



# Correlation of Biosocial Factors and Health Literacy with Competency of Older Adults on Management and Health Promotion for Older Adults in Urban Communities, Bangkok Metropolis

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## Abstract

This cross-sectional descriptive-correlational design aimed to examine correlation of biosocial factors and health literacy with competency of older adults on management and health promotion for older adults in urban communities, Bangkok Metropolis. The sample group consisted of older adults in urban communities in Bangkok Metropolis and recruited with stratified random sampling by the population ratio of older adults in each community with a total of 196 participants. Research instruments were employed for data collection, including a demographic questionnaire, a self-administered questionnaire of health literacy questionnaire, and self-administered questionnaire of the competency of older adults. Data were analyzed by descriptive statistics and Pearson's correlation coefficient.

The findings revealed that an education level factor and a chronic disease factor were correlated with the low level of competency for the overall management and health promotion ( $r = .273, p < 0.001$ ;  $r = .226, p < 0.001$ , respectively) with a statistical significance level of .01. Moreover, the health literacy factor, including the access to the health information and service, the knowledge and understanding of the health of older adults, the health information communication of older adults, the ability to choose the appropriate guidelines, and the appropriate health management correlated with the competency on overall management and health promotion ( $r = .456, p < 0.001$ ;  $r = .632, p < 0.001$ ;  $r = .587, p < 0.001$ ;  $r = .576, p < 0.001$ ;  $r = .620, p < 0.001$ ;  $r = .425, p < 0.001$ , respectively) with a statistical significance level of .01.

In conclusion, the biosocial factors, namely the education level factor, the chronic disease factor, and the health literacy factor, correlated with the competency of older adults for management and health promotion.

Biosocial factors and health literacy in correlation with the competency of older adults on management and health promotion for older adults will be brought into effective programs for the health promotion in older adults in urban communities.

**Keywords:** biosocial factors; health literacy; competency for management and health promotion; older adults

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## 1. Introduction

Nowadays, the society of the aging population shows the trend to be extending and appears to be two times more population than the children population. At the same time, the proportion of the working-age population begins to decrease. In 2021, while the aging population in Thailand was counted to be 16.73% of the country's population, it was found to be 18.78% of the population in Bangkok and the largest aging population in the country. (1) Furthermore, the health

problems of older adults in Bangkok urban communities are very complex and more than 80% of older adults reported having chronic diseases. The most-found diseases included hyperlipidemia, hypertension, and diabetes which were reported by 83%, 76%, and 53% of older adults, respectively. (2) This group of diseases has led to more death than the other group and is caused by consuming sweet, greasy, and salty food, packaged food, fast food, processed food, and the behavior of adding fish sauce, sugar, and salt into food. These inappropriate consumption behaviors provoke various diseases in older adults. Moreover, 10% of older adults in Bangkok urban communities are bedridden patients (2) and most of them have physi-

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cal health problems, including the need for multiple medicines in each meal, urinary incontinence, and insomnia. These older adults need more assistance from families, communities, and healthcare teams for daily needs, physical rehabilitation, and long-term support from the people in the communities with the will to assist. (3)

The development of the competency of older adults in management and health promotion is significant as a proactive healthcare service approach of the Ministry of Public Health. (4) This approach enhances the academic knowledge, attitude, and skills of the village health volunteers to fully assist the healthcare service for the older adults in the communities with the associated network of community health. (5) Previous studies illustrated that health promotion knowledge was essential for the competency of health care in older adults. There were the skills and ability to access the knowledge, the knowledge and understanding for performance analysis, the older adult health management, the ability to guide in healthcare, the promotion of older adult health management, and the ability to promote healthcare for older adult patients. (6)

The majority of studies on the health literacy of older adults in Bangkok were survey studies and qualitative research about the keys to building health literacy for individuals. The results of those studies showed that most older adults possessed the health literacy level of a fair and poor, while the keys to building health literacy are to help them access, understand, assess, and apply the health knowledge for better health of self and others. (7) However, little is known about the factors that influence older adults' competency in management and health promotion, which are necessary for health knowledge promotion to support older adult patients in the communities. Thus, this statement of problems exposes the need to explore the biosocial factors and health literacy correlated with the competency of older adults for management and health promotion for older adults. These factors demonstrated correlation on health promotion for older adults.

**Objective** This study aimed to examine the correlation between biosocial factors (sex, age, education level, and chronic disease), health literacy, and the competency of older adults on management and health promotion for older adults in urban communities, Bangkok Metropolitan.

**Hypotheses** 1. Biosocial factors (sex, age, education level, and chronic disease) are correlated with older adults' competency for management and health promotion for older adults in urban communities, Bangkok Metropolitan.

2. Health literacy is correlated with the competency of older adults on management and health promotion for older adults in urban communities, Bangkok Metropolitan.

## 2. Conceptual Framework

## 3. Methodology

The conceptual framework is derived from the concept of health literacy. This concept believes that the ability to access health information, services, knowledge and understanding for self-analysis, self-assessment, and self-management would affect health management and promotion.

A cross-sectional descriptive correlational design was utilized.

### Population and Sample Group

The target population for the current study was 1,014 older adults from 10 Bangkok urban communities. These sampling communities were around Navamindradhiraj University and featured similar lifestyle and urban community characteristics.

Sample size was calculated using Cochran's formula with a reliability level of 95% and an acceptable error of 0.5%. comes from the percentage of older adults with poor health literacy. (8)

The estimated sample size was 196 with stratified random sampling using the ratio of older adults in each community. Then, simple random sampling would be with the list of older adults in each community with the acceptable characteristics according to the criteria.

### Instruments

The research instruments consisted of 4 items about personal information, 30 items for health literacy questionnaire, and 50 items for older adult competency questionnaire. There are three levels of scores for each item: poor, fair, and good.

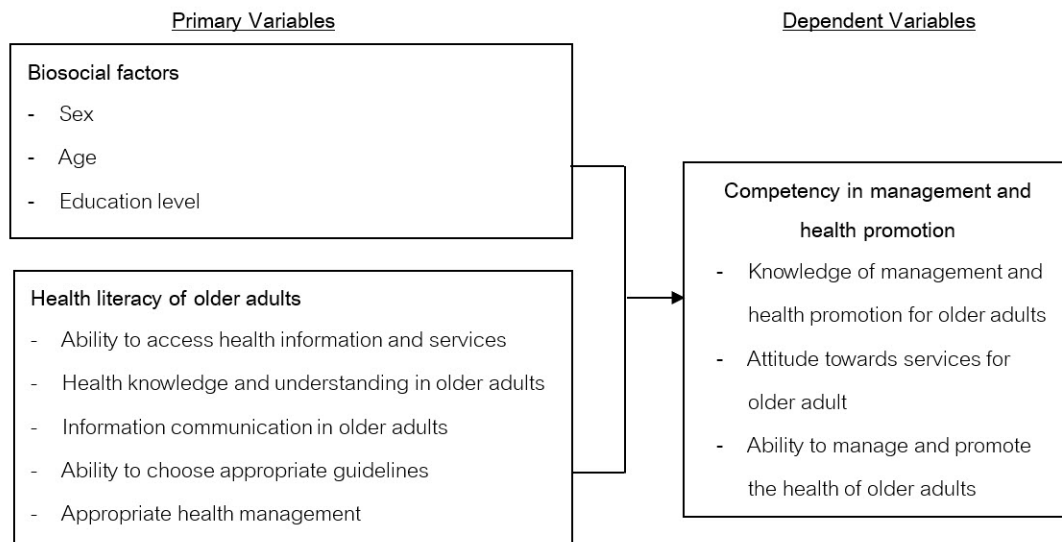
### Instrument Validation Test

The research instruments were tested for the content validity by five experts. The health literacy assessment and the older adult competency assessment were evaluated for the content validity index (CVI) with score 0.86 and 0.88, respectively. The reliability using Cronbach's alpha coefficient analysis with reliability level of .87 and .88, respectively.

### Human Subjects Protection

The ethical approval to implement the study was gained from the Central Research Ethics Committee (CREC) in Thailand, no. COA-CREC083/2021. The researchers had declared the study's objective, the right to refuse to answer, the right to withdraw from the study, that their personal information would be kept private, and the raw data would be immediately terminated after the study finished. After that, the consent forms were signed. The pilot study was conducted using 30 participants who met the inclusion criteria, and this number was not included in the final sample size.

**Data Collection** 1. Requesting the official letter from the Dean of Kuakarun Faculty of Nursing, Navamindradhiraj University, to be sent to the Minister of the Ministry of Public Health, Bangkok, to explain the



**Figure 1:** Conceptual Framework

objective of the study and ask for permission to gather the data.

2. Meeting with the sampling group and asking for their cooperation.

3. Gathering and validating the data and asking the participants to complete the self-administered questionnaire when needed.

The data collection was undertaken between December and January 2022.

#### Data Analysis

1. Conducting a descriptive analysis using a software package to gain frequency, mean, percentage, and standard deviation.

2. Analyzing the biosocial factors and the health literacy correlating the competency of older adults for management and health promotion in older adults using Pearson correlation.

#### 4. Results

The sample consisted of 196 older adults with 29.6% male and 70.4% female. The majority of the participants were between 60 – 69 years old (66.84%) with an average age of 67.98 years (S.D. = 6.37). Most participants informed that their highest level of education was an elementary school certificate (49%) and a high school/vocational certificate (57.1%). Most reported chronic diseases covered hypertension (57.1%), hyperlipidemia (37.2%), and diabetes (26%).

The health literacy level analysis showed that most participants acquired overall fair health literacy level (66.84%). When investigating each factor, most health literacy scores were found to be at a fair level, including the ability to access health information and services (48.98%), health knowledge and understanding in older adults (51.02%), the ability to choose appropriate guidelines (51.53%), the appropriate health

management (47.45%), and the health media literacy (53.57%). However, information communication in older adults was revealed to be at a fair and good level (40.30%). Moreover, the analysis of the competency of older adults in management and health promotion showed that the majority of the participants earned a good level of older adult health knowledge and promotion (65.82%). While an attitude towards older adult services reported a fair level of literacy (76.53%), the ability to manage and promote the health of older adults also signified a fair level (62.75%), as showed in Table 1.

In Table 2, the correlation analysis emphasized on the fact that the biosocial factors and the chronic disease factor correlated with the competency of older adults on management and health promotion for older adults ( $r = .280, p < 0.001$ ;  $r = .209, p = .003$ , respectively) and the overall management and health promotion ( $r = .273, p < 0.001$ ;  $r = .226, p < 0.001$ , respectively) with a statistical significance level of .01. In terms of the health literacy and the competency of older adults, it found that the ability to access health information and services and health knowledge and understanding in older adults correlated with the competency in the attitude towards older adult services ( $r = .144, p < 0.001$ ;  $r = .207, p < 0.001$ ), the ability to manage and promote the health of older adults ( $r = .480, p < 0.001$ ;  $r = .615, p < 0.001$ ), and the competency on overall management and health promotion ( $r = .456, p < 0.001$ ;  $r = .632, p < 0.001$ ) with a statistical significance level of .01. For the informative communication among older adults, the ability to choose appropriate guidelines, and the health media literacy correlated with the ability to manage and promote health ( $r = .603, p < 0.001$ ;  $r = .615, p < 0.001$ ;  $r = .186, p < 0.001$ ) and the competency on overall management and health promotion ( $r = .587, p < 0.001$ ;

$r = .576, p < 0.001$ ;  $r = .425, p < 0.001$ ) with a statistical significance level of .01. Regarding the overall health literacy, the appropriate health management factor correlated with the older adult health knowledge and promotion ( $r = .172, p < 0.001$ ), the ability to manage and promote health ( $r = .465, p < 0.001$ ), and the competency on overall management and health promotion ( $r = .620, p < 0.001$ ) with a statistical significance level of 0.01.

## 5. Summary and Discussion

The biosocial factors in terms of education level and chronic diseases were correlated with the ability to manage and promote the health of older adults. The competency for overall management and health promotion indicated that education level implies the level of knowledge and skills, which are the factors affecting one's ability to manage and promote their health. This finding is in line with previous studies (9) that pointed out the correlation between education level and the ability of older adults to support themselves. Moreover, the correlation between the chronic disease factor and the competency of older adults was indicated. As seen by the fact that older adults with chronic diseases got a high score in terms of health literacy, especially what is related to those diseases, which in turns they are able to take care of themselves. (10)

The health literacy regarding access to health information and services hinted at correlation with the attitude towards services of older adults and the competency for the overall management and health promotion. A possible explanation is that utilizing own skills to choose sources of information, knowing to search for information on how to perform, and fact-checking yield a positive attitude and skills about management and health promotion. This result is also relevant to previous studies that access to health information by participating in social activities to gain access to health information with ease can assist older adults in helping themselves and others. (7, 11)

Moreover, the health literacy concerning health knowledge and understanding of older adults were correlated to the attitude towards services for older adults, an ability to manage and promote health, and the competency for the overall management and health promotion. Because of the knowledge and the correct understanding of the guidelines bring a good attitude and the ability to manage and promote the health of oneself and others. This finding confirms previous studies (12), which revealed that health knowledge and understanding correlated with improved health behavior in older adults.

The health literacy involving information communication of older adults showed a correlation with the ability to manage and promote health and the competency for management and health promotion since

the ability to communicate, whether speaking, reading, writing, and persuading others to understand and accept the information about how to behave affect the ability to manage and promote health. (6, 11) Besides, it is in compliance with the previous studies which stated that the lack of healthy communication skills might lead to more mistakes in decision making about health. On the other hand, good health communication skills in older adults will facilitate managing and promoting health for oneself and others. (7, 13)

Health literacy is related to the ability to choose appropriate guidelines. It also correlated with the ability to manage and promote health and the competency for the overall management and health promotion. Older adults who read and understand health information may explore more knowledge and decide on the uses of appropriate resources of information to promote the health of oneself and others in the community. This result is aligned with the previous studies (11, 12), which indicated that the ability to choose the appropriate guidelines is correlated to the self-care behavior of older adults.

In addition, health literacy in connection with the appropriate health management was shown to be correlated with the knowledge of health management and promotion, the ability to manage and promote health, and the competency on overall management and health promotion. As a result of having the ability to set a goal, plan, perform accordingly, act on the ways to perform in the right track, older adults also need the knowledge to act accordingly for effective management and appropriate health promotion. (7, 11)

For the health literacy regarding the health media literacy, the correlation between the ability to manage and promote health and the competency for the overall management and health promotion were seen by the ability to fact-check the sources of information and the ability to compare the ways of communication to avoid the risks on health of oneself and others. Furthermore, a media assessment facilitates the direction to older adults' competency management and health promotion. (6) This is in line with the previous studies pinpointing that health information assessment conducted by actively searching for information, understanding it thoroughly, and exchanging it improves the ability to help oneself and others. (7)

In conclusion, the results showed that educational level, chronic disease, and health literacy significantly correlated with the competency for management and health promotion among older adults in urban communities.

**Suggestions** The suggestions from the results of the study were as follows:

1. This study showed that most older adults reported a fair overall health literacy level. Therefore, it is suggested to support the improvement of older adults' overall health literacy level by developing programs for health literacy promotion for older adults.

**Table 1.** Number and percentage of samples divided by health literacy level and the competency for management and health promotion of older adults (n=196)

Viable	Good		Level Fair		Poor	
	No.	%	No.	%	No.	%
Health literacy						
Ability to access health information and services	43	21.94	96	48.98	57	29.08
Health knowledge and understanding in older adults	66	33.67	100	51.02	30	15.31
Information communication in older adults	79	40.30	79	40.30	38	19.40
Ability to choose appropriate guidelines	49	25	101	51.53	46	23.47
Appropriate health management	44	22.45	93	47.45	59	30.10
Health media literacy	64	32.65	105	53.57	27	13.78
Overall health literacy	18	9.18	131	66.84	47	23.98
Competency for management and health promotion						
Knowledge of management and health promotion for older adults	129	65.82	56	28.57	11	5.61
Attitude towards service for older adult	46	23.47	150	76.53	0	0
Ability to manage and promote the health of older adults	28	14.29	123	62.75	45	22.96
Overall competency for management and health promotion	49	25.0	144	73.5	3	1.50

**Table 2.** Biosocial factors and health literacy affecting the competency of older adults on management and health promotion for older adults in urban communities, Bangkok Metropolitan (n=196)

Biosocial factors and health literacy	The competency of older adults on management and health promotion for older adults			
	Knowledge of management and health promotion for older adults	Attitude toward services for older adult	Ability to manage and promote the health	Overall competency for management and health promotion
Biosocial factors				
1. Sex	0.006	0.015	0.002	.007
2. Age	0.074	0.038	-0.022	.003
3. Education level	-0.062	0.099	0.280*	.273*
4. Chronic disease	0.069	0.086	0.209*	.226*
Health literacy				
1. Ability to access health information and service	-0.138	0.144*	0.480*	0.456*
2. Health knowledge and understanding in older adults	0.073	0.207*	0.615*	0.632*
3. Information communication in older adults	0.050	0.103	0.603*	0.587*
4. Ability to choose appropriate guidelines	0.079	0.050	0.615*	0.576*
5. Appropriate health management	0.172*	0.110	0.465*	0.620*
6. Health media literacy	-0.046	0.032	0.186*	0.425*

\* Statistical significance level of .01

2. This study showed the significant correlation between the competency for management and the health promotion of older adults. Thus, it is suggested to organize projects to advance health literacy in older adults so that they can help themselves and others.

The suggestions for future studies were as follows:

1. It is suggested to examine the predisposing factors, the enabling factors, and the reinforcing factors which affect the competency of older adults on management and health promotion of older adults in the communities.

2. It is suggested to develop a program about the competency of older adults for management and health promotion of older adults in the communities.

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