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Physical, Psychological, Social, and Environmental Quality of Life Among Elderly in Wetland Regions

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ABSTRACT

Elderly people experience physiological, psychological, and social changes that can affect their quality of life. The condition of their living environment, including wetland areas, also has the potential to affect their well-being. This study aims to determine the quality of life of elderly people living in wetland areas. The study used a quantitative descriptive design with a sample of 264 respondents selected through a purposive sampling technique. Inclusion criteria included elderly people who were physically and mentally healthy, able to read and write, and willing to participate as respondents. The research instrument used the WHOQOL-BREF questionnaire, which assesses four domains of quality of life: physical health, psychological health, social relationships, and the environment. Data were analyzed univariately in the form of frequency distributions and percentages. The results showed that most respondents were aged 60–74 years (99.4%), female (78.8%), had an elementary school education or equivalent (59.5%), worked as housewives (73.9%), and were married (69.7%). In general, the quality of life of elderly people living in wetland areas was in the good category, with 198 people (75%). These findings indicate that older adults in wetland areas generally have a good quality of life and can serve as a basis for developing more responsive health programs and community services.

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Introduction

The elderly are a group of individuals who have reached the age of 60 years and above (WHO, 2022). The aging process occurs due to biological changes that take place gradually, affecting the cellular, hormonal, and organ system functions of the body (Haro, 2024). As we age, the elderly experience a decrease in muscle mass, bone density, skin elasticity, and weakened immune system, thereby increasing the risk of infections and degenerative diseases such as hypertension and osteoporosis (Fatmawati, 2020). This condition makes the elderly vulnerable to experiencing a decline in quality of life, both physically and psychologically.

Based on data from the Central Statistics Agency (BPS), in Indonesia in 2023 the percentage of the elderly population will reach 11.75%. This figure increased by 1.27% compared to the previous year, which was 10.48%. The increase in the percentage of the elderly was also followed by the elderly dependency rate which reached 17.08 in 2023. This means that every 100 productive age residents bear 17 elderly residents. As many as 63.59% of the elderly are in the age group of 60-69 years, 26.76% are 70-79 years old, and 8.65% are 80 years old and above. Based on gender, the elderly are dominated by women at 52.28%, higher than men at 47.72% (Rizati, 2024).

Based on data from the Pekanbaru City BPS, the number of elderly people in 2022 in the female age group of 60-64 years was 16,467 people, 11,732 people aged 65-69 years, 5,703 people aged 70-74 years, and 4,583 people over 75 years old. Meanwhile, in the 60-64 year old male group, there were 16,903 people, 11,452 people aged 65-69 years, 5,640 people aged 70-74 years, and over 75 years old as many as 3,907 people. The data shows that the number of elderly people in Pekanbaru City is quite large, so attention to the quality of life of the elderly is important.

The increase in the number of elderly people must be accompanied by attention to their quality of life. The quality of life of the elderly is an important indicator in assessing the welfare and health of the elderly group (Yulia, 2021). Factors that affect the quality of life of the elderly include physical and mental health, social support, access to health services, and living environment conditions (Wulandari, 2023). In addition, older seniors tend to have a lower quality of life than younger seniors (Masliati et al., 2022).

The living environment is one of the important factors that can affect the physical and psychosocial condition of the elderly. A comfortable and supportive environment can increase the sense of security, happiness, and social interaction of the elderly (Pramana et al., 2023). On

the other hand, a less supportive environment can create various obstacles for the elderly in carrying out daily activities and maintaining their quality of life. Therefore, the condition of the living environment needs attention, especially in the elderly who live in areas with special characteristics such as wetlands.

Wetlands are ecosystems characterized by soil that is seasonally or permanently waterlogged (Aswan, 2023). Poor management causes many wetland areas to experience a decline in environmental quality, including water pollution of up to 60% of rivers in Indonesia (Panghiyangani et al., 2019). This condition has an impact on public health, including the elderly, and can hinder access to adequate health services (Surjaningrum et al., 2020). However, several studies show that the quality of life of the elderly in the community is still in the good category because their social activities are maintained (Nurkolila, 2022; Ridwan & Kafabih, 2021).

Previous research has shown that the quality of life of the elderly is influenced by various factors, including physical and mental health, social support, access to health services, and living environmental conditions. However, research that specifically examines the quality of life of the elderly living in wetland areas is still limited. In fact, wetland areas have different environmental characteristics, such as high humidity, waterlogging, pollution risk, and certain access limitations that have the potential to affect the physical, psychological, social, and environmental conditions of the elderly. Therefore, this research is important to fill the knowledge gap regarding the picture of the quality of life of the elderly in wetland areas. Sri Meranti Village, Pekanbaru City, is one of the areas that has geographical characteristics in the form of wetland areas. This area consists of swamps, rivers, and land ecosystems that are often flooded. This condition presents its own challenges for the community, especially the elderly, in carrying out daily activities and maintaining their quality of life.

Based on preliminary study data that has been carried out by researchers in the working area of the Umban Sari Health Center, Pekanbaru City, precisely in Sri Meranti Village, through observation and interview methods of 10 elderly people, it is known that high humidity conditions in the area affect the physical health of the elderly. A total of 5 elderly people experienced skin diseases due to contaminated water, causing discomfort. The results of the interviews also showed that 6 elderly people felt lonely and lacked motivation and support from their families, so they felt meaningless and worried about the possibility of disasters in their

neighborhoods. However, the other 4 elderly people felt safe because they lived with family members. In addition, 5 out of 10 elderly people stated that they still had difficulties in accessing health services, while 5 other elderly people said that access to health services was relatively easy to reach due to family support.

The study area includes wetland areas that include swamplands, watersheds, and peatlands with high levels of moisture throughout the year. These environmental conditions can affect the physical, psychological, and social aspects of the elderly. Theoretically, the living environment is one of the important factors that can affect the quality of life of the elderly, because a less supportive environment has the potential to cause health problems, insecurity, limited activities, and obstacles in obtaining health services. Previous studies have also shown that environmental factors have a relationship with the quality of life of the elderly. Thus, this research has a strong argument because it is based on theories and findings of previous research, and strengthened by the results of preliminary studies in the field.

This study differs from previous research because it specifically focuses on the quality of life of the elderly living in wetland areas. This research is expected to provide an empirical picture of the quality of life of the elderly based on the domains of physical, psychological, social relations, and environment health in areas with wetland characteristics. In addition, this study also has significant practical implications, because the results are expected to be the basis for health workers and related parties in formulating appropriate efforts to improve the quality of life of the elderly in wetland areas. Based on this description, this study aims to find out the picture of the quality of life of the elderly in wetland areas, especially in Sri Meranti Village, the working area of the Umban Sari Health Center, Pekanbaru City.

Method

This study uses a quantitative descriptive design that aims to find out the picture of the quality of life of the elderly living in wetland areas. The research was carried out in the working area of the Umban Sari Health Center, Sri Meranti Village, Rumbai District, Pekanbaru City, from January 2025 to August 2025. The research population amounted to 780 elderly people who lived in the area, and the determination of the number of samples was used using the Slovin formula so that 264 respondents were obtained. The sampling technique used is purposive sampling with inclusion criteria, namely the elderly who are physically and mentally healthy, able to read and write, and willing to be respondents. Data collection was carried out using a

structured questionnaire that included demographic characteristics and *the WHOQOL-BREF* instrument to assess the quality of life of the elderly. The *WHOQOL-BREF instrument* consists of 26 statements covering four domains, namely physical, psychological, social relations, and environmental health. Respondents answered each statement by choosing one of five available answer options. The collected data was then processed and analyzed using univariate analysis. The results of the analysis are presented in the form of frequency and percentage distribution to provide an overview of the quality of life of the elderly living in wetland areas.

Research Results

Table 1. Frequency Distribution of Respondent Characteristics

No	Characteristics	F	%
1	Age		
	a. Elderly (60 -74 years old)	262	99.4
	b. Elderly (75, 90 years old)	2	0.8
2	Gender		
	a. Male	56	21.2
	b. Female	208	78.8
3	Education		
	a. Elementary School	157	59.5
	b. Junior High School	63	23.9
	c. High School	38	14.4
	d. University	6	2.3
4	Jobs		
	a. Not employed	10	3.8
	b. Housewife	195	73.9
	c. Self-Employed	57	21.6
	d. Civil servant	1	0.4
	e. Worker	1	0.4
5	Marital Status		
	a. Married	184	69.7
	b. Widow	70	26.5
	c. Widower	10	3.8
	Total	264	100

Based on table 1, 262 people (99.4%) were found in table 1, most of whom were elderly (60 - 74 years old). Most of the respondents were female as many as 208 people (78.8%). Based on the respondents' education, most of them were educated in elementary school/equivalent as many as 157 people (59.5%). Most of the respondents worked as housewives as many as 195 people (73.9%). Most of the respondents in their marital status were married as many as 184 people (69.7%).

Table 2. Frequency Distribution Based on the Quality of Life Domain

No	Quality of Life Questionnaire	F	%
1	Physical Health Domain		
	a. Very Bad	0	0
	b. Bad	1	0.4
	c. Medium	56	21.2
	d. Good	189	71.6
	e. Excellent	18	6.8
2	Psychic Domain		
	a. Very Bad	0	0
	b. Bad	0	0
	c. Medium	40	15.2
	d. Good	129	48.9
	e. Excellent	95	36
3	Social Relations Domain		
	a. Very Bad	0	0
	b. Bad	0	0
	c. Medium	9	3.4
	d. Good	50	18.9
	e. Excellent	205	77.7
4	Environmental Domains		
	a. Very Bad	0	0
	b. Bad	3	1.1
	c. Medium	32	12.1
	d. Good	186	70.5
	e. Excellent	43	16.3
	Total	264	100

Based on table 2, it is known that the majority of respondents in the physical health domain are good with a total of 189 people (71.6%). In the psychic domain, the majority of respondents were good, totaling 129 people (48.9%). The majority of respondents in the social relations domain were very good as many as 205 people (77.7%). And in the environmental domain, most of the respondents, namely good, amounted to 186 people (70.5%).

Table 3. Overview of the Quality of Life of the Elderly

No	Quality of Life Questionnaire	F	%
1	Quality of Life		
	a. Very Bad	0	0
	b. Bad	0	0
	c. Medium	36	13.6
	d. Good	198	75
	e. Excellent	30	11.4
	Total	264	100

Based on table 3, it is known that from 264 elderly respondents , having the most quality of life is good, namely as many as 198 people (75%), the quality of life is medium as obtained by 36 people (13.6%), and the very good results are obtained by 30 people (11.4%).

Discussion

Respondent Characteristics

The characteristics of the respondents in this study included age, gender, education, occupation, and marital status. These characteristics are important to discuss because they can affect the physical, psychological, social, and environmental conditions of the elderly in living their daily lives. The majority of respondents were in the age range of 60-74 years old as many as 262 people (99.4%), female as many as 208 people (78.8%), educated as elementary school / equivalent as many as 157 people (59.5%), working as housewives as many as 195 people (73.9%), and married status as many as 184 people (69.7%). This condition shows that most of the elderly in the study are in early old age, dominated by women, have a basic level of education, and still have a role in the family. Age is important because it is related to the decline in physical function and health service needs, gender is related to differences in life expectancy and social roles, education affects the ability to understand health information, employment is related to economic activities and conditions, while marital status plays a role in emotional and social support.

Overview of the Quality of Life of the Elderly in Wetland Areas

The results of the study showed that most of the elderly in wetland areas had a quality of life in the good category, namely 198 respondents (75%). Based on the WHOQOL-BREF domain, the majority of respondents were also in the good category in the physical health domain as many as 189 people (71.6%), the psychic domain as many as 129 people (48.9%), the environmental domain as many as 186 people (70.5%), and the very good category in the social relations domain as many as 205 people (77.7%). These findings suggest that although the elderly live in areas with specific environmental characteristics such as high humidity, waterlogging, fluctuations in environmental conditions, and potential limited access, these conditions do not necessarily have a dominant negative impact on quality of life. This can be understood because the quality of life of the elderly is not only determined by the condition of the physical environment, but also influenced by age factors, marital status, education, employment, social support, living habits, and the ability of the elderly to adapt to the environment in which they live.

Family support and social relationships are important factors in maintaining the quality of life of the elderly. Family social support is related to the independence of the elderly because the family has physical and emotional closeness that can help the elderly maintain their physical and psychological health (Duhita *et al.,* 2020). In addition, lifestyle and physical activity also play a role in maintaining the quality of life of the elderly. Lifestyle is an important aspect in the elderly with musculoskeletal problems (Yulianti, 2024). Structured physical activity also has the potential to improve quality of life because it can support physical abilities and health conditions in individuals with chronic health disorders (Bestalia *et al.,* 2025).

When viewed from the characteristics of respondents, the majority of the elderly are in the age range of 60-74 years, married, have elementary education/equivalent, and most of them work as housewives. Age 60–74 years indicates that most of the respondents are still in the early age group, so they may still have better functional abilities in carrying out daily activities. The status of a marriage, which is mostly married, is also an important factor because couples can provide emotional, social, and assistance in meeting daily needs. Meanwhile, the level of basic education can affect the ability of the elderly to understand health information, but it does not always lead to a low quality of life if the elderly receive family support and a good social environment. Work as a housewife also shows that the elderly still have a role in the family and continue to carry out daily activities, so it can help maintain physical function, feelings of usefulness, and social engagement. Thus, the characteristics of the respondents are interrelated in shaping the quality of life of the elderly, both in physical, psychological, social, and environmental aspects.

The findings of a good quality of life in the elderly in wetland areas are interesting because they differ from the general assumption that areas with high humidity, waterlogging, and environmental risks can reduce the quality of life. In this study, these conditions may not have a dominant negative impact due to the protective factors possessed by the elderly and the local community. These protective factors can be in the form of mutual cooperation culture, community social cohesion, family support, and an active lifestyle. Elderly people in wetland areas are generally used to the environmental conditions where they live so that they are able to adapt daily activities to the surrounding natural conditions. This ability to adapt can be seen as a form of resilience, namely the ability of the elderly to survive, function, and maintain their well-being even though they are in an environment that has certain challenges.

The ability of the elderly to adapt to the wetland environment is also seen from the activities that are still carried out in daily life. Some elderly people still do light physical activities such as morning walking, gymnastics, gardening, interacting with neighbors, and participating in social activities in the surrounding environment. These activities can support the physical and psychological health domains because they help the elderly stay active, reduce stress, and increase confidence. In addition, the habit of gathering, sharing stories, and helping each other between residents is a form of social support that can strengthen the psychological resilience of the elderly. This is in line with the findings of the study that the domain of social relations is in the very good category, which shows that relationships with family, partners, peers, and the surrounding community are one of the main forces in maintaining the quality of life of the elderly in wetland areas.

The good quality of life in the environmental domain can also be explained through the acceptance of the elderly to the conditions where they live. Although wetland areas have challenges such as waterlogging, high humidity, and potential environmental health disturbances, seniors who have lived in the area for a long time tend to have experience and adjustment strategies in living their daily lives. A long-known environment can provide a sense of security, social attachment, and psychological comfort. In addition, access to basic health services such as health centers, elderly posyandu activities, and family support in delivering or helping the elderly obtain health services can strengthen a positive perception of the environment. Thus, wetland environments are not only seen as a risk factor, but also as social spaces that shape the habits, community support, and adaptability of the elderly.

The results of this study reinforce the context that the quality of life of the elderly in special geographical areas or environmentally vulnerable areas is not always lower than in other regions. Several previous studies have shown that the quality of life of the elderly can be influenced by environmental conditions, social support, access to health services, and daily activities. In areas with special characteristics such as wetlands, coastal, agricultural, or environmentally sensitive areas, social and cultural factors of the community can be a buffer against environmental limitations. Therefore, the quality of life of the elderly needs to be comprehensively understood, not only based on the physical condition of the region, but also based on social relationships, adaptation patterns, family support, and the living habits of the local community. In this context, the quality of life of the elderly in wetland areas can remain

good if the elderly have strong social support, maintained physical activity, and adequate access to health services.

The novelty or novelty of this research lies in the focus of the study on the quality of life of the elderly in wetland areas, which is still not widely researched compared to the study of the quality of life of the elderly in general communities, urban areas, or non-wetland areas. Wetland areas have unique characteristics in the form of flooded soil conditions, high humidity, proximity to rivers or swamps, and people's life patterns that adapt to the aquatic environment. This characteristic is different from urban areas that tend to have more complete access to facilities, as well as mountainous areas that have different geographical and climatic conditions. Therefore, this study provides an overview that the elderly in wetland areas can still have a good quality of life because of a combination of physical condition that is still quite good, strong social relationships, family support, daily activities, and the ability to adapt to the environment.

However, good quality of life outcomes also need to be interpreted taking into account the possibility of research bias. Respondents in this study were selected based on inclusion criteria, namely the elderly who are physically and mentally healthy, able to read and write, willing to be respondents, and cooperative. These criteria can cause the respondents involved to tend to be elderly people who still have better health conditions, communication skills, and cognitive function. As a result, the results of the study may better describe the relatively healthy quality of life of the elderly, not all elderly in wetland areas, especially the elderly who experience severe physical limitations, cognitive impairments, or high dependence. Therefore, the results of this study need to be understood as an overview of the quality of life in the elderly who meet the research criteria, not as an absolute generalization for all elderly people in wetland areas.

Based on these findings, efforts to improve the quality of life of the elderly in wetland areas need to be directed at strengthening community-based programs. Health centers and health workers can optimize the elderly posyandu as a means of routine health monitoring, health education, early detection of physical and psychological problems, and increased compliance with health checks. Regular physical activity programs such as elderly gymnastics, morning walks together, and balance exercises are also important to maintain bodily function and prevent a decline in physical ability. In addition, mental health support needs to be strengthened through elderly group activities, simple counseling, family education, and social activities that can

reduce loneliness. Increasing access to health services in wetland areas also needs to be considered, especially for the elderly who have limited mobility or live in hard-to-reach areas.

For further research, it is recommended to use an analytical or longitudinal design so that the relationship between respondent characteristics, environmental factors, social support, adaptability, and quality of life of the elderly can be analyzed in more depth. Subsequent research can also compare the quality of life of the elderly in wetland and non-wetland areas, such as urban areas, ordinary countryside, coastal, or mountainous areas, so that the difference in environmental influence on quality of life can be seen more clearly. In addition, exploration of the resilience and coping mechanism of the elderly in dealing with environmental changes and the aging process needs to be carried out, both with quantitative and qualitative approaches. The study is important to understand how the elderly are able to maintain a good quality of life even though they live in areas with certain environmental challenges.

Conclusion

The results of the study showed that the majority of the elderly in the working area of the Umban Sari Health Center, Sri Meranti Village, Rumbai District, Pekanbaru City, which is a wetland area, had a good quality of life in all domains of *the WHOQOL-BREF* assessment. Most of the respondents were in the elderly age range (60 - 74 years old), female, had basic education, worked as housewives, and had married status. This condition reflects that social, environmental, and family support factors play an important role in maintaining the quality of life of the elderly, despite the limitations of education and the aging age. Elderly people in wetland areas are generally still active in social interaction, have strong social relationships, and live in an environment that supports physical activity and access to basic health services. Overall, it can be concluded that the quality of life of the elderly in wetland areas is influenced by a balance between maintained physical condition, psychological stability, strong social support, and a conducive living environment. Efforts to improve the quality of life of the elderly can be focused on strengthening social activities, health promotion, and optimizing health service facilities at the community level.

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