Modeling Family Roles and Support for Older Adults' Quality of Life

ABSTRACT

Background: The growing elderly population presents challenges in maintaining quality of life, particularly regarding family support and caregiving. Family function, family roles, and family support may influence healthcare practices and well-being among older adults. This study analyzed a family role model for improving the quality of life of older adults in Kediri City, Indonesia. **Methods:** A cross-sectional study was conducted among 420 families with elderly members selected from nine community health centers using Probability Proportional to Size Sampling. Data were collected through structured interviews using the APGAR Family, PSS-Fa, and WHOQOL-OLD instruments and analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). **Results:** Most older adults were female (65.7%), aged 60–74 years (78.8%), and widowed (52.9%). Family characteristics significantly influenced family function (β=0.217; p=0.003), while family function influenced family roles (β=0.449; p<0.001). Family roles significantly affected family support (β=0.377; p<0.001), elderly healthcare (β=0.725; p<0.001), and quality of life (β=0.269; p=0.001). Family support (β=0.151; p=0.008) and elderly characteristics (β=0.105; p=0.016) also positively influenced quality of life. **Conclusion:** Family function and family roles are key determinants of quality of life among older adults. Strengthening family-centered caregiving and psychosocial support may enhance healthy aging and well-being.

Keywords: family function; family role; family support; older adults; quality of life

INTRODUCTION

Population aging has become a major global public health concern. In 2020, approximately 727 million people worldwide were aged 65 years or older, and this number is projected to reach 1.4 billion by 2030 and 2.1 billion by 2050 [1]. Indonesia is also experiencing a rapid demographic transition toward an aging population. The proportion of older adults in Indonesia increased from 7.56% in 2010 to nearly 10% in 2021, and is projected to continue rising in the coming decades [2]. This demographic shift reflects improvements in life expectancy and healthcare services; however, it also presents substantial social, economic, and healthcare challenges. Increasing life expectancy is accompanied by a growing burden of chronic diseases, dependency, and declining functional ability among older adults.

East Java is among the provinces that have entered the aging population structure, with older adults accounting for more than 10% of the total population [3]. In Kediri City, the proportion of older adults increased from 9.21% in 2019 to 12.88% in 2024, indicating a significant demographic transformation. The old dependency ratio in Kediri City also increased from 13.61% in 2019 to 19.66% in 2024, demonstrating a growing economic and caregiving burden on the productive-age population. Although increased life expectancy reflects improvements in public health and socioeconomic conditions, the rapid rise in the elderly population requires greater attention to maintaining healthy and meaningful aging.

Aging is associated with various physical, psychological, and social changes that can negatively affect quality of life. Older adults commonly experience degenerative and non-communicable diseases such as hypertension, diabetes mellitus, dementia, depression, anxiety, and sleep disorders [4]. Physiological decline due to aging may reduce immunity, functional capacity, and independence, increasing vulnerability to illness and disability [5]. Beyond physical decline, older adults may experience social isolation, loss of productivity, economic insecurity, and psychological distress resulting from retirement, bereavement, and dependence on others. These conditions may substantially reduce their quality of life if not properly addressed.

Quality of life among older adults is influenced by multidimensional factors, including physical health, psychological well-being, social relationships, environmental conditions, and family support. In Indonesia, family remains the primary source of care and social support for older adults because cultural and religious values emphasize filial responsibility and intergenerational caregiving [6]. Traditionally, Indonesian families, particularly extended families, play a central role in meeting the emotional, social, and healthcare needs of elderly family members. However, modernization, urbanization, migration, increasing female workforce participation, and the shift from extended to nuclear family structures have altered traditional caregiving patterns [7]. These changes may weaken family support systems and affect the well-being of older adults.

Several studies have demonstrated the important relationship between family support and quality of life among older adults. Putri and Permana (2011) reported that elderly individuals with healthy family functioning tended to have better quality of life. Similarly, Supraba et al. (2016)found that family function, social interaction, occupation, and health status were significantly associated with quality of life among

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older adults. Dewianti et al. (2013) also identified family function as one of the strongest predictors of elderly quality of life. Furthermore, Indrayani and Ronoatmodjo (2019) reported that older adults with poor family support were 5.7 times more likely to have poor quality of life compared with those receiving good family support. These findings indicate that family roles, family functioning, and social support are critical determinants of healthy aging.

The family serves multiple functions for older adults, including emotional support, health maintenance, caregiving, motivation, education, and facilitation of healthcare access. Family involvement can improve psychological well-being, social participation, and adherence to healthy lifestyles among older adults. Conversely, inadequate family support may contribute to loneliness, neglect, depression, and poor health outcomes. Despite the recognized importance of family support, studies examining the integrated relationship between family characteristics, family functioning, family roles, family support, elderly healthcare, and quality of life remain limited, particularly in the Indonesian context. Quality of life in older adults can be comprehensively assessed using the WHOQOL-OLD instrument, which evaluates six domains: sensory abilities, autonomy, past-present-future activities, social participation, death and dying, and intimacy [12] . Understanding the factors that influence these domains is essential for developing interventions and family-based strategies to support healthy aging.

Therefore, this study aimed to develop a family role model to improve the quality of life of older adults by examining the relationships among family characteristics, family functioning, family roles, family support, elderly healthcare, and elderly quality of life. This study provides novelty by integrating these interrelated components into a comprehensive family-centered model for elderly care. The findings are expected to contribute to the development of geriatric public health knowledge and provide evidence for policymakers and healthcare providers in strengthening family-based interventions to improve the well-being and quality of life of older adults.

Methods

Study Design and Setting

This study employed an analytical observational design with a cross-sectional approach. Data on exposure and outcome variables were collected simultaneously without any intervention or treatment administered to the participants. The study was conducted in the working areas of nine community health centers (*Puskesmas*) in Kediri City, East Java, Indonesia, from June 2024 to June 2025.

Population and Sample

The study population comprised all families with elderly members residing in Kediri City, totaling 40,777 older adults. The sample size was determined using a rule-of-thumb approach of five observations per estimated parameter [13]. With approximately 84 estimated parameters, the minimum required sample size was calculated as 420 households (84 × 5). Accordingly, 420 households with older adults were selected for inclusion in the study. The study sample consisted of selected families with older adults in Kediri City who met the inclusion criteria. For each selected family, one older adult and one eligible family member from the same household were recruited as paired respondents. The inclusion criteria for elderly participants were as follows: (1) aged 60 years or older and (2) able to communicate effectively. Family respondents representing the elderly were required to: (1) be aged between 18 and 59 years, (2) be able to communicate effectively, and (3) provide informed consent to participate in the study.

Sampling Technique

Probability Proportional to Size (PPS) sampling was used to determine the number of respondents from each community health center according to the proportion of elderly families in each area. Kediri City consists of three districts and nine community health centers. The number of respondents selected from each health center was proportional to the total elderly population in the respective area. Following proportional allocation, respondents were selected using simple random sampling based on the sampling frame of families with elderly members obtained from each health center.

Study Variables

The independent variables included family characteristics (number of family members, family harmony, family income, family structure, and family culture) and elderly characteristics (age, gender, education, marital status, occupation, income, health status, and culture). The intervening variables included family function, family roles, family support, and elderly healthcare practices. Family roles consisted of roles as motivator, harmonizer, companion, mediator, caregiver, and coordinator. Elderly healthcare practices included physical health maintenance, dietary habits, rest patterns, mental health support, socioeconomic facilitation, and motivation. The dependent variable was the quality of life of older

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adults, assessed through six domains: sensory abilities, autonomy, past-present-future activities, social participation, death and dying, and intimacy.

Data Collection and Instruments

Primary data were collected through face-to-face interviews using structured questionnaires. Interviews were conducted because many elderly participants and family members were reluctant to complete self-administered questionnaires. Prior to data collection, respondents received information regarding the study objectives, procedures, confidentiality, and voluntary participation, and written informed consent was obtained.

Family function was measured using the Family APGAR instrument developed by Smilkstein, which assesses adaptation, partnership, growth, affection, and resolve. Responses were scored on a three-point scale, with higher scores indicating better family functioning. The total score was categorized into good family function (7–10), moderate dysfunction (4–6), and severe dysfunction (0–3).

Family support was assessed using the Perceived Social Support-Family Scale (PSS-Fa), consisting of 20 items measuring perceived family social support. The Indonesian version of the questionnaire had previously demonstrated acceptable validity and reliability (r = 0.361; Cronbach's alpha = 0.752) [14]. Scores were categorized into low, moderate, and good family support.

Quality of life was measured using the WHOQOL-OLD instrument, which consists of 24 items across six domains: sensory abilities, autonomy, past-present-future activities, social participation, death and dying, and intimacy. Responses were rated on a five-point Likert scale. Total scores were transformed to a scale ranging from 0 to 100 and categorized as poor (0–33), moderate (34–66), and good (67–100) quality of life [15].

Secondary data regarding the elderly population in Kediri City and the distribution of elderly individuals across community health center areas were obtained from the Central Statistics Agency and local community health centers.

Questionnaire Development and Validation

The researcher-developed questionnaire items for family roles and elderly healthcare practices were developed based on relevant theoretical frameworks and previous studies. Family roles comprised six dimensions: motivator, harmonizer, companion, mediator, caregiver, and coordinator. Elderly healthcare practices covered six dimensions: physical health maintenance, dietary habits, rest patterns, mental health support, socioeconomic facilitation, and motivation. The measurement properties of these constructs were evaluated using SEM-PLS, including indicator loadings, convergent validity, discriminant validity, and construct reliability, as appropriate to the measurement model specification.

Data Analysis

Data analysis included descriptive and multivariate analyses. Descriptive statistics were used to summarize respondent characteristics and study variables using frequencies and percentages. Multivariate analysis was performed using Structural Equation Modeling-Partial Least Squares (SEM-PLS) to examine the relationships among family characteristics, family function, family roles, family support, elderly healthcare, and quality of life. Multivariate analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS version 3.2.9 to examine the relationships among family characteristics, family function, family roles, family support, elderly healthcare practices, and older adults' quality of life. Bootstrapping was performed using 500 subsamples, a two-tailed test, and a significance level of 0.05. Bias-Corrected and Accelerated (BCa) bootstrap confidence intervals were used to assess the statistical significance of the structural model estimates. All collected data were complete, and no missing-data handling procedures were required. The SEM-PLS analysis included evaluation of the outer model and inner model. The outer model assessment examined construct validity and reliability through convergent validity, discriminant validity, and composite reliability. The inner model assessment evaluated the explanatory and predictive power of the structural model using R-square (R^2), Q^2 predictive relevance, Root Mean Square Error (RMSE), and Mean Absolute Error (MAE).

Ethical Practices

Ethical approval from Health Research Ethical Committee, Faculty of Nursing, Universitas Airlangga, (approval no. 3367-KEPK). Prior to data collection, all participants received a detailed explanation regarding the study objectives, procedures, potential benefits, and their rights as research participants. Written informed consent was obtained from all respondents before participation. Participation was entirely voluntary, and respondents were informed of their right to withdraw from the study at any time

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without any adverse consequences. To ensure confidentiality, personal identifiers were not recorded in the research database, and all data were anonymized using codes and initials.

Results

Participant Characteristics

A total of 420 families with older adults participated in this study (Table 1). The mean age of family respondents was 42.5 years (range: 18–59 years), and most respondents were female (68.8%). More than half had completed senior high school education (51.0%). Regarding occupation, 42.2% were unemployed and 42.1% worked as private employees or were self-employed. Most family respondents were the children of the elderly participants (64.0%).

The mean age of older adults was 69.3 years (range: 60–104 years), and most were categorized as young-old adults (60–74 years) (78.8%). Female older adults accounted for 65.7% of participants. More than half had elementary school education or lower (51.4%), and most were widowed/widowers due to spouse death (52.9%). The majority of older adults were unemployed (70.0%) and had no personal income (65.5%). Slightly more than half did not report chronic diseases (52.4%).

Table 1. Sociodemographic characteristics of family respondents and older adults (n = 420)

Variables	Category	Frequency	Percentage (%)	Mean±SD
Family Respondents				
Age of Family Members				42.5±11.2
Sex	Female	289	68.8	
	Male	131	31.2	
Education	No school/Elementary school	65	15.5	
	Junior high school	82	19.5	
	Senior high school	214	51.0	
	Diploma/Bachelor/Master	59	14.0	
Occupation	Unemployed	178	42.2	
	Retired	11	2.6	
	Private employee/Self-employed	177	42.1	
	Civil servant/TNI/POLRI	13	3.2	
	Informal worker	41	9.9	
Relationship with elderly	Spouse	69	16.4	
	Child	269	64.0	
	Sibling	17	4.0	
	Grandchild	30	7.2	
	Son/Daughter-in-law	35	8.4	
Older Adults				
Age category	Elderly	331	78.8	69.3±7.2
	Old elderly	83	19.8	
	Very old elderly	6	1.4	
Sex	Female	276	65.7	
	Male	144	34.3	
Education	No school/Elementary school	216	51.4	
	Junior high school	113	26.9	
	Senior high school	56	13.4	
	Diploma/Bachelor/Master	35	8.3	
Marital status	Never married	2	0.5	
	Married	189	45.0	
	Widowed/Widower	222	52.9	
	Divorced	7	1.6	
Occupation	Unemployed	294	70.0	
	Working	126	30.0	
Income	No income	275	65.5	
	Have income	145	34.5	
Health status	No chronic disease	220	52.4	
	Chronic disease	200	47.6	

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Table 2 shows family characteristics of the respondents. The average number of family members was 3.9 persons (range: 2–8 persons), with most households consisting of 3–5 members (54.5%). More than half of the families had a monthly income below the regional minimum wage of Kediri City (55.2%). Most participants lived in nuclear families (73.3%), and the majority reported harmonious family relationships (91.0%). Nearly all families reported cultural compatibility with the elderly family members (99.0%).

Table 2. Family characteristics of respondents

Variables	Category	Frequency	Percentage (%)
Number of family members	<3 people	101	24.0
	3–5 people	229	54.5
	>5 people	90	21.4
Family income	< IDR 2,415,000	232	55.2
	≥ IDR 2,415,000	188	44.8
Family structure	Nuclear family	308	73.3
	Extended family	112	26.7
Family harmony	Less harmonious	1	0.2
	Moderately harmonious	37	8.8
	Harmonious	382	91.0
Family culture	Not compatible	4	1.0
	Compatible	416	99.0

Measurement Model Evaluation (Outer Model)

The measurement model was evaluated using convergent validity, composite reliability, Average Variance Extracted (AVE), discriminant validity, and multicollinearity tests. Indicators with outer loading values below 0.50 were excluded from the final model. Figure 1 presents the initial outer model used in the SEM-PLS analysis before indicator elimination. The outer loading analysis showed that several indicators did not meet the recommended threshold and were excluded from the final model. Indicators retained in the final model demonstrated acceptable loading values and adequately represented their respective latent constructs.

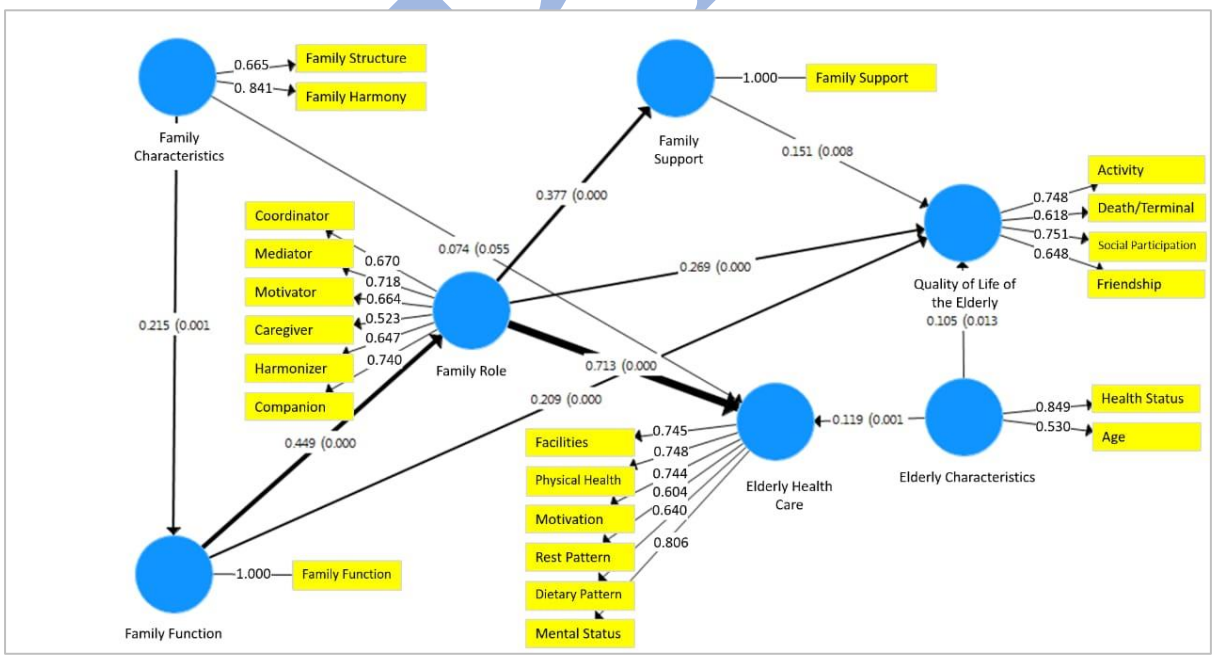


Figure 1. Initial outer model of the family role model for improving quality of life among older adults

In the family characteristics construct (Table 3), family structure and family harmony were retained with loading values of 0.665 and 0.841, respectively. In the elderly characteristics construct, only age (0.531) and health status (0.849) met the loading criteria and were retained. For the quality-of-life construct, the retained indicators included death and dying (0.618), intimacy/friendship (0.648), social participation (0.751), and past-present-future activities (0.742). All indicators of family role and elderly healthcare constructs demonstrated acceptable outer loading values (>0.50).

Table 3. Measurement model evaluation

Construct	Indicator	Outer Loading	Composite Reliability	AVE
Family Characteristics	Family structure	0.665	0.727	0.575
	Family harmony	0.841		
Family Function	Family function	1.000	1.000	1.000
Family Role	Coordinator	0.670	0.824	0.441
	Mediator	0.718		
	Motivator	0.664		
	Caregiver	0.523		
	Harmonizer	0.647		
	Companion	0.740		
Family Support	Family support	1.000	1.000	1.000
Elderly Healthcare	Facilities	0.745	0.863	0.515
	Physical health	0.744		
	Motivation	0.640		
	Rest pattern	0.604		
	Dietary pattern	0.640		
	Mental status	0.806		
Elderly Characteristics	Health status	0.849	0.656	0.501
	Age	0.531		
Quality of Life of the Elderly	Activity	0.742	0.785	0.479
	Death/terminal condition	0.618		
	Social participation	0.751		
	Friendship	0.648		

The Fornell–Larcker criterion indicated satisfactory discriminant validity, where the square root of the AVE for each construct exceeded its correlations with other constructs (Table 4). Variance Inflation Factor (VIF) values ranged from 1.000 to 2.027, indicating no multicollinearity problems among indicators.

Table 4. Fornell–Larcker criterion

	Family Support	Family Function	Family Characteristics	Elderly Characteristics	Quality of Life of the Elderly	Family Role	Elderly Healthcare
Family Support	1.000						
Family Function	0.290	1.000					
Family Characteristics	0.111	0.215	0.758				
Elderly Characteristics	0.074	-0.001	0.000	0.708			
Quality of Life of the Elderly	0.321	0.373	0.054	0.143	0.692		
Family Role	0.377	0.449	0.161	0.099	0.430	0.664	
Elderly Healthcare	0.293	0.312	0.189	0.190	0.354	0.736	0.718

Nevertheless, the AVE values for family role (0.441) and quality of life of the elderly (0.479) were below the recommended threshold of 0.50, indicating that convergent validity was not fully established for these constructs. However, their composite reliability values were acceptable (0.824 and 0.785, respectively). These findings warrant caution when interpreting the structural relationships involving family role and quality of life. The remaining constructs met the conventional AVE threshold, with values ranging from 0.501 to 1.000.

Discriminant validity was further assessed using the heterotrait–monotrait ratio (HTMT). As shown in Table 5, several HTMT values exceeded the commonly used threshold of 0.90, suggesting potential

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discriminant validity concerns between certain constructs. In particular, the values involving elderly characteristics and other constructs were notably high, indicating that these constructs may not be sufficiently distinct. Therefore, the discriminant validity findings should be interpreted cautiously, and the relevant construct relationships should be examined further.

Table 5. Heterotrait-monotrait ratio (HTMT)

	Family Support	**Family Function**	**Family Characteristics**	**Elderly Characteristics**	**Quality of Life of the Elderly**	**Family Role**	**Elderly Healthcare**
Family Support							
Family Function	0.290						
Family Characteristics	0.220	0.404					
Elderly Characteristics	0.984	1.056	2.143				
Quality of Life of the Elderly	0.398	0.468	0.236	2.256			
Family Role	0.419	0.494	0.403	2.132	0.567		
Elderly Healthcare	0.316	0.338	0.415	3.081	0.469	0.938	

Structural Model Evaluation (Inner Model)

The structural model evaluation showed that elderly healthcare had the highest explanatory power with an R^2 value of 0.563, indicating that 56.3% of the variance in elderly healthcare was explained by the model (Table 6). The quality of life of the elderly had an R^2 value of 0.258, indicating moderate explanatory power. Predictive relevance analysis showed positive Q^2_predict values for all endogenous variables, indicating acceptable predictive relevance of the model.

Table 6. Structural model evaluation

Variables	**R^2**	**Adjusted R^2**	**Q^2predict**
Family Support	0.145	0.140	0.004
Family Function	0.046	0.044	0.035
Quality of Life of the Elderly	0.258	0.250	0.010
Family Role	0.206	0.202	0.018
Elderly Healthcare	0.563	0.560	0.052

The structural model evaluation demonstrated adequate explanatory and predictive power for several endogenous variables. The highest explanatory power was observed for elderly healthcare (R^2=0.563), followed by quality of life among older adults (R^2=0.258). Figure 2 illustrates the final SEM-PLS structural model, including the significant relationships among family characteristics, family function, family roles, family support, elderly healthcare, and quality of life. The final model showed that family function significantly influenced family roles, while family roles significantly affected family support, elderly healthcare, and quality of life among older adults.

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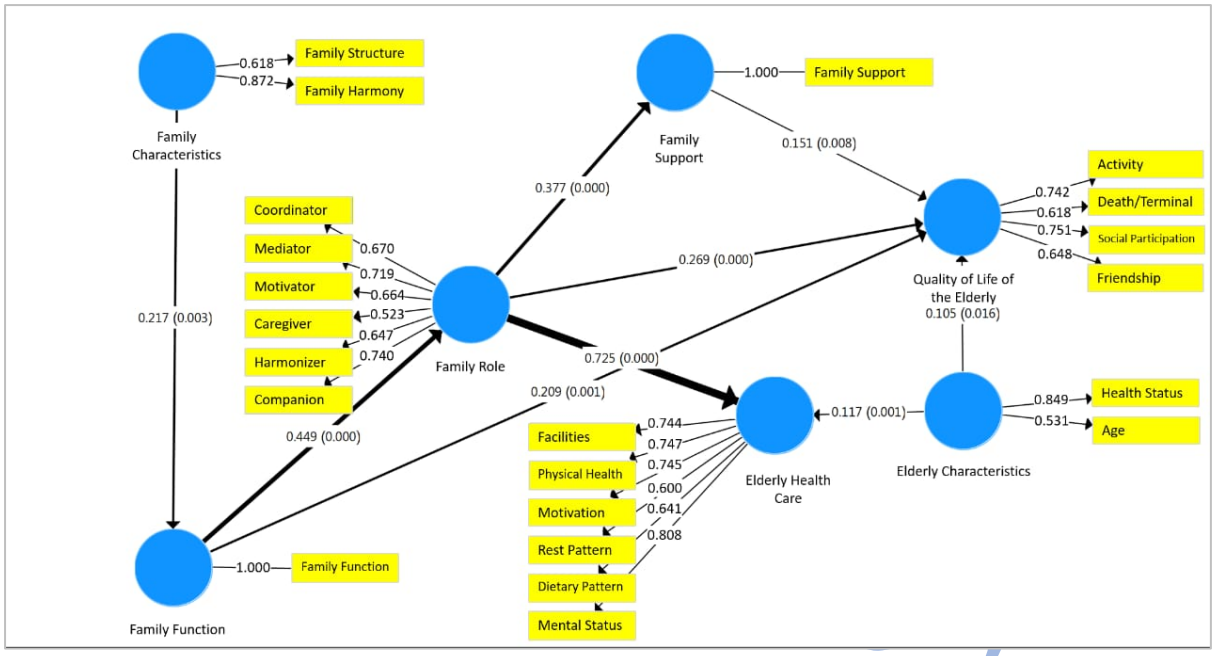


Figure 2. Final SEM-PLS structural model of family roles and quality of life among older adults

Structural Model Analysis

The final structural model (Table 7) demonstrated that family characteristics had a positive and significant effect on family function (β = 0.217; p = 0.003). Family function also had a positive and significant influence on family role (β = 0.449; p < 0.001), whereas the direct effect of family characteristics on family role was not statistically significant. Family role significantly influenced family support (β = 0.377; p < 0.001). Regarding elderly healthcare, family role demonstrated the strongest positive effect (β = 0.725; p < 0.001), indicating that active family involvement substantially improved healthcare practices for older adults. Elderly characteristics also significantly influenced elderly healthcare (β = 0.117; p = 0.001). The quality of life of older adults was significantly associated with family role (β = 0.269; p = 0.001), family support (β = 0.151; p = 0.008), and elderly characteristics (β = 0.105; p = 0.016). Elderly healthcare showed a positive but non-significant association with quality of life. Family role emerged as the most influential factor affecting both elderly healthcare and quality of life among older adults.

Table 7. Structural model and hypothesis testing results

Pathway	β	95%CI	T Statistic	*p*-value	Interpretation
Family characteristics → Family function	0.217	0.087 - 0.351	3.084	0.003	Significant
Family characteristics → Family role	0.074	-0.004 - 0.152	1.673	0.055	Not significant
Family function → Family role	0.449	0.300 - 0.540	7.214	<0.001	Significant
Family role → Family support	0.377	0.236 - 0.481	5.843	<0.001	Significant
Family characteristics → Elderly healthcare	0.074	0.001 - 0.137	1.862	0.051	Not significant
Family role → Elderly healthcare	0.725	0.649 - 0.781	21.831	<0.001	Significant
Elderly characteristics → Elderly healthcare	0.117	0.047 - 0.178	3.444	0.001	Significant
Elderly characteristics → Quality of life	0.105	0.013 - 0.195	2.065	0.016	Significant
Family role → Quality of life	0.269	0.083 - 0.363	3.108	0.001	Significant
Family support → Quality of life	0.151	0.048 - 0.247	2.763	0.008	Significant
Elderly healthcare → Quality of life	0.068	-0.067 - 0.191	1.022	0.293	Not significant

The effect size analysis (Table 8) showed that family role had a substantial effect on elderly healthcare (f^2 = 1.129), indicating that family role was an important predictor of elderly healthcare in the structural model. Family role also showed a small effect on family support (f^2 = 0.155) and a small effect on the quality of life of older adults (f^2 = 0.025). Family function had a small effect on quality of life (f^2 = 0.046) and a small-to-moderate effect on family role (f^2 = 0.226). Overall, the findings highlight the importance of family role, particularly in explaining elderly healthcare.

Table 8. Effect size

	Family Support	Family Function	Family Characteristics	Elderly Characteristics	Quality of Life of the Elderly	Family Role	Elderly Healthcare
Family Support					0.025		
Family Function					0.046	0.226	
Family Characteristics	0.003	0.049				0.006	0.011
Elderly Characteristics					0.012		0.032
Quality of Life of the Elderly							
Family Role	0.155				0.025		1.129
Elderly Healthcare					0.003		

The indirect effect analysis (Table 9) identified several statistically significant indirect pathways. Family function had a significant indirect effect on family support through family role ($\beta = 0.160$, $p < 0.001$), while family role had a significant indirect effect on the quality of life of older adults through family support ($\beta = 0.055$, $p = 0.015$). Family function also had significant indirect effects on quality of life through family role ($\beta = 0.095$, $p = 0.005$) and on elderly healthcare through family role ($\beta = 0.310$, $p < 0.001$). In addition, family characteristics had a significant indirect effect on family role through family function ($\beta = 0.093$, $p = 0.009$). Other indirect pathways were not statistically significant ($p > 0.05$), suggesting that the indirect relationships varied depending on the constructs involved.

Table 9. Indirect Effect

Pathway	**β**	**T Statistics**	**P Values**	**95%CI**
1. Family Function → Family Role → Family Support	0.160	3.963	0.000	0.086 - 0.240
2. Family Characteristics → Family Function → Family Role → Family Support	0.034	2.275	0.023	0.010 - 0.069
3. Family Characteristics → Family Role → Family Support	0.025	1.677	0.094	-0.001 - 0.056
4. Family Function → Family Role → Family Support → Quality of Life of the Elderly	0.024	2.234	0.026	0.006 - 0.047
5. Family Characteristics → Family Function → Family Role → Family Support → Quality of Life of the Elderly	0.005	1.689	0.092	0.001 - 0.012
6. Family Role → Family Support → Quality of Life of the Elderly	0.055	2.431	0.015	0.015 - 0.100
7. Family Characteristics → Family Role → Family Support → Quality of Life of the Elderly	0.004	1.344	0.179	0.000 - 0.011
8. Family Characteristics → Family Function → Quality of Life of the Elderly	0.045	2.660	0.008	0.017 - 0.083
9. Family Function → Family Role → Quality of Life of the Elderly	0.095	2.832	0.005	0.033 - 0.167
10. Family Characteristics → Family Function → Family Role → Quality of Life of the Elderly	0.020	1.835	0.067	0.004 - 0.047
11. Family Characteristics → Family Role → Quality of Life of the Elderly	0.015	1.356	0.176	-0.001 - 0.039
12. Family Characteristics → Elderly Healthcare	0.005	0.851	0.395	-0.005 - 0.018
13. Elderly Characteristics → Elderly Healthcare → Quality of Life of the Elderly	0.008	0.967	0.334	-0.007 - 0.025
14. Family Function → Family Role → Elderly Healthcare → Quality of Life of the Elderly	0.021	0.987	0.324	-0.020 - 0.064
15. Family Characteristics → Family Function → Family Role → Elderly Healthcare → Quality of Life of the Elderly	0.005	0.813	0.417	-0.004 - 0.017
16. Family Role → Elderly Healthcare → Quality of Life of the Elderly	0.048	1.016	0.310	-0.047 - 0.136

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Pathway	β	T Statistics	P Values	95%CI
17. Family Characteristics → Family Role → Elderly Healthcare → Quality of Life of the Elderly	0.003	0.766	0.444	-0.004 - 0.014
18. Family Characteristics → Family Function → Family Role	0.093	2.640	0.009	0.033 - 0.170
19. Family Function → Family Role → Elderly Healthcare	0.310	7.010	0.000	0.221 - 0.392
20. Family Characteristics → Family Function → Family Role → Elderly Healthcare	0.067	2.597	0.010	0.023 - 0.124
21. Family Characteristics → Family Role → Elderly Healthcare	0.049	1.679	0.094	-0.003 - 0.111

DISCUSSION

This study examined the relationships between family characteristics, family function, family roles, family support, elderly healthcare, and quality of life among older adults in Kediri City using a SEM-PLS approach. The findings indicate that family-related factors, particularly family function and family roles, are associated with quality of life among older adults.

The majority of family respondents were women (68.8%), with a mean age of 42.5 years. This finding describes the sociodemographic characteristics of family respondents; however, gender differences in caregiving responsibilities were not directly examined in this study. Most respondents had completed senior high school education. Furthermore, most respondents were the children of the elderly participants (64.0%), indicating that adult children constituted the largest group of family respondents [16]. Most respondents had completed senior high school education, suggesting an adequate educational background to support caregiving and health-related decision-making. Furthermore, most respondents were the children of the elderly participants, reflecting the persistence of filial responsibility and strong intergenerational family values in Indonesian culture.

Most families consisted of 3–5 members and were categorized as nuclear families. These findings describe the household composition of the participating families [17]. However, more than half of the families had incomes below the regional minimum wage. This finding indicates that a substantial proportion of participating families had relatively low monthly incomes [18]. Despite these economic challenges, most families reported harmonious family relationships and cultural compatibility with elderly family members. These responses describe the reported family relationships and cultural compatibility among the participants.

Regarding elderly characteristics, most participants were categorized as “young-old” (60–74 years), female, widowed, unemployed, and financially dependent on their families. These characteristics describe the sociodemographic profile of the older adults participating in this study. The high proportion of widowed participants provides context for examining family roles and family support among older adults in this population. In addition, almost half of the elderly participants had chronic diseases, which further describes the health status of the study participants and provides context for interpreting the findings related to elderly healthcare and quality of life.

The findings showed that most families had good family functioning based on the APGAR Family assessment. Positive family functioning reflects the family’s ability to adapt, communicate, provide emotional support, and involve elderly members in family decision-making [19]. Elderly individuals who feel respected and involved within the family environment may experience greater emotional security and psychological well-being. The analysis identified a significant association between family function and family roles, indicating that differences in family functioning were related to differences in the roles performed by family members. Families demonstrated strong psychosocial roles, particularly as motivators, harmonizers, companions, and mediators for older adults. These findings suggest that emotional closeness and interpersonal interaction remain strong within Indonesian family systems. The role of the family as a companion may reduce feelings of loneliness and social isolation among older adults, while the harmonizing role helps maintain emotional stability within the household [20]. These role dimensions describe the forms of family involvement reported in this study, although their specific effects on loneliness, social isolation, and emotional stability were not directly examined

However, the caregiver role showed weaker performance compared to other family roles. Many families may possess strong emotional attachment to elderly members but lack adequate technical caregiving skills related to physical care, disease management, mobility assistance, or monitoring of dietary and medication needs. This finding indicates an important gap between emotional caregiving and practical caregiving competence. Similar conditions have been identified in previous geriatric care studies, where family members experience difficulties in providing optimal elderly care because of insufficient caregiving

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knowledge and training [21]. Strengthening caregiving capacity through family-based education and community health programs is necessary to improve the quality of elderly care.

The SEM-PLS analysis identified statistically significant associations between family function and family role, as well as between family role and family support, elderly healthcare, and quality of life. Among the examined pathways, family role showed the strongest association with elderly healthcare. This finding highlights the relevance of family involvement in understanding healthcare practices among older adults. Families that perform motivational, coordinative, and supportive roles may also report more favorable healthcare practices, although the cross-sectional design does not establish the direction of these relationships. The association between family function and family role is relevant to the broader relationship between family dynamics and the well-being of older adults. Souza Júnior et alreported an association between family functionality and quality of life among older adults, with family dysfunction related to poorer quality of life [22]. Furthermore, family support was significantly associated with quality of life in the present study ($\beta = 0.151$, $p = 0.008$). This finding is consistent with Sulandari et al., whose systematic review and meta-analysis found a positive association between social support and life satisfaction among older adults [23]. Although social support and life satisfaction are not identical to family support and quality of life, respectively, these findings highlight the relevance of family and social relationships to well-being in later life [24].

Elderly healthcare was not significantly associated with quality of life in the final structural model ($\beta = 0.068$, $p = 0.293$). The path coefficient indicated a small positive association, but the relationship was not statistically significant. One possible explanation is that the elderly healthcare construct, as measured in this study, may not fully capture the aspects of healthcare most relevant to quality of life. Quality of life among older adults is multidimensional and encompasses emotional, social, and existential aspects in addition to physical health. Furthermore, the model explained 25.8% of the variance in quality of life ($R^2 = 0.258$), indicating that a substantial proportion of the variance remained unexplained by the predictors included in the model. Nevertheless, these explanations remain tentative and cannot be confirmed by the present findings. Further research is needed to examine the relationship between healthcare practices and quality of life among older adults over time.

This study highlights the relevance of family-centered approaches in understanding elderly care and quality of life among older adults. The observed associations between family functioning, family roles, family support, and elderly healthcare suggest that these factors warrant consideration in the development of family-based and community health programs. Caregiver education, family empowerment, and psychosocial support may be useful areas for further evaluation. Longitudinal and intervention studies are needed to determine whether changes in these factors are associated with subsequent changes in elderly healthcare and quality of life.

The AVE values for family role and quality of life were below the recommended threshold, suggesting that the indicators may not fully capture the variance of these constructs. Although both constructs demonstrated acceptable composite reliability, this measurement limitation should be considered when interpreting the observed associations involving family roles and quality of life. Future studies should consider refining the measurement instruments and evaluating their validity in different populations.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design limits the ability to establish causal relationships among the studied variables. The associations identified through SEM-PLS analysis only reflect relationships at a single point in time. Second, the study relied on self-reported questionnaire data from family members and elderly respondents, which may be subject to recall bias and social desirability bias. Third, several constructs were measured using a limited number of indicators after the elimination of indicators with low outer loading values, which may reduce the comprehensiveness of construct representation. In addition, the study was conducted only in Kediri City; therefore, the findings may not be fully generalizable to elderly populations in other regions with different sociocultural and economic backgrounds. Future studies are recommended to use longitudinal designs, include broader geographical areas, and explore additional factors such as caregiver burden, mental health status, and healthcare accessibility that may influence the quality of life of older adults.

Conclusion

This study demonstrates that family-related factors play important roles in improving the quality of life of older adults in Kediri City. Family function and family role were identified as key determinants influencing family support, elderly healthcare, and quality of life. Families with harmonious relationships and effective family functioning were more likely to provide optimal emotional, social, and practical support