

## Original article

# Relationships between activities of daily living capabilities, family support, and quality of life and mental health in the elderly in Laplae District, Uttaradit Province

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**Background:** Due to the sociocultural context of Laplae District, Uttaradit Province as the example district of long-term care services for dependent elderly project. To improve public health, quality of life and mental health of elderly in this district would be interesting and useful.

**Objective:** To explore the abilities of activities of daily living (ADL), the family support, the quality of life, and the mental health of the elderly and relationships among them.

**Methods:** This cross-sectional study with participation of 381 elderly used structured questionnaires included demographic questions, ADL assessment (Barthel of Activities of Daily Living: ADL), family support and quality of life assessment (WHOQOL-BREF-THAI), and elderly mental health assessment (Thai Geriatric Mental Health Assessment Tool: T-GMHA-15).

**Results:** Most subjects were in social-bound elder group. They received family support and had quality of life in moderate level. Their mental health average scores were 46.7. occupation, income, marital status, medical problem, disease status, abilities of activities of daily living, and family support were found being related to quality of life in elderly with  $P < 0.05$  was considered as significant difference. The positive correlation between quality of life and mental health in elderly in the high level was also found. ( $r = 0.669$ ,  $P < 0.001$ )

**Conclusion:** The elderly with higher quality of life tended to have higher scores in mental health. Some factors such as family support and ADL were related to the level of quality of life in the elderly. These results could be applied in knowledge development about quality of life and mental health in Thai elderly in order to develop a proper care plan for elderly.

**Keywords:** Activities of daily living capabilities, family support, quality of life, mental health, elderly.

These days, the world's older population continues to grow as the current situation of economic, society, and technologies change. Moreover, the medicine and public health are developed leading to the rise in old-age longevity.

The changes of live circumstances have a major impact on people, especially elderly people who have to face challenges of physical and mental health,

social issue, and environmental change. Most common problems faced by seniors are physical health due to the increase of their ages. As they age, they become more susceptible to disease. Heredity, consumer behavior, exercise, and gradually decline of organ functions can be the cause of an illness in elderly. However, they are still able to participate in family and society's activities such as housesitting, cleaning, buying grocery, cooking, taking care of children, or participating in community's activity which can reflect their potential and power.

Apart from that, the change in the population structure affected working-age population as well. Currently, the number of working-age people continuously decreases. Nowadays, approximately

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4 workforces can take care of one senior decreasing from 6 workforces in 2010.<sup>(1)</sup> The decrease in active persons can affect in providing social services for the elderly. Moreover, the security of seniors such as caregiver for dependent elderly, habitation, health, or financial issue will be affected as well. Furthermore, depriving seniors according to negative though of old-aged and being elderly in the society<sup>(1)</sup> are also a problem as well as the problem of humanity and ethical challenges in the care of elderly such as lacking of caregiver or inappropriate care plan for elderly.

According to all above, the Ministry of Public Health sees the important of improving mental health in elderly which related to both internal and external factors under the project of long-term care of elderly with dependence<sup>(2)</sup> in Uttaradit Province where the total amount of the elderly is 84,878 (24.2%),<sup>(3)</sup> the second largest amount in Thailand.

As working in the area of this project, the researcher found many problems related to senior people due to the emigration of working-aged people to the city and the smaller family size. These problems caused the poorer potential of elderly care. In some family, bed-bound elderly had no proper caregiver. Some cases could take care of themselves but some cases could do nothing but needed to stay alone as other family members needed to go to work. All challenges in taking care of elderly people in family are still the problem which may affect to quality of life and mental health in aged person.

## Materials and methods

A cross-sectional descriptive research design was employed to recruit 381 elderly people aging 60 years or older, willing to participate in this study, in Laplae District, Uttaradit Province. The total amount of 11,902 was calculated by using the formula of Krejcie and Morgan resulting in 390 subjects. All subjects were selected randomly by using the multi-stage sampling from 7 areas where the health facilities exist before using the calculation of population proportion. After receiving the sample size of each area, the subjects were selected with sampling interval by systematic random sampling using the roster. Only 381 subjects were completely, participate in this study.

All subjects were invited to provide information using the following questionnaires: 1) a demographic questionnaire; 2) Barthel of Activities of Daily Living (ADL) developed and applied by Department of Health, Ministry of Public Health<sup>(4)</sup> with the overall Cronbach's alpha coefficient equaling to 0.911; 3)

Family support assessment developed by Chuasungnoen N.<sup>(5)</sup> from the idea of family support from Saengtienchai C, *et al.*<sup>(6)</sup> with the overall Cronbach's alpha coefficient equaling to 0.884; 4) Quality of life assessment (WHOQOL-BREF-THAI) available for public, translated and developed by Mahatnirunkul S, *et al.*<sup>(7)</sup> with the overall Cronbach's alpha coefficient equaling to 0.907; and, 5) Short version of elderly mental health assessment (Thai Geriatric Mental Health Assessment Tool: T-GMHA-15) available for public, developed by Ukranan P, *et al.*<sup>(8)</sup> with the overall Cronbach's alpha coefficient equaling to 0.873. This assessment is suitable for people aged between 60 - 80 years old. There were limitations in using this assessment in some group of subjects such as elderly because this assessment was not developed for the study of the subjects aged 60 years and older. The solution was that the researcher would ask and explain the question to the subjects instead of letting them read the questions themselves.

The study has been approved by Institutional Review Board (IRB), Faculty of Medicine, Chulalongkorn University, (COA no. 290/62), All subjects were informed of the objectives and methods of this study and signed consent forms to participate in the study.

## Statistical analysis

The analyses were conducted using the SPSS program version 21.0 considering  $P < 0.05$  as significant difference. Statistical analyses of collected data included descriptive statistics using for describing the characteristics of the sample population such as number, percentage, mean, median, etc. Unpaired *t*-test, Chi-square and One-way analysis of variance (ANOVA) were used for univariate analysis to test the correlations among all variables. Pearson's correlation co-efficiency was used for measuring the strength of association between variables.

## Results

Most of the subjects were women (65.9%), aged between 65 - 69 years (27.8%), highest level of education in elementary school (85.3%), were agriculturist (42.5%), regular monthly income less than 3,000 baht (78.2%), and married (59.6%). Most of them had medical problem such as hypertension (58.8%), diabetes (31.8%), and dyslipidemia (23.6%). Some cases suffered from more than one disease. Most subjects had on-going treatment process for

disease status (66.9%), currently lived with child (64.0%), lived in family with 2 - 3 members including the subject (44.6%). Most of them were not members of a club or society (69.6%).

Concerning the ability in activities of daily living in seniors, most subjects were social-bound elders (96.6%), home-bound elders (2.6%), and bed-bound elders (0.8 %). The average score of ADL equaled 19.12.

Relating to family support, most elderly received the family support in moderate level with the average score of 2.1. By considering each point of family support, caring for sick elderly had an average score of 2.3, giving education were in the second place with 2.31 scores, and the financial support which were in the moderate level had the lowest average score of 2.0.

About the quality of life of elderly, most subjects were of moderate level with the average score of 92.6. By considering each point, their physical health was in the moderate level (23.4), mental health was in the good level (22.6), relation with social was in the

moderate level (10.4), and environment was in the moderate level (29.3).

Regarding the mental health in the elderly, most subjects had the same level with the normal group (53.3%), higher level than the normal group (29.7%), and lower level than the normal group (17.1%). The average mental health score was 46.7. By considering each point, receiving support from family members had the highest average score (3.3), being sure to be taken care by the family when they got sick (3.3) was in the second place, and having love and attachment in the family (3.3) were in the last place. Most of them declared that friends or other people in the society were ready to help them (3.0), they could resolve most of problems (2.9), and they hardly accepted the difficult problems (2.9).

According to the analyses of the correlation between variables and quality of life, variables such as occupation, monthly income, marital status, medical problem, disease status, ability in activities of daily living, and family support were correlated with quality of life in elderly (Table 1).

**Table 1.** The analyses of the correlation between variables and quality of life in the elderly (n = 381).

Variables	Quality of life				X <sup>2</sup>	P-value
	Moderate		Good			
	n	%	n	%		
<b>General information</b>						
<b>Occupation</b>					16.248	0.003*
Pensioner	2	25.0	6	75.0		
Contractor	35	57.4	26	42.6		
Agriculturist	80	49.4	82	50.6		
Business owner	9	45.0	11	55.0		
Unemployed	90	69.2	40	30.8		
<b>Monthly income</b>					18.724	<0.001**
≥ 3,000 baht	186	62.4	112	37.6		
3,001 - 6,000 baht	21	38.9	33	61.1		
≥ 6,001 baht	9	31.0	20	69.0		
<b>Marital status</b>					7.288	0.026*
Married	117	51.5	110	48.5		
Widow / Divorce	75	62.0	46	38.0		
Single	24	72.7	9	27.3		
<b>Medical problem</b>					4.041	0.044*
No	59	49.2	61	50.8		
Yes	157	60.2	104	39.8		
<b>Disease status</b>					4.041	0.044*
No medical problem	59	49.2	61	50.8		
Ongoing treatment / Lack of ongoing treatment / treatment denied / treatment succeeded	157	60.2	104	39.8		
<b>Ability in activity of daily living</b>					4.274	0.039*
Social-bound elders	205	55.7	163	44.3		
Home-bound/Bed-bound elders	11	84.6	2	15.4		
<b>Family support</b>					55.525	<0.001**
Never and low	25	83.3	5	16.7		
Moderate	132	71.0	54	29.0		
High	56	34.8	105	65.2		

\*P < 0.05, \*\*P < 0.01

According to the analyses of the correlation between variables and mental health, variables such as age, occupation, monthly income, ability in activities of daily living, and family support were correlated with mental health in the elderly. In addition to comparative analysis results of pairs (Post Hoc), the subjects aged

between 60 - 64 years had the higher average score than the subjects aged 70 years and over. The subjects who worked as agriculturists had higher average score than the contractor and unemployed. The subjects whose monthly income was 3,000 baht and lower had the lowest average score of mental health (Table 2).

**Table 2.** The analyses of the correlation between variables and mental health in the elderly (n = 381).

Variables	Mental health in elderly			P-value
	n	Mean	SD	
<b>General information</b>				
<b>Age (year)</b>				0.040*
60 - 64	95	47.8	5.9	
65 - 69	106	46.9	5.1	
70 and over	180	46.1	5.2	
<b>Occupation</b>				0.044*
Pensioner	8	47.5	6.7	
Contractor	61	45.9	5.9	
Agriculturist	162	47.7	5.2	
Business owner	20	46.3	3.5	
Unemployed	130	46.0	5.4	
<b>Monthly income</b>				0.008**
≤ 3,000 baht	298	46.3	5.3	
3,001 – 6,000 baht	54	48.0	4.9	
≥ 6,001 baht	29	48.9	6.1	
<b>Ability in activity of daily living</b>				0.001**
Social-bound elders	368	46.9	5.3	
Home-bound/Bed-bound elders	13	41.7	6.0	
<b>Family support</b>				<0.001**
Never and low	30	43.0	5.8	
Moderate	186	45.7	4.7	
High	161	48.7	5.4	

\* $P < 0.05$ , \*\* $P < 0.01$

**Table 3.** The analyses of the correlation all variables by Pearson's correlation Co-efficiency.

Variables	Variables			
	(1)	(2)	(3)	(4)
Quality of life of elderly	-			
Mental health in elderly	0.669**	-		
Ability in activity of daily living	0.268**	0.216**	-	
Family support	0.470**	0.315**	0.125*	-

\* $P < 0.05$ , \*\* $P < 0.001$

The result from the Pearson's correlation coefficient showed the correlation among ADL capability, family support, quality of life and mental health in the elderly. Quality of life was positively correlated with other factors: mental health in elderly ( $r = 0.669, P < 0.001$ ), ADL capability ( $r = 0.268, P < 0.001$ ), and family support ( $r = 0.470, P < 0.001$ ). Mental health in elderly was also positively correlated with other factors: ADL capability ( $r = 0.216, P < 0.001$ ) and family support ( $r = 0.315, P < 0.001$ ). ADL capability was positively correlated with family support as well ( $r = 0.125, P = 0.014$ ).

### Discussion

According to the analyses, occupation, monthly income, marital status, medical problem, and disease status were correlated statistical significance with the quality of life in elderly. In line with the study of Kongthong M. <sup>(9)</sup>, the previous study showed that occupation and source of income were related with quality of life in elderly while there is no correlation between marital status and quality of life. This correlation showed that having an occupation had an impact on people's lives, resulting in the satisfactory of life as they saw their potential in performing many activities by themselves which affected with their quality of life. Some elderly people were still working for other purposes such as gaining wage, being health, having fun with their jobs, and continuing having friends.<sup>(10)</sup> Also, the current study was in accordance with the study of Saengprachaksakula S. <sup>(11)</sup> showing that factor of work was positively correlated with the seniority of Thai elderly. Regarding occupation, income, and marital status, the study of Yamwong N. <sup>(12)</sup> found that these three factors were related to quality of life in elderly. Concerning medical problems and disease status correlated with quality of life, in the current study, most subjects had medical problems (68.5%) such as hypertension (58.8%), diabetes (31.8%), and dyslipidemia (23.6%). Some subjects had more than one disease. Most subjects had on-going treatment process for disease status in accordance with the previous study showing that most elderly perceived their illness and more than 80.0% went for the treatment gradually.<sup>(13)</sup> About the correlation between the capability in ADL and quality of life, the current study is in line with the study of Yamwong N. <sup>(12)</sup> showing that the quality of life in the elderly were positively associated in high level with the level of ADL. This result indicated that

old-age people would have a good quality of life as long as they were able to move to perform daily activity by themselves.<sup>(14)</sup> However, the result was different from Chaimay B, *et al.*<sup>(15)</sup>, founding no correlation between ADL and quality of life as there might be differences in social context of the group of the elderly such as accessibility in health services, the characteristic of the area. In accordance with Wachiraphetpranee S.<sup>(16)</sup>, family support was correlated with the quality of life in the elderly. The previous study indicated that the seniors living happily in the family were able to take care of their health, their mental and spirit, their grandchild, and to participate in the community's activity. Family and community, therefore, were factors related to the elderly's happiness so that these two parties should encourage the elderly to continuously participate in activities.

Concerning the correlation between variables and mental health in the elderly, the current study found that age, occupation, and monthly income were correlated with the score of mental health which is different from the previous study of Wonganan U. <sup>(17)</sup> showing no difference between the mental health score and age and income. In the current study, the elderly aged between 60 - 64 years had the higher score of mental health which is in accordance with the survey of Thai elderly population in 2017<sup>(3, 17)</sup> indicating that the older age was correlated with the decrease in mental health score. Regarding the occupation, the agriculturist had the higher score than the contractor and the unemployed which is accordance with the survey conducted by National Statistical Office<sup>(18)</sup> founding that the elderly working as agriculturist had a better mental health score than the employee in service and production sector. Also, this study is in concordance with the study of Kaophuthai S.<sup>(19)</sup> showing that the agriculturist had higher mental health score than contractor. As the contractor was the occupation with no specific and certain income, the contractor had the lowest mental health score. According to the survey of Department of Mental Health,<sup>(20)</sup> the employed people had the higher average score of mental health than the unemployed one. In accordance with the previous study of Muijeen K.<sup>(21)</sup> founding that level of income was related to the different level in mental health. The elderly who had their own income would have higher mental health score. In the current study, the elderly with income between 3,001- 6,000 baht and

6,001 baht and over had higher mental health score compared to the elderly with income 3,000 baht and lower. Concerning the correlation between the ability of ADL was correlated with the average score of mental health. In line with the study of Kittinakbuncha N.<sup>(22)</sup> showing that the physical ability and the social environment had a positive direct impact on a good mental health and the social participation in elderly. Also, there was a positive indirect impact from the social participation to a good mental health. According to the previous study, health problem and problem in daily activity performing could lead to the change in elderly's role such as becoming dependent on others as their children. Therefore, the elderly believed that the ability of their physical health was a factor related to their happiness and good mental health. Regarding the family support, the current study the relation between family support and the mental health score. According to the study of the mental health level, the elderly was the age needing for love and care from family member. In concordance with the study of Trangkasombat U.<sup>(23)</sup>, considering the family relationship as a factor affected to the care of elderly. Family members could help the elderly adjust to change. Furthermore, children and grandchildren were the important family support. All members should take care of elderly with love and care so that they would not feel isolated. Promoting the family support would strengthen the relationship between the elderly and other family members resulting in a better mental health of the elderly.

This study found that the quality of life was positively associated with mental health of elderly and all studied variables were positively correlated among each other.

### Conclusion

This study is in accordance with the plan to promote mental health and prevent mental health problem according to the problem in the area conducting this study. The result from this study, therefore, suggested to apply with enhancements of mental health and quality of life planning by District Health Board (DHB) proceeding with the standard of mental health promotion and mental health problem prevention developed by Department of Mental Health for the purpose of a good mental health and quality of life in the elderly from all related parties in the community.

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### Conflict of interest

The authors, hereby, declare no conflict of interest.

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