ORIGINAL ARTICLE

Health literacy, health behavior, social support and quality of life among socially dependent elderly people, in Phayao Province, Thailand

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ABSTRACT

This cross-sectional study aimed to explore the level of health literacy, health behavior, social support and quality of life among socially dependent elderly people , and to investigate correlations and predictable factors for their quality of life. 450 elderly people in Thailand's Phayao province were chosen using a multi-stage cluster sampling method. Data were collected using questionnaires between November 7th, 2022 and January 30th, 2023. Descriptive analysis, independent t-test, one-way ANOVA, Pearson's correlation coefficient, and multiple regression analysis were used to analyze the data.

The results showed that health literacy (HL-3ESA) and social support were adequate, health behavior (HB-3ESA) was good, and quality of life (QL) was at a good level. QL differed significantly between groups according to age, occupation, education, BMI, and disease condition. Cognitive function and information on HL-3ESA and emotional support were positively and significant in their correlation with QL, whereas HL-3ESA was negatively significant in its correlation with QL. Multiple regression analysis indicated that seven dependent variables predicted QL; disease condition (β = 3.94), frequency of health information (β=.932), HB-3ESA (β= -.526), occupation (β= -.386), age (β= -.215), HL-3ESA (β= .210),and social support (β= .124) and all were able to predict QL from samples at 27.3%.

The findings should be used to help set up activities to promote health care measures for socially dependent elderly in the area under study and similar areas.

Key words:
quality of life; socially dependent elderly**;** health behavior; health literacy; social support

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INTRODUCTION

More successful health care services are provided through modern medicine and public health. People are thus healthier, and dying at a lower rate. As a result, proportions of the elderly population have grown. [1] According to the UN, the number of people aged 60 and over increased from 901 million to approximately 1.4 billion between 2015 and 2030. [2] Thailand was recognized as an Aging Society in 2005, a Complete-Aged Society in 2023, and predicted to be a Super-Aged Society in 2031, with over 28% of the population[3] over 60 and suffering from health issues such as high blood pressure, diabetes, and knee osteoarthritis. [4] Thailand's Ministry of Public Health reports that there are 5 million people in socially dependent groups, most of whom are elderly home and bedbound people. Acute communicable infections affect 1.3 million people and social services need help. The elderly cannot adjust and enjoy their lives, often because they are experiencing anxiety and stress due to the burden they place on their relatives. These changes have had a significant impact on elderly peoples' quality of life.[5]

"Quality of life" (QL), is defined by the World Health Organization as an individual's perception of their living status in the context of their culture and values. It is concerned with objectives, expectations, standards, and interests in physical health, mental health, self-esteem, and social relationships.[6] A review of Thai literature on factors affecting the QL of the elderly has shown that the overall QL was moderate, and that the factors affecting the QL of the elderly that had a statistical significance were their education level, occupation, income sufficiency, type of residence, number of chronic diseases, and access to social support.[7] Studies of the QL of socially dependent elderly in other nations have also revealed factors affecting QL: health literacy, health behavior, social support, and comorbidities.[8]

Phayao Province became an aging society in 2016. The elderly population aged 60 and up represented 18% of the population. A screening assessment of the ability to perform daily activities (ADL) in Phayao Province, undertaken in 2021, indicated that out of a total of 97,798 elderly persons, with 43,687 (96.97%) eligible to be defined socially dependent, 1,142 (2.53%) could be identified socially dependent elderly, and that 223 (0.49%) could be classed as bed-bound elderly.[9] As mentioned, health issues have an impact on elderly peoples' QL. Promoting good health is crucial for the elderly to enjoy a high QL and reduce this burden on society. An increasing number of elderly people in Phayao Province were classed as socially dependent elderly, and a review found that most of the research was about issues related to QL of the elderly with and without disease, but socially bound elderly were rarely examined. As a result, researchers investigated the level of health literacy, health behavior, social support, and QL, as correlated, and predicting factors for the QL of the elderly in the social group. This research will provide the basis for the establishment of a health promotion program and will hopefully improve the QL for the elderly in the study area.

METHODS

The target population of this cross-sectional study was 43,687 socially dependent elderly who are 60-75 years old and registered in the civil registration database, Ministry of Interior, Thailand on January 12, 2022 in Phayao province, Thailand. [9] 450 socially dependent older persons were calculated by Wayne 1995, [10] which defined the sigma (σ) from a previous study = 0.284 [11], $Z_{1-\alpha/2}$= 1.96, d = 0.027, alpha (α) = 0.05 as shown below:

$$n = \frac{N\sigma^2 z^2_{1-\frac{\alpha}{2}}}{d^2(N-1) + \sigma^2 z^2_{1-\frac{\alpha}{2}}}$$

We added at least 6.4 % to the estimated sample size to allow for losses. Therefore, the sample size needed to be 450 socially dependent elderly. Inclusion criteria for the samples were those socially dependent elderly who were located in Phayao province, had limited: mobility, and ability to feed themselves, or bowel, bladder, and severe brain problems and had no problem signing consent forms. Exclusion criteria for samples had signs and symptoms of diseases during the collection of data and these samples were not available for giving data. All samples were selected using multi-stage cluster sampling through the following steps that we designed: The first step was to partition the province into nine districts: Mueang Phayao District, Chiang Kham District, Chun District, Chiang Muan District, Phu Sang District, Dok Kham Tai District, Pong District, Mae Chai District, and Phu Kam Yao District; the second step was to gather a simple random sample of three districts, including the Mueang Phayao, Mae Chai District and Chun District; the third step was that each district received a subdistrict: Si Thoi Subdistrict in Mae Chai District; Mae Ka Subdistrict in Mueang Phayao District; and Khun Kaun Subdistrict in Pong District; the last step was to obtain a random sampling of five villages and the collection of data from thirty samples per group within the time frame specified, as shown in Figure 1.

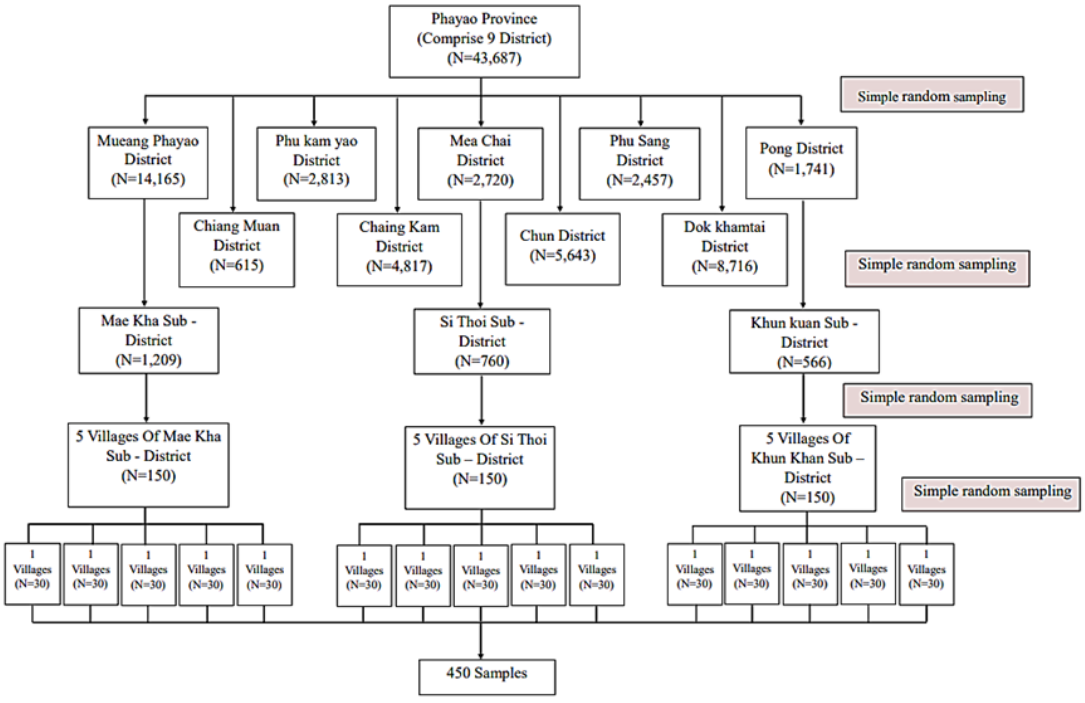

Figure. 1 Flow chart for study selection

RESEARCH INSTRUMENTS

The research instrument used was a questionnaire, constructed by the researchers and based on the literature review about health literacy, and relevant research. The instrument consisted of 5 parts as follows:

Part 1: The socio-demographics data consisted of 12 items including gender,

age, marital status, education, occupation, monthly income, body mass index (BMI), disease condition, COVID-19 infection, and perceived information. The questionnaire items were presented in the form of multiple-choice items and "fill in the blanks" items.

Part 2: Health literacy regarding eating, exercise, emotion, and whether or not they smoked or consumed alcohol (HL-3ESA), was applied from the Division of Health Education, Ministry of Public Health, Thailand [12] and consisted of 7 items and 7 scores for cognitive HL-3ESA, 2 items and 10 scores for information access and health services HL-3ESA, 3 items and 15 scores for health communication, 3 items and 15 scores for health management, 2 items and 10 scores for media literacy, and 5 items and 15 scores for judging health care HL-3ESA.

Part 3: Health Behavior, with regard to eating, exercise, emotion, smoking and alcohol habits (HB-3ESA), was applied from the Division of Health Education, Ministry of Public Health, Thailand [12] and consisted of 6 items with 30 scores. The questionnaire items were presented in the form of a rating scale with 5 levels: 6-7 days per week = 5, 4-5 days per week= 4, 3 days per week= 3, 1-2 days per week =2 and never in a week =1.

Part 4: Social support was applied from Agthong,[13] which was verified by Cronbach's Alpha = 0.83, and consisted of 16 items and 80 scores, regarding emotional support, resource support and information support. The questionnaire items were presented in the form of a rating scale with 5 levels: 5=most, 4=high, 3= moderate, 2=low, and 1=least.

The level criteria for HL-3ESA, HB-3ESA and social support were grouped as follows: scores < 60% - inadequate, scores ≥ 60 – < 70 % - adequate, scores ≥ 70 – < 80 % - good, and scores ≥ 80 % - excellent.[12]

Part 5: Quality of life (QL) was applied from Short-from 12 items (QL) from Thai version[14] which was verified by Cronbach's Alpha = 0.73 and 0.77 in the physical domain and psychological domain. QL was developed by Quality Metric cooperated,[15] which asked for samples from the previous 4 weeks. The physical domain consisted of 6 and 26 scores; items 1, 2, 3, 4, 5 and 8, whereas the Psychological domain consisted of 6 items 30 scores; items 6, 7, 9, 10, 11, and items 12. The questionnaire items were presented in the form of a rating scale with 5 levels of negative questions; never = 5, sometimes =4 , fairly =3, often = 2 and always =1, and 5 levels of positive questions; never = 1, sometimes =3 , fairly =3, often = 4 and always =5. For items 2 and 3, we defined the problem as =1, little problem =2 and no problem =3. The minimum score-maximum score of QL was 12 and 56. All 56 scores were transitioned to 100 scores by the formula [total maximum score- total minimum score of the real score in this study/ 56-120) x100]. All 100 scores were grouped as follows: scores < 50% - fairly, and scores ≥ 50% –good QL.[15]

Before collecting data, the questionnaire was verified for its content validity by 5 expert groups and was analyzed using an index of items – objective congruence with a result of 0 . 89. We tried out the instrument with 30 similar samples from this study. The Kuder-Richardson-20 was used for the reliability of cognitive and judgment of health care HL-3ESA with a result of 0.853 and 0.72. The Cronbach's Alpha was used for information access and health services HL-3ESA, health communication HL-3ESA, media literacy HL-3ESA and self-management HL-3ESA were at 0.78 and the BH-3ESA had a result of 0.76.

After this, the research was approved by the Phayao University's Research Ethics Committee No. 1.2/017/66 on December 6, 2022. After that, we m e t our team and prepared for data collection in the area of study and coordinated with a health care officer in order to appoint our

subjects with regard to gathering data. Upon arriving at the area under study for collecting data, we asked for permission before collecting data. Interviews were based on questionnaires generated from November 7, 2022 – January, 2023. It took 15 minutes for each participant to bring in the data for further research.

Data were analyzed with Stata version 14.0 with a significance level of 0.05. The following methods for finding out statistical values are used. Data were analyzed with descriptive statistics: percentage, average, and maximum value. We used an independent-t test and a one-way ANOVA for investigating the difference between the socio-demographic data and quality of life data, and used an entry method of multiple regression analysis to find out QL predicting factors.

RESULTS

The socio-demographics data revealed that 60.7 % were female, 34.4 % were 65-69 years old, 75.8 % were married, 84.2 % had primary school education, 53.1 % of the samples earned a living from agriculture, 43.7 % had 6000-6999 bath/ monthly income, 47.8 % had BMI 18.55-22.90, 83.1 %; with disease and health conditions such as Diabetes Mellitus, and 39.6 % of samples were sick from COVID-19; those getting health information from village health volunteers were 73.8 respectively.

Table. 1 Mean, standard deviation and level of HL-3ESA , HB-3ESA and Social Support

Variables	In-adequate	Adequate	Good	Excellent	$\bar{X}$ ±SD	Level
1. HL-3ESA	103(22.9)	225(50.0)	114(25.3)	8(1.8)	47.26±5.36	Adequate
1.1 Cognitive	380(84.4)	-	61(13.6)	9(2.0)	3.74 ±0.83	Inadequate
1.2. Information access and health services	64(14.2)	105(23.3)	104(23.1)	117(39.3)	6.84±0.83	Adequate
1.3. Health communication	185(41.1)	211(46.9)	26(5.8)	28(6.2)	8.68±1.76	Inadequate
1.4. Self-management	154(34.0)	175(38.9)	73(16.2)	49(10.9)	9.37±1.98	Adequate
1.5. Media literacy	50(11.1)	125(27.8)	73(16.2)	202(44.9)	6.92±1.53	Adequate
1.6 Judging health care	16(3.6)	65(14.4)	108(24.0)	261(58.0)	11.69±1.60	Good
2. HB-3ESA	16(3.6)	94(20.9)	177(39.3)	163(36.2)	22.58±2.91	Good
3. Social support	82 (18.2)	169(37.6)	175(38.9)	24(5.3)	54.20 ±6.17	Adequate
3.1 Emotion support	19(4.2)	94(20.9)	223(49.9)	14(25.3)	22.03±2.68	Good
3.2 Resource support	196(43.6)	155(34.4)	86(19.1)	13(2.9)	12.96±0.84	Inadequate
3.3 Information support	109(24.2)	208(46.2)	101(22.4)	32(7.1)	19.21±2.80	Adequate

The results revealed HL-3ESA was at an adequate level, and the components of Total HL-3ESA revealed that judgment of health care was at a good level, information access and health services, self-management and media literacy were at an adequate level, whereas cognitive function and Health communication were at an inadequate level. HB-3ESA was at a good level, whereas total social support and information support were only adequate, and resource support was inadequate. In contrast, emotional support was at a good level, as shown in Table 1. The mean scores for QL, physical domain, psychological domain and total QL were good, and mean scores were 18.31, 20.66 and 38.97 as shown in Table 2.

Table. 2 Mean score, standard deviation, minimum and maximum of QL

Variables	$\bar{X}$	S.D.	Minimum	Maximum	Level
Physical domain	18.31	3.70	6.00	25.00	Good
Psychological domain	20.66	3.26	10.00	25.00	Good
QL	38.97	6.31	18.00	50.00	Good

Table 3. The difference QL among samples

Variables	N	$\bar{X}$	SD.	t/F	p-value
1. Gender				1.804[a]	0.72
Male	177	39.63	6.57		
Female	273	38.54	6.10		
2. Age..years				12.00[b]	<.001***
60-64	152	40.79	5.51		
65-69	155	38.72	6.84		
70-75	143	37.30	6.02		
3.Marital status				-1.943[a]	.053
Marry	109	37.95	6.71		
Single	341	39.29	6.15		
4. Education				-2.587[a]	.010*
Uneducated	40	36.52	8.78		
Educated	410	39.21	5.97		
5. Occupation				6.147[a]	<.001***
Employment	303	40.19	5.74		
Unemployment	147	36.44	6.67		
6. Monthly income. bahts				.264[b]	.851
3000-5000	135	38.59	6.38		
5001-5999	6	39.83	3.060		
6000-9999	191	39.08	6.31		
≥10,000	118	38.97	6.31		
7. BMI				8.350[b]	<.001***
<18.5	51	36.31	8.14		
18.5-22.90	216	40.02	6.12		
≥23	183	38.47	5.67		
8. Disease condition				-7.859[a]	<.001***
Yes	304	37.51	6.19		
No	146	42.01	5.42		
9. COVID-19 infection				1.695[a]	.091
Yes	178	39.59	5.69		
No	272	38.56	6.62		
10. Source of health information				1.659[a]	.098
Persons	234	38.50	6.23		
Social Media	216	39.48	6.36		

a = Independent-samples t test, b = One-way ANOVA, *p-value < 0.05, ** p-value < 0.01, *** p-value < 0.001

The analysis of differences between socio-demographic characteristics and samples of QL found that samples with different ages, BMI, disease conditions, and occupations significantly differed in QL scores at p-value < 0.001. The samples were educated in a variety of groups, and the QL scores were significantly different at p-value < 0.05.

Table 4. The association between HL-3ESA, HB-3ESA and Social Support with QL

Variables	QL	
	r	p-value
1. HL-3ESA	0.080	.088
1.1 Cognitive	.181	<.01**
1.2. Information access and health services	.112	.017*
1.3. Health communication	-.049	.300
1.4. Self-management	-.075	.113
1.5. Media literacy	.281	<.01**
1.6 Judging health care	.016	.735
2. HB-3ESA	-.178	<.01**
3. Social support	0.047	.316
3.1 Emotion support	.100	.035*
3.2 Resource support	.019	.694
3.3 Information support	-.038	.423

* p-value <0.05, ** p-value <0.01

The association between HL-3ESA, HB-3ESA, and social support with QL scores was analyzed by Pearson correlation. There were positive significant relations in QL scores as a result of media literacy and cognitive abilities of HL-3ESA at p-value < 0.01, information access and health services and emotional and social support at p-value < 0.05. On the other hand, the negative significant relation in QL scores as a result of HB-3ESA is shown in Table 4.

Table 5. Multiple Regression Analysis of the predicting factors of QL

Dependent variables	β	SE	Beta	p-value
1. Gender (reference male/female)	.131	.567	.010	.818
2. Age	-.215	.064	-.158	.001**
3. Marital status (reference single/marry)	-.186	.635	-.013	.770
4. Education (reference uneducated)	1.52	.951	.069	.110
5. Occupation (reference unemployment/employment)	-.386	.133	-.139	.004**
6. Monthly income	-5.27	.000	-.005	.914
7. BMI	-.058	.070	-.036	.411
8. Disease condition (reference no/yes)	3.94	.600	.293	<.001***
9. COVID-19 infection (reference no/yes)	-.899	.571	-.070	.116
10. Frequency of health information	.932	.324	.120	.004**
11. HL-3ESA	.210	.056	.179	<.001***

Dependent variables	β	SE	Beta	p-value
12. HB-3ESA	-.526	.107	-.242	<.001***
13. Social support	.124	.046	.121	.007**
Constant = 45.972, R^2 = 0.273, F = 12.566, p-value < .001				

*p-value < 0.05, ** p-value < 0.01, *** p-value < 0.001

From thirteen dependent variables, there were seven dependent variables, which predicted QL; age, occupation, disease conditions, source of information, HL-3ESA, HB-3ESA, and social support. The strong predicted factors were disease conditions (**β** = 3.94), and seven variables were able to predict QL at 27.3 %, as shown in Table 5.

DISCUSSION

In this research, the samples had inadequate levels regarding cognitive and health communication of HL-3ESA, this result is in line with the study by Sigsaem et al.[16] which was done with elderly people in the south of Thailand. On the other hand, the samples had adequate levels concerning information access and health services, self-management, media literacy and the HL-3ESA, these results were related to the study of Srikeunkhaw et al.[17] which demonstrated that aging individuals in the elderly school had an adequate level of HL-3ESA, but the topic of self-management, media literacy of HL-3ESA was not the same as Channnaul et al.[18] who found that media literacy of HL-3ESA of aging samples was at an inadequate level. However, the samples were at a good level in terms of judging health care, which was the opposite of the study of Katepitwattana et al. [19] where it was shown that older persons had an inadequate level in terms of judging health care of HL-3ESA.

HB-3ESA of samples was at a good level which is in line with Desan[20] which revealed that health promotion behavior of older persons was at a good level as well, because of the recognized self-care in terms of nutrition, exercise and sleeping among older persons. Results on total social support and information support indicated the samples were at an adequate level. It was also found that resource support was at an inadequate level, which contrasted with the study of Wongsuwan et al.[21] that showed that total social support and resource support were at a good level. The study of Payungwong et al. [22] has shown that information support for aging people was at an adequate level, which was the same as the results of this study and also the same as the results that show that emotional support was at a good level. QL, in the area of the physical and psychological domain of the samples were at a good level, this result was similar to the study of Narkprasit [23] and Visuttranukul et al.,[24] who revealed that the QL of aging people in their programs was good.

The significant difference in QL among samples revealed five variables; education, occupation, BMI and disease condition. In different education groups, this led to a different QL as well, this was similar to the study of Tantinantrakum et al.[25] and Koykam & Muktabhant[26] who revealed how education relates to QL among older persons. The study of Koykam & Muktabhant[26] and Jumneansuk et al.[27] found that the occupation of aging people relates to QL, which is in line with this study. The difference in BMI was related to the differences in QL, which is in contrast to Prakaisakun[28] who has shown that BMI did not differ with regard to QL among patients with DM and the study of Krudthai et al.[29] demonstrated that the BMI did not relate to QL. Not only did different BMI make a difference to QL but the samples who had a disease condition were also related to different QL, as in the study of Panvongsa et al.[30] and Klaodee et al.[31]

The cognitive, Information access and health services and media literacy of HL-3ESA related significantly to QL which was in line with the study of Saengphet et al.[32] where it was shown that the cognitive, information access and health services were significant to QL among individuals with Diabetes mellitus. Besides, Vonok et al.[33] revealed that media literacy of HL-3ESA was significant with QL among aging people as well. Surprisingly, this study found samples who got low scores for HB-3ESA but related to good QL because the samples need to eat their own meals. This study was opposite to the study of Yuyongsin et al.[34] and Khawyau et al.[35] which revealed that high HB-3ESA was related to good QL. The study found samples who had good QL, indicating they had strong support such as emotional, resource and information support, which is in line with Lee & Oh[8] who revealed that social support for aging people is related to physical and psychological QL.

The results have shown that 67.3 % of samples had a disease condition, it was also found that disease conditions predicted QL because disease conditions lead to complications of disease which disturb the lifestyles of the elderly. This result was the same as the study of LaungPitak et al.[36] which revealed that disease conditions of aging can predict QL and Khawsringam[37] found that disease conditions can predict QL among elderly dependents as well. High HL-3ESA scores predicted higher QL and healthy behaviors in well-informed, wellbeing aware elders. Many sources provide health information. The elderly can determine if health information or services are appropriate to make health-care decisions. Most discriminatory decisions were high-quality, with excellent healthy behaviors and health care. Most prejudiced decisions in the sample had good health behaviors. As a result, the elderly have a good QL, which is the same as in a study by Aryankhesel et al.[38] who found that health literacy predicted QL among aging elderly residents in an elder house. Furthermore, because the majority of the elderly were couples, and had respect from their families, and participated in community activities, the findings revealed that high levels of social support predicted a high QL. This finding was consistent with the findings of LaungPitak et al.[36] and Saeloo et al.[39] who showed that social support predicts QL in the elderly.

The results indicated that the frequency of health information predicted QL because the majority of samples got information that led to healthy behaviors and disease decline. This result indicated that the majority of the samples had a great QL. The source of information predicted the QL among samples that agreed with Chasean[40], showing that the information supported the forecast of better QL with age. The occupation of the samples also predicted QL since the elderly had jobs and could make more money to sustain themselves, which was consistent with the findings of LaungPitak et al.[36] The elderly's QL can be predicted based on their age. According to the study, the majority of the old people were between the ages of 65 and 69, and age was significantly associated with the elderly's QL because their body functions begin to weaken as they age, and slower movement occurs, especially if they have a congenital ailment, the aforementioned problems influence the elderly's QL, which was consistent with Tussaneesuwan[41] and the study of Khawsriknggam.[37] In this study, HB-3ESA was the last dependent variable that predicted QL as most samples had low HL-3ESA, which led to low HB-3ESA, and they also had illness conditions. Sanchan et al.[42] most likely discovered that health promotion behavior predicted QL among the elderly in northern Thailand, whereas Chantakeeree et al.[43] discovered that health

promotion behavior predicted QL among the elderly with hypertension in both urban and rural Thailand.

LIMITATION

To limit the error of the research, the research team has increased the size of the calculated samples. There is a 6.4% increase, according to this report.

RECCOMMEDATON

1. In the area of academic: Health Facilities should develop a health literacy and social support program for samples, especially those with disease conditions, unemployment, age groups 60-75 years old, uneducated and BMI < 18.5 kg/m^2 in the area under study.

2. In the area of practice: Health facilities should support health communication and Social Development and Human Security Organizations should provide resources for socially bound elderly who have disease conditions, unemployment, age groups 60-75 years old, uneducated and BMI < 18.5 kg/m^2.

3. In the area of policy: Health Facilities and Social Development and Human Security Organizations should promote support for socially bound elderly in the area under study and similar areas.

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