

แบบจำลองเชิงสาเหตุของความผาสุกของย่า/ยายที่เลี้ยงหลานจากแม่วัยรุ่น A CAUSAL MODEL OF WELL-BEING AMONG GRANDMOTHERS RAISING GRANDCHILDREN OF THEIR ADOLESCENT DAUGHTERS

รัศมี ศรีนนท์ (Rassamee Srinon, Ph.D, C)¹

วรรณิ์ เดียวอิสเรศ (Wanee Deoiseres, Ph.D)²

ไพรัตน์ วงษ์นาม (Pairatana Wongnam, Ph.D)³

บทคัดย่อ

การศึกษานี้เป็นการวิจัยแบบภาคตัดขวางเพื่อศึกษาความสัมพันธ์เชิงโครงสร้างของแหล่งสนับสนุนทางสังคม ความเครียดในบทบาท ภาระในการดูแลที่มีต่อความผาสุกของย่า/ยายที่เลี้ยงหลานจากแม่วัยรุ่น โดยกรอบแนวคิดในการวิจัยครั้งนี้พัฒนาขึ้นมาจาก stress process model และการทบทวนวรรณกรรม กลุ่มตัวอย่างคือย่า/ยายที่เลี้ยงหลานจากแม่วัยรุ่น จำนวน 440 คน ได้รับการสุ่มแบบหลายขั้นตอนและได้ตอบแบบสอบถามจำนวน 4 ชุด ได้แก่ แหล่งสนับสนุนทางสังคม ความเครียดในบทบาท ภาระในการดูแล ความผาสุกทดสอบโมเดลสมมุติฐานโดยใช้สถิติโมเดลสมการโครงสร้าง

ผลการศึกษาพบว่า โมเดลสมมุติฐานการวิจัยมีความสอดคล้องกับข้อมูลเชิงประจักษ์และสามารถอธิบายความแปรปรวนของความผาสุกของย่า/ยายที่เลี้ยงหลานจากแม่วัยรุ่นได้ถึงร้อยละ 69 โดยพบว่าแหล่งสนับสนุนทางสังคมมีอิทธิพลโดยตรงต่อความผาสุกและมีอิทธิพลโดยอ้อมต่อความผาสุกโดยส่งผ่านภาระในการดูแลความเครียดในบทบาทมีอิทธิพลโดยอ้อมต่อความผาสุกโดยส่งผ่านภาระในการดูแลโมเดลเชิงโครงสร้างนี้ใช้เป็นแนวทางในการทำโปรแกรมส่งเสริมความผาสุกของย่า/ยายที่เลี้ยงหลานจากแม่วัยรุ่นโดยให้ความสำคัญกับแหล่งสนับสนุนทางสังคมจากบุคคลในครอบครัวและญาติ

คำสำคัญ: ความผาสุกของย่า/ยาย, ภาระในการดูแล, ความเครียดในบทบาท, แหล่งสนับสนุนทางสังคม

¹ RN, PhD. (Candidate), Faculty of Nursing, Burapha University

² RN, Ph.D. Associate Professor, Faculty of Nursing, Burapha University

³ Ph.D. Associate Professor, Faculty of Education, Burapha University

Abstract

The purposes of this study were to examine the causal relationship among social support, parenting stress, caregiver appraisals, and well-being among grandmothers raising a grandchild of their adolescent daughter and to identify the best predictive model for caregiver stress process model as well-being in caregiving grandmothers raising grandchild of adolescent daughters. The caregiver stress process model of Pearlin et al. (1999) was used to guide this study. Multistage sampling was employed to recruit 440 grandmothers from 5 districts in Ratchaburi province. Grandmothers were asked to complete 4 questionnaires including the Parenting Stress Index (PSI)/ Short Form, the Caregiver Reaction Assessment (CRA), the Social Support Questionnaire (SSQ) Part II and the Short Form Health Screen Questionnaire (SF-36). Data were analyzed by descriptive statistics and Structural Equation Model (SEM) via Analysis of Moment Structure (AMOS).

The results of the study revealed that the final modified model fitted the empirical data ($\chi^2/ df = 1.855$, RMR = .021, GFI = .960, AGFI = .928, CFI = .978, RMSEA = .044) and explained 69% of the variance in well-being. This model indicated that social support had a significant positive direct effect and had an indirect effect on well-being through caregiver appraisals. Parenting stress had an indirect effect on well-being through caregiver appraisals on well-being.

The findings suggest that intervention program to promoting well-being of grandmothers raising a grandchild should be focused on family and relatives' support, decreasing parenting stress, and enhancing positive perception on caregiver appraisals.

KEY WORDS: well-being of grandmothers; caregiver appraisal; parenting stress/social support

Introduction

Adolescent pregnancy is one of the most emerging issues in Thailand. The Secretary Office of Ministry of Social Development and Human Security (2014) stated that the current situation of adolescent pregnancy is a long-time social problem. In the last 10 years, the rate of adolescent pregnancy was higher than the criteria set up by the World Health Organization. The situation was similar for all regions of Thailand. Urairoekkun (2010) studied and reported that the rate of adolescent pregnancy in Ratchaburi province was higher than the teenage birth rate in Thailand and the western region.

Consequently, raising a new born baby has become a big burden for grandmothers as parents and has affected quality of their lives (Alvarez-Nunez, 2009; Minkler, 1994). They took major role and responsibility as primary caregivers to raise their grandchildren on their own (Dowdell, 2004, 2005; Kelley & Damato, 1995, Susan, 2010). A study by Smith (2005) indicated that grandmothers involved on raising their grandchildren more than grandfathers. Kamnuansilpa and Wongthanavas (2011) found that most grandmothers have played a major role as a mother of their grandchild. Psychological stress was a common theme in grand parents raising grandchildren (Lumpkin, 2008; Longoria, 2009).

The stress causes some more problems to grandmothers such as depression, beliefs, strain, health status, stress, and coping (Musil, 1998; Musil, Warner, Zauszniewski, Wykle, & Standing, 2009; Sandel, Cho, Miller, & Wang, 2006,

Backhouse, 2009). On the other hand, Coleman (2012) revealed that young custodial grandmothers experienced parenting stress levels equivalent to their older counterparts, however, neither stress nor negative appraisals of caregiving led to negative outcomes. Subjective social support did not mediate the relationship between stress and caregiver outcomes. In addition, caregiver appraisals were not significant mediators of stress and outcomes. Findings provided evidence for the buffering effect of both emotional focused and problem-focused coping.

Several studies investigated factors that affect grandmothers raising their grandchild such as stress and social support. Musil (1998) conducted a study on health, stress, coping, and supports of grandmothers who live with one or more grandchildren and participate in their care, and to examine whether differences exist between grandmothers with primary and partial responsibility for their grandchildren's care. A convenience sampling of 90 women was recruited from various sites, and participants then completed a self-administered questionnaire. The result revealed that, there were no differences between grandmothers who had primary responsibility for raising their grandchildren (n = 58) and those who did not (n = 32) in self-assessed health, anxiety, depression, coping, and typical grandparenting stresses. The study indicated that grandmothers with primary responsibility reported significantly greater parenting stresses and less instrumental and subjective social support. Grandmothers of both groups reported high depression and anxiety scores and favorable scores on grand parenting stresses.

In Thai context, there were no studies that studied directly on the issues of grandmother raising the grandchild. However, there were some studies investigated the grandmothers' roles in taking care of their grandchildren. Yodthong (2013) examined depressive symptoms in grandparents caring for grandchildren. She found that one-third (33%) of the participants had depressive symptoms. The study suggested that there should be a screening for depressive symptoms in grandparents who were the primary caregivers of grandchildren age 0-5 years old. In addition, Nanthamongkolchai, Munsawaengsub, Taechaboonsermsak, and Powwattana (2012) found that factors influencing happiness of grandmothers raising grandchildren in rural areas of Northern Thailand were self-esteem, social support, and family relationship. The study suggested to promote happiness of grandmothers by responsible organizations arranging activities that enhance the grandmother's self-esteem, provide sufficient social support, and promote good family relationships. From previous studies in Thailand, there were no any studies about the pattern of causal relationships among social support, parenting stress, caregiver appraisals, and well-being in grandmothers raising grandchild of adolescent mothers. Therefore, this study attempted to bridge this gap in the field of grandmothers raising their grandchild.

Objectives

1. To examine the pattern of causal relationships among social support, parenting stress, caregiver appraisals, and well-being in grandmothers raising grandchild of adolescent mothers.
2. To identify the best predictive model

for caregiver stress process model as well-being in grandmothers raising grandchild of adolescent mothers.

Conceptual Framework

The theoretical framework is derived from the stress process model (SPM) developed by Pearlin et al. (1999) that contains four components namely; background and context of stress, stressors (primary and secondary), outcomes of stress, and mediators between stressors and outcomes. However, this study focused on four main factors according to social support, parenting stress, caregiver appraisals, and well-being. According to the framework, the researcher decided not to study a factor of coping because this study mainly focused on social support from three sources including: 1) family members and relative, 2) friends and colleague, and 3) health care providers. It was a particular interest that social support in this study focused on family members, siblings, and friends who are considered as sources of social support to grandmothers as discussed by Musil (1998) and Leder et al. (2007). Regarding the literature, the caregiver stress model was first used with caregivers of older adults with dementia (Lawton, Kleban, Moss, Ravine, & Glicksman, (1989); Lin, Dean, & Ensel, 1986; Pearlin & Turner, 1987; Quayhagen & Quayhagen, 1988), but at present this model has been used with custodial grandparent caregivers (Burton, 1992; Leder, et al., 2007; Musil & Ahmad, 2002; Musil, 1998; 2000; Rodriguez & Crowther, 2003). In Thai context, this model has been used with caregivers of parents with advanced cancer (Meecharoen, 2013) but has never been used with

grandparents and grandmothers. Therefore, the model was first used with grandmothers in Thai context by this study. The main reason that the researcher choose to study only four factors was that these factors

played a direct effect on grandmothers who raised their grandchildren and they were closely related to them in terms of personal environment.

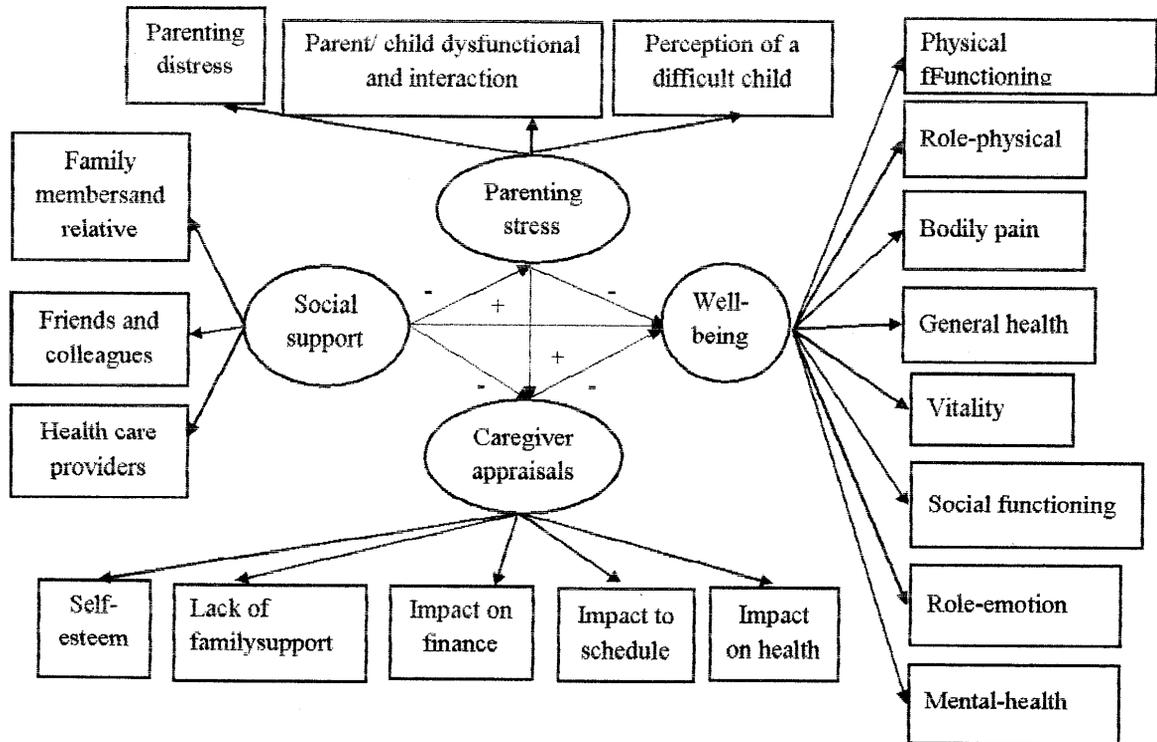


Figure 1 The hypothesized model of well-being among grandmothers raising grandchildren of their adolescent daughters by the Stress Process Model (Pearlin et al.,1990) and empirical literatures

Methodology

Design: This descriptive study used a model-testing research design to analyze three predictive variables: 1) social support, 2) primary stressor as parenting stress, and 3) secondary stress as caregiver appraisals and well-being which was dependent variable based on the Stress Process Model by Perlin et al. (1999).

Participants and setting:

The target population of this study were grandmothers who raised grandchild of adolescent mothers in communities of Ratchaburi province. Ratchaburi province was selected as setting because Ratchaburi province has rapid changed in terms of capitalism, industry, technology, and social and economic development.

Sample size: The sample size for this study is based on a general rule of thumb for Structural Equation Modeling (SEM) recommended by Hair, Black, Babin, Anderson, and Tatham (2006) and Chou (1987 cited in Schumacker & Lamax, 2010) that the number of subjects for Structural Equation Modeling (SEM) approach was ten respondents per estimated parameter. This study had four latent variables and nineteen constructed variables, thus a total number of estimated parameters was twenty-three parameters. According to the calculation, it yielded a total number of 230 subjects. However, the SEM using the robust maximum likelihood (RML) with the asymptotic covariance matrix typically requires almost a double of sample size estimated for usual maximum likelihood based approximation technique. Therefore, 440 subjects were recruited in this study to increase robustness of the parameter estimate and trustworthy results.

Sampling technique: Multistage sampling was employed to recruit 440 grandmothers raising grandchild for adolescent mothers. The inclusion criteria for grandmothers who enrolled in this study were as follows: 1) Being a primary caregiver to care her grandchild (taking a bath, feeding, cleaning, taking a baby to sleep) aged from newborn to 12 months., and 2. Being able to communicate and understand Thai language. In sampling process, three steps of multi-stage sampling to select the participants into the study were as follows:

First, Ratchaburi province is comprised of 10 districts. Five of the ten districts were selected by simple random sampling including Mueng, Ban Pong,

Photharam, DamnoenSaduak and Chombueng District. Next, forty-four sub-districts were simple random sampling from the selected districts. Finally, ten participants were randomly selected from a health promotion hospital in each selected sub-districts.

Ethical considerations: This study obtained an ethical approval from the Institutional Review Board (IRB) for graduate studies, Faculty of Nursing, Burapha University, Thailand. A number of the IRB approval was 11-02-2558. A verbal explanation of the objectives, procedure, the right to refuse to participate or withdraw from the study, and protection of confidentiality were clearly stated to potential participants. Written consent was obtained from those willing to participate.

Instruments: Data were obtained by using 4 questionnaires including :

1. *The Social Support Questionnaire (SSQ) Part II* was developed by Schaefer et al. (1981). The SSQ Part II then was modified into a Thai version by Hanucharunkul (1988) and modified again by Kaveevivitchai (1993). The internal consistency reliability of the SSQ in different population was .77 to .89 (Kaveevivitchai, 1993; Khuwatsamrit, 2006; Pattayakorn, 2010; Santawaja, 2002). Moreover, the Cronbach's alpha coefficient from previous Thai studies in cancer caregivers ranged from .85-.93 (Chansirimongkol, 2007; Pitimanaree, 2007; Ungwattansirikul, 2007; Meecharoen, 2013).

In this study, the researcher used the Social Support Questionnaire (SSQ) Part II in Thai version to assess social support from three groups including social support from family members and relatives,

friends and colleagues, and health care providers of caregiving grandmothers who raised grandchildren from adolescent mothers.

2. *The Parenting Stress Index/Short Form (PSI/ SF)* was developed by Abidin (1995) and was modified into a Thai version by Kraikul (2009) and Charoensatsiri et al. (2014). Kraikul (2009) modified this instrument that was developed by Abidin (1995) and assessed relationship between parental stress and parent-child attachment in sick children who were admitted in intensive care unit (ICU.). The Cronbach's alpha coefficient from this study in parents who have sick siblings was .91. Charoen-satsiri et al. (2014) studied factors predicting parenting stress in adolescent mothers of first-born infants. There were 36 items asking a mother's perceptions toward her adaptation and need to the parent roles. The items covered the following aspects: parental distress (item 1-12), parental-child dysfunction interaction (items 13-24), and difficult child (items 25-36). The response option for items 1-21, 23-31, and 34-36 was a Likert scale ranging from 1-5 as follows: 5-Strongly agree, 4-Agree, 3-Not sure, 2-Disagree, and 1-Strongly disagree. The response options for items 22, 32-33 were a multiple choice format. Five choices were created for each item and with a score ranging from 1-5. The total scores ranged from 36-180. The higher scores referred to higher parenting stress. In this study, the researcher used the Parenting Stress Index (PSI)/ Short Form, a 36-item instrument in Thai version to assess parenting stress in caregiving grandmothers who raised their grandchild from adolescent mothers. Therefore, the researcher used the grandmothers to

replace the mothers in the item 3, and 22 and used the nephew to replace children in the item 2,4,5,8, 13-21, and 23-36.

3. *Caregiver Appraisals of the Caregiving Grandmothers* was assessed by using the Caregiver Reaction Assessment (CRA), developed by Given et al. (1992) and modified by ; Yodthong (2013). The content validity index of the instrument was rated by three qualified experts and reported at .90. It was tried out for reliability in 30 grandparents similar to the subjects. The Cronbach's alpha coefficient of the CRA (22 items) was .89. Reliability of five sub-scales including self-esteem (7 items), lack of family support (5 items), impact of finances (3 items), impact to schedule (5 items), and impact on health (4 items) was .67, .66, .50, .68, and .81, respectively.

4. *The Short Form Health Screen Questionnaire (SF-36)*- Thai version was developed by Ware & Sherbourne (1992) and translated into Thai by Leurmarnkul & Meetam (2005). It was used to assess well-being of caregiving grandmothers who raise grandchildren from adolescent mothers in this study. The Short Form Health Screen Questionnaire (SF-36)- Thai version included 36 items with 8 sub-scales of health concepts including: 1) psychical functioning, 2) role disability due to physical health problems, 3) bodily pain, 4) general health perceptions, 5) vitality, 6) social functioning, 7) role disability due to emotional problems, and 8) general mental health. The SF-36 has been used frequently within the custodial grandparent literature (Goodman & Silverstein, 2002; Leder et al., 2007) and has been used to assess health and

well-being in the custodial grandparent in young grandmothers (Carr, 2007). This instrument was used to study well-being in caregiving grandmothers (Goodman, 2012) and physical health and psychological well-being in African American grandmothers (Kelley, Whitley, & Compos, 2013). The Short Form Health Screen Questionnaire (SF-36)- Thai version (Leurmarnkul and Meetam, 2005) was employed to measure quality of life and reported Cronbach's alpha coefficients over 0.7 (0.72-0.86) for all subscale.

A pilot study was conducted by interviewing 440 grandmothers raising grandchild from adolescent mothers. They were asked to give feedback about items in the questionnaire and understandability of the items.

Data collection: Once the proposal of this study was approved from the Institutional Review Board for graduate studies, Faculty of Nursing, Burapha University, Thailand, the sample was recruited. Data collection was conducted in a quiet room in each setting. Structured interviews were arranged by using the 4 questionnaires mentioned above.

Data analysis: The significance level was set at .05. Data were analyzed by using statistical product and service solutions (SPSS version 17.0). Data were analyzed by using Structural Equation Modeling (SEM) via Analysis of Moment Structure (AMOS). The assumptions of structural equation modeling including normality of distribution, linearity of relationship, homoscedasticity, and multicollinearity were examined prior to data analysis. The results

revealed that only the assumption of normality was violated. To deal with non-normality, an estimation method with less restrictive distributional assumptions, robustness maximum likelihood estimation, was used to estimate the strength of relationship and assess how well each measurement model and hypothesized model fit the empirical data (Schumacker & Lomax, 2004).

Results

1. Characteristics of the sample: The majority of the grandmothers aged less than 50 years old (54.1%), graduated a primary school level (61.8%), married (66.4%), unemployed (63.7%) and no history of physical illness (62.2%).

2. Description of study variables

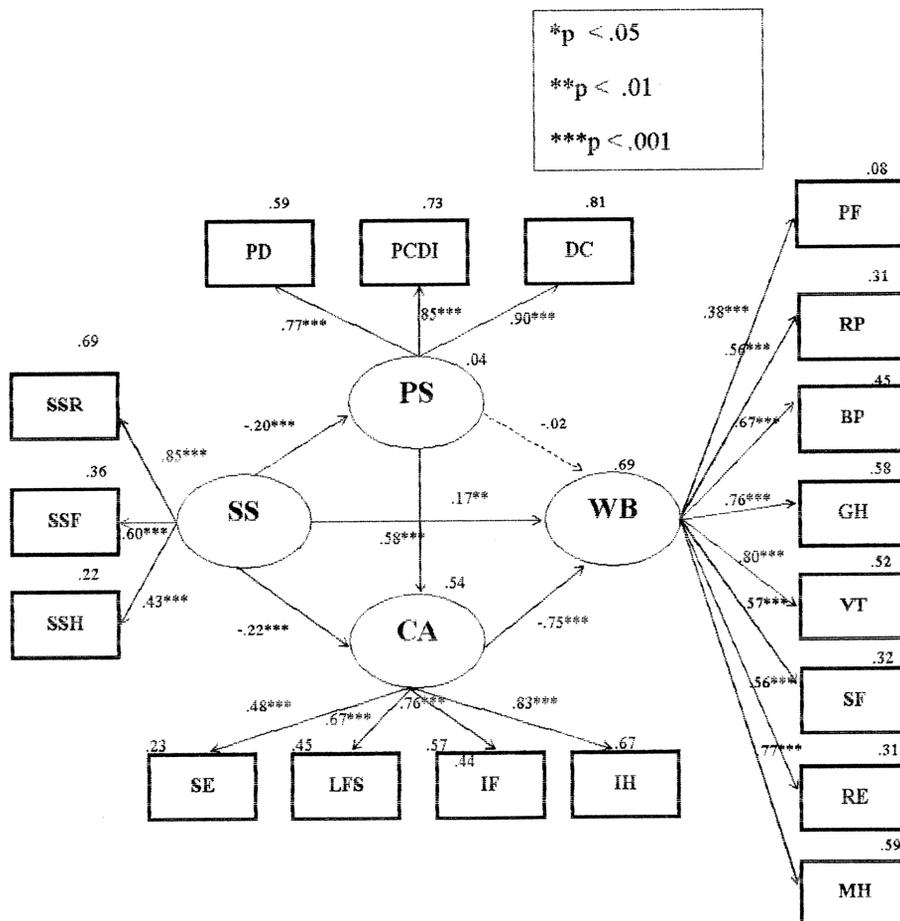
Social support: The mean score of social support perceived by the grandmothers was 28.4 (S.D. = 8.28; Range 3-60). The mean score of social support was nearly half of the possible range. The sources of social support mainly came from family members and relatives (Mean = 9.73, S.D. = 3.15); the supports from friends and colleagues and health care providers in the community were equal (Mean = 9.61, S.D. = 3.32, and 3.44, respectively).

Parenting stress: The mean score of grandmothers' parenting stress was 84.29 (S.D. = 20.03) with a range from 44 to 150. Higher score indicated the higher level of sense of parenting stress. The mean score of parenting stress reported by the grandmothers was approximately a half of the possible range.

Caregiver appraisals: The grandmothers had the caregiver appraisals with actual range of 34 to 85 and with mean score of 56.80 (S.D. = 8.86). The higher score of caregiver appraisals indicated higher reaction of caregiver. The mean score of caregiver appraisals of the grandmothers was higher than a half of the possible range.

Well-being: The grandmothers had mean score of well-being of 107.83 (S.D. = 14.59, Range 62-148), which was about two third of the highest possible score. The higher score indicated higher well-being of the grandmothers.

3. Structural Equation Model (SEM)



$\chi^2 = 170.69$, $df = 92$, $p = .000$, $\chi^2/df = 1.86$, $RMR = .021$, $GFI = .96$, $AGFI = .93$, $CFI = .98$, $RMSEA = .04$

Figure 2. The modified model of well-being among the grandmothers raising grandchildren of their adolescent daughters

The hypothesized model analysis illustrated that the model did not fit the empirical data ($\chi^2 = 768.368$, $df = 129$, $p = .000$, $\chi^2/df = 5.956$, $RMR = .035$, $GFI = .831$, $AGFI = .776$, $CFI = .825$, $RMSEA = .106$). The final modified model fitted the empirical data of $\chi^2 = 170.690$, $df = 92$, $p = .000$, $\chi^2/df = 1.923$, $RMR = .021$, $GFI = .960$, $AGFI = .926$, $CFI = .978$, $RMSEA = .044$. The model explained 69% of variance in well-being of the grandparents.

Discussion

Social support had a direct positive on well-being and had an indirect effect on well-being through caregiver appraisals and parenting stress. This study found that social support had a significant positive direct effect on well-being ($\beta=0.17$, $p<0.01$) and had an indirect effect on well-being through caregiver appraisals. Social support had a significant negative direct effect on caregiver appraisals ($\beta=-0.22$, $p<0.001$) and caregiver appraisals had a significant negative direct effect on well-being ($\beta=-0.75$, $p<0.001$). Social support had a significant negative direct effect on parenting stress ($\beta=-0.20$, $p<0.001$). However, parenting stress had a non-significant negative direct effect on well-being ($\beta=-0.02$, $p<0.05$). According to Pearlin (1999), it was discussed that social support was moderating resources which played important roles in protecting persons from the consequences of their stressful situations. Some studies consistently link social support with positive caregiver outcomes. (Kelly, 1993; Shore & Hayslip, 1994; Musil & Ahmad; Sands & Goldberg-Glen, 2000). Nanthamongkolchai, et.al.

(2010) studied elderly females who took care of their grandchildren in the Northern region of Thailand. They found that the main factor which influenced happiness of grandmothers raising grandchildren was social support ($\beta=0.235$, $p<0.001$). Gerard et al. (2006) acknowledged the beneficial influence of social support on caregiver outcomes, but found that only enacted formal support (e.g., the number of supportive transactions which the caregiver engaged in) buffered the relationship between stress and grandparent outcome measures such as satisfaction. Leder et al. (2006) found positive correlation between social support and physical health.

Parenting stress had a negative direct effect on well-being and had an indirect effect on well-being through caregiver appraisals. This study showed that there were a non-significant negative direct effect on well-being ($\beta=-0.02$, $p<0.05$) and an indirect effect on well-being through caregiver appraisals. Parenting stress had a significant positive indirect effect on caregiver appraisals ($\beta=0.58$, $p<0.001$) and caregiver appraisals had a significant negative direct effect on well-being ($\beta=-0.75$, $p<0.001$). Musil & Ahmad (2002) found that parenting stress of grandparents could predict negative outcomes such as increased depression and poorer health ratings. Coleman (2012) found that among young grandparent caregivers, there were the higher ratings of parenting stress and suggested that among young grandparent caregivers, the higher ratings of parenting stress were correlated with lower ratings of depressive symptoms and more positive ratings of well-being.

The caregiver appraisals had a negative significant direct effect on well-being ($\beta=-0.75$,

$p < 0.001$). This part of the results is exactly line with the study of Yodthong (2013.) which found small, significant negative relationship between caregiving burden, in term of self-esteem, and depress symptom ($r = -.237, p < 0.05$). Among the few studies which investigated these factors in a quantitative approach, burden has commonly been depicted as the caregiver appraisal that influenced outcomes. Increased burden has been linked with reports of both poor mental and physical health. Carr et al., (2012) found that burden predicted perceived physical health, with greater burden being correlated with poorer health reports. Coleman (2012) found that the absence of burden was a significant predictor of health status.

Conclusions

This study showed that social support had a direct positive on well-being and had an indirect effect on well-being though caregiver appraisals and parenting stress. Social support had a significant positive direct effect on well-being and had an indirect effect on well-being though caregiver appraisals. Social

support had a significant negative direct effect on caregiver appraisals and caregiver appraisals had a significant negative direct effect on well-being. Social support had a significant negative direct effect on parenting stress. However, parenting stress had no significant negative direct effect on well-being. Therefore, a longitudinal study should be determined on how social support, parenting stress, caregiving appraisals as well as well-being of grandmothers affect grandmothers over time. According to the stress process of Pealrin (1999), there were many factors that affected the outcomes. Therefore, more variables may be selected to retest with grandmothers in different dimensions such as socioeconomic-demographic characteristics, income and education as a background of population. A qualitative study by in-depth interview grandmothers should be investigated in order to understand about their being and lifestyles. Finally, an experimental study should be conducted in order to test nursing intervention to promote well-being in grandmothers as well as enhance social support to deal with parenting stress or caregiver appraisal.

REFERENCES

- Alvrez-Nunez, A. (2009). *Grandmother's quality of life: Raising grandchildren*. Master's thesis, Social work, The Department of Social Work, California State University.
- Backhouse, J. (2009). *Grandparents raising their grandchildren: Impact of the transition from a traditional grandparent role to a grandparent as parent role*. Southern Cross University. Doctoral dissertation, Philosophy, Southern Cross University.
- Carr, G. F. (2007). *African American grandmother caregivers: Relationships among information need, perceived burden, perceived health, service need, and service use*. Doctoral dissertation, Philosophy, University of Texas.

- Charoensatsiri, R., Chaimongkol, N. & Pongjaturawit, Y. (2014). Factors predicting parenting stress in adolescent mothers of first-born infants. *The Journal of Prapokkiao Hospital Clinical Medical Education Center*, 31(2), 105-113.
- Coleman, M.L. (2012). *Custodial grandparenting in young grandmothers: Exploring the stress process model and from adaptive coping*. Doctoral dissertation, Philosophy, Graduate College, College of Technology.
- Dowdell, E. B. (2005). Grandmother caregivers and caregiver reactions to caring for high-risk grandchildren. *Journal of Gerontological Nursing*, 31(6), 31-37.
- Goodman, C.C. (2012). Caregiving grandmothers and their grandchildren: Well-being nine years later. *Children and Youth Review*, 34, 648-654.
- Hair, J. F., Back, W. C., Babin, B.J., Anderson, R. E., & Tatham, R.L. (2006). *Multivariate data analysis* (6th ed.). New Jersey: Prentice Hall.
- Kamnuansilpa, P., & Wongthanavas, S. (2011). Grandparents' relationships with grandchildren in Thailand. *Journal of Intergenerational Relationships*, 9(3), 49-66.
- Kelley, S. J., Whitley, D. M., & Campos, P. E. (2010). Grandmothers raising grandchildren: Results of an intervention to improve health outcomes. *Journal of Nursing Scholarship*, 42(4), 379-386.
- Kelley, S. J., Whitley, D. M., & Campos, P. E. (2010). Psychological distress in African American grandmothers raising grandchildren: The contribution of child behavior problems, physical health, and family resources. *Journal of Nursing Scholarship*, 42(4), 379-386.
- Kline, R. B. (1998). *Principles and practice of structural equation modeling*. New York: The Guilford Press.
- Leurmarnkul W, & Meemam P. (2005). Properties Testing of the Retranslated SF-36 (Thai Version). *Thai Journal of Pharmaceutical Sciences*, 29(1-2). 69-88.
- Meecharoen, W. (2013). *Factor influencing quality of life among family caregivers of patients with advanced cancer: A causal model*. Doctoral dissertation, Philosophy, Faculty of Nursing, Mahidol University.
- Musil, C., Schrader, S., & Mutikani, J. (2000). Social support stress and the special coping tasks of grandmother caregivers. In C. Cox (Ed.), *To grandmother's house we go and stay: Perspectives on custodial grandparents* (pp. 56-70). New York: Springer.
- Musil, C. M., Warner, C. B., & Zauszniewski, J.A. (2006). Grandmothers, caregiving, and family functioning. *Journal of Gerontology*, 61B(2), S89-S98.

- Musil, C., Warner, C., Zauszniewski, J., Wykle, M., & Standing, T. (2009). Grandmother care giving, family stress and strain, and depressive symptoms. *Western Journal of Nursing Research*, 31, 389-408.
- Musil, C. M., Gordon, N.L., Warner, C. B., Zauszniewski, J.A., Standing, T., & Wykle, M. (2009). Grandmothers and caregiving to children: Continuity, change, and outcomes over 24 month. *The Gerontologist*, 51(1), 86-100.
- Pearlin, L.I. (1999). The stress process revisited. In C.S. Aneshensel & J.C. Phelan (Eds.), *Handbook of the Sociology of Mental Health* (pp. 395-415). New York: Kluwer Academic/Plenum.
- Siriboon, S. (2000). *Mental health of the grandmother of 0-5 years old in Kanthalak district, Srisaketprovince*, Master's thesis, Science (Family Health), Mahidol University, Bangkok, Thailand.
- Ware, J. E., & Sherbourne, C.D. (1992). The MOS 36-item short-form health Survey (SF-36). *Medical Care*, 30(6), 473-483.
- Yodthong, D. (2013). *Relationship between age, caregiving burden, and depressive symptoms of grandparent caring for grandchildren*. Master's thesis, Health and Psychiatric Nursing, Faculty of Nursing, Mahidol University.