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ORIGINAL RESEARCH
Factors Affecting the Quality of Life of Older People during the COVID-19 Pandemic

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Article Info	Abstract
	Background: Changes that occur in the life of older people during the COVID-19 pandemic present many challenges towards achieving better quality of life However, only a limited number of studies that evaluate factors affecting the quality of life of older people during the COVID-19 pandemic are available. **Purpose:** This study aimed to identify the quality of life and factors affecting the quality of life of older people during the COVID-19 pandemic. **Methods:** This study employed a cross-sectional design using anonymous online questionnaires of 208 respondents who were selected using purposive sampling. This study was conducted during September to December 2020 in North Sumatra and Yogyakarta provinces. The QoL was measured using the World Health Organization Quality of Life (WHOQOL)-BREF questionnaire in the Indonesian version. The descriptive statistics were calculated for socio-demographics, while their association with quality of life was analyzed using Mann-Whitney and Kruskal-Wallis statistics. Multiple linear regression was used to determine the predictor factors affecting the quality of life of older people. **Results:** The results of the study showed that the mean and standard deviation for physical domain factors was 64.46(11.81); 64.61(11.98) for the psychological domain; 64.85(12.81) for the social domain, and 61.08(13.01) for the environmental domain. Factors significantly associated with the quality of life included age, retirement, living situation, health insurance, and medical history ($p<0.05$). However, the predictor factor affecting the quality of life of older people during the COVID-19 pandemic was medical history (β-value=0.25). **Conclusion:** Predictor factor affected the quality of life was medical history. The study suggests the government and health care professionals, specifically community health nurses, to promote the utilization of Integrated Elderly Health Service (IEHS) among older adults and families to maintain the quality of health.

1. Introduction

Today, the global community is being challenged by a devastating public health situation. The world is struggling with a pandemic caused by the SARsCOV2 virus, causing the COVID-19 pandemic. WHO data show that the number of cases confirmed as positive for COVID-19 up to 20th July 2020, is as high as 14,043,176 with a mortality rate of as much as 597,583 from 216 countries (World Health Organization, 2020a). The increasing number of cases of confirmed positive COVID-19 cases is a concern regarding several aspects including its danger to older people. The Center of Disease Center and Prevention explains that the number of deaths due to COVID-19 is primarily in the age group of 65 years and above with a percentage of 60% as of May 20, 2020 (Center for Disease Control and Prevention, 2020). Yogyakarta and North Sumatra provinces in Indonesia were found to have the highest number of older people with a high life expectancy (The Central Bureau of Statistics, 2020). Based on the report of the task force in charge of acceleration of the handling of the COVID-19, as of July 20, 2020, the age group who suffered the highest number of fatalities due to COVID-19 is that of 60 years and above representing 41,2%, while for the age group of 46 to 59 years, it was 39.7% (The Task Force for the Acceleration of Handling Covid-19, 2020). Older people in this stage of life often experience a variety of functional losses pertaining to physical, mental, and psychosocial factors,

including changes in one's spiritual considerations (Safitri, 2018; Sunaryo et al., 2016; Touhy & Jett, 2018).

The COVID-19 pandemic has indeed significantly affected the lives of older people. Measures supported by government policies such as physical distancing, and lockdowns cause older people to spend most of their waking time in their homes, with limited physical activities and social contact. These situations led to the view that older people were lonely and experiencing social isolation while they affirmed that their mental health was affected, leading to depression and cognitive impairments, subsequently resulting in suicides. Inability to access health services for older people increases their anxieties and the fear of contracting the deadly disease, resulting in a constant fear of death, especially of dying alone without their family members and relatives (Courtin & Knapp, 2017; National Institute on Aging, 2019; World Health Organization, 2020b).

The quality of life of older people is the essence of living among older people who are able to adapt and survive, especially in unpredictable times such as the COVID-19 pandemic. Quality of life can predict mortality in the presence or absence of physical dependence (Van Biljon et al., 2015). The quality of life of older people is said to be positive when they are in social contact especially with families and children, while it can be viewed negatively when the dependency is brought about by functional limitations such as unhappiness and reduced social contact due to the death of a spouse, family member or friend (Netuveli & Blane, 2008). Based on previous research, the factors that affect quality of life of older people are health and the roles of family members (Research Center for Population of the Indonesian Institute of Sciences, 2020).

Older people during the COVID-19 pandemic had low quality of life and high depression, such as study in Israel showed that older people had moderate level of depression and depression exhibits a strong negative association with health-related quality of life (Levkovich et al., 2021). Another study has also shown that restricted life-space mobility was associated with impact on quality of life in older people during the COVID-19 pandemic (Saraiva et al., 2021). Other research shows that the institutionalization influences negatively on the quality of life of the older people (De Medeiros et al., 2020). Furthermore, quality of life of older people significantly decreased during the pandemic compared to the prior year, so over 80% used technology to maintain contact with family and friends, and social networks did not change (Siette et al., 2021).

There are many factors that can influence quality of life of older people during the COVID-19 pandemic. The previous research showed that participation in elderly integrated health service post (EIHSP) had a significant relationship with depression levels and higher depression levels significantly affected quality of life on every domain (Margaretha et al., 2021). In Saudi Arabia, it was explained that the factors associated with quality of life are psychological experiences and chronic medical conditions (hypertension, diabetes, heart disease, cancer, obesity, psychological problems, arthritis, and others) is associated with quality of life scores (Algahtani et al., 2021). Meanwhile, a study in Korea revealed that there was significant relationship between marital status and quality of life (Han et al., 2014). A study in Macao explained that depressive symptoms, medical conditions, and insomnia are factors associated with quality of life (Kuok et al., 2017). Another study in Bangladesh revealed that depression, social support, health services availability, activities of daily living, and sleep problems are associated with quality of life of older people (Uddin et al., 2018). In Indonesia, which has a high life expectancy, it is a challenge to realize the quality of life of older people, especially during the COVID-19 pandemic. The government has tried to create several programs that focus on older people but due to the changes felt during the COVID-19 pandemic in terms of physical, psychological, social, and environmental aspects, it still needs to be explored. However, only a limited number of studies that evaluated factors affecting the quality of life of older people during the COVID-19 pandemic were available. This study aimed to identify the quality of life and factors affecting the quality of life of older people during the COVID-19 pandemic.

2. Methods

2.1 Research design

This study employed a cross-sectional design using anonymous on-line questionnaires. Considering the current environmental requirements due to the COVID-19 pandemic and the

enhanced internet connectivity of participants, the online survey process was found to be most relevant, convenient and efficient.

2.2 Setting and samples

The study was conducted in the regions of North Sumatra and Yogyakarta provinces of Indonesia. Yogyakarta is a province with the largest number of elderly people in Indonesia. Yogyakarta and North Sumatera are provinces in Indonesia which are located in two different islands so that these provinces have quite unique demographic differences. The majority of ethnic group in North Sumatra are Bataknese and Malay, while the majority of ethnic group in Yogyakarta are Javanese. There were 208 respondents aged 60-90 years old who met the inclusion criteria. The sampling technique was nonprobability using a purposive sampling method. The inclusion criteria were older people who were willing to participate, able to communicate well in Indonesian language, stay in North Sumatra and Yogyakarta province, and could access the research questionnaire through social media platform such as WhatsApp. Research questionnaires were distributed using the help of the research assistants. The research assistant visited the elderly at the integrated elderly health service and accompanied them to fill out online questionnaires using whatsapp. For the elderly who do not participate in integrated elderly health service activities, the research assistants visited them to their homes to further assist them in filling out the questionnaire. This online survey was entirely voluntary and not for commercial purposes. The exclusion criteria disqualified those older people who experienced a decline in health status, causing them inability to respond to questions appropriately and accurately when the home visit was conducted.

2.3 Measurements and data collection

This study collected data about quality of life (QoL). The QoL in older people was measured using the World Health Organization Quality of Life (WHOQOL)-BREF questionnaire in the Indonesian version. This measuring tool is developed by the WHO. This instrument measures four essential components, namely the physical, psychological, social relation, and environment components (World Health Organization, 2012). This questionnaire consists of 26 questions. Two questions measure respondents' perception of their general quality of health (GQOL), and the remaining 24 questions measure QOL in four broad domains: physical (7 items), psychological (6 items), social relationships (3 items), and environmental (8 items). Each item is scored from 1 to 5. Higher scores reflected the higher quality of life. The WHOQOL-BREF has been widely used in Indonesia and has been proven as a valid and reliable questionnaire to be used in Indonesia (Purba et al., 2018). The Cronbach's alpha value for each domain of this questionnaire ranges between 0.41 and 0.77, while the Pearson's correlation coefficient ranges between 0.5 and 0.7 (Ch Salim et al., 2007).

Data collection was carried out in the territory of the Province of North Sumatra and Yogyakarta; the questionnaire was distributed online. Respondents provided informed consent in the first part of the questionnaire package before they filled out the online questionnaire through the Google platform during September to December 2020. All respondents were informed about the study objectives, nature, and administrative procedures. A total of 208 respondents participated in this survey voluntarily. All respondents reported demographic data and World Health Organization Quality of Life Scale (WHOQOL-BREF) instrument. Respondents could withdraw from the study at any time without providing any reasons. In this study, all respondents completed the instrument and no respondents withdraw.

2.4 Data analysis

The characteristics of respondents were presented using descriptive statistics. Quality of life were presented as means and standard deviation (SD). The collected data were tested for normality using the Kolmogorov Smirnov test ($p>0.05$). The result showed that the data were abnormally distributed ($p=0.00$ for physical domain; $p=0.00$ for psychological domain; $p=0.00$ for social domain; $p=0.00$ for environmental domain). In bivariate analysis, Mann-Whitney was performed to correlate quality of life with retirement, family members affected by COVID-19, and communities in the neighborhood affected by COVID-19. Kruskal Wallis test was performed to correlate quality of life with age, living situation, health insurance, medical history. Inferences were drawn at a significant level of <0.05. A multiple linear regression test was conducted to

analyze the associated factors correlated with the quality of life, with a *p*-value less than 0.05 was considered statistically significant.

2.5 Ethical consideration

This study received ethical approval from the Research Ethics Committee, Sekolah Tinggi Ilmu Kesehatan Bethesda Yakkum Yogyakarta, Indonesia (No. 006/KEPK.02.01/X/2020). Prior to the study, the respondents were informed of the purpose of the study, the intervention, the benefits, and that the participation was voluntary; hence, all of them had the right to withdraw from the study at any time during the study period. All respondents provided informed consent in the first part of the questionnaire package before filling out an online-based questionnaire through the Google platform. Respondents could participate after understanding instruction and ticking agree option on the consent page.

3. Results

3.1 Demographic characteristics of the participants

Table 1 shows that the majority of respondents were female (53.8%), aged 60 to 74 years old (79.3%), retired (66.8%), married (64.4%), Christian (62%), Javanese (47.6%), living with a spouse partner (38.5%), had other type of medical history (45.7%), participated in integrated elderly health services (48.6%), had enough sleep at least six hours per day (89.4%), had a sports hobby (27.5%), had health insurance (86.1%), did not have family members affected by COVID-19 (to 97.6%), and did not live in a community affected by COVID-19 (87.5%).

Table 1. Demographic characteristics of the participants

Demographic characteristics		f	%
Gender	Female	112	53.8
	Male	96	46.2
Age (year)	Elderly (60-74)	165	79.3
	Old (75-90)	40	19.2
	Very old (>90)	3	1.4
Retirement	Yes	139	66.8
	No	69	33.2
Marital status	Married	134	64.4
	Divorce	2	1.0
	Widow	51	24.5
	Widower	16	7.7
	Single	5	2.4
Religion	Islam	42	20.2
	Christian	129	62.0
	Catholic	35	16.8
	Hinduism	1	0.5
	Buddhism	1	0.5
	Confucianism	0	0.0
Ethnicity	Javanese	99	47.6
	Bataknese	85	40.9
	Nias	17	8.2
	Balinese	1	0.5
	Chinese	1	0.5
	Toraja	1	0.5
	Minang	1	0.5
	Malay	1	0.5
	Padangnese	1	0.5
	Acehnese	1	0.5
Living Situation	Spouse	80	38.5
	Children	27	13.0
	Spouse and Children	34	16.3
	Spouse, Children, Grandchildren	28	13.5
	Alone	39	18.8

Table 1. Continued

Demographic characteristics		f	%
Medical History	Hypertension	40	19.2
	Diabetes Mellitus	17	8.2
	Rheumatism, gout	23	11.1
	COPD	7	3.4
	Diarrhea	1	0.5
	Disorders of the senses	1	0.5
	Ulcer	8	3.8
	Internal diseases	16	7.7
	Other	95	45.7
Social Activities	Integrated elderly health services	101	48.6
	Social Gathering	53	25.5
	Fellowship	32	15.4
	Other	22	10.6
Duration of Sleep	Enough	186	89.4
	Not Enough	22	10.6
Hobby	Reading	36	17.4
	Singing	15	7.2
	Cooking	22	10.6
	Watching TV	17	8.2
	Shopping	13	6.3
	Fishing	5	2.4
	Sewing	3	1.4
	Farming	39	18.8
	Sports	57	27.5
Health Insurance	Yes	182	87.5
	No	26	12.5
Family members affected by COVID-19	Yes	5	2.4
	No	203	97.6
The community affected by COVID-19	Yes	26	12.5
	No	182	87.5

3.2 Quality of life domains

The result of the analysis in Table 2 shows that the social domain had the highest score of quality of life of older people during the COVID-19 pandemic.

Table 2. Mean scores for quality of life domains

Domain	Mean(SD)
Physical	64.46(11.81)
Psychological	64.61(11.98)
Social	64.85(12.81)
Environmental	61.08(13.01)

3.3 Factors related to the quality of life

Bivariate analysis on factors related to the quality of life of older people during the COVID-19 pandemic is shown in Table 3. It reveals that factors related to the quality of life of older people during COVID-19 pandemic are age, retirement, living situation, health insurance, and medical history. Table 3 and 4 presents the results factors related to the quality of life of older people during the COVID-19 pandemic and multivariate analysis using the multiple linear regression analysis.

Table 4 shows the dominant factors related to the quality of life of the participants The value used to identify the predictor factor that affect the quality of life of older people during COVID-19 pandemic was the *p*-value and standardized coefficient beta (β). The result of analysis shows medical history was the predictor factor that affects the quality of life of older people because it had the biggest β-value with 0.25

Table 3. Factors related to the quality of life of the participants

Variable	Score of QoL Mean(SD)	p-value
Age[b] (year)		0.03*
Elderly (60-74)	65.81(11.47)	
Old (75-90)	59.53(12.19)	
Very Old (>90)	56.00(0.00)	
Retirement[a]		0.00*
Still Working	60.48(10.92)	
Retired	66.44(11.77)	
Living Situation[b]		0.00*
Spouse	68.71(11.01)	
Child	58.22(10.78)	
Spouse & Child	64.65(12.10)	
Spouse, Child & Grandchildren	60.93(9.33)	
Alone	62.44(12.66)	
Health Insurance [a]		0.00*
Yes	78.12(9.28)	
No	87.32(9.13)	
Family Members Affected by Covid-19[a]		0.92
Exist	68.80(19.77)	
None	64.35(11.61)	
Communities in the Neighborhood Affected by Covid-19[a]		0.80
Exist	61.00(11.35)	
None	64.96(11.82)	
Medical History[b]		0.00*
Hypertension	56.68(10.10)	
DM	63.71(13.64)	
Gout Arthritis	56.35(10.11)	
COPD	65.29(12.34)	
Diarrhea	56.00(-)	
Sensory Disorders	75.00(-)	
Gastritis	59.38(10.53)	
Internal Diseases	59.19(9.47)	
None	71.07(9.04)	

Note: [a]Mann-Whitney test; [b]Kruskall-Wallis test; *$p<0.05$ indicate statistically significant.

Table 4. Dominant factors related to the quality of life of the participants

	Variable	B	β	p-value	95% CI
1	Constant	74.00		0.00	67.15; 80.85
	Age	-2.66	-0.12	0.55	-5.39; 0.05
	Retirement	3.37	0.16	0.14	0.67; 6.06
	Living situation	-0.18	-0.03	0.65	-1.10; 0.64
	Health insurance	7.17	0.24	0.00	3.42; 10.92
	Medical history	0.68	0,24	0.00	0.32; 1.04
2	Constant	73.32		0.00	67.18; 79.45
	Age	-2.80	-0.13	0.39	-5.45; -0.14
	Retirement	3.49	0.17	0.10	0.86; 6.13
	Health insurance	7.22	0.24	0.00	3.48; -10.96
	Medical history	0.70	0.25	0.00	0.35; 1.15

Note: *$p<0.05$; β-value multiple linear regression analysis

4. Discussion

This study aimed to identify the quality of life and factors affecting the quality of life of older people during the COVID-19 pandemic. In this study, the social domain has the highest score on the quality of life of older people. This result is supported by the data in this study that the majority of older people (48.6%) actively participated in integrated elderly health services.

Moreover, older people are also involved in some social activities such as social activities in the church and in the community. These findings are consistent with an earlier study which explained that social activities participated in by older people has an impact on their quality of life because older people can gather and discuss with each other (Jing et al., 2016). Social support obtained by older people can help older people to get better mental well-being (Kim & Lee, 2018).

Other factors involving support for older people in this study that had a high score in the social domain is the fact that the majority of older people are living with a spouse or family. This allows older people to get attention and spend their time with family without feeling lonely. This is in line with research conducted by Onunkwor et al. (2016) about older people in Kuala Lumpur who are living in a nursing home. The study reported that the score of the quality of life was low on the social domain. This is because older people living in nursing homes are older people who have been abandoned or neglected by their family. Social support and family give meaning especially when older people are faced with the conditions of the COVID-19 pandemic at this time. Due to the increase of support from friends and family members, a shared sense of and concern with the family can affect the feeling of peace and mental health (Zhang & Ma, 2020). In addition, older people continue to be actively involved in the family, allowing older people to have the space to do their hobby, focusing on their interest, and develop creativity within the sphere of the family (Putri et al., 2015). Besides this, the support of the family has a dominant influence on behavior related to the prevention of COVID-19 in terms of information delivery, being alert and motivated to always apply the preventive behavior (Kundari et al., 2020).

However, the results of this study are in contrast with the study conducted by Kumar et al. (2014) in India, in which the social domain had a score that was low, most of all the overall domain of quality of life. Meanwhile, a study conducted by Tel (2013) explained that older women in Turkey had lower scores in all domains of quality of life, namely physical, psychological, social, and environmental domain. This study result found that the lowest score was environmental domain. Previous research confirmed that as the COVID-19 pandemic progresses, older people avoid the habit of a regular medical examination to the hospital because they feel the fear of getting infected by COVID-19 from a hospital environment (Guida & Carpentieri, 2021). Modifications to environmental factors can help older people to improve their ability to take care of themselves (self-efficacy) so that it will help to increase their quality of life (Kumar et al., 2014).

In this study, age showed a significant relation in the physical, psychological and social domain. This study showed that most of the elderly were aged 60-74 years old. According to Onunkwor et al. (2016), as age increases, more physical disabilities in older people will appear. An advanced age will affect the quality of life of older people, and the greater the complaints or burden of symptoms felt causing lower quality of life (Klompstra et al., 2019; Mehra et al., 2020; Yuan et al., 2020). This is related to the lack of physical exercise ability of older people that would otherwise constitute an effective physical exercise therapy for most chronic diseases, while also avoiding mental and physical problems as the consequences of being quarantined during the COVID-19 pandemic, and preventing the risk of falling and cognitive decrease (Jiménez-Pavón et al., 2020). Physical activities of older people have a consistent positive relationship toward quality of life, although not in every domain such as sensory ability (Vagetti et al., 2014). During the COVID-19 pandemic, older people spend most of their time at home, and many of them feel bored, lonely, afraid and stressful. Physical activities can be done to counter the negative consequences of chronical disease and they even influence the mental and physical health of older people (Brooks et al., 2020; Jiménez-Pavón et al., 2020). This is supported by a research result stating that physical activities of older people during the COVID-19 pandemic can activate the immune system of older people. Thus, a good immune system will reduce the frequency of reactivation of the virus that causes COVID-19 and decrease physical dysfunction and mental stress (Damiot et al., 2020). This is in line with other research results which stated that physical exercise can improve the quality of life of older people (Kiik et al., 2018; Yuan et al., 2020).

Regarding health conditions, the majority of older people in this study had national health insurance, allowing them to be able to get health services. Having health insurance significantly affects the overall domain on the quality of life of older people. In this study, the majority of

older people use *BPJS*, which is the national health insurance provided by the Indonesian government. This health insurance helps older people to gain access to health services in the event of a decline in health status and better health monitoring especially older people who have chronic diseases.

The living situation of older people also represents a significant influence in all of the domains of quality of life. The majority of older people involved in this research live with their spouse or family. The presence of family members becomes one of the sources of social support that affect the quality of life of older people. This is because older people can rely on the family to resolve their limitations. Older people who have good social support will have good quality of life (Onunkwor et al., 2016). The result of research conducted by Putri et al. (2015) stated that older people who are living in a nursing home have a different quality of life compared to those living with the family. The quality of life of older people living with the family is better in terms of the physical, psychological, social and environmental domain. This is because older people living with the family have independence, are able to meet their social and economic needs, and are also directly involved in activities with the family. Family and community support make older people experience positive changes in their lives (Putri et al., 2015). This condition is also supported by a research result stating that there is a relationship between social interaction and the quality of life of older people in relation to older people's adjustment to whatever issues affect their current or future life (Andesty & Syahrul, 2018; Indrayani & Ronoatmodjo, 2018).

The factor that most affected the quality of life of older people during the COVID-19 pandemic was medical history. Those with history of disease had significantly lower quality of life scores in all domains. The medical history in this study such as hypertension, diabetes mellitus, rheumatoid artritis, gout, and chronic obstructive pulmonary disease (COPD). Based on the results of the analysis, the obtained data showed that >50% of older people have comorbid diseases. The aging process that occurs in older people is also followed by various kinds of health problems, will cause physical weakness and various health problems (Sahoo et al., 2021). This is supported by a previous study which concluded that older people who are suffering from disease especially the chronic ones can have decreased mobility, affecting their daily lives, and making the life function decline become worse (Kwon et al., 2020). Medical history in older people will cause problems in physical and emotional aspects (Onunkwor et al., 2016). This conclusion is different from that of Indrayani and Ronoatmodjo's research that stated family support has the highest relationship with the quality of life of older people. The support and attention from the family give affirmation to older people, provide the needed sense of security and comfort, enhance self-confidence and motivation to deal with problems, and increase life satisfaction (Indrayani & Ronoatmodjo, 2018).

5. Implications and limitations

This study has implications for nursing and health policy to improve the quality of life of the older people during the COVID-19 pandemic. Understanding the factors affecting the quality of life of older people during the COVID-19 pandemic is important so that the older people need integrated health services that involve multidisciplinary and provide assistance for families as the main support system for the older people. Therefore, it is encouraged for the government and health care professionals, specifically community health nurses to promote the utilization of Integrated Elderly Health Service (IEHS) among older adults and families.

This study has limitations. First, its samples were collected from the regions of North Sumatera and Yogyakarta. The data collection was conducted via online questionnaires so representativeness could not be guaranteed. Second, older people as respondents had education level and lack of or difficulty in using smartphones and social media, such as WhatsApp.

6. Conclusion

In conclusion, the findings revealed the changing quality of life of older people during the COVID-19 pandemic. Age, retirement, living situation, health insurance, and medical history were significantly affecting their quality of life ($p<0.05$). The predictor factor that affected the quality of life of older people during the COVID-19 pandemic was medical history. The findings of the study suggest that the government and health care professionals, specifically community health nurses need to promote the utilization of organized programs such as the Integrated Elderly Health Service (IEHS) among older people and their families.

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Author contribution

All authors (MRES, SRS, RCL) were involved sufficiently in the concept, design, data analysis, writing, and revision of the manuscript.

Conflict of interest

There is no conflict of interest in this study.

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