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THE INFLUENCE OF FAMILY FUNCTION AND FAMILY COPING ON THE QUALITY OF LIFE IN ELDERLY WITH HYPERTENSION IN AGROINDUSTRIAL COMMUNITIES

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ABSTRACT

Background: Hypertension is a major chronic condition among older adults and is closely associated with reduced quality of life (QoL). Family function and coping strategies are considered important in promoting the health and well-being of older adults. Agroindustrial communities represent a unique socio-economic and cultural environment where traditional agricultural lifestyles coexist with emerging industrial employment systems. This dual structure creates distinct patterns of family dynamics, caregiving behaviors, and health outcomes, making them an important setting for studying family caregiving and QoL among older adults. **Objective:** This study aims to analyze the influence between family function and family coping with the quality of life among elderly patients with hypertension. **Methods:** A cross-sectional study was conducted in 2025 among 95 older adults aged ≥60 years with hypertension living with their families in the working area of Puger Health Center, Jember, Indonesia. Data were collected using the APGAR Family questionnaire, the Family Coping Index, and the WHOQOL-BREF. Classical assumption tests were performed, followed by multiple linear regression to analyze the effects of family function and coping on QoL. **Results:** The regression model was $Y = 69.719 + 0.302X1 + 0.463X2$. Family function showed a positive but non-significant effect on QoL (B = 0.302, $p = 0.077$), while family coping also demonstrated a positive but non-significant effect (B = 0.463, $p = 0.328$). Both variables were positively related to QoL, although not statistically significant at the 95% confidence level. **Conclusions:** Family function and coping were positively associated with the QoL of older adults with hypertension but did not show significant effects. Other contextual factors such as socioeconomic status, health literacy, and community support may have a stronger impact. Further research and interventions are needed to enhance family involvement and coping strategies to improve the QoL of older adults with hypertension.

Keywords: Elderly, Family function, Family coping, Hypertension, Quality of life

INTRODUCTION

Hypertension is a major global public health concern and is often referred to as a "silent killer" due to its asymptomatic nature and potential to cause serious complications such as stroke, cardiovascular disease, and kidney failure. The World Health Organization (WHO) estimates that more than 1.28 billion adults aged 30–79 years live with hypertension, with nearly two-thirds residing in low- and middle-income countries (WHO, 2021). Despite this high burden, only 42% of individuals are diagnosed and treated, and fewer than 20% achieve optimal blood pressure control, making hypertension a leading risk factor for global cardiovascular mortality. The prevalence is particularly high among older adults (≥60 years), reflecting age-related physiological changes, reduced vascular elasticity, and cumulative exposure to risk factors across the lifespan (Amlak *et al.*, 2025). Older adults with hypertension often report diminished quality of life (QoL), particularly in physical and social domains, underscoring the need for comprehensive management strategies that extend beyond blood pressure control (Xu *et al.*, 2022).

Globally, elevated systolic blood pressure is the leading risk factor for mortality, accounting for over 10 million deaths annually (GBD Risk Factors Collaborators, 2020). The age-standardized prevalence of hypertension in Indonesia among adults aged 30–79 years is approximately 36%**,** with the rate exceeding 55% among older adults, indicating a substantial public health burden in the aging population (WHO, 2023). However, awareness, treatment, and control remain suboptimal: only 36.8% of patients are aware of their condition, and more than half do not adhere to prescribed medication (Sujarwoto and Maharani, 2021). Consequently, the risk of complications and impaired QoL among older adults remains high. Hypertension is consistently reported as one of the top five causes of morbidity among the elderly (East Java Health Office, 2022). Data from Jember Regency further highlight gaps in hypertension service coverage, falling short of national targets (Jember Health Office, 2022). Local studies indicate that hypertension prevalence is particularly high in coastal communities, with risk factors including inadequate sleep patterns, as well as high sodium, cholesterol, and caffeine intake (Munawaroh and Astuti, 2024).

The Puger Primary Health Center (Puskesmas) serves a predominantly agro-industrial community, where farming, fishing, and labor-intensive occupations shape local lifestyles. High-salt dietary patterns, strenuous physical activity, and limited access to healthcare exacerbate the risk of hypertension. Despite increasing prevalence, service coverage remains below targets, highlighting a mismatch between health needs and available resources. This context makes Puger a relevant setting to examine factors influencing the QoL of older adults with hypertension, particularly from a family perspective (Astuti *et al.*, 2024). The ongoing epidemiological transition in Indonesia, from communicable to non-communicable diseases, further emphasizes hypertension as a critical health challenge (Ekaputri and Listian, 2025; Muchtar, Brilyanti and Widiarti, 2025).

The family system in agro-industrial communities is shaped by a combination of traditional collectivist values and modern industrial challenges**.** While these families often demonstrate strong emotional bonds and a high sense of caregiving responsibility**,** they also face economic pressures, limited healthcare access, and evolving social roles that test their coping capacity. These dynamics collectively influence how families function, adapt, and maintain the quality of life of their elderly members. Family plays a pivotal role in managing chronic conditions among older adults. Effective family

functioning characterized by communication, emotional support, and shared decision-making has been shown to enhance adherence and adaptation to hypertension. Moreover, family coping strategies significantly influence psychological and social adjustment, with adaptive coping (both problem-focused and emotion-focused) positively associated with QoL in hypertensive patients (Luthfa *et al.*, 2025)

However, most existing studies have focused on urban or hospital-based populations. Limited empirical evidence is available on how family function and coping shape QoL among hypertensive older adults in rural agro-industrial settings, where cultural norms, occupational demands, and healthcare access may act as moderating factors. Family-centered approaches, including empowerment models and family-based care, have been shown to improve adherence, reduce psychological distress, and enhance QoL in older adults with hypertension (Izadi-Avanji *et al.*, 2020). Therefore, this study aims to analyze the influence of family function and family coping on QoL among hypertensive elderly in the agro-industrial community served by Puger Primary Health Center, Jember Regency. Findings are expected to inform the development of family-based interventions at the primary care level and contribute to more context-sensitive and sustainable public health policies.

METHOD

This quantitative study applied a cross-sectional design and was conducted in the working area of Puger Primary Health Center, Jember Regency, in 2025. The study population included all hypertensive older adults aged ≥60 years living with their families. A proportional random sampling technique was used, yielding 95 respondents. Family function (independent variable) was assessed using the APGAR Family Questionnaire**,** family coping using the Family Coping Index, and quality of life (dependent variable) using the WHOQOL-BREF**.** Respondent characteristics were obtained from structured questionnaires and medical records.

Data were collected through structured interviews with validated instruments. Analyses included univariate statistics for sample characteristics, bivariate correlation tests, and multivariate multiple linear regression to examine the effects of family function and family coping on quality of life. A significance level of $p < 0.05$ was applied. Ethical approval was obtained from the Health Research Ethics Committee, Faculty of Dentistry, University of Jember (No. 3373/UN25.8/KEPK/DL/2025).

RESULT

General Characteristics

Table 1. Frequency distribution of respondents general characteristics

Variables	Frequency (n)	Percentage (%)
Age		
60-74 years	67	70,5
75-90 years	28	29,5
Gender		
Male	34	35,8
Female	61	64,2
Education		
Elementary school	12	12,6
Junior High School	32	33,7

Senior High School	43	45,3
Bachelor	8	8,4
Marriage		
Widower	12	12,6
Widow	23	24,2
Married	60	63,2
Not married	0	0
Total	95	100

Based on table 1, it shows that all the elderly who parcipated in this study were aged 60-74 years who were included in the elderly group (early). In the terms of gender, the majority are female 64,2%. In the terms of the level of education, the majority are senior high school 45,3%.

Classical Assumption Test

Normality Test

The results of the normality test using multivariate normality analysis are presented in Table 2 below:

Table 2. Normality test results

	r	Sig. (2-tailed)
Uji Normalitas	0.880	0.000

Based on the output of the normality test, the value of Sig. (2-tailed) was < 0.05, indicating that the data were derived from a normally distributed population, with a correlation coefficient of 0.880.

Linearity Test

The linearity test was conducted to determine whether the studied variables had a linear relationship. The test was performed using ANOVA, as presented in Table 3**.**

Table 3. *Linearity Test Results*

		F	Sig.
Linearity Test	Deviation from linierity	.894	.467

The results showed a *Deviation from Linearity* significance value of 0.467, indicating that there was a linear relationship between the independent variables and the dependent variable.

Multicollinearity Test

The purpose of the multicollinearity test was to determine whether the independent variables in the regression model were intercorrelated in table 4.

Table 4. Multicollinearity Test Result

Model	Sig.	Collinerity Statistics	
		Tolerance	VIF
(Constant)	.013		
Family Function	.003	.903	1.070
Family Coping	.407	.886	1.129

As shown in Table 4**,** the tolerance values for all independent variables were > 0.10, and the Variance Inflation Factor (VIF) values were < 10. These results indicate that the regression model is free from multicollinearity.

Autocorrelation Test

The autocorrelation test aimed to examine whether there was a correlation between residuals in different time periods within the linear regression model. The Durbin–Watson test was applied, and the results are presented in Table 5**.**

Table 5. Hasil Uji Autokorelasi

Model	R	R square	Adjusted R square	Std. Error of the Estimate	Durbin-Watson
1	.382[a]	.146	.105	11.762	1.812

The results of the autocorrelation test using the Durbin–Watson (DW) statistic (Table 5) showed a DW value of 1.812**.** With the number of predictors ($k = 2$) and sample size ($n = 95$), the upper bound (dU) was approximately 1.67, and 4 − dU was approximately 2.33. Since the DW value fell within the range of dU < DW < 4 − dU (1.67 < 1.812 < 2.33), it can be concluded that there was no autocorrelation in the model residuals. This finding indicates that the assumption of independence of residuals in regression analysis was satisfied.

Multiple Linear Regression Analysis

Table 6. Multiple Linier Regression Analysis Results

Model	Unstandardized Coefficients		Standardized Coefficients	Sig
	B	Std. Error	Beta	
(Constant)	69.719	11.904		0.000
Family Function	.302	.165	.304	.077
Family Coping	.463	.466	.165	.328

Based on the results presented in Table 6, the regression equation was obtained as Y = 69.719 + 0.302X1 + 0.463X2 where *Y* represents the quality of life of older adults with hypertension, *X1* represents family function, and *X2* represents family coping. The interpretation of this equation is as follows:

1. **Constant (69.719)**
   When family function and family coping are equal to zero, the predicted quality of life of older adults is 69.719 (baseline value).
2. **Family Function (B = 0.302, p = 0.077)**
   For every one-point increase in family function, the quality of life of older adults increases by 0.302 points, assuming other variables remain constant. However, the effect was not statistically significant ($p = 0.077 > 0.05$), although the relationship was positive in direction.
3. **Family Coping (B = 0.463, p = 0.328)**
   For every one-point increase in family coping, the quality of life of older adults increases by 0.463 points, assuming other variables remain constant. Similarly, this effect was not statistically significant ($p = 0.328 > 0.05$), despite the positive direction of the relationship.

DISCUSSION

The Influence of Family Function on the Quality of Life of Older Adults with Hypertension

Families in agro-industrial communities possess distinctive characteristics that influence their caregiving roles and the quality of life (QoL) of older adults. The combination of agricultural and industrial livelihoods often creates dual work demands, leading to limited time for direct caregiving and increased caregiver burden. However, these families generally maintain strong kinship bonds, collectivist values, and multigenerational living arrangements**,** which enhance emotional support and social cohesion. At the same time**,** limited access to formal healthcare and social services in semi-rural agro-industrial settings reinforces the family's central role in providing physical and emotional care for the elderly. These families often rely on adaptive coping strategies, including shared caregiving responsibilities, community support, and spiritual coping, to manage stress and maintain well-being. Despite facing socioeconomic pressures and shifting family roles due to industrialization, the cultural values of mutual responsibility and filial respect continue to strengthen family functioning and contribute positively to the overall QoL of older adults.

The findings of this study indicate that family function has a positive relationship with the quality of life (QoL) of older adults with hypertension. This suggests that better family function is associated with higher QoL, although the effect was not strong enough to reach statistical significance. Theoretically, families play a central role in providing physical, emotional, and social support for older adults with hypertension (Sarumi, Alwy and Arman, 2021). Optimal family functioning such as effective communication, emotional support, and shared responsibility can improve treatment adherence and reduce stress related to chronic illness. Family function refers to the roles and tasks carried out within a household, agreed upon by its members, to ensure that responsibilities are organized and implemented effectively and efficiently. A family is defined as a group of individuals living together with blood or marital ties, forming the smallest unit in society. A healthy family is characterized by physical, mental, and social well-being that allows the family unit to function optimally in both social and economic aspects. Within a family, multiple interactions occur that serve diverse functions essential to individual and collective well-being (Zhang *et al.*, 2021).

Previous studies support these findings reported that family function was positively associated with QoL among older adults with hypertension and contributed to reduced anxiety. Similarly, other research has emphasized that family communication and emotional involvement are significantly correlated with psychological and social domains of QoL in patients with hypertension (Zhang *et al.*, 2021). However, in agro-industrial communities such as Puger, external factors including economic limitations, daily lifestyle patterns, and restricted access to healthcare may play a more dominant role, thereby attenuating the influence of family function. Strengthening family involvement and enhancing family function remain essential strategies to improve QoL among older adults with hypertension. Families need to play an active role in providing support, attention, and creating a positive environment for their elderly members (Mashuri, Ng and Santosa, 2022).

The Influence of Family Coping on the Quality of Life of Older Adults with Hypertension

This study also found that family coping had a positive relationship with the quality of life (QoL) of older adults with hypertension. Conceptually, adaptive coping mechanisms play an important role in helping families manage the burden of hypertension by regulating stress, enhancing self-acceptance, and promoting healthy behaviors. Prospective studies have reported that problem-focused coping is associated with long-term improvements in QoL among patients with hypertension, while emotion-focused coping contributes indirectly through the reduction of depressive symptoms (Boonyathee *et al.*, 2021). Other research has also found that coping training for family caregivers enhances self-efficacy in caring for hypertensive patients, which ultimately improves the QoL of older adults. The family is a crucial social unit responsible for developing, preventing, adapting to, and resolving health-related problems of its members. It plays a central role in maintaining and promoting the health of all family members while ensuring access to healthcare services (Aamir, 2025; Tao, Cheng and Bai, 2025). Families hold a unique position in mitigating health challenges and providing sustainable support for their members. Furthermore, emotional support and family coping strategies have been shown to reduce depression and stress, which are key determinants of mental QoL among patients with hypertension. Nevertheless, in this study, the effect of family coping was not statistically significant. This may be attributed to unmeasured mediating variables such as depression, stress, health literacy, and broader community support. In addition, variations in the type of coping strategies employed by families (e.g., predominantly problem-focused vs. emotion-focused) may also influence outcomes. Therefore, interventions designed to enhance adaptive coping strategies within families are essential. Such interventions may include stress management education, family counseling, or caregiver training programs to optimize the impact of coping on the QoL of older adults with hypertension (Tan *et al.*, 2025).

CONCLUSION

The findings of this study suggest that both family function and family coping demonstrate positive relationships with the quality of life of older adults with hypertension. However, the regression analysis revealed that neither variable exerted a statistically significant effect at the 95% confidence level. This indicates that other factors beyond family function and coping may play a more dominant role in determining QoL among older adults with hypertension, warranting further investigation.

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