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Causes and Effects of Depression and Anxiety Disorders among the Elderly in Thailand

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This study was a part of an extensive research and development project of a community based model for the prevention of depression and anxiety disorder among the elderly in 5 provinces representing the regional areas of Thailand. The focus of this study was to test the structural equation model of causes and consequences of depression and anxiety disorder. Data was collected using interviews from questionnaires with 450 at risk elderly and their care givers from 5 provinces around Thailand. The hypothesized model was based on a framework that included psycho-social factors, knowledge-skills-attitude, and social support as the causes; and subjective well-being as an effect of depression and anxiety. A significant implication of the findings is that this research provides empirical evidence about the similarities and differences in the causes of depression and anxiety disorders.

Keywords: causes, effects, depressive disorder, anxiety disorder, elderly

The World Health Organization forecasts that depression will be the second public health problem, after myocardial infarction. Also, the number of patients with depression will increase gradually, resulting in more losses. The world mental health Survey conducted in 17 countries found that on average about 1 in 20 people reported having an episode of depression in the previous year. Depression disorder often started at a young age resulting in leading cause of disability worldwide (The World Health Organization [WHO], 2012). A recent study of several Latin America countries found a significant treatment gap for depression in the elderly. This study also found that most people with symptoms had never received treatment (The World Federation for Mental Health [WFMH], 2012).

Depression can be found in all genders and among all age groups, especially in the elderly. A study on the trend of suicides committed between 1998 and 2002 showed that suicide rates have increased in the elderly (American Psychiatric Association, 2000). In addition, 29 percent of patients with depression in Asia were the elderly. It also found out that there was a significant relationship between depression and daily life ability (Wada et al., 2005). A study of diseases and pains in Thailand between the years 1997-2006 suggested that depress was considered the 15th problem in male. The study, focused on the mental and psychiatric disease generalization, and discovered that disability-adjusted life year (DALY) of depression was found highest. Depression can be generally found in everyone, and its repetition was found to be 90 percent (Sirivanarungsun, Kongsuk, Arunpongpisal, Kittirattanapaiboon, & Charatsingha, 2004).

The health checkup results of Thai people in 2008-2009 demonstrated that 2.8 percent of the Thai population over the age of 15 were at risk of depression, and it is incidence is more likely to be found in males than female (3.5% and 2.2% respectively). High prevalence

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of the disease is found in higher age groups. The prevalence of the disease in the elderly over 80 years old was found to be the highest (5.6%). It can be seen that the elderly have higher risks to suffer depression. Without proper care, it will cause many more problems for the patients and their families. It will be a very serious social problem in the coming years (Health Systems Research Institute, 2009).

Depression and Anxiety disorder were likely to be founded together in elderly. A study of etiology of depression in later life showed three groups of factors, risk factors, precipitating factors, and protective factors (Wilson, 2008). There was little research on causes of depression and anxiety disorder of the elderly in Thailand. One study focusing in general population in the Northeastern of Thailand found that "forgetting and has no interest in others" was the description of depression disorder (Jirawatkul et al., 1998). Another study reviewed researches during 1947-2007 on the elderly; depression was reported in 58 correlational studies of depression. The result showed three groups of factors, biological factors, psychological factors, and social factors as the causes (Choonjam, Sangoon, & Taweekoon, 2011).

This present study investigated the causes and consequences of depression and anxiety disorder using the method of structural equation modelling (SEM) analysis. This study separately analyzes the models of depression and anxiety to evaluate the different outcomes of the disorders.

Research Objectives

To investigate causes and effects of depression and anxiety disorders among the elderly in communities of Thailand.

Literature Review

Depression and Anxiety Disorders in the Elderly

Depression refers to mental conditions that are depression, lonely, hopeless, pessimistic, underestimated, or self-abuse. These conditions last long and relate to losses (Department of Mental Health, Ministry of Public Health, 2010). The aforementioned definition is consistent with Lotrakul (2013) saying that depression is the happiness decrease conditions e.g. being emotional, sensitive, tired, unhappy, bad-tempered, insomnia, anorexia, inactive, quiet, suicidal feeling, and self-abuse. However, if a person has depression symptoms along with other symptoms, it could be led to a depressive disorder. Major depressive disorders according to the diagnostic criteria of ICD-10 (International Classification of Diseases and Health Related Problems) (WHO, 2016), DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) (APA, 2013) refer to a patient with at least four symptoms almost every for at least two consecutive weeks: 1) anorexia or weight loss (over 5 % per month); 2) insomnia; 3) being inactive and slow; 4) being tired; 5) being forgetful; 6) suicidal feeling; and 7) self-abuse (Lotrakul, 2013).

Anxiety refers to abnormal anxiety conditions e.g. being muddle, easily frightened, insomnia, absent-minded, and forgetful, together with autonomic nervous system symptoms, for instance, being heart shaking and sweaty, hand-foot numbness, abdominal discomfort, etc. The anxiety could be overlooked or diagnosed as a different disease because patients might tell doctors only physical symptoms. Physical symptoms (palpitation, dyspnea, fatigue, syncope, heart-hand shaking, headache, chest pain, gas, bloating, belching, hand-foot numbness) together with mental symptoms (stress, bad temper, absent mind, unconsciousness, forgetfulness, insomnia) could be led to an anxiety disease in anxiety disorders (Lotrakul, 2013).

Causes of Depressive Disorder and Anxiety Disorder in the Elderly

Depression disorder is a common mental disorder found in all ages and mostly found in women than men. Risk factors of mental disorder in the older age were social and family isolation and chronic physical illness. Although effective treatments for depression were known but very few of those affected received treatments due to lack of knowledge and trained health care providers (WHO, 2012). The etiology of depression in later life was categorized to three groups of risk factors, precipitating factors, and protective factors. Risk factors composed of genetic susceptibility, personality, gender, physical co-morbidity, handicap, structural brain change. Precipitating factors were drug and alcohol use, chronic stress, and life events. The protective factors were social supports, good nutrition, physical fitness, religious affiliation (Wilson, 2008). Synthesis of researches in Thailand revealed that factors relating to depression in the elderly were biological, psychological, and social factors. The biological factors were gender, age, marital status, income, health status. The psychological factors were hope, loneliness, and self-concept. The social factors were social participation activities, family relation (Choonjam et al., 2011).

Anxiety disorder in the elderly is generally found as a chronic disorder from the early stage to a sudden stimulus. It tends to occur when there is stress, and the co-symptoms are headache, sweat, myofascial pain, heart rate increase, high blood pressure and sometimes fatigue. Causes of anxiety disorder in the elderly might be caused by factors as follows: Heredity and environment–Heredity is an important factor. The results of the research studies conducted by Kendler, Aggen, Tambs, and Reichborn-Kjennerud (2006) and Kendler et al. (2006), studying 1,033 couples of female twins, discovered that heredity factor caused 30 percent of the twin couples with anxiety disorder, while it affected 70 percent of the twins with depression disorder. It also found that the heredity factor caused the disorder, or it was caused by particular characteristics of one's self or family members that experienced mental problems resulting in anxiety. This could be found in persons who are perfectionists or/and lack of self-confidence or found in those who had difficult life since childhood.

This present study adopted the framework from the etiology of depression in later life by combining both psycho-social variables as indicators of the psycho-social factor. The protective factor was measured by the social support. We studied both depressive and anxiety disorder together because it was found that 60-70 percent of depression persons also showed anxiety (Marona, 2003).

Effects of Depressive and Anxiety Disorders on the Elderly

Depressive disorder in the elderly. It is a risk for vessel abnormality e.g. heart disease and stroke. The depression disorder may lead to osteoporosis and diabetes in the elderly. Therefore, it has presently found that the depressive disorder co-occur with other diseases. It does not affect only brain, but also other organ systems. The effects of the depression disorder are no less harmful than any other diseases. The patients might not perform well as usual or not even be able to do anything. This could cause their family problems in finance, happiness and even in society. Apart from being likely to commit suicide, by the disorder, the patients could be driven to suffer physical problems or worse physical conditions.

Anxiety disorder in the elderly. It does not just affect the physical and mental health or emotion well-being, but it also causes physical changes, depending on anxiety level. The higher level of anxiety, the more changes occur. Anxiety can be categorized into four aspects of changes, biochemical changes, physiological changes, emotional changes, and thinking, memorizing, and perception changes (Khampha, 2009).

Methodology

The Research Sample

The subjects in this research samples were elderly people, and their caregivers. They were selected from areas covering 5 regions of Thailand by many steps of random sampling. First 5 provinces were selected. In each province, sub district administrative organizations were randomly sampled from both urban and rural areas. Then the subjects were selected, these included elders at the age of 60 or over, who have depressive disorder or depression, or have a tendency or has a high risk of this aforementioned disorders (such as people living in families with debt and disabled people).

The caregivers selected in the research were people in their family or caregivers who individually and closely took care of elders I.e. caregivers with depressive disorder who take care of elders at least 8 hours a day (from 24 hours) e.g. caregivers from the same family, elders' descendants, relatives and personal nurses. The total sample consisted of 450 elderly and 450 caregivers.

For the part of SEM analysis, the samples of the analysis were 450 elders. They consisted of 137 men (30.4%) and 313 women (69.6%). Most of them were aged between 60 and 64 (117 people, 26.0%). The elderly had mixed career choices (339 people, 75.3%), while the rest had worked in the government office, state enterprises, private corporations and as entrepreneurs. Currently, most elders were not working (258 people, 57.3%).

Research Instruments

Having revised documents and researches relevant to the care of elders with depressive and anxiety disorder, the researcher utilized this data to construct interview model and questionnaires in response to the objective of this research. The questionnaires were tested and validated by 3 psychology professionals to inspect its quality in terms of validity

of contents in accordance with the theory, the coverage of questionnaire's contents and appropriateness of forms and questions. Later, the questionnaires (draft) were adjusted in compliance with the professionals' advice. The researcher testified the questionnaires with 10 subjects who actually took care of elders with depressive order in communities. The results of this test were taken into account to adjust the questionnaires in accordance their suggestion and formed the new tools suitable for using with each group of sample. Finally, the research tools for final data collection are as further explained.

1) Interview form for elderly people: It was a structured interview used by caregivers in families or staff taking care of elders in communities as interviewers. Questions consist of 7 parts which are elders' demographic data, interview about elders' depressive condition adapted from CES-D (Center for Epidemiologic Studies-Depression Scale) by the researcher, interview about elders' confrontation with anxiety adapted from State-Trait-Anxiety Inventory (STAI) Form X-I of Spielberger (1983), which was translated into Thai by Somprasert (1983), interview about cause and effect of depression, interview about cause and effect of anxiety, interview about subjective well-being, and interview about social support which is created from the summary from revising relevant documents and researches.

2) Questionnaires for caregivers who were in elders' families and questionnaire for caregivers in communities: Questions consist of the same component and divided into 5 parts which are interview about caregivers' demographic data, interview about caregivers' knowledge of care and prevention of depressive disorder in elderly people, interview about caregivers' knowledge of care and prevention of anxiety disorder in elderly people, interview about caregivers' skill of care and prevention of depressive disorder and anxiety disorder in elderly people and interview about caregivers' attitude towards a care of elders with depressive disorder and anxiety disorder which created by the researchers from revising relevant documents and researches. The reliability of the depression scale was .90. The reliability of the anxiety scale was .83.

Data Collection Methods

Researchers started to collect data by requesting the Ministry of Public Health, Thailand, to give information about numbers of patients and prevalence of depressive disorder in Thailand. Later, provinces in each region are selected for samples. The selection criteria are numbers of patient with major depressive disorder receiving service (high level), ratio of patients' access to service (low level) and networks which were accessible in the community. Then, the researcher described details of data collection to the coordinating networks to gain the right understanding. The questionnaire documents were conducted and delivered to coordinators in each province. They collected data in their provinces and send questionnaires with complete answers to the researcher for further analysis. The research instruments were approved by research ethical committee of Srinakharinwirot University.

Statistics for Data Analysis

According to data analysis for testing causal relationship model of depression and anxiety of elders in communities, researcher analyzed data by the Structural equation modeling technique. This technique was used for studying the causal relation and effect of factors both directly and indirectly influenced from one factor to another.

Results

This part consisted of testing the goodness-of-fit of the models and the results of the proposed model testing.

Table 1

The Descriptive Statistics of the Research Variables

Variables	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.
1. Depressive disorder	1.91	.44	1																						
2. Depressive - Heredity	1.44	.73	.153**	1																					
3. Depressive - Personality	1.53	.51	.374**	.191**	1																				
4. Depressive - Symptom	1.42	.34	.173**	.130**	.254**	1																			
ressive - Situation	1.52	.54	.400**	.272**	.459**	.240**	1																		
eases	1.37	.47	.092**	.091**	.090**	.350**	.092**	1																	
iciency	1.79	.96	.237**	.169**	.246**	.210**	.207**	.245**	1																
ith wish	1.34	.74	.385**	.164**	.370**	.181**	.346**	.150**	.229**	1															
iety - Heredity	1.46	.92	.163**	.315**	.203**	.090**	.187**	.078*	.127**	.157**	1														
iety - Personality	1.69	.64	.243**	.094**	.374**	.178**	.367**	.104**	.204**	.240**	.141**	1													
iety - Symptom	1.35	.52	.269**	.204**	.401**	.158**	.420**	.133**	.251**	.314**	.185**	.417**	1												
iety - Situation	1.42	.55	.157**	.029	.178**	.179**	.193**	.097**	.050	.119**	.064*	.217**	.266**	1											
iety disorder - Physical	1.57	.47	.437**	.200**	.461**	.360**	.422**	.234**	.288**	.362**	.171**	.350**	.401**	.270**	1										
iety disorder – Emotional	1.52	.56	.568**	.206**	.519**	.232**	.510**	.171**	.289**	.524**	.231**	.450**	.508**	.260**	.643**	1									
iety disorder – Cognitive	1.70	.61	.379**	.178**	.408**	.241**	.383**	.146**	.360**	.352**	.182**	.330**	.390**	.232**	.484**	.582**	1								
isfaction with life	3.04	.65	-.243**	-.096**	-.102**	-.021	-.218**	-.005	-.138**	-.206**	-.104**	.078*	-.144**	.031	-.096**	-.192**	-.159**	1							
f- esteem	2.77	.54	-.134**	-.015	.016	-.030	-.034	.041	-.039	.000	.029	.101**	.007	-.022	.030	.027	-.008	.333**	1						
itive relationship	3.10	.51	-.181**	-.037	.015	-.044	-.061*	.027	-.051	-.017	-.043	.106**	-.030	.017	.019	-.039	-.014	.376**	.523**	1					
otional support	3.05	.54	-.214**	-.046	-.056	.002	-.050	.017	-.085**	-.096**	-.031	.080**	-.093**	-.010	-.015	-.104**	-.023	.376**	.515**	.458**	1				
gible support	2.88	.63	-.067*	-.021	.016	.044	-.066*	.059	.040	.025	-.013	.065*	-.023	-.024	.027	.007	-.003	.261**	.334**	.299**	.490**	1			
rmational support	3.30	.66	-.159**	-.059	-.058	.015	-.070*	-.036	-.055	-.124**	-.063*	.096**	-.104**	-.027	-.021	-.120**	-.079*	.481**	.307**	.367**	.591**	.490**	1		
work support	3.17	.76	-.208**	-.085**	-.083**	-.072*	-.090**	-.087**	-.169**	-.163**	-.106**	.070*	-.074*	.015	-.102**	-.155**	-.143**	.386**	.257**	.368**	.412**	.321**	.579**	1	
sem																									
port	3.19	.72	-.243**	-.046	-.102**	-.039	-.052	-.043	-.154**	-.186**	-.080**	.047	-.076*	.024	-.079**	-.158**	-.124**	.411**	.294**	.438**	.527**	.360**	.669**	.695**	1

From Table 1, it shows that the elders had low level of depressive disorder (mean=1.91) and the anxiety disorder (means were between 1.52 to 1.70). Moreover, the elders had the high level of the subjective well-being (means were between 2.77 to 3.10) and also had the high level of the social support (means were between 2.88 to 3.30). For the correlations among the research variables, the depressive disorder and the anxiety disorder had the positive moderate correlation (coefficients were between .379 to .568). The psycho-social factors of elders had the correlations among themselves with the correlation coefficients that less than 0.70, the multicollinearity was not affecting these results. Finally, the self-esteem of the subjective well-being had the highest correlation with the emotional support of the elders (r = .515).

The goodness-of-fit indices of the two hypothesized models are shown in Figure 1 and Figure 2. The fit of these proposed models was good. Although they had the significant $\chi 2$, all $\chi 2/df$ ratio were not larger than 3 indicates of an inadequate fit. The other goodness-of-fit indices indicated an adequate model fit. From these statistics, it could be concluded that both of the hypothesized models fit the empirical data.

Meanwhile, the goodness-of-fit of all measurements model in this research was good since all the observed variables could significantly indicate the presence of all latent variables with the factor loadings of .21 to .90 (p < .05).

From the model testing, the causes and effects of depressive and anxiety disorders could be summarized as follows. From Figure 1, the psycho- social factors of elders (i.e. situation, personality, symptom, and heredity, respectively) had a statistically positive direct effect on the depressive disorder of elders (with the coefficient .89). While social support (i.e. informational support, esteem support, network support, tangible support, and emotional support, respectively) had a statistically negative direct effect on the depressive disorder of elders (with the coefficient -.16). It shows that the psycho-social factors of elders and social support were the important causes of the depressive disorder of the elders, and the psycho-social factors of elders had more influence than social support. In addition it was shown that the caregivers' knowledge, attitude, and skills had a statistically direct effect on the depressive disorder of elders. Especially their attitude about the elderly care, and their skills of elderly care. Moreover, the depressive disorder of elders had a statistically direct effect on the death wish of elders. Besides, the depressive disorder of elders also had the highest statistically direct effect on the subjective wellbeing of the elders in the dimension of positive relationship.

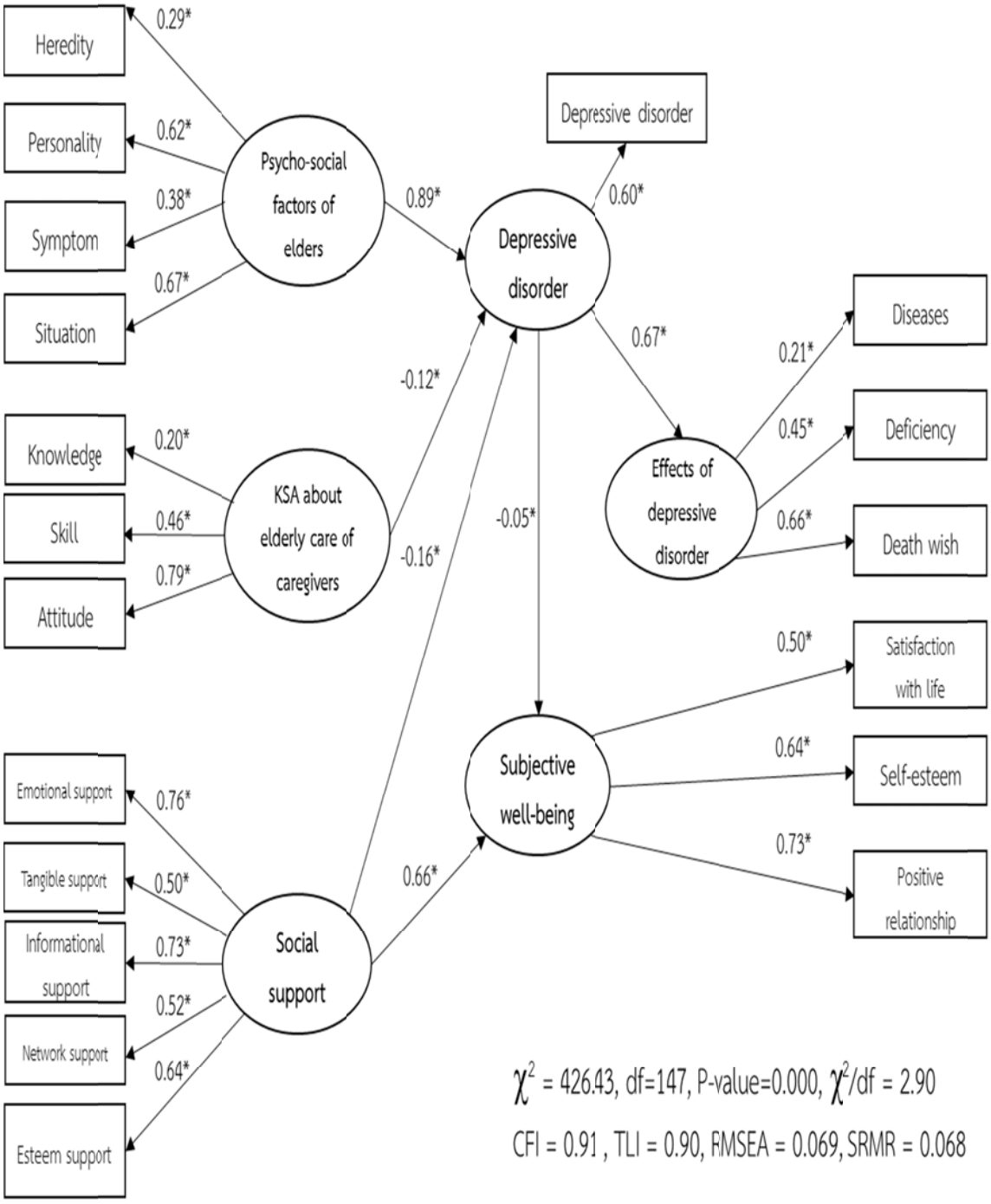

Figure 1. The Hypothesized Model of the Depressive Disorder of the Elders–the Caregivers (N = 450 from 5 provinces).

In part of the model testing for the causal model of anxiety disorder among the elders, the findings are stated herewith. From Figure 2, the psycho-social factors of elders (i.e., symptom, personality, situation, and heredity respectively) had a statistically positive direct effect on the anxiety disorder of elders (with the coefficient .67). While social support (i.e.,

informational support, esteem support, emotional support, network support, and tangible support, respectively) had a statistically negative direct effect on the anxiety disorder of elders (with the coefficient -.06). It was found that among the psycho-social factors of the elderly, social support were the important causes of the anxiety disorder of the elders, and the psycho-social factors of elders had more influence than social support. It was also shown that the caregivers' knowledge, attitude, and skills had a statistically direct effect on the anxiety disorder of elders. Especially their skills of elderly care, and their attitude about the elderly care. Finally, the anxiety disorder of elders had the highest statistically direct effect on the subjective wellbeing of elders in the dimension of positive relationship.

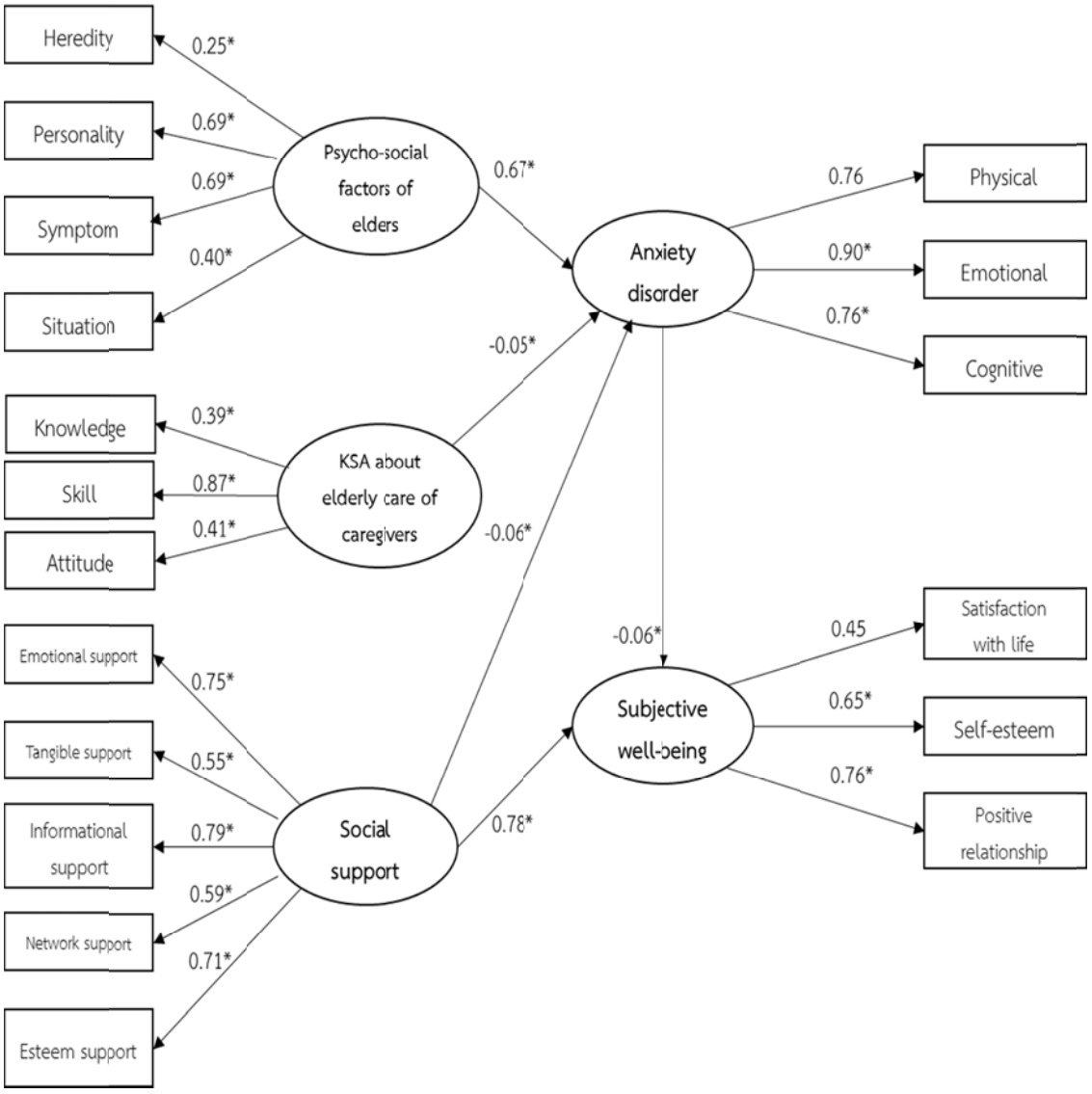

Figure 2. The Hypothesized Model of the Anxiety Disorder of the Elders–the Caregivers (*N* = 450 from 5 provinces).

Discussion and Recommendation

The results of this study suggests that both depression and anxiety disorder affected elderly's subjective well-being, which comprised positive relationship with others, self-esteem, and satisfaction with life. The finding supported the previous study that found that the depressed patients had impaired social and occupational functioning, and poor quality of life (Rao & Chen, 2012). It was also found that among the psycho-social factors the personality was the most important factor affecting both depression and anxiety in the elderly. This finding provided empirical support to the personality disorder research which found that "if an individual's personality function becomes disturbed, that person is sometime said to suffer from a mental disorder such as depression" (Mayer, 2006). It was also found that care giver's attitude toward caring was the most important factor negatively affecting depression while skills of caring was the most important factor negatively affecting anxiety. In addition, emotional, esteem, and information support were equally important social support negatively influence depression and anxiety. These findings supported previous research that there were four dimensions of good quality care namely, supporting emotional and well-being, functional competence and autonomy, social identity, and care as services (Song & Chi, 2001; Vaarama, Pieper, & Sixsmith, 2008).

This study was among just a few other studies in Thailand that studied about elderly with high risk of mental health problems to explain the causes and consequences of depression and anxiety. However some limitation does exist in this research; the questionnaires were constructed with very few items measuring each variable to reduce harm that may be caused by long interview timing with the elderly. We suggest that future research adopts other methods such as observation.

Recommendation for services is to provide instruments for assessing depression and anxiety for elderly at risk for example elderly with chronic diseases, chronic physical illness or disability. The psychological training may help improve coping skills, cognitive modification skills. Care givers should be trained to understand the emotional and, self-esteem needs of the elderly while caring for them.

References

American Psychiatric Association. (2000). *Task force on nomenclature and statistics: Diagnostic and statistical manual of mental disorders, fourth edition text revision (DSM-IV-TR).* Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Choonjam, S., Sangoon, S., Taweekoon, T. (2011). Review of research on depression of the elderly. *Ramathibodi Nursing Journal*, 412-428.

Department of Mental Health, Ministry of Public Health. (2010). *Clinical practice guideline of major depressive disorder for general practitioner: CPG-MDD-GP.* Bangkok: Department of Mental Health, Ministry of Public Health.

Health Systems Research Institute. (2009). *The report of Thailand population health examination survey IV.* Nonthaburi, Thailand: The graphico systems.

Jirawatkul, S., Rungreangkulkij, S., Kongsuk, T, Meenongwah, J., et al. (2006). *Mental health promotion and prevention of depressive disorders in a general population and risk groups*. Ubonrachatani, Thailand: Sirithamoffset press.

Kendler, K. S., Aggen, S. H., Tambs, K., Reichborn-Kjennerud, T. (2006). Illicit psychoactive substance use, abuse and dependence in a population-based sample of Norwegian twins. *Psychological Medicine, 36*(7), 955-962.

Kendler, K. S., Czajkowski, N., Tambs, K., Torgersen, S., Aggen, S. H., Neale, M. C., & Reichborn-Kjennerud, T. (2006). Dimensional representations of DSM-IV cluster a personality disorders in a population-based sample of Norwegian twins: A multivariate study. *Psychological Medicine, 36*(11), 1583-1591.

Khampha. (2009). *A study of general anxiety and a group counseling model construction for reducing general anxiety of the government university students in Bangkok* (Unpublished doctoral thesis). Srinakharinwirot University, Bangkok, Thailand.

Lotrakul, M. (2013). *Patient health questionnaire-9 Thai version.* Retrieved March 10, 2016, from http://ramamental.com/phq9/

Marona, H. E. (2003). Anxiety and Depression together. Retrieved March 10, 2016, from https://www.psychologytoday.com/articles/200310/anxiety-and-depression-together

Mayer, J. D. (2006). A classification of DSM-IV-TR mental disorders according to their relation to the personality system. In M. Hersen and J. C. Thomas (Eds.), *Comprehensive handbook of personality and psychopathology* (pp. 443-453). New Jersey, NJ: John Wiley & Sons.

Rao, U., & Chen, L. (2012). Depression in children and adolescents. In J. Fusco (Ed.), *Encyclopedia of depression research* (pp. 87-126). New York, NY: Nova Science Publisher.

Sirivanarungsun, P., Kongsuk, T., Arunpongpisal, S., Kittirattanapaiboon, P., & Charatsingha, A. (2004). Prevalence of mental disorders in Thailand: A national survey 2003. *Journal of Mental Health of Thailand, 12*(3), 177-185.

Song, X., & Chi, I. (2001). The role of social support in the relationship between physical health strain and depression of elderly Chinese. In I. Chi, N. Chappell, & J. Lubben (Ed.), *Elderly Chinese in pacific rim countries* (pp. 87-114). Honk Kong: Hong Kong University Press.

Somprasert, C. (1983). *The effect of buddhist meditation on the level of anxiety* (Unpublished master's thesis). Srinakharinwirot University, Thailand.

Spielberger, C. D. (1983). *State-trait anxiety inventory for adult*. Retrieved March 10, 2016, from http://psycnet.apa.org/doi/10.1037/t06496-000

Vaarama, M., Pieper, R., & Sixsmith, A. (2008). *Care- related quality of life in old age*. New York, NY: Springer.

Wada, S., Tanabe, K., Yamazaki, A., Niimi, M., Uehara, Y., Niimi, K., Lamping, E., Cannon, R. D., & Monk, B. C. (2005). Phosphorylation of candida glabrata ATP-binding cassette transporter Cdr1p regulates drug efflux activity and ATPase stability. *The Journal of Biological Chemistry*, *280*(1), 94-103.

The World Federation for Mental Health. (2012). *Depression: A global crisis world mental health day*. Retrieved October 10, 2012, from http://www.who.int/mental_health/management/depression/wfmh_paper_depression_wmhd_2012.pdf

The World Health Organization. (2012). *Risks to mental health: An overview of vulnerabilities and risk factors*. Retrieved August 27, 2012, from http://www.who.int/mental_health/mhgap/risks_to_mental_health_EN_27_08_12.pdf

The World Health Organization. (2016). *International classification of diseases, ICD-10*. Retrieved April 10, 2016, from http://www.who.int/classifications/icd/en/

Wilson, K. (2008). Late-life depression: An introduction. In C. Graham & B. Burns, (Eds.), *Integrated management of depression in the elderly*. New York, NY: Cambridge University Press.