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ORIGINAL ARTICLE

Factors Affecting the Quality of Life among the Aging Population during the Coronavirus Disease-19 Pandemic in Thailand

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ABSTRACT

Objective: To determine the factors affecting the quality of life (QoL) among aging population during the Corona Virus Disease-19 (COVID-19) crisis.

Methods: This cross sectional study was conducted at Central, Northern, Northeastern, and Southern regions of Thailand from June to November 2021. Elderly persons aged 60 and above with Thai nationality included in the study. The QoL was measured with the WHO Quality of Life (WHOQoL-BREF-THAI) instrument which consisted of 26 items. QoL scores ranged from 26 to 130 points, classified as poor (26-60), moderate (61-95), and good (96-130).

Results: Of total 400 participants, the mean age was 68.32 ±6.93 years. Not good QoL was observed in 3 (0.8%) participants, moderate QoL was observed in 213 (53.2%) participants, and good QoL was observed in 184 (46.0%) participants. A significant association of QoL found with education level (p-value 0.002), alcohol drinking (p-value 0.003), exercise (p-value <0.001), comorbidities (p-value <0.001), and hearing/knowing about COVID-19 (p-value 0.015). The chances of good QoL was 2 times significantly higher in participants who did exercise as compared to participants who did not perform exercise (cOR 2.03, 95% CI 1.35 to 3.07, p-value <0.001).

Conclusion: The study concluded that exercise, higher education, avoiding alcohol, and good health significantly improve the QoL among the elderly during the COVID-19 pandemic. Moreover, regular exercise notably doubles the likelihood of better QoL.

Keywords: Aging Population, Coronavirus Disease, Pandemic, Quality of Life.

INTRODUCTION

The number of aging populations are growing throughout the world and this group needs special medical attention that ultimately impacts on the health system.[1] The Corona Virus Disease-19 (COVID-19) epidemic has posed unprecedented challenges to nations globally, particularly vulnerable demographic groups such as the elderly.[2] Understanding the elements that influence older individuals' quality of life (QoL) during this crisis is critical.[3] By investigating these patterns, politicians, healthcare professionals, and communities can design tailored interventions to help ageing populations, encourage resilience, and improve overall QoL in the face of adversity. The developed countries consider the elderly of age 65 years and above.[2] Moreover, some countries may define the elderly according to their retirement age and their physical condition.[2] Those countries with 10% of aging face over burden on their economy to provide the health services to this vulnerable group.[2] Aging population will be doubled by 2050 in North, West Asia, Central South Asia, and in Latin America.[3] Thailand has large number of aging society of 13 million aged 60 and above, that contributes 19% of the total population. In the next 20 years, the number of Thai elderly is expected to increase by 21 million and 31% of the total population.[4] During the COVID-19 pandemic in Thailand, around 1,667,792 cases were reported in 2021, out of which 182,950 were elderly constituting 11% of the total cases. Around 20,597 people were infected and died from COVID-19, out of them, 14,597 (70%) were elderly

people who were infected and died due to COVID-19.[5,6] Most of the aging population living in Thailand have a moderate QoL except those who live in Bangkok and the Northern region, where 87% had moderate QoL.[4] Moreover, the economic and social conditions in these regions are different with Bangkok being the capital, households have the highest average income in the country and the Northern region is an important tourist destination with good income. Most of the elderly have a good level of education, this give them the knowledge to take care of themselves to have a moderate QoL. Hence, this research shows that the majority of elderly people need to improve their QoL from a moderate level to a higher QoL.[7] COVID-19 outbreak seriously affected the economy, social, and living conditions, along with health infrastructure, especially for the elderly population. Moreover, elderly population had poor access to medical services, lack of employment, and occupation during this pandemic.[8] This aging population is considered as a vulnerable group of the society and were highly prone to get infection during this COVID-19 pandemic and many of them had lost their life. This shows that the QoL of the elderly is affected by the COVID-19 pandemic. Therefore, it is imperative to know the QoL of the elderly during the COVID-19 crisis in Thailand. This research will serve as a guideline for promoting the health and QoL of Thai elderly for a better QoL in the future pandemic. This study aims to study the level of QoL in the elderly and the factors affecting the QoL during the COVID-19 crisis.

METHODS

This cross-sectional study was conducted at Central, Northern, Northeastern, and Southern regions of Thailand from June to November 2021. The study was ethically approved from the board of study Kanchanabhishek Institute of Medical and Public Health Technology, Thailand through letter number KMPHT-63010016. Informed written consent was taken from the participants before to start the data collection. The confidentiality of the obtained data was assured, and participants' anonymity was respected. Participation in the study was entirely voluntary. The right to refuse to participate or withdraw from the study at any time was emphasized after reassuring the participants that the collected data would only be used for research purposes, as stated in the written consent form.

The formula by Taro Yamane was used for the calculation sample size by using 11,136,059 older persons for calculating a required sample size of 400. Sample size was calculated through using cross sectional survey formula, where the exact prevalence was unknown, the value of 0.5 was taken, at 95% confidence interval. Inclusion criteria in this study were being an elderly persons with Thai nationality, elderly population who were living in the Central, Northern, Northeastern, and Southern regions of Thailand, and willing to participate in project, and sigh the informed consent document willingly. Exclusion criteria were being a bedridden patient, having problems with hearing including tinnitus, and inability to hear or little hearing. Participants were invited to this study through a convenient sampling technique. Data were collected through face-to-face interviews by a trained data collector. The QoL was measured with the WHO Quality of Life (WHOQoL-BREF-THAI),[9] comprising 26 standardized items. This brief version includes two generic items assessing overall QoL and general health perception, as well as 24 items categorized into four domains: physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items). Each item is rated on a 5-point Likert scale, where higher scores indicate better QoL. Scores from items within each domain are summed to calculate subscale scores. The overall QoL score was given from 26-130 points, and categorized as; Not Good QoL (26-60 scores), Moderate QoL (61-95 scores), and Good QoL (96-130 scores). A pilot study was done with 30 elderly at the Bangbuathong district, Nonthaburi province. The content validity was measured as 0.85 for all items, and the reliability of Cronbach's alpha coefficient was 0.84.[9] Information regarding personal factors and health factors were also noted. Personal factors included residence, gender, age, marital status, education level, and occupation. Health factors included body mass index (BMI), smoking, alcohol drinking, exercise, health problems, perceived risk of COVID-19 infection, knowing about COVID-19, and wearing surgical mask.

Data entry and analysis were performed using a Statistical Package for Social Sciences (SPSS) version 24.0. Mean ±SD was computed for quantitative variables like age, while frequency and percentages were computed for categorical variables like gender, marital status, education, residence, occupation, BMI, smoking, alcohol drinking, exercise, health problems, perceived risk of COVID-19 infection, knowing about COVID-19, and wearing surgical mask. Inferential statistics were explored using the Chi-square test to identify the association of QoL with the general characteristics of participants. The p-value of ≤0.05 was considered statistically significant. Moreover, binary logistic regression was also applied to identify potential

factors for good QoL.

RESULTS

Of total 400 participants, the mean age was 68.32 ±6.93 years. There were 145 (36.2%) males and 255 (63.8%) females. Majority of the participants were married 285 (71.2%), lived other than central region of Thailand 300 (75.0%), their occupation was agriculture 219 (54.7%), their education level was illiterate or primary school 332 (83.0%), and had BMI low/thin/normal 246 (61.5%). Alcohol drinking and smoking were observed in a few participants i.e., 19 (4.7%) and 34 (8.5%) respectively. Most of the participants did not perform exercise 249 (62.2%), had health problems 278 (69.5%), didn't have a perceived risk of COVID-19 infection 348 (87.0%), had hearing/knowing about COVID-19 363 (90.7%) and they used surgical masks for the prevention of COVID-19 364 (91.0%).

The overall perception of QoL in the elderly showed that more than half 213 (53.0%) had moderate level. More than half of the participants had good QoL in terms of psychological domain i.e., 222 (55.5). Not good QoL was observed in 3 (0.8%) participants, moderate QoL was observed in 213 (53.2%) participants, and good QoL was observed in 184 (46.0%) participants. (Table 1). A significant association of QoL found with education level (p-value 0.002), alcohol drinking (p-value 0.003), exercise (p-value <0.001), comorbidities (p-value <0.001), and hearing/knowing about COVID-19 (p-value 0.015) (Table 2, 3).

Table 4 reveals binary logistic regression analysis for predicting good QoL in aging population. QoL variable was converted as binary (Not good/moderate=0, good=1). At the univariate level, all variables presented in Table 4 showed significant odds ratios. The chances of good QoL were 2 times significantly higher in participants who did exercise as compared to participants who did not perform exercise (cOR 2.03, 95% CI 1.35 to 3.07, p-value <0.001). There was 0.60 times less chance of good QoL for individuals who had health problems as compared to individuals who had no health problems (cOR 0.40, 95% CI 0.26 to 0.62, p-value <0.001). Furthermore, the findings of the multivariable analysis were presented after adjusting the variables that were significant in the univariable analysis. At this stage, variables like education level, alcohol drinking, exercise, and comorbidities showed significant odds ratios.

DISCUSSION

The findings of this study provide valuable insights into the factors affecting the QoL among the aging population in Thailand during the COVID-19 pandemic. The observed associations highlight the critical role of lifestyle choices, health status, and awareness in determining QoL. Regular exercise, higher education levels, and had no health problems were significantly linked to better QoL, emphasizing the importance of promoting healthy behaviors and lifelong learning. The negative impact of comorbidities on QoL underscores the need for effective healthcare management. These results suggest targeted interventions to enhance the well-being of the elderly, particularly during challenging periods like a pandemic. The general characteristics of this study were similar to a study conducted in rural areas of Thailand among elderly people.[10]

In terms of QoL in the aging population, the overall QoL in more than half had a moderate level. In terms of QoL by domain only psychological domain had a good level of QoL. This may be due to the most of the participants had married status, which caused various problems at times, they had a husband or grandchildren to help, take care of them, and solve problems. This was similar to the study, QoL of the elderly in a railway community in Hat Yai Municipality, Songkhla province, Southern region, Thailand found that the aging had a moderate level, while their QoL in a social relationship and environment were low level.[11] Similarly, the QoL in the

Table 1: Levels of quality of life among the aging population in the COVID-19 pandemic (n= 400)

	Quality of Life		
	Not Good	Moderate	Good
	n (%)	n (%)	n (%)
The Overall Perception of Quality of Life	3 (0.8)	213 (53.2)	184 (46.0)
Domain I: Physical	6 (1.5)	277 (69.2)	117 (29.2)
Domain II: Psychological	2 (0.5)	176 (44.0)	222 (55.5)
Domain III: Social Relationship	17 (4.2)	206 (51.5)	177 (44.2)
Domain IV: Environment	5 (1.2)	209 (52.2)	186 (46.5)

-Levels of quality of life: Not good (26-60), Moderate (61-95), Good (96-130)

Table 2: Association between quality of life and personal characteristics of aging population during the COVID-19 pandemic (n = 400)

Personal Characteristics	Total	Quality of Life		p-value
		Good (n= 184)	Not Good/Moderate (n= 216)	
Age				
60-69	253	114 (45.1)	139 (54.9)	0.620
> 70	147	70 (47.6)	77 (52.4)	
Gender				
Male	145	73 (50.3)	72 (49.7)	0.189
Female	255	111 (43.5)	144 (56.5)	
Residence				
Central Region	100	45 (45.0)	55 (55.0)	0.817
Other Regions	300	139 (46.3)	161 (53.7)	
Marital Status				
Single	28	14 (50.0)	14 (50.0)	0.592
Married	285	134 (47.0)	151 (53.0)	
Widow/Divorce/Separate	87	36 (41.4)	51 (58.6)	
Education Level				
No Education/Primary School	332	141 (42.5)	191 (57.5)	0.002*
High School and Over	68	43 (63.2)	25 (36.8)	
Occupation				
In Agriculture	219	92 (42.0)	127 (58.0)	0.079
Non Agriculture	181	92 (50.8)	89 (49.2)	

-COVID-19: Coronavirus disease
***** p-value ≤ 0.05 (Chi-Square test)

elderly school in Saraburi province, Central region was moderate level.[12] Similarly, the study of the aging population in Loei province, Northeastern region had the QoL at not a good level[13] and the overall QoL in Tambon Sakom Administrative Organization, Thepha District, Songkhla province was at a good level.[14] When considering each factor, it was found that the QoL in terms of the environment followed by mental health, social relationship, and physical health, respectively.[14] Moreover, another study showed that the physical health and financial affordability were the main factors to improve the QoL among Thai older population.[15] The study revealed that a significant portion of the elderly population worked in agriculture, which often resulted in limited financial resources. Consequently, the QoL among the elderly varied due to differences in the area's context. These findings are supported by other research indicating that financial instability can significantly impact QoL.[15] The variables that affected the QoL among the aging population during the COVID-19 crisis were primarily awareness of COVID-19, followed by exercise, alcohol consumption, health problems, and education level. Conversely, factors such as residence, gender, age, marital status, and occupation did not significantly impact QoL. These results align with findings from a study on community-dwelling older Canadians, which showed that those who strongly agreed that the pandemic increased their stress and anxiety experienced a lower QoL.[16] In terms of exercise, it was similar to the study in Japan showed that physical activity, subjective well-being, and health-related QoL of the elderly patients in Japan.[17] Similarly, the QoL in rural areas of Thailand found that four variables predictive of QoL were activities of daily living, income, alcohol consumption, and present illness, but gender, age, education, working, and participating in elderly clubs were not associated with QoL among elderly.[18] Another study found that predictive factors of QoL in older adults during the COVID-19 pandemic found that fear of COVID-19, age, marital status, level of education, living arrangement, and economic situation were significant predictors of QoL.[10] Due to the different

Table 3: Association between quality of life and health related characteristics of aging population during the COVID-19 pandemic (n = 400)

Health Related Characteristics	Total	Quality of Life		p-value
		Good (n= 184)	Not Good/Moderate (n= 216)	
Body Mass Index				
Low/Thin/Normal	246	114 (46.3)	132 (53.7)	0.863
Overweight/Obese	154	70 (45.5)	84 (54.5)	
Smoking				
Yes	34	15 (44.1)	19 (55.9)	0.818
No	366	169 (46.2)	197 (53.8)	
Alcohol Drinking				
Yes	19	15 (78.9)	4 (21.1)	0.003*
No	381	169 (44.4)	212 (55.6)	
Exercise				
Yes	151	86 (57.0)	65 (43.0)	<0.001*
No	249	98 (39.4)	151 (60.6)	
Health Problems				
Yes	278	109 (39.2)	169 (60.8)	<0.001*
No	122	75 (61.5)	47 (38.5)	
Perceived Risk of COVID-19 Infection				
Yes	52	22 (42.3)	30 (57.7)	0.567
No	348	162 (46.6)	186 (53.4)	
Hearing/Knowing about COVID-19				
Yes	363	174 (47.9)	189 (52.1)	0.015*
No	37	10 (27.0)	27 (73.0)	
Wearing of Surgical Masks				
Yes	364	171 (47.0)	193 (53.0)	0.212
No	36	13 (36.1)	23 (63.9)	

-COVID-19: Coronavirus disease of 2019
* p-value ≤ 0.05 (Chi-Square test)

study methods and the time of the COVID-19 pandemic for the study. This may result in different factors that affect to QoL among elderly people.[19] It is recommended that improve QoL, by promoting health care during the COVID-19 outbreak. By exercising indoors instead of exercising outdoors or organizing physical activities to reduce body pain, refraining from drinking alcohol, and promoting activities that increase income to have a better financial and conducted next research on guidelines for the Thai elderly to have appropriate happiness in sexual relations.[20] Time and limited finances were the major limitation in this study. This study conducted on the vulnerable population is the strong point. The factors affecting the QoL are; information about COVID-19, exercise, alcohol consumption, health problems, and education levels. Therefore, knowledge of health care providers should be promoted to be at an appropriate level.

CONCLUSION

The study concluded that during the COVID-19 pandemic, over half of the elderly in Thailand had a moderate QoL. Factors such as higher education, not drinking alcohol, regular exercise, and not having health problems were significantly associated with QoL. Regular exercise was a strong predictor, doubling the chances of having a good QoL. Health problems significantly reduced QoL. Most participants knew about COVID-19 and used masks. These results suggest that promoting education, healthy lifestyles, and disease management can improve the QoL for the

Table 4: Binary logistic regression analysis for predicting quality of life among aging population during the COVID-19 pandemic (n = 400)

	Univariable analysis		Multivariable analysis	
	COR (95% CI)	p-value	aOR (95% CI)	p-value
Education Level				
No Education/Primary School	0.42 (0.25 to 0.73)	0.002*	0.47 (0.26 to 0.83)	0.010*
High School and Over	1		1	
Alcohol Drinking				
Yes	4.70 (1.53 to 14.43)	0.007*	3.50 (1.10 to 11.08)	0.033*
No	1		1	
Exercise				
Yes	2.03 (1.35 to 3.07)	<0.001*	1.70 (1.10 to 2.62)	0.017*
No	1		1	
Health Problems				
Yes	0.40 (0.26 to 0.62)	<0.001*	0.47 (0.30 to 0.74)	<0.001*
No	1		1	
Hearing/Knowing about COVID-19				
Yes	2.48 (1.16 to 5.28)	0.018*	1.93 (0.87 to 4.27)	0.103
No	1		1	

-COVID-19: Coronavirus disease of 2019
COR: Crude odds ratio, aOR: Adjusted odds ratio, CI: confidence interval, *p-value ≤ 0.05

elderly during such challenging times.

ETHICAL APPROVAL: Ethical approval of the study was taken from the ethical board of Faculty of Public Health and Allied Health Science, Praboromarajchanok Institute, Thailand. (Registration #: KMPHT-63010016, dated: June 1, 2021).

AUTHORS' CONTRIBUTIONS: PE: Research ideas and data collection.NN: Manuscript methodology and analysis. AJB, DCI support in the data collection process. RK & AK: Data entry, compilation, and analysis. All authors approved final version of the manuscript.

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