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Original Research Article

Demographic related quality of life of the aging population in Thailand

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ABSTRACT

Background: Thailand has a substantial elderly population, around one-sixth of its total populace, and ranks second among ASEAN countries. Remarkably, Thailand is the first developing nation to transition into a fully-fledged "Aged Society". This study aimed to assess the quality of life (QoL) of aging in Thailand and explore the demographic factors that affect it.
Methods: The QoL and the demographic data of 15,600 adults aged 60 years and over were obtained from Regional Health (RH), Ministry of Public Health, and Thailand. The WHOQOL-BREF instrument in Thai was used to assess aging QoL. Outcome measures included WHOQOL-BREF's four domains (physical health, psychological, social relationships, and environmental scores. Cronbach's coefficient assessed the reliability of the questionnaire. The relationships between QoL gender-age group, years, and RHs were investigated using multiple regression. The overall Cronbach's coefficient of the WHOQOL-BREF questionnaire was 0.94 and Cronbach`s alpha was 0.67, 0.81, 0.72, and 0.87, respectively.
Results: The scores of different gender-age groups, years, and RHs significantly differed in the four domains. The younger age for both sexes scored highest in physical, psychological, and environmental domains but not for the youngest females in social relationships. Years show a slight increase in the three domains but not the physical domain. Aging from RH 1-3 had the highest scores for all domains. The WHOQOL-BREF was reliable in the assessment of the QoL of the aging Thai population.
Conclusions: To cope with the influencing demographic factors of the QOL, health authorities should support the aging population, especially the oldest physical health.

Keywords: Aging population, Quality of life, WHOQOL-BREF

INTRODUCTION

The health, well-being, and quality of life (QoL) of older adults have become a major public health issue. This is because the global population experiencing extra years of life. Health systems will face increased healthcare expenses due to increased demand if added years are spent in poor health. In 2022, the global population aged 65 years and above amounted to 771 million, representing nearly 10% of the world's population. This demographic has been expanding rapidly and is projected to reach 16% by 2050, with an estimated increase to 24% by 2100.[1] Aging is connected to the QoL.[2] As individuals age, several changes and factors can affect their well-being and overall QoL. Physical health, mental well-being, social interactions, and environmental conditions are some of the factors that can impact their QoL. It's essential to understand these aging-related factors to improve the well-being of older adults and develop policies and interventions that enhance their QoL.

The World Health Organization (WHO) describes QoL as an individual's perceptions of their place in life about their goals, aspirations, standards, and concerns, as well as the culture and value systems in which they live.[3] It is a wide-ranging notion that intricately considers a person's psychological and physical health, level of independence, relationships with others, religious convictions, and relationship to key elements of their environment.[4] It is well-known that aging has both direct and indirect effects on the QoL. Thus, an essential component of relevant information for policymakers is QoL and its determinants in an aging society.

The impact of aging on the QoL is influenced by a combination of individual factors, lifestyle choices, and external circumstances. The decrease in the QoL as people age can be attributed to various factors, including physical, psychological, and social changes that often accompany the aging process.[5] These changes can lead to a decline in physical strength and mobility, making it more difficult to perform daily activities and maintain overall health. Aging can sometimes lead to social isolation, as older individuals may lose friends and family members, retire from work, or experience reduced mobility. Maintaining a healthy lifestyle, staying socially connected, engaging in mental and physical activities, and accessing appropriate healthcare can all contribute to a higher QoL.[6-9] Indeed, the QoL of the elderly can vary significantly from one country to another.[10] This variation is influenced by a range of factors, including economic development, healthcare systems, social policies, cultural norms, and the overall well-being of the population. Differences in these factors can result in varying QoL experiences for older adults in different countries. Some countries may provide better support, healthcare, and social services for their elderly populations, leading to a higher QoL, while others may face challenges in providing the same level of care and support, resulting in a lower QoL for their older citizens.[11-14] It's important for governments, communities, and organizations to work toward improving the QoL of the elderly within their respective countries, taking into account the specific needs and challenges faced by this demographic group.

Thailand in 2022 had about 12.7 million elderly people aged 60 years and over, or 19.21% of the total population.[15] The largest group, approximately half, is the age group 60-69 years.[16] There are now more elderly people who are 100 years or older than there were 10 years ago.[17] Complete aged society in Thailand causes problems both economically and socially especially in public health. Studies on the QoL of aging in Thailand provide valuable insights for policymakers, healthcare providers, and social organizations seeking to develop targeted interventions and policies aimed at enhancing the well-being of older individuals.[18-23] These studies encompassed investigations into the health status of older adults, the prevalence of chronic diseases, disabilities, and healthcare accessibility.[24] Furthermore, some studies delve into the impact of traditional Thai cultural norms on family support, intergenerational relationships, and social inclusion.[25-27] Additionally, the study evaluates the financial well-being of older adults, which includes income sources, retirement savings, and access to social security and pensions.[28-30] It also examines the prevalence and consequences of social isolation and loneliness among older adults in Thailand.[31-34] Studies focusing on personal factors associated with the QoL of the elderly in Thailand remain limited.

According to previous studies, there are numerous significant associations between QoL and the socio-demographics of the elderly. Gender, age, education, marital status, and family type were related to physical health.[35-42] For psychological health found that gender, age, education, marital status, and place of living were related.[36-40,42,43] While gender, age, education, marital status, place of living, and income were related to social relationships.[36-43] Environmental, there are related determinants similar to social relationships except in Germany, no determinants were found to be associated.

The goals of this research were to examine the QoL of the aging population and investigate the demographic factors that may have an impact on that QoL. The information gained from this research provides valuable data and insights that government or health authorities use to inform policies and programs aimed at improving the QoL of older adults in Thailand and contribute to a better understanding of the unique challenges and opportunities they face.

METHODS

Study design and data collection

This study analyzed secondary data on demographic factors and QoL of adults 60 years of age and older who were members of a senior club in Thailand's province. The data were obtained from RH, Ministry of Public Health, Thailand. The data from 2016-2018 comprising 15,600 persons were chosen for analysis.

The data were collected using a cross-sectional study design. Individuals aged 60 years and older, affiliated with the elderly club, and willing to voluntarily respond to the questionnaire will be chosen for participation in this study. However, those elderly individuals who are not affiliated with the elderly club or choose not to volunteer for the questionnaire will be excluded from the study.

Variable

Outcome variables

QoL was measured using the Thai version of WHOQOL-BREF. The WHOQOL-BREF questionnaire includes four domains: physical, psychological, social relations, and environment. The development and validation of the

WHOQOL-BREF are fully described elsewhere.[44] The questionnaire items in each domain vary from three to seven. Every item is rated on a 5-point Likert scale, where 1 represents "very poor" and 5 represents "very good". Negative item scores were scaled in a positive direction. Domain scores were calculated by multiplying the mean of all items included within the domain by four. The scores ranged from 4 to 20, with 0 being the least favorable and 20 being the most favourable.[3]

Explanatory variables

Gender was classified as male or female. Age was divided into 3 groups with a 10-year interval: 60-69, 70-79, and 80 and older. Gender and age groups were combined into a single variable namely "gender-age group" with 6 categories. The year was a categorical variable with 3 categories. RH was a categorical variable with 13 categories.

Data analysis

Gender-age group, years, and Regional Health (RH) were used as independent variables and the domains of the WHOQOL-BRIEF were used as dependent variables. The data were separately analyzed for each domain. A multiple regression model was used to model the relationship between the set of independent variables and the domains' score of QoL. The model was fitted using sum contrasts. This method allows for the computation of the 95% confidence interval of the means of each domain for levels of each predictive factor in the models. They were used to divide levels of a predictor into three groups, depending on the placement of these intervals completely above, around, or below the mean. Data analysis was performed using R. This study was approved by the research ethics committee for science, technology and health science (psu.pn.1-003/62), Prince of Songkla University, Pattani Campus.

RESULTS

The demographic characteristics of age and gender are displayed (Table 1). The sample consisted of fewer participants from the older (80+ years) and a higher proportion of the younger (60-69 years) age group, and proportionally more women. The sample was balanced with years and RHs, with 5,200 persons each year and 400 persons each RHs.

Only 19% of aging persons rated their overall QoL (WHOQOL-BRIFE single item on QoL) to be good/very good; and 17.8% were satisfied/very satisfied with their health (WHOQOL-WHOQOL-BRIFE single item on health). The overall Cronbach's coefficient of the WHOQOL-BREF questionnaire was 0.94 and Cronbach`s alpha was 0.67, 0.81, 0.72, and 0.87, respectively, for the physical, psychological, social, and environmental domains.

Table 1: Demographic characteristics of the sample.

Determinant	Number	Percent
Gender-age group		
Male		
60-69	3113	42.81
70-79	3002	41.28
80+	1157	15.91
Female		
60-69	3552	42.65
70-79	3426	41.14
80+	1350	16.21

The distribution of the four domains is presented. The scores ranged from 6.9-14.3, 5.3-20.0, 4.0-20.0, and 7.0-17.5, respectively, for the physical, psychological, social, and environmental domains (Figure 1).

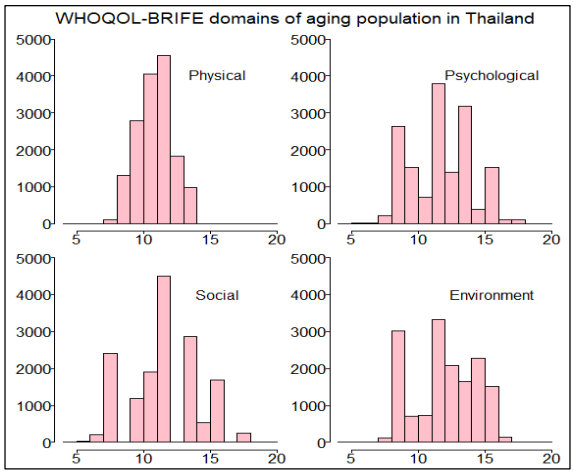

Figure 1: Distribution of the four domains of the WHOQOL-BRIEF.

A linear model for predicting the physical domain using gender-age group, years, and RHs as predictors gives an acceptable fit as the residuals in the quantile-quantile (Q-Q) plot of studentized residuals tended to follow a red diagonal line. The distribution is normal, apart from small groups at low and high values (Figure 2). The same linear model was fitted to the psychological domain, social relationships, and environmental domain. The four models give r-squared values of 40.2%, 50.3%, 45.7%, and 58.2%, respectively, for the physical, psychological, social, and environmental domains.

Figures 3-6 show confidence intervals of domain scores for levels of each predictive factor. Crude means (green points) were also plotted to check if a confounding variable occurred. The confounding variable is associated with both the predictor of interest and the outcome, causing a spurious *association.*

The overall mean for the physical domain is just under 11. The graph shows moderate decreases with age for each sex, a decrease over the study periods from 2016 to

2018, and high scores of physical domain in RH of 1-3, 6, 8, and 10 (Figure 3).

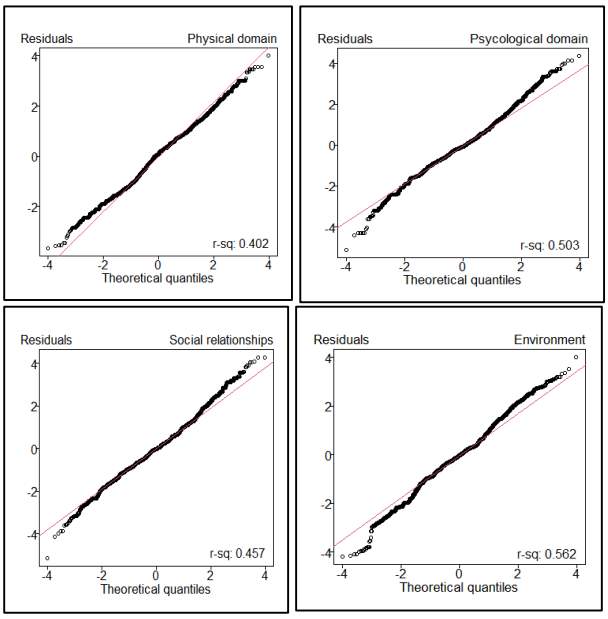

Figure 2: Quantile-quantile plots of the studentized residuals from linear regression models of the four domains.

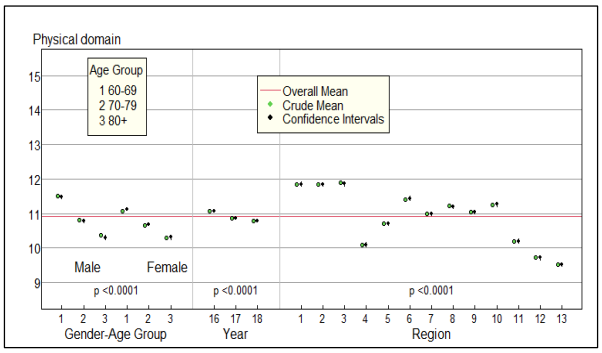

Figure 3: Confidence intervals of the physical domain for levels of each predictive factor.

The overall mean for the psychological domain is just under 12. Age patterns are different from those seen for the physical domain, with peaks at ages 60-69 and 80+ for both sexes. Years show a slight increase. RH shows variation, with areas of high psychological domain, especially in RH of 1-3, 6, and 8-10 (Figure 4).

The overall mean for social relationships is 11.79. Crude means are distance with confidence intervals for some levels such as male and female aged 80+ and RH 4. Age patterns are similar to those seen for the psychological domain, with peaks at ages 60-69 and 80+ for both sexes. Years show a slight increase. RH shows variation, with areas of high psychological domain, especially in RH of 1-3, 6, and 8-10 (Figure 5).

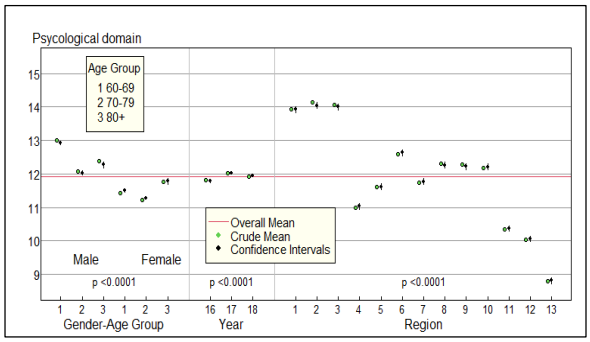

Figure 4: Confidence intervals of the psychological domain for levels of each predictive factor.

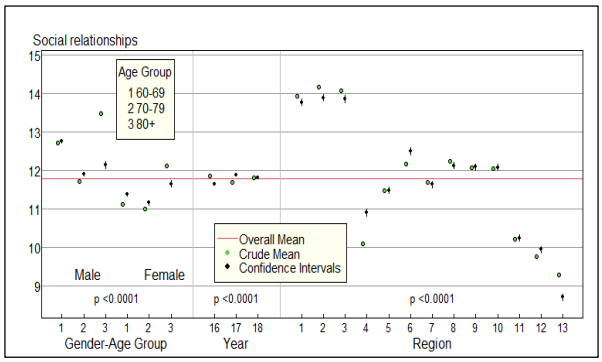

Figure 5: Confidence intervals of the social relationships domain for levels of each predictive factor.

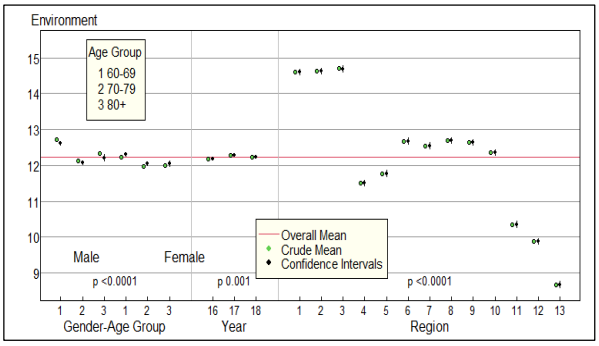

Figure 6: Confidence intervals of the environment domain for levels of each predictive factor.

The overall mean for the environmental domain is 12.23. Age patterns are similar to those seen for the psychological domain, with peaks at ages 60-69 for males. Years show a slight increase. RH shows variation, with areas of high environmental domain, especially in RH of 1-3 and 6-10 (Figure 6).

DISCUSSION

This study aimed to further understand how demographic factors correlate with the QoL among adults aged 60 or over in Thailand. We used WHOQOL-BRIF to assess QoL. Our findings confirm the reliability of the

WHOQOL-BREF in the assessment of the QoL among aging Thai. Measuring the QoL of the elderly using the WHOQOL-BREF has been found in many countries.[45-52] In West Bengal, it was found that the QoL of the elderly in rural Murshidabad was studied using the WHOQOL-BREF, Cronbach's Alpha rating of 0.76indicated good reliability.[53] In Karnataka, examining the factors influencing the QoL of the older population residing in metropolitan regions of Mangalore, when Cronbach's alpha was used to test the reliability, a coefficient of 0.711 was obtained.[54] The QoL and its predictors among older adults in Nepal, both in urban and rural areas, were shown to have good reliability, with a Cronbach's Alpha value of 0.82.[55]

Overall, there is an indication that older adults in Thailand have moderate QoL in the four domains. The environmental QoL was slightly higher than those of other domains. An explanation of this finding could be that most-older adults might have adapted to their environment and living conditions are reasonably acceptable for these older adults.

In the present study, gender-age group, years, and RH were predictive factors of the four domains and explained more than half of the variance in environment, psychological, and social domains. However, at most forty percent of the variance is in the physical domain. This suggests that factors not included in this analysis are likely to be important predictors for the physical domain and more research is needed to identify them.

QoL can be influenced by various factors, and these factors can change as a person grows older .In health as people age, their health may decline, which can have a significant impact on their QoL. Chronic illnesses, physical disabilities, and cognitive decline can affect daily functioning and overall well-being. Mental health and emotional well-being are essential components of QoL. Factors such as depression, loneliness, and anxiety can affect individuals at any age but may become more prevalent as people age. QoL is closely tied to social connections. Maintaining strong relationships with family and friends can be vital for emotional well-being, and the availability of social support networks can vary with age. This is consistent with research in Sri Lanka, it was found that age 70 years or more was associated with QoL.[56] It was found in Gujarat that men's QOL across four different domains was significantly higher than that of women.[57] In Kerala, it was discovered that those in the 60–69 age range had higher QoL.[58] Similar to Indonesia, where studies on age revealed that it could predict the elderly's QoL.[59] However, in Poznań, Poland, it was found that gender was not associated with QoL.[40]

Gender is one of the many variables that might affect one's QoL. The effect of gender on QoL can manifest in several ways, although it's important to note that these effects can vary widely depending on cultural, societal, and individual factors. Gender can impact access to healthcare, health outcomes, and overall well-being.[60] For example, women may face unique health challenges related to reproductive health, and these challenges can influence their QoL. Men and women may also have different risk factors for certain health conditions, which can affect their QoL. Gender can influence mental health and emotional well-being. For example, women may be more likely to experience mood disorders like depression and anxiety. Transgender individuals may face unique mental health challenges related to gender dysphoria and social stigma.[61] Numerous research studies and surveys have shown that gender can indeed have a significant impact on QoL. A study was carried out in 2020 on the QoL of senior citizens living in communities in low- and middle-income nations, such as China, Ghana, India, Mexico, the Russian Federation, and South Africa. The study's findings indicated that gender influences QoL, and significantly, male older adults have a higher QoL than females across all of the countries.[62] This result is similar to a study in Kuala Lumpur that found that males had a better QoL than females in all domains. However, some research result in different findings. Men in South Korea were reported to have suicidal thoughts, loneliness, and depression more frequently than women. Naturally, these items will have an impact on their QoL, and in the United Kingdom, it was found that gender was not associated with QoL.[63,64]

The year or period can affect an individual`s QoL in various ways. Such as economic stability and prosperity in a given year can greatly affect an individual`s QoL.[65] The social and political climate can have a profound impact on QoL.[66] Environmental conditions, including climate change, pollution, and natural disasters, can impact QoL.[67] In some years, environmental factors may degrade air and water quality, leading to health and safety concerns. These events can disrupt daily life, impact mental health, and affect access to resources and services. While external factors play a significant role, an individual`s circumstances and choices also have a substantial impact on their QoL.[68] It's important that the impact of the year on an individual's QoL can vary widely depending on their specific circumstances and personal values. Additionally, long-term trends and systemic changes in society can have a lasting impact on QoL over time.

Thailand developed RH covering all regions of the country. The QoL of the elderly can be influenced by various regional factors, including healthcare, social services, economic conditions, and community support. Regions with well-developed healthcare systems and a high concentration of healthcare professionals can provide better medical care, access to specialists, and preventive services, contributing to a higher QoL for older adults.[69] The availability and quality of long-term care facilities, such as nursing homes and assisted living communities, can vary by region.[70] A region with a higher cost of living or limited economic opportunities may place financial stress on seniors, potentially impacting their QoL.[71-72]

The availability of accessible and age-friendly housing can significantly impact the QoL of aging individuals.[73] Regions that invest in infrastructure and housing modifications to support seniors can enhance their mobility and independence.[74] The cultural and social environment of a region can influence an older adult`s sense of belonging and connectedness. Access to cultural activities, community events, and social networks can contribute to a higher QoL.[75] The safety of a region, including crime rates and emergency response services, is critical for older adults, who may be more vulnerable to safety concerns.[76] The presence of a supportive and active community can provide opportunities for social engagement, volunteering, and participation in meaningful activities, which can contribute to a higher QoL for aging individuals.[77,78]

This study has a certain limitation because there are few predictive variables. Absolutely, the QoL of aging individuals is a multifaceted and complex construct influenced by a wide range of factors, such as economic factors, healthy eating habits, and lifestyle choices. As such, it is recommended that forthcoming research endeavors encompass the collection and analysis of these additional datasets.

CONCLUSION

While some older adults report a high QoL, others may struggle with age-related health issues, loss of independence, or social isolation. Women and men may experience different health challenges and social expectations as they grow older. Additionally, gender-related roles and expectations can impact how individuals experience aging. The year in which a person is aging can have a significant impact on QoL due to advances in healthcare, technology, and social changes. For example, access to healthcare, medical treatments, and assistive technologies can improve QoL for older adults. The RH or location where a person is aging plays a vital role in determining their QoL. Access to services, amenities, and community resources can vary greatly by region, which can influence an older adult`s QoL.

In addition to these factors, individual characteristics, such as socioeconomic status, education level, social support, and personal attitudes, also contribute to QoL in aging. It's important to recognize that each person's experience of aging is unique, and QoL is a subjective measure that depends on the individual's perception and priorities. Research and policy efforts continue to address these factors to improve the QoL of older adults.

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REFERENCES

1. Alvarez P. Charted: The World's Aging Population from 1950 to 2100, 2023. Available at: https://www.visualcapitalist.com/cp/charted-the-worlds-aging-population-1950-to-2100/. Accessed 9 October 2023.
2. Ayala A, Rodríguez BC, Calderón LA. Beridze G, Teixeira L. Araújo L, et al. Influence of Active and Healthy Ageing on Quality of Life Changes: Insights from the Comparison of Three European Countries. Int J Environm Res Publ Heal. 2021;18(8):4152.
3. World Health Organization. WHOQOL: Measuring quality of life, 2023. Available at: https://www.who.int/tools/whoqol. Accessed 9 October 2023.
4. Bożek A, Nowak PF, Blukacz M. The relationship between spirituality, health-related behavior, and psychological well-being. Front Psychol. 2020;11:1997.
5. Kim BR, Hwang HH. Analysis of major factors affecting the quality of life of the elderly in korea in preparation for a super-aged society. Int Environm Res Publ Heal. 2022;19(15):9618.
6. Wadi BA. Quality of life in tertiary healthcare services: lessons from the saudi arabia accreditation system. Quality Life. 2013;8(3-4):74-84.
7. Bogart K, Hemmesch A, Barnes E, Blissenbach T, Beisang A, Engel P. Healthcare access, satisfaction, and health-related quality of life among children and adults with rare diseases. Orphanet J Rare Dis. 2022;17(1):196.
8. Chantakeeree C, Sormunen M, Estola M, Jullamate P, Turunen H. Factors affecting quality of life among older adults with hypertension in urban and rural areas in thailand: A cross-sectional study. Int J Ag Human Develop. 2022;95(2):222-44.
9. Zheng X, Xue Y, Dong F, Shi L, Xiao S, Zhang J, Zhang C. The association between health-promoting-lifestyles, and socioeconomic, family relationships, social support, health-related quality of life among older adults in china: a cross sectional study. Healt Qual Life Out. 2022;20(1):64.
10. Ayala A, Rodríguez BC, Calderón LA, Beridze G, Teixeira L, Araújo L, et al. Influence of Active and Healthy Ageing on Quality of Life Changes: Insights from the Comparison of Three European Countries. Int J Environm Res Publ Heal. 2021;18:4152.
11. Neill R D, Wake J, Ohwa M, Manthorpe J, Gillen P, McFadden P. Comparing the mental wellbeing and quality of working life among nurses and social care workers in the UK and Japan in older adults' care

services during the COVID-19 pandemic. Psych. 2022;4(4):843-55.
12. Ma H, Wang M, Yang B. Research on urban community elderly care facility based on quality of life by SEM: Cases study of three types of communities in Shenzhen, China. Sustainab. 2022;14(15):9661.
13. Muhammad T, Maurya P. Social support moderates the association of functional difficulty with major depression among community-dwelling older adults: evidence from LASI, 2017–18. BMC Psych. 2022;22(1):1-13.
14. Tan SS, Fierloos IN, Zhang X, Koppelaar E, Alhambra BT, Rentoumis T, Raat H. The association between loneliness and health related quality of life (HR-QoL) among community-dwelling older citizens. Int J Environm Res Publ Heal. 2020;17(2):600.
15. Statista Research Department. Share of total population older than 60 years old in Thailand in 2022 with a forecast to 2040, 2023. Available at: https://www.statista.com/statistics/ 713667/thailand-forecast-aging-population/. Accessed 9 October 2023.
16. Tangthong A, Manomaipiboon B. Prevalence and factors associated with depression among older adults during the COVID-19 pandemic: a cross-sectional study in urban areas in Thailand. Clin Intervent Agi. 2023;18:1055-65.
17. Department of Provincial Administration. Situation of the Thai older persons 2021, 2021. Available at: https://www.dop.go.th/download/knowledge/th1663828576-1747_1.pdf. Accessed 9 October 2023.
18. Hongthong D, Somrongthong R, Paul D. Factors influencing the Quality of Life (Qol) among Thai older people in a rural area of Thailand. Iran J Publ Heal. 2015;44(4): 479.
19. Sirisuwan P, Phimha S, Banchonhattakit P. Influence of active ageing and health literacy on quality of life among elderly persons in northeast Thailand. Heal Educat J. 2022;81(6):693-704.
20. Hongthong D, Somrongthong R, Wongchaiya P, Kumar R. Factors predictive of alcohol consumption among elderly people in a rural community: a case study in Phayao Province Thailand. J Ayub Medi Coll Abbottabad. 2016;28(2):237-40.
21. Yodmai K, Somrongthong R, Kumar R. Determinants of quality of life among rural elderly population in Khonkean Province of Thailand. J Liaquat Uni Med Health Sci. 2018;17(03):180-4.
22. Somrongthong R, Hongthong D, Wongchalee S, Wongtongkam N. The influence of chronic illness and lifestyle behaviors on quality of life among older Thais. BioMed Res Int. 2016:1-7.
23. Phoothong B, Ayasanond C, Boonmalert W, Chaitorn T. The Quality of Life (QOL) Development for Thai Elderly in Nakhon Pathom Province, Thailand. Euro J Molec Clin Medi. 2021;8(3):73-82.
24. Brucker D L, Lauer E, Boege S. Americans aging with disabilities are more likely to have multiple chronic conditions. J Dis Policy Stud. 2023;34(1):52-60.
25. Knodel J, Kespichayawattana J, Wivatvanit S. Saengtienchai C. The future of family support for thai elderly: views of the Populace. J Populat Soc Stud. 2013;21(2):110-32.
26. Tapanya S. Attributions and Attitudes of Mothers and Fathers in Thailand. Parent: Sci Pract. 2011;11(2-3):190-8.
27. Fact and details. Families in Thailand, 2014. Available at: https://factsanddetails.com/southeast-asia/Thailand/sub5_8c/entry-3222.html. Accessed 9 October 2023.
28. Prakitsuwan P, Moschis G P, Shannon R. Using the life course paradigm to study financial well-being in late life. A Paci J Market Logis. 2022;34(1):60-74.
29. Trapsinsaree D, Pothiban L, Chintanawat R, Wonghongkul T. Factors predicting spiritual well-being among dependent older people. Tren Sci. 2022;19(1):1718-8.
30. Ketkaew C, Van WM, Jorissen A, Cassimon D, Vichitthamaros P, Wongsaichia S. Towards sustainable retirement planning of wageworkers in Thailand: a qualitative approach in behavioral segmentation and financial pain point identification. Risks. 2022;10(1):8.
31. Iamtrakul P, Chayphong S. Exploring the Influencing Factors on Living Alone and Social Isolation among Older Adults in Rural Areas of Thailand. Int J Environm Res Publ Heal. 2022;19(21):14572.
32. Aroonsrimorakot S, Laiphrakpam M, Metadilogkul O, Sharma ARS. Interventions to reduce the negative impact of ageing, social isolation, and loneliness on the health and well-being of elderlies in Thailand and India. J Pub Heal Develop. 2022;20(2):183-95.
33. Pengpid S, Peltzer K. Prevalence and associated factors of incident and persistent loneliness among middle-aged and older adults in Thailand. BMC Psychol. 2023;11(1):1-10.
34. Wiwatkunupakarn N, Pateekhum C, Aramrat C, Jirapornchaoren W, Pinyopornpanish K, Angkurawaranon C. Social networking site usage: A systematic review of its relationship with social isolation, loneliness, and depression among older adults. Ag Men Heal. 2022;26(7):1318-26.
35. Beltz S, Gloystein S, Litschko T, Laag S, Van den berg N. Multivariate analysis of independent determinants of ADL/IADL and quality of life in the elderly. BMC Geriatr. 2022;22(1):1-16.
36. Gobbens R J, Remmen R. The effects of sociodemographic factors on quality of life among people aged 50 years or older are not unequivocal: comparing SF-12, WHOQOL-BREF, and WHOQOL-OLD. Clin Intervent Ag. 2019;14:231-9.
37. Talarska D, Tobis S, Kotkowiak M, Strugała M, Stanisławska J, Wieczorowska TK. Determinants of

quality of life and the need for support for the elderly with good physical and mental functioning. Medi Sc Moni: Int Med J Experimen Clin Res. 2018;24:1604.
38. Tański W, Wójciga J, Jankowska PB. Association between malnutrition and quality of life in elderly patients with rheumatoid arthritis. Nutri. 2021;13(4):1259.
39. Rétsági E, Prémusz V, Makai A, Melczer C, Betlehem J, Lampek K, Hock M. Association with subjective measured physical activity (GPAQ) and quality of life (WHOQoL-BREF) of ageing adults in Hungary, a cross-sectional study. BMC Publ Heal. 2020;20(1):1-11.
40. Cwirlej SA, Sozanski B, Wisniowska SA, Wilmowska PA. Quality of life and related factors among older people living in rural areas in south-eastern Poland. Ann Agricult Environm Medi. 2018;25(3).
41. Vinsalia T, Handajani YS. Life satisfaction is the most significant determinant of quality of life in the elderly. Univ Medi. 2021;40(1):14-21.
42. Singh A, Palaniyandi S, Palaniyandi A, Gupta V. Health related quality of life among rural elderly using WHOQOL-BREF in the most backward district of India. J Fam Medi Prim Care. 2022;11(3):1162.
43. Gondodiputro S, Hidayati A R, Rahmiati L. Gender, age, marital status, and education as predictors to quality of life in elderly: WHOQOL-BREF Indonesian Version. Int J Integra Heal Sci. 2018;6(1):36-41.
44. Skevington SM, Lotfy M, O'Connell KA. The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. Qual Life Res. 2004;13:299-310.
45. Thangaleela S, Sivamaruthi B S, Kesika P, Mariappan S, Rashmi S, Choeisoongnern T, Chaiyasut C. Neurological insights into sleep disorders in parkinson's disease. Brain Sci. 2023;13(8):1202.
46. Lorber M, Kmetec S, Davey A, Mlinar R N, Fekonja Z, Kegl B. Associations between sleep quality, frailty, and quality of life among older adults in community and nursing home settings. Int J Environ Res Publ Heal. 2023;20(6):4937.
47. Chhantyal A, Timalsina R. Factors associated with insomnia among elderly of a selected community of Lalitpur. J Gerontol Geriatr Res. 2017;6:410.
48. Goes M, Lopes M, Marôco J, Oliveira H, Fonseca C. Psychometric properties of the WHOQOL-BREF (PT) in a sample of elderly citizens. Healt Qual L Outc. 2021;19(1):1-12.
49. Abenova N, Imanbayeva A, Karimsakova B, Essengalyeva I. Validation of the Kazakh-language version of the World Health Organization's WHOQOL-BREF questionnaire on the quality of life among the elderly population of Aktobe city. J Clin Med Kaz. 2021;18(5):35-43.
50. Xia P, Li N, Hau K T, Liu C, Lu Y. Quality of life of Chinese urban community residents: a psychometric study of the mainland Chinese version of the WHOQOL-BREF. BMC Med Res Methodol. 2012;12(1):1-11.
51. Jaworski JL, Thompson LA, Weng HY. Quality of life of veterinary residents in AVMA-Recognized Veterinary Specialty Organizations using the WHOQOL-BREF instrument. Plos one. 2022;17(5):e0268343.
52. Amin MF, Bhowmik B, Rouf R, Khan MI, Tasnim SA, Afsana F, et al. Assessment of quality of life and its determinants in type-2 diabetes patients using the WHOQOL-BREF instrument in Bangladesh. BMC Endocr Dis. 2022;22(1):162.
53. Mondal NA, Kannaujiya AK, Ali B. Quality of life of elderly in rural Murshidabad (West Bengal). Soci Sci Spect. 2020;5(1):42-9.
54. Devraj S, D'mello MK. Determinants of quality of life among the elderly population in urban areas of Mangalore. Karnataka. J Geriatr Ment Heal. 2019;6(2):94-8.
55. Risal A, Manandhar S, Manandhar K, Manandhar N, Kunwar D, Holen A. Quality of life and its predictors among aging people in urban and rural Nepal. Qual Life Res. 2020;29:3201-12.
56. Wickramasinghe ND, Ratnayake HE, Perera RA, Agampodi SB. Quality of life among community-dwelling older adults: evidence from a large population-based study in rural Sri Lanka. Qual Life Res. 2023;32(1):93-103.
57. Shah VR, Christian DS, Prajapati AC, Patel MM, Sonaliya KN. Quality of life among elderly population residing in urban field practice area of a tertiary care institute of Ahmedabad city, Gujarat. J Fam Medi Prim Care. 2017;6(1):101.
58. Thadathil S E, Jose R, Varghese S. Assessment of domain wise quality of life among elderly population using WHO-BREF scale and its determinants in a rural setting of Kerala. Int J Curr Med Appl Sci. 2015;7(1):43-6.
59. Gondodiputro S, Hidayati A R, Rahmiati L. Gender, age, marital status, and education as predictors to quality of life in elderly: WHOQOL-BREF Indonesian Version. Int J Integrat Heal Sci. 2018;6(1):36-41.
60. World Health Organization. Gender and health, 2023. Available at: https://www.who.int/news-room/questions-and-answers/item/gender-and-health. Accessed 15 October 2023.
61. Cleveland Clinic. Transgender: Ensuring Mental Health, 2023. Available at: https://my.clevelandclinic.org/health/articles/21963-transgender-ensuring-mental-health. Accessed 15 October 2023.
62. Lee K H, Xu H, Wu B. Gender differences in quality of life among community-dwelling older adults in low-and middle-income countries: results

from the Study on global ageing and adult health (SAGE). BMC Publ Heal. 2020;20:1-10.
63. Ko H, Park YH, Cho B, Lim KC, Chang SJ, Yi YM, et al. Gender differences in health status, quality of life, and community service needs of older adults living alone. Arch Gerontol Geriatr. 2019;83:239-45.
64. Masood M, Newton T, Bakri NN, Khalid T, Masood Y. The relationship between oral health and oral health related quality of life among elderly people in United Kingdom. J Dentis. 2017;56:78-83.
65. Organisation for Economic Co-operation and Development. The Economy of Well-being: Creating Opportunities for People's Well-being and Economic Growth, 2019. Available at: https://one.oecd.org/document/SDD/DOC(2019)2/En/pdf. Accessed 15 October 2023.
66. Eurostat. Quality of life indicators - governance and basic rights, 2021. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Quality_of_life_indicators_-governance_and_basic_rights. Accessed 15 October 2023.
67. Estoque RC, Togawa T, Ooba M, Gomi K, Nakamura S, Hijioka Y, Kameyama Y. A review of quality of life (QOL) assessments and indicators: Towards a "QOL-Climate" assessment framework. Ambio. 2019;48:619-38.
68. Kagan J. What Is Quality of Life? Why It's Important and How to Improve It, 2022. Available at: https://www.investopedia.com/terms/q/quality-of-life.asp. Accessed 16 October 2023.
69. Department of Health and Human Services. Social Determinants of Health and Older Adults, 2023. Available at: https://health.gov/our-work/national-health-initiatives/healthy-aging/social-determinants-health-and-older-adults. Accessed 16 October 2023.
70. Heiks C, Sabine N. Long Term Care and Skilled Nursing Facilities. Delaw J Publ Heal. 2022;8(5):144-9.
71. Huang R, Ghose B, Tang S. Effect of financial stress on self-rereported health and quality of life among older adults in five developing countries: a cross sectional analysis of WHO-SAGE survey. BMC Geriatr. 2020;20:1-12.
72. Ryu S, Fan L. The relationship between financial worries and psychological distress among US adults. J Fam Econom Issues. 2023;44(1):16-33.
73. Yu J, Ma G, Wang S. Do age-friendly rural communities affect quality of life? A comparison of perceptions from middle-aged and older adults in China. Int J Environm Res Publ Heal. 2021;18(14):7283.
74. Maresova P, Krejcar O, Maskuriy R, Bakar NAA, Selamat A, Truhlarova Z, et al. Challenges and opportunity in mobility among older adults–key determinant identification. BMC Geriatr. 2023;23(1):447.
75. Kitreerawutiwong N, Keeratisiroj O, Mekrungrongwong S. Predictive factors for the sense of community belonging among older adults in lower northern Thailand. Iran J Psych Behav Sci. 2020;14(4):e105564.
76. Rosen T, Makaroun LK, Conwell Y, Betz M. Violence in older adults: Scope, impact, challenges, and strategies for prevention. Heal Affairs. 2019;38(10):1630-7.
77. Douglas H, Georgiou A, Westbrook J. Social participation as an indicator of successful aging: an overview of concepts and their associations with health. Austral Heal Revi. 2016;41(4):455-62.
78. Del BE, Marsillas S, Buffel T, Smetcoren A S, Sancho M. From active aging to active citizenship: The role of (age) friendliness. Soci Sci. 2018;7(8):134.

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