบถามเหล่านั้นด้วยตนเองภายหลังเสร็จสิ้นการวิจัย

หนังสือยินยอมโดยได้รับการบอกกล่าวและเต็มใจ

(Informed Consent Form)

ชื่อโครงการ ปัจจัยทำนายคุณภาพชีวิตของญาติผู้ดูแลผู้ป่วยมะเร็งระยะลุกลาม

ชื่อผู้วิจัย นางสาววารุณี มีเจริญ

*ชื่อผู้เข้าร่วมการวิจัย --

อายุ --------------------------เลขที่เวชระเบียน --

คำยินยอมของผู้เข้าร่วมการวิจัย

ข้าพเจ้า นาย/นาง/นางสาว --- ได้ทราบรายละเอียดของโครงการวิจัยตลอดจนประโยชน์ และข้อเสี่ยงที่จะเกิดขึ้นต่อข้าพเจ้าจากผู้วิจัยแล้วอย่างชัดเจน ไม่มีสิ่งใดปิดบังซ่อนเร้นและยินยอมให้ทำการวิจัยในโครงการที่มีชื่อข้างต้น และข้าพเจ้ารู้ว่าถ้ามีปัญหาหรือข้อสงสัยเกิดขึ้นข้าพเจ้าสามารถสอบถามผู้วิจัยได้ และข้าพเจ้าสามารถไม่เข้าร่วมโครงการวิจัยนี้เมื่อใดก็ได้ โดยไม่มีผลกระทบต่อการรักษาที่ข้าพเจ้าพึงได้รับ นอกจากนี้ผู้วิจัยจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับและจะเปิดเผยได้เฉพาะในรูปที่เป็นสรุปผลการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่างๆที่เกี่ยวข้อง กระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น

ลงชื่อ..(ผู้เข้าร่วมการวิจัย)

....(พยาน)

....(พยาน)

วันที่ ....

คำอธิบายของแพทย์หรือผู้วิจัย

ข้าพเจ้าได้อธิบายรายละเอียดของโครงการ ตลอดจนประโยชน์ของการวิจัย รวมทั้งข้อเสี่ยงที่อาจจะเกิดขึ้นแก่ผู้เข้าร่วมการวิจัยทราบแล้วอย่างชัดเจนโดยไม่มีสิ่งใดปิดบังซ่อนเร้น

ลงชื่อ...(แพทย์หรือผู้วิจัย)

วันที่...

หมายเหตุ : กรณีผู้เข้าร่วมการวิจัยไม่สามารถอ่านหนังสือได้ ให้ผู้วิจัยอ่านข้อความในหนังสือยินยอมฯ นี้ให้แก่ผู้เข้าร่วมการวิจัยฟังจนเข้าใจดีแล้ว และให้ผู้เข้าร่วมการวิจัยลงนามหรือพิมพ์ลายนิ้วหัวแม่มือรับทราบในการให้ความยินยอมดังกล่าวข้างต้นไว้ด้วย

* ผู้เข้าร่วมการวิจัย หมายถึง ผู้ยินยอมตนให้ทำวิจัย

APPENDIX B

PERMISSION LETTERS FOR USING THE STRESS PROCESS MODEL AND THE INSTRUMENTS

Inquiry for your permission to use the stress process model

Leonard Pearlin [lpearlin@socy.umd.edu] Actions
Monday, June 20, 2011 2:56 PM
To: WARUNEE MEECHAROEN

Dear Mr. Meecharoen,

Please feel free to use the Stress Process model for your work. Best wishes for its success,

Leonard I. Pearlin

>>> WARUNEE MEECHAROEN
<g5137715@student.mahidol.ac.th> 06/20/11 2:59 AM
>>>

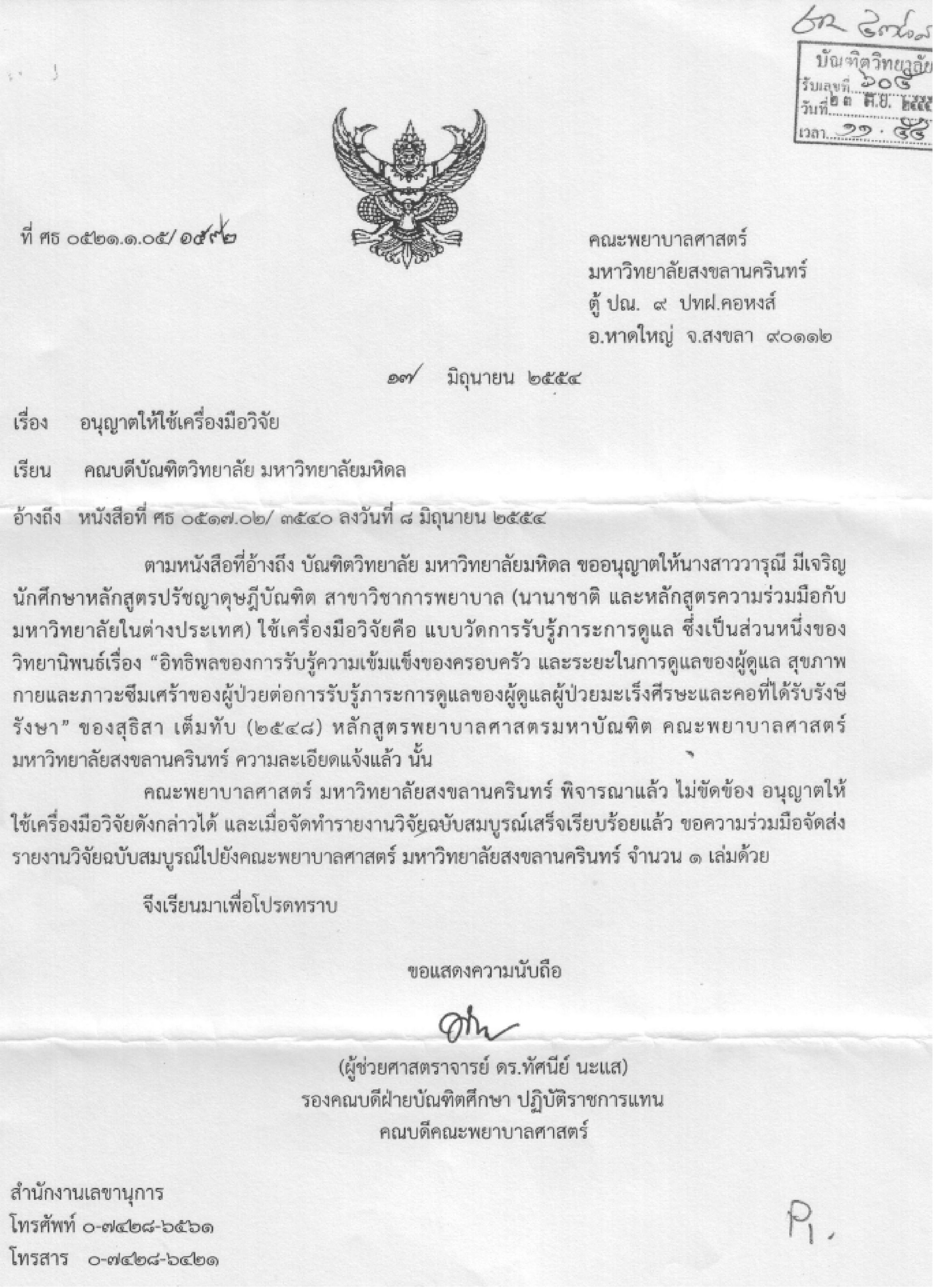
Dear Dr. Pearlin,

My name is Warunee Meecharoen, a doctoral student at Mahidol University, Thailand. My major advisor is Dr. Yupapin Sirapo-ngam. Moreover, I have worked with Dr. Laurel L Northouse a professor at School of Nursing, University of Michigan. I am in the process of developing my doctoral dissertation entitled "Factors predicting quality of life among family caregivers of patients with advanced cancer". I have found that the stress process model, which you and others developed in 1990, is well fit to my study. So, I would like your permission to use the stress process model for being as my conceptual framwork to guide the dissertation. The requested permission extends to any future publications and any subsequent articles as a result of my dissertation. If these arrangements meet with your approval, please reach me by e-mail at g5137715@student.mahidol.ac.th or warunee_mee@yahoo.com.

Any consideration you could give to my request would be greatly appreciated.

Sincerely yours,

Warunee Meecharoen, RN., M.N.S.
A Doctoral Student, Mahidol University, Thailand



บัณฑิตวิทยาลัย
รับเลขที่ ๖๐๕
วันที่ ๒๓ มิ.ย. ๒๕๕
เวลา ๑๑ . ๕๕

ที่ ศธ ๐๕๒๑.๑.๐๕/ ๑๕๙๒

คณะพยาบาลศาสตร์
มหาวิทยาลัยสงขลานครินทร์
ตู้ ปณ. ๙ ปทฝ.คอหงส์
อ.หาดใหญ่ จ.สงขลา ๙๐๑๑๒

๑๗ มิถุนายน ๒๕๕๔

เรื่อง อนุญาตให้ใช้เครื่องมือวิจัย

เรียน คณบดีบัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล

อ้างถึง หนังสือที่ ศธ ๐๕๑๗.๐๒/ ๓๕๔๐ ลงวันที่ ๘ มิถุนายน ๒๕๕๔

ตามหนังสือที่อ้างถึง บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล ขออนุญาตให้นางสาววารุณี มีเจริญ นักศึกษาหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการพยาบาล (นานาชาติ และหลักสูตรความร่วมมือกับมหาวิทยาลัยในต่างประเทศ) ใช้เครื่องมือวิจัยคือ แบบวัดการรับรู้ภาระการดูแล ซึ่งเป็นส่วนหนึ่งของวิทยานิพนธ์เรื่อง “อิทธิพลของการรับรู้ความเข้มแข็งของครอบครัว และระยะในการดูแลของผู้ดูแล สุขภาพกายและภาวะซึมเศร้าของผู้ป่วยต่อการรับรู้ภาระการดูแลของผู้ดูแลผู้ป่วยมะเร็งศีรษะและคอที่ได้รับรังษีรังษา” ของสุธิสา เต็มทับ (๒๕๔๘) หลักสูตรพยาบาลศาสตรมหาบัณฑิต คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ ความละเอียดแจ้งแล้ว นั้น

คณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ พิจารณาแล้ว ไม่ขัดข้อง อนุญาตให้ใช้เครื่องมือวิจัยดังกล่าวได้ และเมื่อจัดทำรายงานวิจัยฉบับสมบูรณ์เสร็จเรียบร้อยแล้ว ขอความร่วมมือจัดส่งรายงานวิจัยฉบับสมบูรณ์ไปยังคณะพยาบาลศาสตร์ มหาวิทยาลัยสงขลานครินทร์ จำนวน ๑ เล่มด้วย

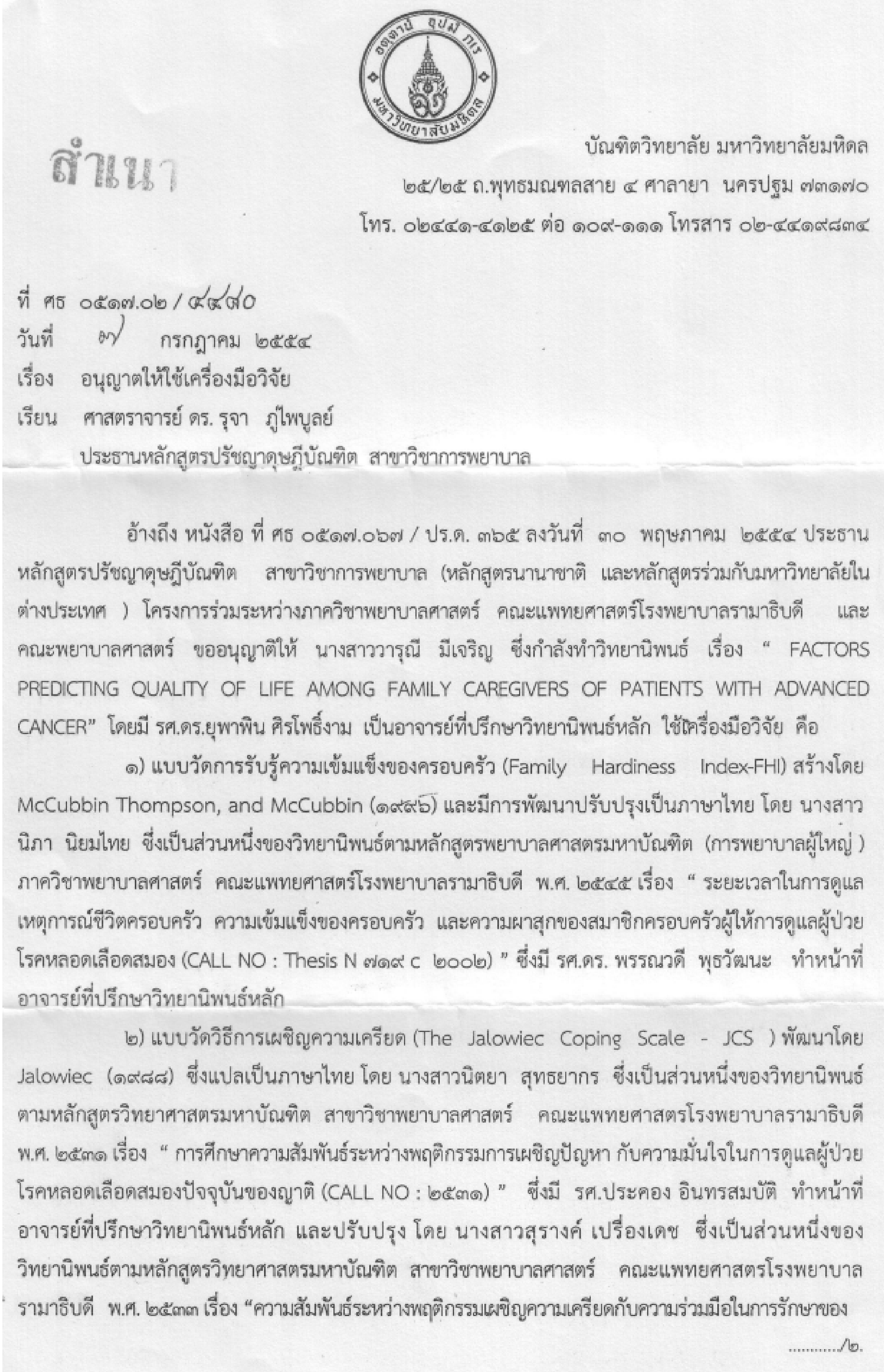
จึงเรียนมาเพื่อโปรดทราบ

ขอแสดงความนับถือ

(ผู้ช่วยศาสตราจารย์ ดร.ทัศนีย์ นะแส)
รองคณบดีฝ่ายบัณฑิตศึกษา ปฏิบัติราชการแทน
คณบดีคณะพยาบาลศาสตร์

สำนักงานเลขานุการ
โทรศัพท์ ๐-๗๔๒๘-๖๕๖๑
โทรสาร ๐-๗๔๒๘-๖๔๒๑

P.



สำเนา

บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล
๒๕/๒๕ ถ.พุทธมณฑลสาย ๔ ศาลายา นครปฐม ๗๓๑๗๐
โทร. ๐๒๔๔๑-๔๑๒๕ ต่อ ๑๐๙-๑๑๑ โทรสาร ๐๒-๔๔๑๙๘๓๔

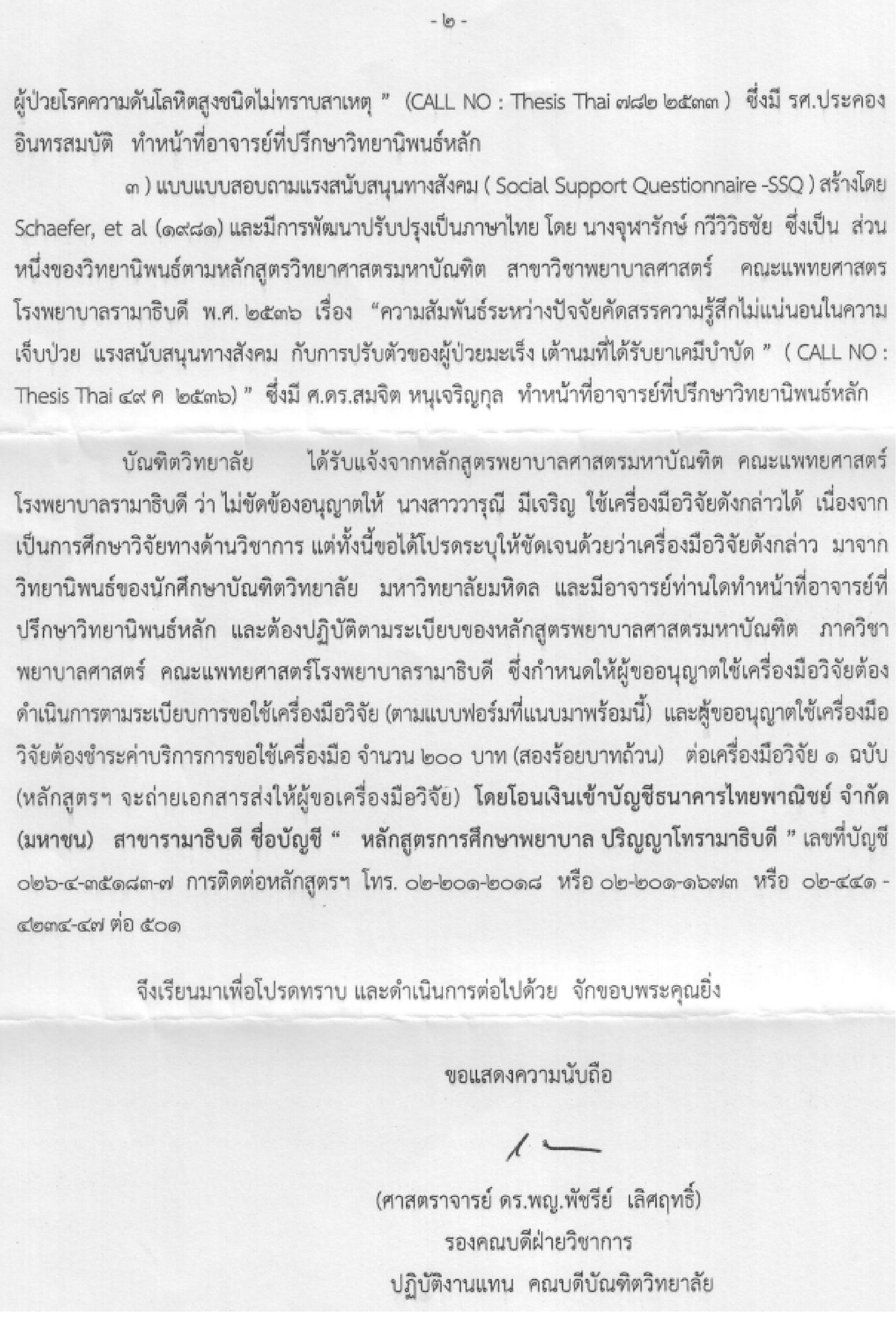
ที่ ศธ ๐๕๑๗.๐๒ / ๙๔๗๐
วันที่ ๗ กรกฎาคม ๒๕๕๔
เรื่อง อนุญาตให้ใช้เครื่องมือวิจัย
เรียน ศาสตราจารย์ ดร. รุจา ภู่ไพบูลย์
ประธานหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการพยาบาล

อ้างถึง หนังสือ ที่ ศธ ๐๕๑๗.๐๖๗ / ปร.ด. ๓๖๕ ลงวันที่ ๓๐ พฤษภาคม ๒๕๕๔ ประธานหลักสูตรปรัชญาดุษฎีบัณฑิต สาขาวิชาการพยาบาล (หลักสูตรนานาชาติ และหลักสูตรร่วมกับมหาวิทยาลัยในต่างประเทศ) โครงการร่วมระหว่างภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี และคณะพยาบาลศาสตร์ ขออนุญาติให้ นางสาววารุณี มีเจริญ ซึ่งกำลังทำวิทยานิพนธ์ เรื่อง “ FACTORS PREDICTING QUALITY OF LIFE AMONG FAMILY CAREGIVERS OF PATIENTS WITH ADVANCED CANCER” โดยมี รศ.ดร.ยุพาพิน ศิรโพธิ์งาม เป็นอาจารย์ที่ปรึกษาวิทยานิพนธ์หลัก ใช้เครื่องมือวิจัย คือ

๑) แบบวัดการรับรู้ความเข้มแข็งของครอบครัว (Family Hardiness Index-FHI) สร้างโดย McCubbin Thompson, and McCubbin (๑๙๙๖) และมีการพัฒนาปรับปรุงเป็นภาษาไทย โดย นางสาวนิภา นิยมไทย ซึ่งเป็นส่วนหนึ่งของวิทยานิพนธ์ตามหลักสูตรพยาบาลศาสตรมหาบัณฑิต (การพยาบาลผู้ใหญ่) ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี พ.ศ. ๒๕๔๕ เรื่อง “ ระยะเวลาในการดูแล เหตุการณ์ชีวิตครอบครัว ความเข้มแข็งของครอบครัว และความผาสุกของสมาชิกครอบครัวผู้ให้การดูแลผู้ป่วยโรคหลอดเลือดสมอง (CALL NO : Thesis N ๗๑๙ c ๒๐๐๒) ” ซึ่งมี รศ.ดร. พรรณวดี พุธวัฒนะ ทำหน้าที่อาจารย์ที่ปรึกษาวิทยานิพนธ์หลัก

๒) แบบวัดวิธีการเผชิญความเครียด (The Jalowiec Coping Scale - JCS) พัฒนาโดย Jalowiec (๑๙๘๘) ซึ่งแปลเป็นภาษาไทย โดย นางสาวนิตยา สุทธยากร ซึ่งเป็นส่วนหนึ่งของวิทยานิพนธ์ตามหลักสูตรวิทยาศาสตรมหาบัณฑิต สาขาวิชาพยาบาลศาสตร์ คณะแพทยศาสตรโรงพยาบาลรามาธิบดี พ.ศ. ๒๕๓๑ เรื่อง “ การศึกษาความสัมพันธ์ระหว่างพฤติกรรมการเผชิญปัญหา กับความมั่นใจในการดูแลผู้ป่วยโรคหลอดเลือดสมองปัจจุบันของญาติ (CALL NO : ๒๕๓๑) ” ซึ่งมี รศ.ประคอง อินทรสมบัติ ทำหน้าที่อาจารย์ที่ปรึกษาวิทยานิพนธ์หลัก และปรับปรุง โดย นางสาวสุรางค์ เปรื่องเดช ซึ่งเป็นส่วนหนึ่งของวิทยานิพนธ์ตามหลักสูตรวิทยาศาสตรมหาบัณฑิต สาขาวิชาพยาบาลศาสตร์ คณะแพทยศาสตรโรงพยาบาลรามาธิบดี พ.ศ. ๒๕๓๓ เรื่อง “ความสัมพันธ์ระหว่างพฤติกรรมเผชิญความเครียดกับความร่วมมือในการรักษาของ

............/๒.



ผู้ป่วยโรคความดันโลหิตสูงชนิดไม่ทราบสาเหตุ " (CALL NO : Thesis Thai ๗๘๒ ๒๕๓๓) ซึ่งมี รศ.ประคอง อินทรสมบัติ ทำหน้าที่อาจารย์ที่ปรึกษาวิทยานิพนธ์หลัก

๓) แบบแบบสอบถามแรงสนับสนุนทางสังคม (Social Support Questionnaire -SSQ) สร้างโดย Schaefer, et al (๑๙๘๑) และมีการพัฒนาปรับปรุงเป็นภาษาไทย โดย นางจุฬารักษ์ กวีวิวิธชัย ซึ่งเป็น ส่วนหนึ่งของวิทยานิพนธ์ตามหลักสูตรวิทยาศาสตรมหาบัณฑิต สาขาวิชาพยาบาลศาสตร์ คณะแพทยศาสตรโรงพยาบาลรามาธิบดี พ.ศ. ๒๕๓๖ เรื่อง "ความสัมพันธ์ระหว่างปัจจัยคัดสรรความรู้สึกไม่แน่นอนในความเจ็บป่วย แรงสนับสนุนทางสังคม กับการปรับตัวของผู้ป่วยมะเร็ง เต้านมที่ได้รับยาเคมีบำบัด " (CALL NO : Thesis Thai ๔๙ ค ๒๕๓๖) " ซึ่งมี ศ.ดร.สมจิต หนุเจริญกุล ทำหน้าที่อาจารย์ที่ปรึกษาวิทยานิพนธ์หลัก

บัณฑิตวิทยาลัย ได้รับแจ้งจากหลักสูตรพยาบาลศาสตรมหาบัณฑิต คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี ว่า ไม่ขัดข้องอนุญาตให้ นางสาววารุณี มีเจริญ ใช้เครื่องมือวิจัยดังกล่าวได้ เนื่องจากเป็นการศึกษาวิจัยทางด้านวิชาการ แต่ทั้งนี้ขอได้โปรดระบุให้ชัดเจนด้วยว่าเครื่องมือวิจัยดังกล่าว มาจากวิทยานิพนธ์ของนักศึกษาบัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล และมีอาจารย์ท่านใดทำหน้าที่อาจารย์ที่ปรึกษาวิทยานิพนธ์หลัก และต้องปฏิบัติตามระเบียบของหลักสูตรพยาบาลศาสตรมหาบัณฑิต ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี ซึ่งกำหนดให้ผู้ขออนุญาตใช้เครื่องมือวิจัยต้องดำเนินการตามระเบียบการขอใช้เครื่องมือวิจัย (ตามแบบฟอร์มที่แนบมาพร้อมนี้) และผู้ขออนุญาตใช้เครื่องมือวิจัยต้องชำระค่าบริการการขอใช้เครื่องมือ จำนวน ๒๐๐ บาท (สองร้อยบาทถ้วน) ต่อเครื่องมือวิจัย ๑ ฉบับ (หลักสูตรฯ จะถ่ายเอกสารส่งให้ผู้ขอเครื่องมือวิจัย) **โดยโอนเงินเข้าบัญชีธนาคารไทยพาณิชย์ จำกัด (มหาชน) สาขารามาธิบดี ชื่อบัญชี " หลักสูตรการศึกษาพยาบาล ปริญญาโทรามาธิบดี "** เลขที่บัญชี ๐๒๖-๔-๓๕๑๘๓-๗ การติดต่อหลักสูตรฯ โทร. ๐๒-๒๐๑-๒๐๑๘ หรือ ๐๒-๒๐๑-๑๖๗๓ หรือ ๐๒-๔๔๑-๔๒๓๔-๔๗ ต่อ ๕๐๑

จึงเรียนมาเพื่อโปรดทราบ และดำเนินการต่อไปด้วย จักขอบพระคุณยิ่ง

ขอแสดงความนับถือ

(ศาสตราจารย์ ดร.พญ.พัชรีย์ เลิศฤทธิ์)
รองคณบดีฝ่ายวิชาการ
ปฏิบัติงานแทน คณบดีบัณฑิตวิทยาลัย

Re: Inquiry for your permission to use social support questionnaire

From Cathy.Schaefer@kp.org
To warunee_mee@yahoo.com

Dear M. Meecharoen,
Please go ahead and use the Social Support Questionnaire for your research. Good luck with your study.
Cathy Schaefer

Dear Dr. Schaefer,

My name is Warunee Meecharoen, a doctoral student at Mahidol University, Thailand. My major advisor is Dr. Yupapin Sirapo-ngam. Moreover, I have worked with Dr. Laurel L Northouse, a professor at School of Nursing, University of Michigan. I am in the process of developing my doctoral dissertation entitled "Factors predicting quality of life among family caregivers of patients with advanced cancer". Social support is a factor in my study. I have found that social support questionaire (SSQ), which you and others developed in 1981, is well fit to measure social support in my study. So, I would like your permission to use the SSQ-part II, which modified into Thai version by Hanucharurnkul (1988) and again modified by Kaweewiwitchai (1993) for measuring social support in my study. The requested permission extends to any future publications and any subsequent articles as a result of my dissertation. If these arrangements meet with your approval, please reach me by e-mail at g5137715@student.mahidol.ac.th or warunee_mee@yahoo.com. Any consideration you could give to my request would be greatly appreciated.

Sincerely yours,
Warunee Meecharoen, RN., M.N.S.
A Doctoral Student, Mahidol University, Thailand
E-mail:warunee_mee@yahoo.com;g5137715@student.mahidol.ac.th
phone: +66-8670-89646

Re: Inquiry for your permission to use the Jalowiec Coping Scale

Dear Ms Meecharoen:

Thank you for your interest in the Jalowiec Coping Scale (JCS). Please be advised that there is a user’s fee of $75 (in US dollars) for permission to use the JCS and to obtain the JCS packet of materials. Along with a copy of the scale, the JCS packet contains the following materials: a description of the JCS, a list of which items belong to which subscales (for coding and scoring the instrument), directions for scoring the JCS, reliability and validity data on the JCS, and a JCS bibliography. Therefore, if you would like to use the JCS in your project, please send a check for $75 (in US dollars) made out to my name (Anne Jalowiec) to the following address:

Dr Anne Jalowiec
346 North Deer Mountain Road
Florissant, Colorado 80816
USA

As soon as I receive your check, I will email the JCS packet to you.

If you have any questions, please email me at: ajalowiec@yahoo.com.

Sincerely,
Dr Anne Jalowiec, RN, PhD
Professor Emeritus, Loyola University of Chicago

Dear Ms Meecharoen:

I received the JCS check for $75 today from your friend Ms Naraphong and emailed her to thank her. Attached is the JCS packet as 6 pdf files.

Good luck with your doctoral research in Thailand.

Dr. Jaliwiec

Subject: RE: 22732_Inquiry for your permission to use the ZBI

From: Iliana PETKOVA <ipetkova@mapigroup.com>
To: warunee meecharoen <warunee_mee@yahoo.com>
Sent: Friday, June 17, 2011 3:39 AM

Dear Warunee,
Thank you for sending a scanned copy of the signed User Agreement.
As you are conducting non-funded research, I am pleased to send you today the ZBI free of charge. Please find attached the Thai and US English version of the ZBI for your study. Please note that we do not have English for Thailand version available for use so I am sending you the original US English version. Also attached, please find the Scoring Manual for the ZBI.
We wish you all the best for your study and if you have any questions or concerns please don't hesitate to contact me directly.
Best Regards,
Iliana

Iliana PETKOVA
PRO Information Support
MAPI Research Trust
27 rue de la Villette | 69003 Lyon | France
Tel.: +33 (0)4 72 13 58 77 (Direct Line)| Fax: +33 (0)4 72 13 66 82
E-mail: ipetkova@mapigroup.com

De : warunee meecharoen [mailto: warunee_mee@yahoo.com]
Envoyé : vendredi 17 juin 2011 04:57
À : Iliana PETKOVA
Objet : Re: 22732_Inquiry for your permission to use the ZBI

Dear Iliana,

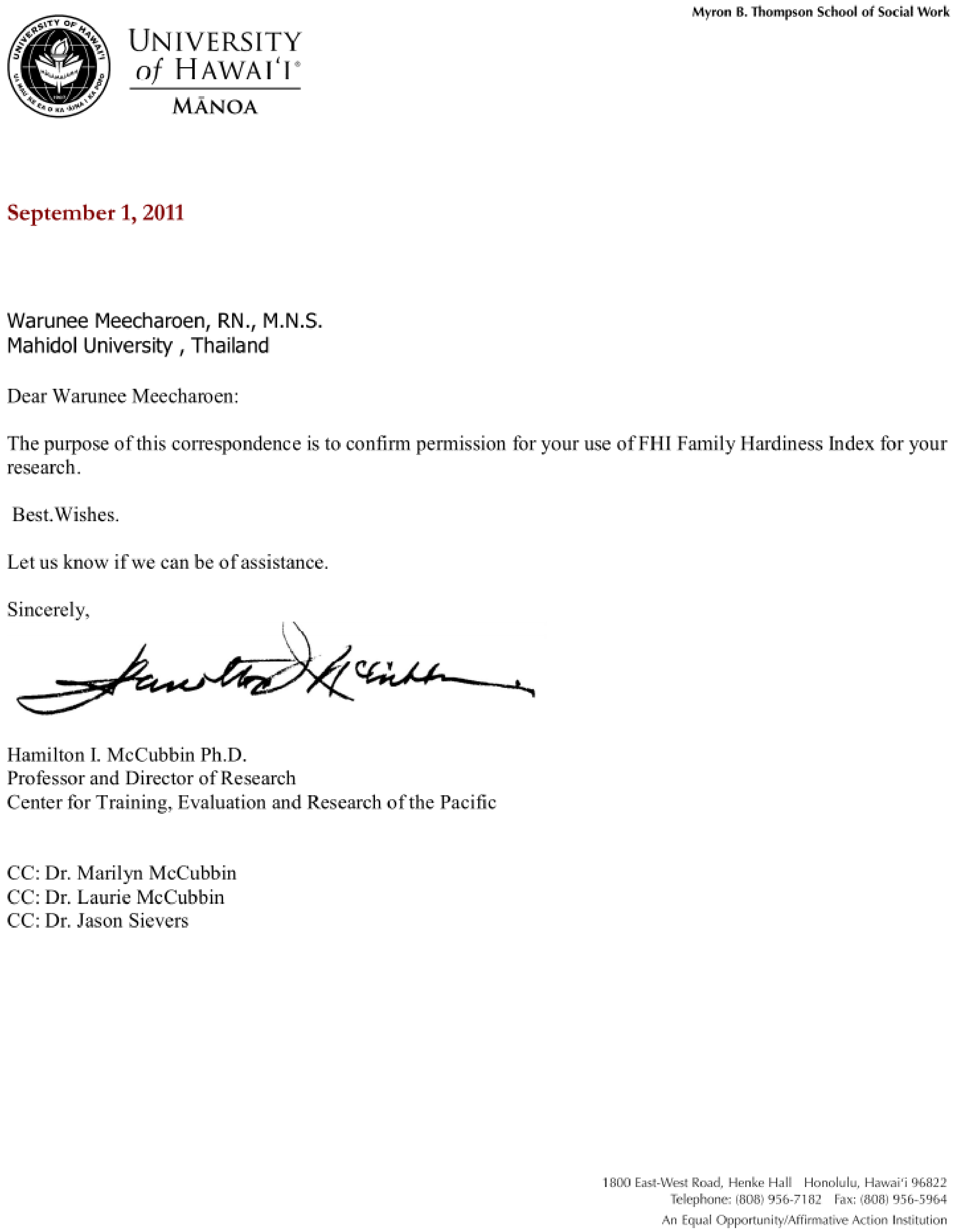
I would like to inform you that I will use the ZBI-Thai version to collect data and present some items of the ZBI-English version in my final dissertation (in Appedix). So, I send the User Agreement to you with this mail. I will send a hard copy of the User Agreement by mail to you as soon as possible. Please process my inquiry to use the ZBI. Thank you very much for your kindness.

Best regards,

Warunee Meecharoen, RN., M.N.S.,

A Doctoral Student, Mahidol University, Thailand
Address: Ramathibodi School of Nursing, Faculty of Medicine Ramathibodi Hospital,
Mahidol University , Prarama 6 Rd., Payathai, Bangkok 10400
E-mail: warunee_mee@yahoo.com ;g5137715@student.mahidol.ac.th
phone: +66-8670-89646

The permission to use the FHI



Myron B. Thompson School of Social Work

UNIVERSITY
of HAWAI'I®
MĀNOA

September 1, 2011

Warunee Meecharoen, RN., M.N.S.
Mahidol University , Thailand

Dear Warunee Meecharoen:

The purpose of this correspondence is to confirm permission for your use of FHI Family Hardiness Index for your research.

Best.Wishes.

Let us know if we can be of assistance.

Sincerely,

Hamilton I. McCubbin Ph.D.
Professor and Director of Research
Center for Training, Evaluation and Research of the Pacific

CC: Dr. Marilyn McCubbin
CC: Dr. Laurie McCubbin
CC: Dr. Jason Sievers

1800 East-West Road, Henke Hall Honolulu, Hawai'i 96822
Telephone: (808) 956-7182 Fax: (808) 956-5964
An Equal Opportunity/Affirmative Action Institution

APPENDIX C

PERMISSION LETTERS FOR TRANSLATING THE INSTRUMENT

Subject: RE: **Inquiry for your permission to translate the QLI**
From: Carol Ferrans <cferrans@uic.edu>
To: Warunee Meecharoen <wmeechar@umich.edu>
Cc: "warunee_mee@yahoo.com" <warunee_mee@yahoo.com>
Sent: Mon, March 28, 2011 4:03:43 PM

Dear Warunee Meecharoen,

Thank you for your interest in the Quality of Life Index. I am happy to grant you permission to translate the QLI for your work. I recommend that more than one person translate the QLI, so that the translations can be compared and discussed, to produce the most accurate translation. In return for my permission to translate the QLI, I ask that you send me a copy of the instrument in its translated form. I will then add the translation to the website for the QLI, so it is available for others to use. On the translated version, a statement should be added that provides the name of the person(s) who translates the QLI. This statement should be added below the copyright statement and should include the year, such as "Translated by Tone Rustoen 2000." You may include your address and contacting information, if you would like.

Even with translated instruments, I continue to hold the copyright of the instrument, and the copyright statement must remain on the translated instrument also.
I wish you all success with your work.

Sincerely,
Carol Estwing Ferrans, PhD, RN, FAAN
Professor and Associate Dean for Research
Co-Director, UIC Center of Excellence in Eliminating Health Disparities
Co-Director, Community Engagement and Research Core, UIC Center for Clinical and Translational Science
University of Illinois at Chicago
College of Nursing
845 S. Damen Avenue (M/C 802)
Chicago, IL 60612
phone 312-996-8445; fax 312-996-4979
email cferrans@uic.edu
QLI website www.uic.edu/orgs/qli

APPENDIX D

INSTRUMENTS

THE DEMOGRAPHIC QUESTIONNAIRE

(แบบสอบถามข้อมูลส่วนบุคคล)

Direction: This questionnaire asks about demographic data of you and your love one with advanced cancer. Please write or choose the answer that is corrected for you and the love one

Demographic characteristics of family caregiver

1. Age……………………………………….years
2. Gender ☐ 1. Male ☐ 2. Female
3. Marital status
   ☐ 1. Single ☐ 2. Married ☐ 3. Divorce
   ☐ 4. Widow ☐ 5. Separated ☐ 6. Others……………….

.

.

.

15. A secondary caregiver
   ☐ 1. No ☐ 2. Having…………………………………………………………

Demographic characteristics of advanced cancer patients

1. Age……………………………………….years
2. Gender ☐ 1. Male ☐ 2. Female
3. Marital status
   ☐ 1. Single ☐ 2. Married ☐ 3. Divorce
   ☐ 4. Widow ☐ 5. Separated ☐ 6. Others…………………

.

.

.

10. Type of treatment
   ☐ 1. Surgery ☐ 2. Chemotherapy ☐ 3. Radiotherapy ☐ 4. Hormone

THE DEMOGRAPHIC QUESTIONNAIRE

(แบบสอบถามข้อมูลส่วนบุคคล)

คำชี้แจง: แบบสอบถามข้อมูลส่วนบุคคลประกอบด้วยแบบสอบถามข้อมูลทั่วไปของผู้ดูแล และของผู้ป่วย ลักษณะเป็นแบบสอบถามให้เติมคำตอบลงในช่องว่างหรือเลือกตอบ ให้ตรงตามความเป็นจริงของตัวท่านและผู้ป่วย

<u>ข้อมูลทั่วไปของผู้ดูแล</u>

1. อายุ.......................ปี

2. เพศ ☐ 1. ชาย ☐ 2. หญิง

3. สถานภาพสมรส

☐ 1. โสด ☐ 2. คู่ ☐ 3. หม้าย

☐ 4. หย่า ☐ 5. แยก ☐ 6. อื่น ๆ.................

.

.

.

15. ผู้ช่วยเหลือในการดูแลผู้ป่วย ☐ 1. ไม่มี ☐ 2. มี ได้แก่..

<u>ข้อมูลทั่วไปของผู้ป่วย</u>

1. อายุ.......................ปี

2. เพศ ☐ 1. ชาย ☐ 2. หญิง

3. สถานภาพสมรส

☐ 1. โสด ☐ 2. คู่ ☐ 3. หม้าย

☐ 4. หย่า ☐ 5. แยก ☐ 6. อื่น ๆ.................

☐ 3. อิสลาม ☐ 4. อื่น ๆ ระบุ ....

.

.

.

10. ระยะของโรค ☐ 1. ระยะที่ 3 ☐ 2. ระยะที่ 4

BURDEN INTERVIEW
(แบบสัมภาษณ์เกี่ยวกับการแบกรับภาระ)

INSTRUCTIONS: The following is a list of statements, which reflect how people sometimes feel when taking care of another person. After each statement, indicate how often you feel that way; never, rarely, sometimes, quite frequently, or nearly always. There are no right or wrong answers.

1. Do you feel that your relative asks for more help than he/she needs?

0. Never 1. Rarely 2. Sometimes 3. Quite Frequently 4. Nearly Always

2. Do you feel that because of the time you spend with your relative that you don't have enough time for yourself?

0. Never 1. Rarely 2. Sometimes 3. Quite Frequently 4. Nearly Always

3. Do you feel stressed between caring for your relative and trying to meet other responsibilities for your family or work?

0. Never 1. Rarely 2. Sometimes 3. Quite Frequently 4. Nearly Always

.

.

.

22. Overall, how burdened do you feel in caring for your relative?

0. Not at all 1. A little 2. Moderately 3. Quite a bit 4. Extremely

BURDEN INTERVIEW
(แบบสัมภาษณ์เกี่ยวกับการแบกรับภาระ)

คำชี้แจง: ด้านล่างนี้คือรายการที่สะท้อนว่าบางครั้งคนเรารู้สึกอย่างไรเมื่อต้องดูแลผู้อื่น หลังจากอ่านแต่ละข้อความแล้วให้ระบุว่าคุณรู้สึกเช่นนั้นบ่อยเพียงใด ได้แก่ ไม่เคยเลย นาน ๆ ครั้ง บางครั้ง ค่อนข้างบ่อย หรือแทบทุกครั้ง ไม่มีคำตอบใดถูกผิด

1. คุณรู้สึกหรือไม่ว่าญาติของคุณขอความช่วยเหลือจากคุณมากเกินกว่าความจำเป็นของเขา/เธอ?

0. ไม่เคยเลย 1. นาน ๆ ครั้ง 2. บางครั้ง 3. ค่อนข้างบ่อย 4. แทบทุกครั้ง

2. คุณรู้สึกหรือไม่ว่า การที่คุณใช้เวลากับญาติของคุณ ทำให้คุณมีเวลาไม่พอสำหรับตัวเอง?

0. ไม่เคยเลย 1. นาน ๆ ครั้ง 2. บางครั้ง 3. ค่อนข้างบ่อย 4. แทบทุกครั้ง

3. คุณรู้สึกเครียดกับการที่ต้องดูแลญาติและยังต้องรับผิดชอบต่อหน้าที่อื่น เช่น เรื่องครอบครัวหรือการงานของคุณหรือไม่?

0. ไม่เคยเลย 1. นาน ๆ ครั้ง 2. บางครั้ง 3. ค่อนข้างบ่อย 4. แทบทุกครั้ง

.

.

.

22. โดยภาพรวมแล้ว คุณรู้สึกว่าการดูแลญาติของคุณเป็นภาระที่หนักเพียงใด?

0. ไม่หนักเลย 1. เล็กน้อย 2. ปานกลาง 3. ค่อนข้างมาก 4. มากที่สุด

FAMILY HARDINESS INDEX
(แบบสอบถามความเข้มแข็งของครอบครัว)

Directions: Please read each statement below and decide to what degree each describes your family. Is the statement False (0), Mostly False (1), Mostly True (2), or True (3) about your family? Circle a number 0 to 3 to match your feelings about each statement. Please respond to each and every statement.

In our family…	False	Mostly False	Mostly True	True
1. Trouble results from mistakes we make				
2. It is not wise to plan ahead because things do not turn out anyway				
3. Our work and efforts are not appreciated no matter how hard we try and work				
.				
.				
.				
20. We realize our lives are controlled by accidents and luck				

FAMILY HARDINESS INDEX
(แบบสอบถามความเข้มแข็งของครอบครัว)

คำชี้แจง: โปรดอ่านข้อความต่อไปนี้และตัดสินใจว่า เป็นข้อความที่บรรยายถึงครอบครัวของท่านได้มากน้อยเพียงใด ข้อความนั้นไม่เป็นจริง (0) ไม่เป็นจริงโดยส่วนใหญ่ (1) เป็นจริงโดยส่วนใหญ่ (2) หรือเป็นจริง (3) เกี่ยวกับครอบครัวของท่านหรือไม่ โดยทำเครื่องหมายวงกลม (○) ล้อมรอบหมายเลข 0 ถึง 3 ที่ตรงกับความรู้สึกของท่านมากที่สุด กรุณาตอบแต่ละข้อจนครบทุกข้อ

0 หมายถึง ไม่เป็นจริง ครอบครัวของท่านไม่ได้เป็นอย่างนี้

1 หมายถึง ไม่เป็นจริงโดยส่วนใหญ่ ส่วนใหญ่ครอบครัวของท่านไม่ได้เป็นอย่างนี้

2 หมายถึง เป็นจริงโดยส่วนใหญ่ ส่วนใหญ่ครอบครัวของท่านเป็นอย่างนี้

3 หมายถึง เป็นจริง ครอบครัวของท่านเป็นอย่างนี้

ข้อความ	ไม่เป็นจริง	ไม่เป็นจริง โดยส่วนใหญ่	เป็นจริง โดยส่วนใหญ่	เป็นจริง
1. ปัญหาความยุ่งยากลำบากที่เกิดขึ้นเป็นผลจากความผิดพลาดของพวกเรา	0	1	2	3
2. การตั้งความหวังและการวางแผนล่วงหน้าไม่ใช่การกระทำที่ชาญฉลาด เพราะไม่สามารถเปลี่ยนแปลงอะไรได้	0	1	2	3
3. ไม่มีใครแสดงความชื่นชมการกระทำและความพยายามของพวกเรา ไม่ว่าพวกเราจะใช้ความพยายามและทำงานหนักเพียงใด	0	1	2	3
.	0	1	2	3
.	0	1	2	3
.	0	1	2	3
20. พวกเราตระหนักดีว่าชีวิตของพวกเราขึ้นอยู่กับความบังเอิญและโชคชะตากำหนด	0	1	2	3

JALOWIEC COPING SCALE
(แบบสอบถามวิธีการเผชิญความเครียด)

Direction: Please check ✓ in the column which you consider that what degree you use each coping strategies during you take care of the loved one. Items are rated on a 5-point response scale ranging from 1 = never used, 2 = seldom used, 3 = sometimes used, 4 = often used, and 5= almost alway).

Coping strategies	**1**	**2**	**3**	**4**	**5**
1. Worry					
2. Activity/exercise					
3. Optimism					
.					
.					
.					
36. Settle for next best thing					

JALOWIEC COPING SCALE
(แบบสอบถามวิธีการเผชิญความเครียด)

คำชี้แจง: ให้ใส่เครื่องหมายถูก (✓) ลงในช่องที่ตรงกับความเป็นจริงของตัวท่านมากที่สุด โดยถือเกณฑ์ ดังนี้

ไม่เคย หมายถึง ข้อความนั้นไม่ตรงกับความเป็นจริงของท่านเลย (0%)
นาน ๆ ครั้ง หมายถึง ข้อความนั้นตรงกับความเป็นจริงของท่านบ้างเล็กน้อย (25%)
เป็นบางครั้ง หมายถึง ข้อความนั้นตรงกับความเป็นจริงของท่านเพียงครึ่งหนึ่ง (50%)
บ่อย ๆ หมายถึง ข้อความนั้นตรงกับความเป็นจริงของท่านเป็นส่วนมาก (70%)
เกือบทุกครั้ง หมายถึง ข้อความนั้นตรงกับความเป็นจริงของท่านมากที่สุด (100%)

วิธีการเผชิญความเครียด	**ไม่เคย**	**นาน ๆ ครั้ง**	**เป็นบางครั้ง**	**บ่อย ๆ**	**เกือบทุกครั้ง**
1. กังวลใจ					
2. ระบายความเครียดโดยการออกแรงหรือออกกำลังกาย					
3. หวังว่าทุกอย่างจะดีขึ้น					
.					
.					
.					
36. ยอมรับในสิ่งที่ดีรองลงมาจากสิ่งที่ต้องการจริง ๆ					

SOCIAL SUPPORT QUESTIONNAIRE
(แบบวัดแรงสนับสนุนทางสังคม)

Direction Please check ✓ in the column which you consider that your family members, friends, and health care providers help you during your caregiving in each category provided. Please give the score listed as follow:

0	refer to no help	3	refer to quite a bit
1	refer to little help	4	refer to a great deal
2	refer to some help		

A: Social support from **your family**

Items	a great deal	quite a bit	some help	little help	no help
1. providing you information and guidance during your caregiving that you found it helpful					
.					
.					
.					

.

.

.

C: Social support from **health care providers**

Items	a great deal	quite a bit	some help	little help	no help
.					
.					
.					
5. helping you in your activities of daily living during your caregiving					

SOCIAL SUPPORT QUESTIONNAIRE
(แบบวัดแรงสนับสนุนทางสังคม)

คำชี้แจง: แบบวัดแรงสนับสนุนทางสังคมนี้ ต้องการทราบถึงปริมาณความช่วยเหลือที่ท่านได้รับจากบุคคลในกลุ่มสังคมต่าง ๆ 3 กลุ่ม ได้แก่ ***กลุ่มครอบครัว กลุ่มญาติและเพื่อน และกลุ่มเจ้าหน้าที่สุขภาพ*** ว่ามีมากน้อยเพียงใดในขณะที่ท่านให้การดูแลญาติที่ป่วยที่บ้าน โดยพิจารณาแต่ละข้อคำถามว่าท่านได้รับการช่วยเหลือมากน้อยเพียงใด แล้วทำเครื่องหมายถูก (✓) ลงในช่องที่ตรงกับความรู้สึกของท่านมากที่สุดเพียง 1 ช่อง จากความช่วยเหลือ 5 ระดับ คือ ไม่ได้รับความช่วยเหลือเลย ได้รับความช่วยเหลือเล็กน้อย ได้รับความช่วยเหลือปานกลาง ได้รับความช่วยเหลือค่อนข้างมาก และได้รับความช่วยเหลือมากที่สุด

ก. ความช่วยเหลือจาก***กลุ่มครอบครัว ได้แก่ บิดา มารดา คู่สมรส บุตร***

ข้อความ	มากที่สุด	ค่อนข้างมาก	ปานกลาง	เล็กน้อย	ไม่ได้เลย
1. ท่านได้รับคำแนะนำที่เป็นประโยชน์มากเพียงใด					
.					
.					
.					

.

.

.

ค. ความช่วยเหลือจาก***กลุ่มเจ้าหน้าที่สุขภาพ ได้แก่ แพทย์ พยาบาล และเจ้าหน้าที่อื่น ๆ***

ข้อความ	มากที่สุด	ค่อนข้างมาก	ปานกลาง	เล็กน้อย	ไม่ได้เลย
.					
.					
.					
5. ท่านได้รับความช่วยเหลือในกิจวัตรประจำวันมากเพียงใด					

QUALITY OF LIFE INDEX ©
(ดัชนีคุณภาพชีวิต)
CANCER VERSION – III

PART 1. For each of the following, please choose the answer that best describes how satisfied you are with that area of your life. Please mark your answer by circling the number. There are no right or wrong answers.

HOW SATISFIED ARE YOU WITH:	Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Slightly Satisfied	Moderately Satisfied	Very Satisfied
1. Your health?	1	2	3	4	5	6
2. Your health care?	1	2	3	4	5	6
3. The amount of pain that you have?	1	2	3	4	5	6
.	1	2	3	4	5	6
.	1	2	3	4	5	6
.	1	2	3	4	5	6
33. Yourself in general?	1	2	3	4	5	6

PART 2. For each of the following, please choose the answer that best describes how important that area of your life is to you. Please mark your answer by circling the number. There are no right or wrong answers.

HOW IMPORTANT TO YOU IS:	Very Unimportant	Moderately Unimportant	Slightly Unimportant	Slightly Important	Moderately Important	Very Important
1. Your health?	1	2	3	4	5	6
2. Your health care?	1	2	3	4	5	6
3. The amount of pain that you have?	1	2	3	4	5	6
.	1	2	3	4	5	6
.	1	2	3	4	5	6
.	1	2	3	4	5	6
33. Yourself in general?	1	2	3	4	5	6

QUALITY OF LIFE INDEX ©
(ดัชนีคุณภาพชีวิต)
CANCER VERSION – III

ส่วนที่ 1: แบบประเมินระดับความพึงพอใจ

จากหัวข้อแต่ละหัวข้อต่อไปนี้ โปรดพิจารณาเลือกคำตอบที่บ่งชี้ถึงระดับความพึงพอใจในชีวิตด้านต่าง ๆ โดยทำเครื่องหมายวงกลม ○ ล้อมรอบตัวเลข คำตอบแต่ละข้อไม่มีความหมายว่าถูกหรือผิดอย่างแท้จริง

ท่านมีความพึงพอใจในสิ่งต่อไปนี้เพียงใด?	**ไม่พึงพอใจอย่างมาก**	**ไม่พึงพอใจปานกลาง**	**ไม่พึงพอใจเล็กน้อย**	**พึงพอใจเล็กน้อย**	**พึงพอใจปานกลาง**	**พึงพอใจอย่างมาก**
1. สุขภาพของท่าน	1	2	3	4	5	6
2. การดูแลทางด้านสุขภาพที่ท่านได้รับอยู่	1	2	3	4	5	6
3. ความรุนแรงของอาการเจ็บปวดที่ท่านมีอยู่	1	2	3	4	5	6
·	1	2	3	4	5	6
·	1	2	3	4	5	6
·	1	2	3	4	5	6
33. ตัวของท่านเองโดยทั่วไป	1	2	3	4	5	6

แปลเป็นภาษาไทย โดย อัจฉรา สุคนธสรรพ์ (2550) และปรับปรุงโดยวารุณี มีเจริญ (2554)

ส่วนที่2 แบบประเมินระดับความสำคัญ

จากหัวข้อแต่ละหัวข้อต่อไปนี้ โปรดพิจารณาเลือกคำตอบที่บ่งชี้ถึงระดับความสำคัญที่ท่านให้กับชีวิตในด้านต่าง ๆ โดยทำเครื่องหมายวงกลม ○ ล้อมรอบตัวเลข คำตอบแต่ละข้อไม่มีความหมายว่าถูกหรือผิดอย่างแท้จริง

ท่านให้ความสำคัญต่อสิ่งต่อไปนี้เพียงใด?	**ไม่สำคัญต่อท่านเลย**	**ไม่สำคัญต่อท่านปานกลาง**	**ไม่สำคัญต่อท่านเล็กน้อย**	**สำคัญต่อท่านเล็กน้อย**	**สำคัญต่อท่านปานกลาง**	**สำคัญต่อท่านอย่างมาก**
1. สุขภาพของท่าน	1	2	3	4	5	6
2. การดูแลทางด้านสุขภาพที่ท่านได้รับอยู่	1	2	3	4	5	6
3. ความรุนแรงของอาการเจ็บปวดที่ท่านมีอยู่	1	2	3	4	5	6
·	1	2	3	4	5	6
·	1	2	3	4	5	6
·	1	2	3	4	5	6
33. ตัวของท่านเองโดยทั่วไป	1	2	3	4	5	6

แปลเป็นภาษาไทย โดย อัจฉรา สุคนธสรรพ์ (2550) และปรับปรุงโดยวารุณี มีเจริญ (2554)

APPENDIX E

LINEARITY TESTING

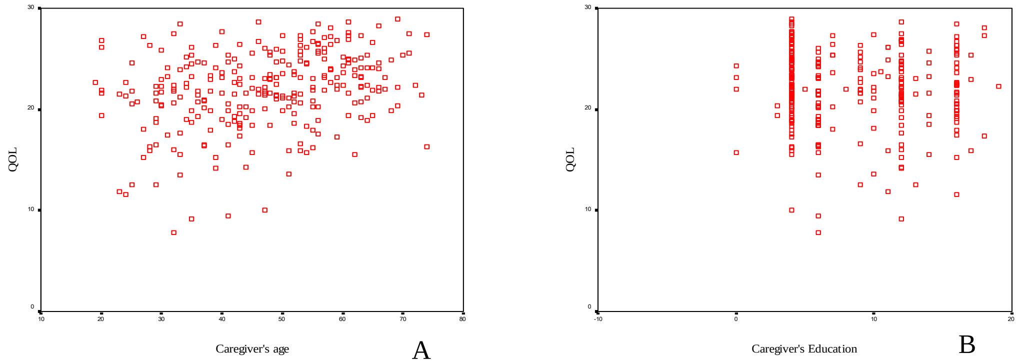


Figure E 1: A Scatter Plot Matrix between Caregiver's age and QOL

B Scatter Plot Matrix between Caregiver's education and QOL

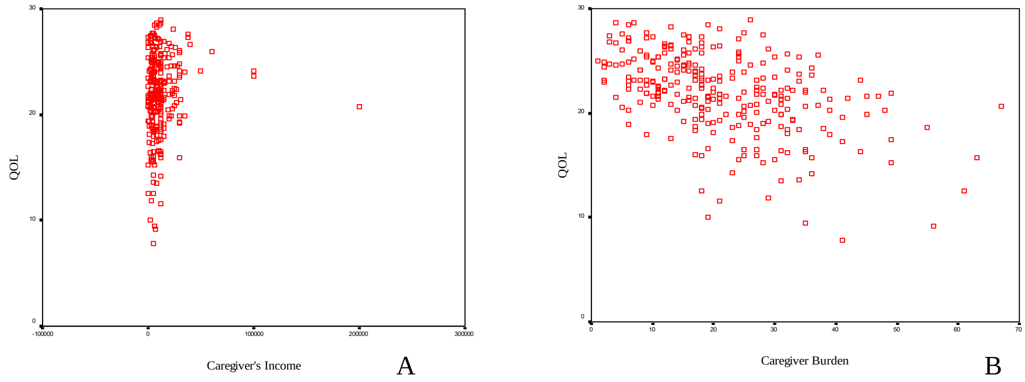


Figure E 2: A Scatter Plot Matrix between Caregiver's income and QOL

B Scatter Plot Matrix between Caregiver Burden and QOL

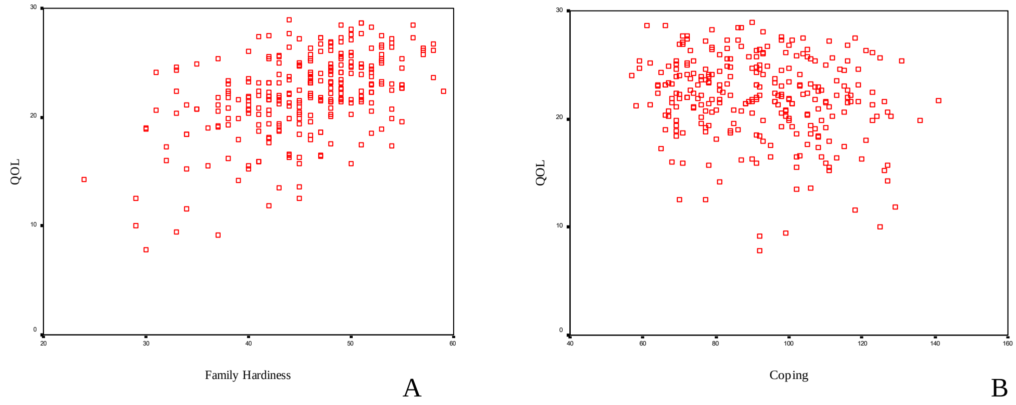


Figure E 3: A Scatter Plot Matrix between Family Hardiness and QOL

B Scatter Plot Matrix between Coping and QOL

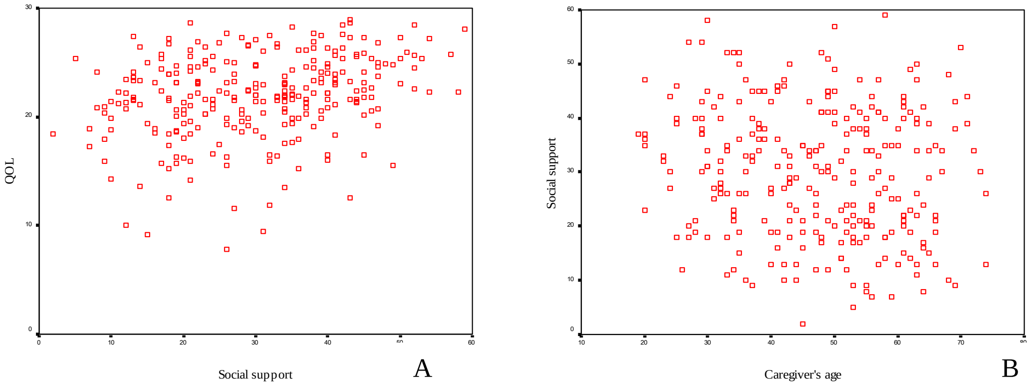


Figure E 4: A Scatter Plot Matrix between Social Support and QOL

B Scatter Plot Matrix between Caregiver's age and Social Support

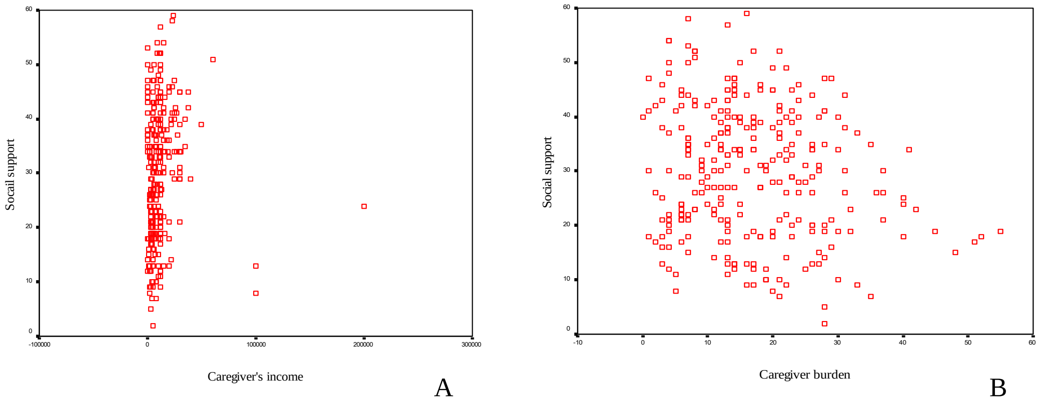


Figure E 5: A Scatter Plot Matrix between Caregiver's income and Social Support

B Scatter Plot Matrix between Caregiver burden and Social Support

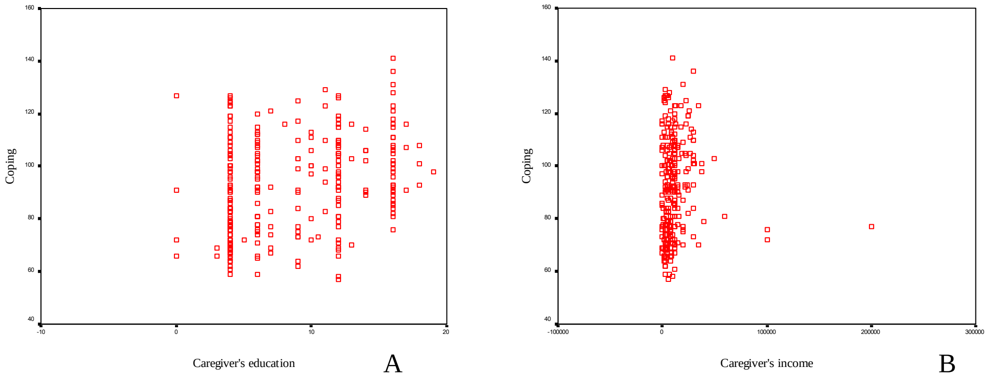


Figure E 6: A Scatter Plot Matrix between Caregiver's education and Coping

B Scatter Plot Matrix between Caregiver's income and Coping

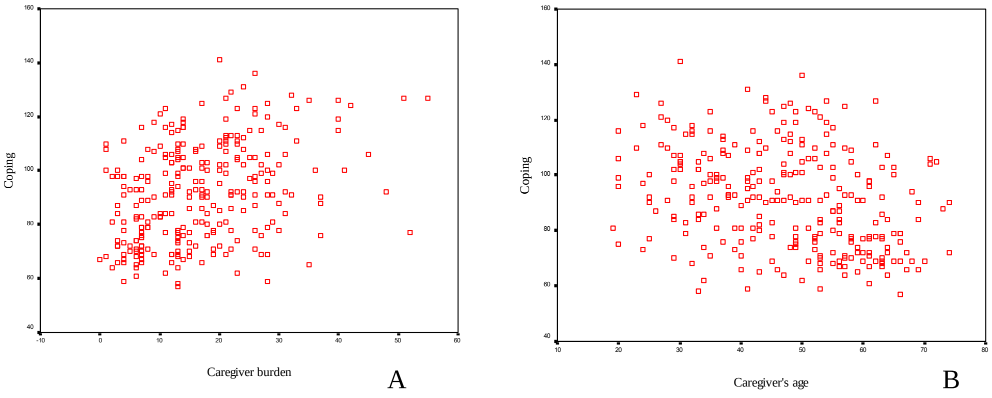


Figure E 7: A Scatter Plot Matrix between Caregiver burden and Coping

B Scatter Plot Matrix between Caregiver's age and Coping

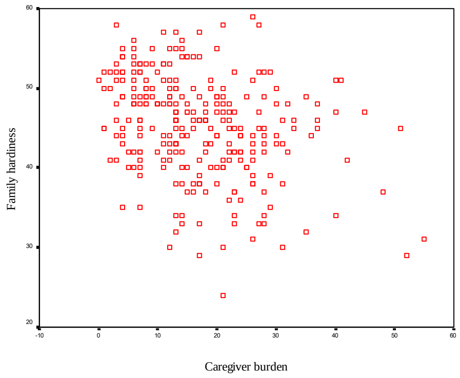


Figure E 8: Scatter Plot Matrix between Caregiver burden and Family hardiness

APPENDIX F

HOMOSCEDASTICITY TESTING

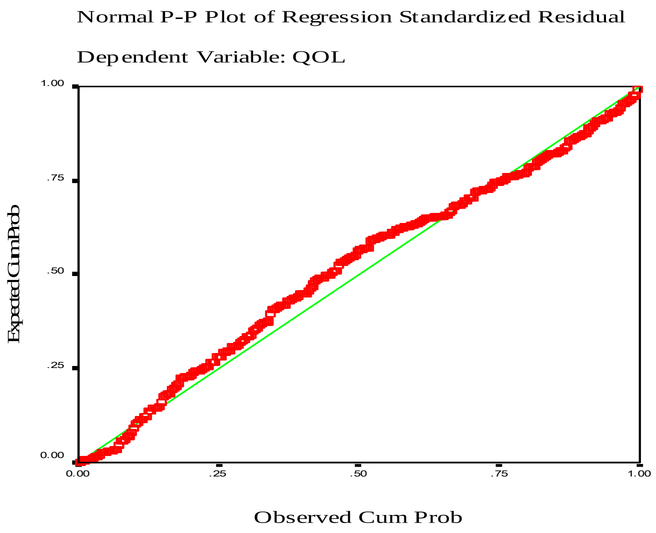


Figure F 1: Normal P-P Plot for Standardized Residual (n=275)

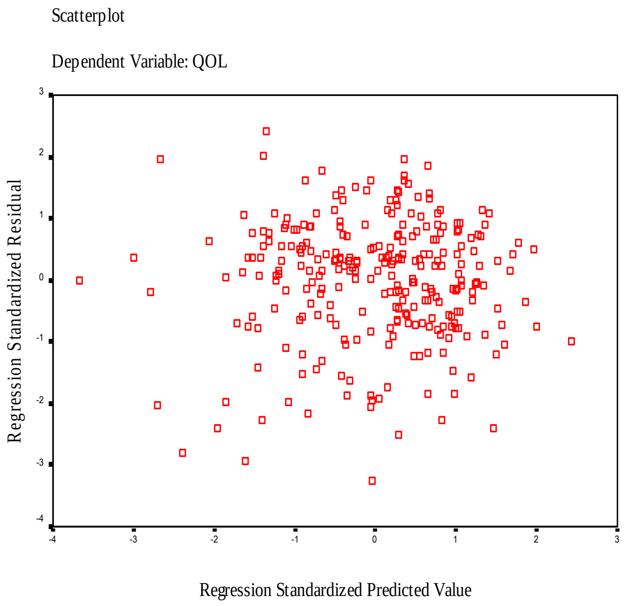


Figure F 2: Scatter Plot Matrix between Standardized Residual and Standardized Predicted Values

BIOGRAPHY

NAME	Miss Warunee Meecharoen
DATE OF BIRTH	23 April 1969
PLACE OF BIRTH	Chachoengsao, Thailand
INSTITUTIONS ATTENDED	Phrapokklao Nursing College, Chanthaburi, (1988-1992) Diploma in Nursing Science Equivalent to Bachelor of Science in Nursing Mahidol University, (1994-1996) Master of Nursing Science (Adult Nursing) Mahidol University, (2008-2013) Doctor of Philosophy (Nursing)
SCHOLARSHIP	The Ministry of Public Health, Thailand
RESEARCH GRANT	Thailand Nursing and Midwifery Council
POSITION & OFFICE	Professional Nurse (Senior Professional Level), Boromarajonani College of Nursing, Saraburi
OFFICE ADDRESS	Boromarajonani College of Nursing, Saraburi 18/64 Tedsaban 4 , Tambon Pakpriew Muang, Saraburi 18000, Thailand
HOME ADDRESS	110/179 Moo 1, Tambon Songkorn Amphoe Kaeng Khoi, Saraburi 18110, Thailand
PHONE	Office (6636) 317-204 Mobile (6686) 708-9646
E-MAIL	warunee_mee@yahoo.com