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Relationship between Education Level, Social Relationships, and Sleep Quality towards the Quality of Life of Pre-Elderly People in Laweyan District

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Abstract: Pre-elderly individuals (aged 45-59 years) face risks of functional decline, impacting their quality of life. Factors such as education level, social relationships, and sleep quality are known to influence quality of life in this demographic. An analytical observational study with a cross-sectional design was conducted on 75 respondents selected through purposive sampling. Data were collected using WHOQOL-BREF, Social Provisions Scale, and Pittsburgh Sleep Quality Index questionnaires. Bivariate analysis revealed significant correlations between education level (r=0.386; p=0.001), social relationships (r=0.681; p=0.000), and sleep quality (r=-0.555; p=0.000) with quality of life. Collectively, these factors explained 55.7% of the variation in quality of life (R^2=0.557). Education level, social relationships, and sleep quality significantly influence the quality of life of pre-elderly individuals, with sleep quality as the most dominant factor. These findings suggest targeted interventions may improve pre-elderly well-being.

Keywords: Pre-elderly, Quality of Life, Education, Social, Sleep Quality.

1. Introduction

Pre-elderly is defined as individuals aged 45-59 years (Kemenkes, 2023; Rahmi, et al., 2017). The number of pre-elderly population in Indonesia in 2024 reached 51.02 million people (23% of the total population), while in Central Java it was recorded at 7.3 million people, an increase of 0.1 million from the previous year (BPS, 2021; BPS, 2024). Pre-elderly based on their working ability are divided into active groups (61.76%), potential (23.53%), and at risk (14.71%) (Liza, 2019). The education factor influences the number of active pre-elderly. In Surakarta, the lowest percentage of unschooled population is in Jebres District (16.01%) and elementary school graduates/equivalent in Laweyan District (10.96%) (Dispendukcapil, 2019).

In addition to education, social relationships also affect quality of life. As many as 6.87% of pre-elderly participate in organizations outside work, while participation in social activities decreased from 85.43% (2018) to 77.42% (2021) (BPS, 2021). Sleep quality is also an important factor in quality of life, research shows the dominance of poor sleep quality (64.2%), with sleep disorders (96.2%) as the main cause, followed by sleep duration (30.2%) (Haryati, 2022).

Pre-elderly is a transition period from adulthood to old age that is susceptible to the emergence of diseases, such as hypertension (33.4%), obesity (31.0%), and osteoarthritis (19.2%) (WHO, 2018; Riskesdas, 2023). In addition to physical illness, pre-elderly are also vulnerable to the risk of mental disorders, as many as 8.15% occur in Central Java. Social isolation and stress due to changing roles in society are often the causes of mental problems approaching old age (Situngkir, 2023; Anggraini, 2017).

According to WHO (2018), quality of life is an individual's perception of their well-being, in terms of background, culture, including goals and aspirations (WHO, 2018). Several factors such as education, social relationships, and sleep quality are determinants (BPS, 2022). However, Yunita (2019) found that these factors were not always significant (Yunita, 2022).

This study analyzes the influence of education level, social relationships, and sleep quality on the quality of life of pre-elderly people at the Posyandu Lansia in Laweyan District, Surakarta. This city has 107 thousand pre-elderly people (Leuwol, 2019). The study aims to increase public awareness of the importance of health and support the welfare of pre-elderly people as part of socio-economic sustainability (Muhammad, 2017).

2. Methods

This study used a quantitative design with a cross-sectional analytical observational approach. The study was conducted at the Elderly Health Post in Laweyan District, Surakarta, in October–December 2024. The study population consisted of pre-elderly aged 45-59 years who met the inclusion and exclusion criteria, with a sample of 75 people selected through purposive sampling. The study variables included quality of life as the dependent variable, as well as education level, social relationships, and sleep quality as independent variables, measured using instruments that have been tested for validity and reliability. The Health Research Ethics Commission (KEPK) of Dr. Moewardi Hospital has given approval for this study No. 2.730/XI/HREC/2024.

Data collection was conducted through interviews and questionnaires such as WHOQOL-BREF, Social Provisions Scale (SPS), and Pittsburgh Sleep Quality Index (PSQI) (Fabbri, 2021). Data were processed through cleaning, coding, transferring, and analysis using IBM SPSS software version 25. Univariate analysis was used to describe the frequency distribution of variables, while bivariate analysis used Spearman's correlation test to identify the relationship between independent and dependent variables. Furthermore, multivariate analysis with multiple linear regression was conducted to determine the most dominant independent variables affecting the quality of life of pre-elderly (Triastuti, 2024).

3. Results and Discussion

3.1. Respondent Characteristics

Table 1. Respondent Characteristics

Variable	Frequency	Percentage
Level of education		
Low (Never attended school, elementary school, junior high school)	14	18,7
Higher (College, High School)	61	81,3
Social Relations		
Bad (24-47)	0	0
Average (48-71)	20	26,7
Good (72-96)	55	73,3
Sleep Quality		
Bad (>5)	26	34,7
Good (≤5)	49	65,3
Quality of Life		
Bad (0-20)	0	0
Average (21-40)	0	0
Good (41-60)	3	4
Very good (61-80)	72	96

This study was conducted at the Elderly Posyandu in Karangasem and Kerten Villages, Laweyan District.

The table above shows the characteristics of the pre-elderly who filled out the questionnaire at the Posyandu in Laweyan District. Of the total sample of 75 samples, the majority of respondents had a high level of education (college, high school) of 61 people. The majority of Social Provisions Scale scores to assess social relationships showed a good score of 55 people. The Pittsburgh Sleep Quality Index questionnaire was dominated by good sleep quality with a score of ≤ 5 of 49 people. A total of 72 people were recorded as having a very good quality of life based on the results of filling out the WHOQOL-BREF questionnaire.

3.2. Bivariate Analysis

Table 2. Bivariate Analysis

	Level of Education towards Quality of Life	Social Relationships towards Quality of Life	Sleep Quality to Quality of Life
r	0,386	0,681	-0,555
p	0,001	0,000	0,000
		N = 75	

The education level variable gives a p value of 0.001. These results indicate that the relationship between education level and quality of life is proven to be significant ($p \leq 0.05$). Based on the calculation of the correlation coefficient (r), the result is 0.386, which indicates a sufficient and positive/unidirectional relationship. The statistical results of the Spearman's social relationship test obtained a p value <0.001, which means that there is a significant relationship between the social relationship variable and quality of life. In addition, the correlation coefficient test (r) is 0.681, which means a strong relationship between variables and a positive direction. Table 2 shows the p value

of sleep quality <0.001, which means that there is a significant result between the sleep quality variable and quality of life. Based on the correlation coefficient test, an r value of -0.555 was obtained, which indicates that there is a strong relationship and a negative direction. Sleep quality is said to be good if the score decreases, while good quality of life is indicated by an increasing score.

3.3. Summary of Quality of Life Variable Model

Table 3. Summary of Quality of Life Variable Model

Model	R	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*
1	0,746	0,557	0,538	4,53167

The R value = 0.746 shows the strength of the relationship between the independent variables (level of education, social relationships, and sleep quality) together with the dependent variable (quality of life). This value shows a strong relationship. The R Square (R^2) value = 0.557 means that 55.7% of the variation in quality of life can be explained by the variables of level of education, social relationships, and sleep quality. The remaining 44.3% is explained by other factors outside the model. Adjusted R Square = 0.538. This value corrects R^2 for the number of predictors in the model. Still shows a good model.

3.4. **Regression Coefficients of Quality of Life Variables**

Table 4. Regression Coefficients of Quality of Life Variables

	Unstandardized B	**t**	**Sig.**	*Collinearity Tolerance*	*Statistics VIF*
(Constant)	44,529	6,479	0,000		
Education level	0,543	2,851	0,006	0,917	1,091
Social relationships	0,391	5,043	0,000	0,852	1,173
Sleep Quality	-1,068	-3,961	0,000	0,807	1,239

The regression coefficient shows a constant value of B = 44.529, meaning that if all independent variables are zero, the predicted value of quality of life is 44.529. Education level has a significant positive effect on quality of life. Every one unit increase in education level will increase quality of life by 0.543. Social relationships show a result of B = 0.391, which shows a significant positive effect on quality of life. Sleep quality has a significant negative effect on quality of life. Every one unit increase in PSQI score (meaning sleep quality worsens), quality of life decreases by 1.068. Thus, the variable that has the most influence on pre-elderly sleep quality is the sleep quality variable.

This study confirms that education, social relationships, and sleep quality significantly affect the QoL of pre-elderly individuals. Higher education promotes health awareness and better decision-making. Strong social ties provide emotional support and reduce isolation. Sleep quality, the strongest predictor, aligns with literature emphasizing its role in physical and mental restoration.

These findings are consistent with studies by Fabbri et al. (2021) and Mollayeva et al. (2016), which highlight the impact of subjective sleep quality on life satisfaction. The high percentage of

very good QoL in this sample may reflect bias from the health-conscious population at Posyandu and warrants cautious generalization.

The positive relationship between education and QoL supports the notion that higher education contributes to increased health literacy and engagement in health-promoting behaviors. Educated individuals are more likely to access health services, understand disease prevention, and maintain active lifestyles, thereby enhancing their physical and mental well-being.

Social relationships play a significant role in supporting pre-elderly individuals, especially those facing role changes due to retirement or reduced family involvement. Engaging in community activities, maintaining friendships, and participating in social organizations can buffer stress and prevent loneliness, directly contributing to better mental health and life satisfaction.

Poor sleep quality, reflected in high PSQI scores, had the most substantial negative association with QoL. Sleep disturbances affect mood, cognitive performance, and physical health. This finding underlines the importance of including sleep assessments in geriatric health check-ups and promoting sleep hygiene education as part of community health interventions.

These results have practical implications for public health programs. Health professionals should design integrated interventions that include education empowerment, community engagement, and sleep health promotion. Local governments and Posyandu cadres can collaborate to organize regular sleep clinics, health literacy workshops, and support groups for pre-elderly individuals.

4. Conclusions

In conclusion, education level, social relationships, and sleep quality have a significant influence on the quality of life of pre-elderly, with sleep quality as the most influential variable. Health promotion strategies should prioritize sleep hygiene and social engagement to improve QoL outcomes.

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