# Family Relations and Health-Promoting Behavior among Older People in Nan Province

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***Objective:*** *To examine the relationships by which family networks and support influence the health-promoting behaviors among the older persons.*
***Material and Method:*** *The present study was a cross-sectional survey of 469 elders aged 60 years and over living in a community in Nan Province. Samples were selected by multi-stage random sampling. Data were collected by interviewing from May to July 2007. A structural equation modeling (SEM) with the LISREL program version 8.72 was used for analysis after the effects of socio-demographic factors were controlled.*
***Results:*** *Family networks did not have direct influence on the elderly health-promoting behavior, but had indirect influence through support and sense of well-being. Family support had a prominent influence on elderly sense of well-being, then facilitating health-promoting behavior. Elderly sense of well-being had strong association with health-promoting behavior.*
***Conclusion:*** *Family support programs to facilitate the good interrelationship within the family should be encouraged and promoted to enhance elderly psychological well-being and health-promoting behaviors subsequently.*

***Keywords:*** *Family support, Health-promoting behaviors, Older persons*

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Old age is the period of obvious changes and decline according to the chronological ages of both physical and mental health. One of the important health problems among the Thai older adults is chronic illnesses[1]. Actually, several chronic conditions can be prevented and controlled if people engage in health promotion and disease prevention. However, many studies have noted that elderly Thais tend to ignore health-promoting behavior such as exercise or annual health check-up's[2,3]. This indicates that they are rarely nurturing their health, which leads to suffering various health problems in later life.

The existing evidences show that health promoting behavior is influenced by a variety of factors both individual and contextual[4,5]. Social networks that have been well-recognized as the closest to older persons are family members who influence elderly health through a supportive system[6-8]. Social support is one of the psychosocial factors that influence individual health-promoting practices. The benefits of social support to elderly health are various, such as increasing health-promoting behavior, promoting psychological well-being, and enhancing quality of life and well-being[4]. Hence, the most robust influence on healthy aging that has been found is an individual's degree of social support. However, the exact nature or mechanisms of the positive influence of social support on health remain elusive[4,9].

Although many studies in Thailand have examined family support related to health-promoting behavior among the older adults, they are mainly focused on the simple relationship between independent and dependent variables or predictor factors on the dependent variables[10,11]. In particular, the mechanism

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between familial relations and health-promoting behaviors among elderly Thais to explain the direct, indirect, and mediated effects in the model is very limited. Jo et al[5] have suggested that investigating consecutive relationships between independent variables is needed to better understand the holistic view in the model of psychosocial factors and health promotion behavior. Therefore, the present study attempted to examine the relationships by which family networks and support influence the health-promoting behavior among the older persons.

## Material and Method

### *Study area and sample*

This is a cross-sectional study. The subjects were recruited from Nan province, Thailand. A total of 469 respondents aged 60 years and over living in a community were selected to participate in the survey. The sample size was derived by calculating based on a formula by Lemeshow et al[12] from the entire aging population of the province (67,513 persons). A four-stage random sampling method (districts, sub-districts, villages, and respondents) was employed to select the study respondents.

### *Measures*

*Health-promoting behavior:* This construct was modified from the Health-Promoting Behavior Measuring Instrument (HPBMI), developed by Yensuchit[13]. The modified health promotion behavior scale consisted of 36 items seven subscales, which captured two main dimensions: promoting health and preventing disease and injury. The responses on this inventory ranged from 1 (never) to 4 (routinely). The alpha reliability of the entire health promotion behavior scale in the present study was 0.94. The alpha reliabilities of the two main subscales (promoting health and preventing disease and injury) were 0.92 and 0.90, respectively.

*Family networks*: Family network scale used was the Social Network Scale revised version, developed by Lubben[14]. This scale is composed of three items that are self-reported measures of (a) active network size by regularly contacted persons, (b) intimate persons, and (c) perceived confidants. Each item was scored to a range of 0 (none), 1 (one), 2 (two), 3 (three or four), 4 (five thru eight), to 5 (nine or more). Family networks in the present study included spouse, children, grandchildren, son or daughter-in-law, and siblings. The Cronbach's alpha score of the present scale in this study was 0.81.

*Family support*: Family support scale was modified from Perceived Support Scale developed by Krause and Markides[15]. It consisted of 11 items to measure provision of supports: information, emotion, and instrument support that older persons received from family members. Responses were made along a 4-point rating from 1 (never) to 4 (very often). The Cronbach's alpha value of family support scale in the present study was 0.92.

*Sense of well-being*: Two constructs of sense of well-being were performed. First, life satisfaction that was a single question "Overall, how satisfied are you with your life now?" The score ranged from 1 (very dissatisfied) to 4 (very satisfied). Second, the Thai Psychological Well-being Scale (TPWBS), developed by Ingersoll-Dayton and colleagues[16], was used in the present study. It was composed of 15 items ranging from 1 (not at all true) to 4 (very true). The alpha reliability of the entire TPWBS was 0.94.

*Socio-demographic characteristics*: Age was scored continuously in years. Similarly, education was evaluated with the total number of years of schooling. Income was assessed with the total income annually. Chronic illness was scored with the total number of chronic illnesses. In contrast, gender (1 = man, 0 = woman), marital status (1 = current married, 0 = otherwise), and residential area (urban = 1, rural = 0) were measured with binary indicators.

### *Data collection*

The research protocol was submitted and approved by the Institutional Review Board (IRB) of the Institute for Population and Social Research, Mahidol University. The purposes of the study and procedures of data collection were also described to Nan Provincial Chief Medical Officer to attain permission and cooperation. The survey took place from May to July 2007. Face-to-face interviews were conducted in the subject's home by trained interviewers. Before informed consent was signed, the overall purposes, protocols of the present study, and time required to complete the questionnaires were informed.

### *Statistical analysis*

A structural equation modeling (SEM) with the Linear Structural Relationship (LISREL) program version 8.72 was used for analysis to examine the structural relationships among the hypothesized model. The statistic assumptions such as the normality, linearity, and multicollinearity testing of the data in the present study did not violate the criteria for SEM. The

relationships among family networks, support, sense of well-being, and health-promoting behavior were evaluated after the effects of age, gender, education, income, marital status, chronic illness, and residential areas were controlled statistically. A p-value of less than 0.05 was considered significant.

## Results

### *Socio-demographic characteristics of the participants*

Of the 469 participants, the ages ranged from 60 to 103 years, with a mean of 70 years (SD = 7.5). More than half (57%) were female, and about 59% were currently married. Most of them completed primary school level (70%). The majority (61%) were not working. In economic status, about half (53%) fell into poverty in which they had an income annually lower than the poverty line (10,000 Thai Baht). Most of the elderly respondents suffered with chronic illnesses (one illness-37%, and two or more-39%).

### *Structural analysis of family factors related to health-promoting behaviors*

For principal analysis, four measurement models including family networks, family support, sense of well-being, and health-promoting behaviors were examined. The findings indicated that all measurement models had absolutely acceptable overall model fits to the sample data. All loading factors were substantial and had significant t value.

A structural equation modeling was employed to test the hypothesized full model. The overall model fit of the structural model analysis showed adequate fits to the sample data. Although the Chi-square statistic is significant ($X^2 = 160.57$, df = 56, $p < 0.001$), as often occurs in a large sample size[17], other fit indices suggest a good fit (e.g. GFI = 0.96, AGFI = 0.90, CFI = 0.97, NFI = 0.94, RMSEA = 0.06, $X^2/df = 2.87$)[18].

Table 1 shows estimates of the relationships among family networks, family support, elderly sense of well-being, and health-promoting behaviors after the socio-demographic factors were controlled statistically. The advantage of structural equation modeling may be thought of as an attempt to represent explicitly both the direct influence of one variable on another, and the indirect influence that may occur through a third variable. The relationships among key study variables are depicted in Fig. 1. When the direct effects presented in Table 1 are combined with the indirect effects, the resulting total effects provide a more comprehensive view of the impact of study variables (Table 2). Three important sets of findings emerged from these analyses.

The first involved the association between family networks and support, the elderly sense of well-being and health-promoting behavior. Family networks had a positive direct effect on both support ($\beta = 0.406$, $p < 0.001$) and sense of well-being ($\beta = 0.146$, $p < 0.01$), as well as had positive indirect effect on the elderly sense of well-being via support ($\beta = 0.186$, $p < 0.001$). Family networks did not have statistically significant direct effect on health-promoting behaviors ($\beta = 0.043$, $p > 0.05$), but had positive indirect influence through support and sense of well-being ($\beta = 0.277$, $p < 0.001$).

**Table 1.** Family relationships and health-promoting behaviors (n = 469)

| Independent variable | Dependent variable | | | |
|---|---|---|---|---|
| | Family networks | Family support | Sense of well-being | Health-promoting behaviors |
| Age | -0.001(0.049) | 0.062(0.046) | -0.109*(0.045) | -0.064(0.038) |
| Sex | 0.029(0.048) | -0.039(0.045) | -0.048(0.043) | 0.007(0.036) |
| Education | 0.011(0.054) | 0.012(0.050) | 0.066(0.050) | 0.164***(0.041) |
| Income | 0.288***(0.058) | 0.023(0.053) | 0.066(0.052) | 0.142**(0.043) |
| Marital status | 0.170**(0.050) | -0.006(0.046) | -0.084(0.045) | -0.014(0.038) |
| Chronic illness | 0.067(0.042) | 0.125**(0.044) | 0.270***(0.061) | 0.037(0.036) |
| Residential area | 0.170**(0.050) | -0.006(0.046) | -0.084(0.045) | -0.014(0.038) |
| Family networks | | 0.406***(0.054) | 0.146**(0.051) | 0.043(0.043) |
| Family support | | | 0.459***(0.048) | 0.151**(0.050) |
| Sense of well-being | | | | 0.650***(0.077) |
| Multiple $R^2$ | 0.155 | 0.198 | 0.488 | 0.852 |

Note: Data are standardized regression coefficients (with standard errors in parentheses)
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

**Table 2.** Direct, indirect, and total effects among variables in the health-promoting behavior model (n = 469)

| Dependent variable/independent variable | Direct (A) | Indirect (B)[a] | Total (A + B) |
|---|---|---|---|
| Family support/family networks | 0.406*** | - | 0.406*** |
| Sense of well-being/family networks | 0.146** | 0.186*** | 0.332*** |
| Sense of well-being/family support | 0.459*** | - | 0.459*** |
| Health-promoting behavior/family networks | 0.043 | 0.277*** | 0.320*** |
| Health-promoting behavior/family support | 0.151** | 0.298*** | 0.449*** |
| Health-promoting behavior/sense of well-being | 0.650*** | - | 0.650*** |

Note: Data are standardized regression coefficients. There are only direct effects for some variables.
[a] Family support was the mediating variable when sense of well-being was the outcome. Family support and sense of well-being were the mediating variables when health-promoting behavior was the outcome
** p < .01, *** p < .001

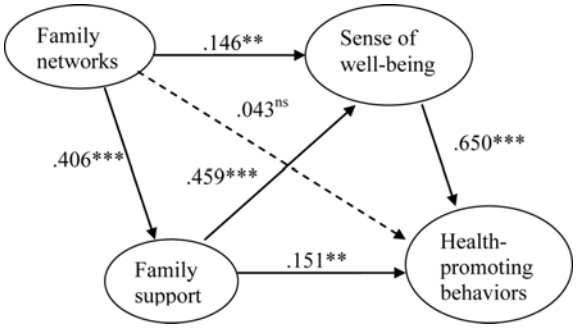


**Fig. 1** A summary diagram by covariance structural modeling among factors related to health-promoting behaviors, ** p < 0.01, *** p < 0.001

The second set of findings involved the association between family support, the elderly sense of well-being, and health-promoting behaviors. Family support had a positive direct effect on both the elderly sense of well-being ($\beta = 0.459$, $p < 0.001$) and health-promoting behaviors ($\beta = 0.151$, $p < 0.01$), as well as had positive indirect influence on health-promoting behavior through the elderly sense of well-being ($\beta = 0.298$, $p < 0.001$).

The third important finding showed that the elderly sense of well-being had a strong direct influence on health-promoting behavior ($\beta = 0.650$, $p < 0.001$).

## Discussion

The findings of this present study illustrated that family networks directly provide supports to older parents. This means that the more active familial networks the elderly experienced such as family members who regularly contact, intimate members who can call for help, and number of familial confidants, the higher support in terms of information, emotion, and instrument they received. Also, family networks had positive influence on the elderly sense of well-being. The reason may be explained by the cultural norms of the Thai context and the filial obligation that elderly support is fundamentally a responsibility discharged by family members[6-8]. It is not surprising that family networks have both direct and indirect influences on elderly sense of well-being because elderly parents are mainly dependent on their younger family members to meet their needs.

However, the finding indicated that family networks did not have a direct effect but had a positive indirect effect on health promotion behavior through support and elderly sense of well-being. This means that the large amount of family networks does not positively have a direct association with greater health promotion behavior, but may have indirect effect through perceived support and elderly sense of well-being, which may be related to the quality of or satisfaction with support.

Correspondingly, the findings showed that elderly support from family members had a strong direct influence on elderly sense of well-being. Based on the evidence, it was found that family support was three times more likely to influence directly elderly sense of well-being than were family networks. Thus, elderly support is important and acts as the partially mediated variables on the relationship between family networks and elderly sense of well-being. This finding is consistent with several studies. Much of the existing literature has documented that older adults are mainly embedded with kinships and the positive relationships of interaction that facilitate enhancing psychological and emotional well-being[7,16,19]. For example, the study

of family support and psychological well-being in Thai elders by Saengtianchai et al[19] indicated that perceived elderly psychological well-being is mostly related to intergenerational transfers by family members, particularly their children. Also, the work of Nanthamongkolchai et al[20] among rural elderly Thais indicated that familial support has the highest predictive power on elderly self-esteem.

Moreover, family support had both direct and indirect effects on health-promoting behavior, but the indirect effect through elderly sense of well-being was twofold more likely than was direct effect. Family support may lead to greater sense of intrapersonal well-being, and influences intentions, motivations, actions leading to subsequent practice of healthy behavior. The mediating effective model addresses that support acts as an intervening variable indirectly influencing health through psychological processes and behavior[21]. It seems that availability and quality including satisfaction of support by family members, are perhaps significant to affect sense of well-being of older persons, thus facilitating health promotion behavior. The work by Kafetsios and Sideridis[22], based on the attachment theory, addressed the idea that social support and attachment are linked to individual psychological well-being. Also, the study in Latino elderly by Beyene et al[23] found that the level and quality of familial support influence the sense of well-being of older parents.

Interestingly, the finding suggests that elderly sense of well-being may be the most important feature in the relationship with health-promoting behaviors because the path coefficient between them was highest in the structural model. More specifically, the result revealed that older persons who have a good sense of well-being in terms of psychological well-being and life-satisfaction are more likely to practice health promotion behavior than their counterparts. One possibility for this particular finding may be that the psychological aspect is quite important for older adults[24], particularly in an interdependent society[6,16,19]. Having higher levels of sense of well-being shows a trend of association with personal accomplishment in health promotion behavior and supports a previous study in Lampang Province, Thailand by Torpunya et al[25] that maintaining good psychological processes and enjoyment in life are major predictors of health-promoting behavior.

The results of this present study suggest, with policy implications to enhance elderly sense of well-being and health-promoting behavior, that family support programs should be continuously encouraged. This information is expected to facilitate policy makers and health professionals design and implement the appropriate programs, such as the intervention programs promoting familial solidarity or intergenerational relations, to promote the quality of elderly support by family members and the good inter-relationship within family that may facilitate increasing psychological well-being and subsequent health-promoting behavior.

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## *ความสัมพันธ์ภายในครอบครัวกับพฤติกรรมส่งเสริมสุขภาพของผู้สูงอายุในจังหวัดน่าน*

*กัตติกา ธนะขว้าง, กุศล สุนทรธาดา*

***วัตถุประสงค์:*** *เพื่อทดสอบความสัมพันธ์ระหว่างเครือข่ายครอบครัว การเกื้อหนุนโดยครอบครัว กับพฤติกรรมส่งเสริมสุขภาพของผู้สูงอายุ*

***วัสดุและวิธีการ:*** *การศึกษานี้เป็นการศึกษาเชิงสำรวจภาคตัดขวาง ในผู้สูงอายุที่มีอายุ 60 ปีขึ้นไปที่อาศัยอยู่ในชุมชน จังหวัดน่าน จำนวน 469 คน กลุ่มตัวอย่างคัดเลือกโดยการสุ่มแบบหลายขั้นตอน เก็บข้อมูลโดยใช้วิธีการสัมภาษณ์ ในช่วงระหว่างเดือนพฤษภาคม ถึง กรกฎาคม พ.ศ. 2550 วิเคราะห์ข้อมูลโดยใช้รูปแบบจำลองเชิงโครงสร้างด้วยโปรแกรมลิสเรล 8.72 หลังจากที่ผลกระทบจากปัจจัยทางประชากรได้รับการควบคุมแล้ว*

***ผลการศึกษา:*** *เครือข่ายครอบครัวไม่มีอิทธิพลทางตรงต่อพฤติกรรมส่งเสริมสุขภาพ แต่มีอิทธิพลทางอ้อมผ่านการเกื้อหนุนดูแลและความผาสุกทางใจของผู้สูงอายุ การเกื้อหนุนโดยครอบครัวมีผลอย่างเด่นชัดต่อความผาสุกทางใจของผู้สูงอายุและส่งผลสนับสนุนเอื้อให้เกิดพฤติกรรมส่งเสริมสุขภาพ ทั้งนี้ความผาสุกทางใจของผู้สูงอายุมีความสัมพันธ์อย่างมากกับการปฏิบัติพฤติกรรมส่งเสริมสุขภาพ*

***สรุป:*** *ควรจัดโปรแกรมที่ส่งเสริมความสัมพันธ์และเกื้อหนุนผู้สูงอายุโดยครอบครัว เพื่อเพิ่มความผาสุกทางใจของผู้สูงอายุต่อการเกื้อหนุนดูแลที่ได้รับจากครอบครัว ซึ่งจะช่วยสนับสนุนให้มีการปฏิบัติพฤติกรรมส่งเสริมสุขภาพตามมา*