

Original Article

# Analysis of medication compliance in elderly hypertension in the Benu-Benua community health center: A cross-sectional study

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## Abstract

**Background:** Hypertension in the elderly increases the risk of stroke, heart disease, and kidney failure, while adherence to pharmacological therapy remains a major issue requiring attention.

**Objective:** This study aimed to analyze factors associated with antihypertensive medication adherence among elderly patients in the working area of the BLUD UPTD Benu-Benua Community Health Center.

**Methods:** A cross-sectional design was employed involving a total of 67 hypertensive elderly respondents, determined using the Slovin formula (margin of error 10%) from a total population of 207 elderly individuals and selected through random sampling. Data were collected from November to December 2024 using a structured questionnaire that had been tested for validity and reliability ( $\alpha = 0.685-0.922$ ). Data analysis was conducted bivariate using the Chi-Square test with continuity correction and multivariate using binary logistic regression.

**Results:** The results showed that medication adherence was higher among elderly individuals with good knowledge (76.9%) compared to those with poor knowledge (29.3%;  $p = 0.000$ ), positive attitude (80.6%) compared to negative attitude (19.4%;  $p = 0.000$ ), good motivation (63.6%) compared to low motivation (32.4%;  $p = 0.020$ ), good family support (61.0%) compared to poor support (26.9%;  $p = 0.014$ ), and good health worker support (64.1%) compared to poor support (25.0%;  $p = 0.004$ ). Multivariate analysis showed that only the attitude variable significantly influenced medication adherence ( $p = 0.009 < 0.05$ ; OR = 7.881; 95% CI = 1.678-37.021). Elderly individuals with positive attitudes were 7.881 times more likely to adhere to medication compared to those with negative attitudes. Attitude was the most dominant factor influencing antihypertensive medication adherence.

**Conclusion:** These findings highlight the importance of educational interventions and family support to improve treatment adherence among elderly individuals with hypertension.

## Background

The elderly are a vulnerable population facing high health risks, which significantly burden both the healthcare system and the national economy (WHO, 2021; Habil & Berlianti, 2023). Therefore, maintaining the health of older adults is a strategic priority to ensure their productivity while reducing potential socio-economic burdens on the state (BPS, 2023). The elderly are defined as individuals aged  $\geq 60$  years who experience physical, psychological, social, and spiritual changes as they age (WHO, 2024; Silalahi et al., 2024).

Globally, the elderly population increased from 260 million in 1980 to 761 million in 2021 and is projected to reach 17% of the world's total population by 2050 (United Nations, 2023). This demographic shift has significant public health implications, particularly concerning the

higher prevalence of chronic diseases among older adults. WHO predicts that the number of older adults will reach 2 billion over the next 25 years, with Asia accounting for approximately 82% of this growth (WHO, 2024). This global trend is reflected in Indonesia, where the proportion of elderly increased from 9.92% in 2020 to 11.75% in 2023 (BPS, 2022). In Southeast Sulawesi, 7.67% of the population were elderly in 2022, mostly living in rural areas, and more than half were women (BPS, 2022). The increasing proportion of older adults necessitates targeted healthcare strategies adapted to local characteristics.

One of the major health problems among the elderly is hypertension, defined as systolic blood pressure  $\geq 140$  mmHg or diastolic blood pressure  $\geq 90$  mmHg (Tiara, 2020). This condition is influenced by uncontrollable factors such as age and genetics, as well as

controllable factors including diet, obesity, and physical activity. Poorly controlled hypertension can lead to serious complications, including stroke, heart disease, kidney failure, cognitive decline, and reduced quality of life (Wahyudi & Mustika, 2024).

The prevalence of hypertension among older adults continues to rise. Globally, nearly half of all elderly individuals suffer from hypertension, with cases increasing from 650 million in 1990 to 1.3 billion in 2019 (WHO, 2024). In Indonesia, the prevalence among the elderly rose from 32.5% in 2018 to 34.11% in 2019 (Ministry of Health RI, 2019). In Southeast Sulawesi, the figure increased from 22.5% in 2013 to 30.6% in 2019 (Usman, 2023; Southeast Sulawesi Health Office, 2022). In Kendari City, 4,876 older adults were recorded with hypertension in 2023, with 1,670 new cases reported between January and March 2024 (Kendari City Health Office, 2024). This trend highlights the increasing risk of chronic diseases with aging and emphasizes the need for optimal medication adherence.

Medication adherence is a key factor in hypertension management. Operationally, adherence is defined as the extent to which a patient's behavior in taking medication aligns with prescribed doses, schedules, and healthcare provider instructions (WHO, 2003). In Indonesia, adherence among hypertensive patients remains low, at 53.8%, with only 54.4% of patients taking their medications regularly (Nurdin et al., 2023; Massa & Manafe, 2021). Factors influencing adherence include knowledge, attitudes, motivation, and support from family and healthcare providers (Longa et al., 2023; Handayani et al., 2022). However, most previous studies were limited to single-variable analysis or did not include a multivariate approach to identify the dominant factor affecting adherence among the elderly. Furthermore, research focusing on elderly populations in community-based settings, particularly in rural areas such as Benu-Benua, remains scarce, even though such contexts have unique socio-cultural and healthcare access challenges that may influence adherence behavior.

At the local level, BLUD UPTD Benu-Benua Community Health Center has implemented several programs for older adults, including health posts (Posyandu Lansia), exercise

activities, health screenings, and health education (BLUD UPTD Puskesmas Benu-Benua, 2023). Nevertheless, hypertension cases increased from 375 patients in 2022 to 738 in 2023, with 684 new cases reported by August 2024. This indicates a gap between healthcare services provided and the level of adherence among elderly patients. Therefore, this study was conducted to address this research gap by comprehensively analyzing the factors associated with antihypertensive medication adherence using both bivariate and multivariate analyses to determine the most dominant influencing factor.

The findings are expected to provide an evidence-based foundation for designing targeted educational interventions, strengthening the role of healthcare providers, and enhancing family involvement to improve adherence among elderly hypertensive patients in primary healthcare settings.

## Methods

### *Study Design*

This study employed a quantitative analytical design with a cross-sectional approach. This approach was chosen because it is suitable for identifying the relationships between multiple independent variables namely knowledge, attitude, motivation, family support, and health worker support and the dependent variable, which is medication adherence among elderly patients with hypertension. The design provides a comprehensive snapshot of the associations between variables at a single point in time; however, it has limitations in explaining causal relationships due to the simultaneous measurement of variables. This limitation in causal inference is acknowledged as one of the study's constraints that may influence the generalizability of findings.

The research was conducted in the working area of the BLUD UPTD Benu-Benua Community Health Center, located in Kendari City, Southeast Sulawesi, Indonesia. This area represents a transitional zone between urban and rural settings, characterized by diverse socioeconomic conditions. Some communities have limited transportation access, and health infrastructure is not yet fully developed. These

contextual conditions make this setting relevant for examining the factors influencing medication adherence among elderly hypertensive patients who face unique social and healthcare challenges.

### *Sampling*

The study population comprised all elderly individuals aged  $\geq 60$  years who had been diagnosed with hypertension and were undergoing outpatient treatment at the Benu-Benua Health Center, totaling 207 individuals. Data collection was conducted from November to December 2024, reflecting the most recent conditions of elderly hypertension management in the area.

The sample size was determined using the Slovin formula with a 10% margin of error, resulting in a total of 67 respondents. Participants were selected through a simple random sampling technique to minimize selection bias and ensure population representativeness. The researchers acknowledge that the Slovin formula has limitations because it does not consider statistical power comprehensively.

The inclusion criteria were elderly individuals aged  $\geq 60$  years who had been clinically diagnosed with hypertension, lived within the health center's working area, were cooperative, and able to communicate clearly. The exclusion criteria included elderly individuals who refused to participate or had severe communication difficulties that hindered interviews.

### *Instruments*

Data were collected using a structured questionnaire that had been tested for validity and reliability, yielding Cronbach's alpha values between 0.685 and 0.922, indicating good internal consistency. The instrument consisted of six main sections covering respondents' characteristics, knowledge, attitude, motivation, family support, health worker support, and medication adherence.

Variables were measured using a combination of dichotomous and Likert-scale items, which were then categorized based on the median

score to classify results as good or poor. The operational definitions and scoring system were developed based on relevant theories and previous studies to ensure comparability and construct validity.

### *Data Collection*

Primary data were obtained through face-to-face interviews conducted by trained enumerators either at the health center or at the respondents' homes, lasting approximately 20–30 minutes per participant. Prior to data collection, enumerators received training and standardized interview guidelines to maintain consistency. Field supervision was carried out regularly by the principal investigator to ensure data quality.

To minimize information bias due to self-reporting among elderly participants, enumerators used simple and neutral language and clarified ambiguous responses when necessary. In addition, secondary data from medical records and health center reports were used to verify hypertension diagnoses and ensure the accuracy of the study population data.

### *Data Analysis*

Data analysis was performed in three stages: univariate, bivariate, and multivariate. Univariate analysis was used to describe respondent characteristics and variable distributions. Bivariate analysis employed the Chi-Square test with continuity correction to assess the associations between independent variables and medication adherence at a significance level of 0.05.

Subsequently, multivariate analysis was performed using binary logistic regression to identify the most dominant factors influencing adherence, presenting odds ratios (OR) with 95% confidence intervals (CI). Model diagnostics included checks for multicollinearity (VIF  $< 10$ ) and Hosmer-Lemeshow goodness-of-fit tests to confirm model validity. The regression model also adjusted for potential confounding variables such as the duration of hypertension, comorbidities, and type of antihypertensive

medication used, thereby improving internal validity.

### *Ethical Consideration*

This study adhered to the ethical principles of health research, including autonomy, beneficence, non-maleficence, and justice. Each respondent received an explanation of the study's purpose, benefits, and procedures and was asked to sign an informed consent form before the interview. Confidentiality and anonymity of respondents were strictly maintained, and all data were used solely for research purposes.

The study received ethical approval from the Health Research Ethics Committee of the Indonesian Public Health Association (IAKMI)

**Table 1.** Respondent Characteristics

| Variable                     | Mean                 | SD                    |
|------------------------------|----------------------|-----------------------|
| Age                          | 62.7                 | 2.3                   |
|                              | <b>Frequency (n)</b> | <b>Percentage (%)</b> |
| <b>Gender</b>                |                      |                       |
| Male                         | 26                   | 38.8                  |
| Female                       | 41                   | 61.2                  |
| <b>Employment Status</b>     |                      |                       |
| Taking care of household     | 30                   | 44.8                  |
| Government employees         | 2                    | 3.0                   |
| Self-employed                | 22                   | 32.8                  |
| Retired                      | 11                   | 16.4                  |
| Fisherman                    | 2                    | 3.0                   |
| <b>Knowledge</b>             |                      |                       |
| Good                         | 26                   | 38.8                  |
| Not enough                   | 41                   | 61.2                  |
| <b>Attitude</b>              |                      |                       |
| Positive                     | 31                   | 46.3                  |
| Negative                     | 36                   | 53.7                  |
| <b>Motivation</b>            |                      |                       |
| Good                         | 33                   | 49.3                  |
| Not enough                   | 34                   | 50.7                  |
| <b>Family Support</b>        |                      |                       |
| Support                      | 41                   | 61.2                  |
| Does not support             | 26                   | 38.8                  |
| <b>Health Worker Support</b> |                      |                       |
| Support                      | 39                   | 58.2                  |
| Does not support             | 28                   | 41.8                  |
| <b>Medication Compliance</b> |                      |                       |
| Obedient                     | 32                   | 47.8                  |
| Not obey                     | 35                   | 52.5                  |

The analysis showed that the average age of elderly respondents with hypertension was 62.7 years, with a standard deviation of 2.3 years. The respondents' ages ranged from 60 to 68

under approval number 264/KEPK-IAKMI/XII/2024.

### **Results**

This section presents the results of the data analysis, which include the characteristics of respondents, the distribution of research variables, and the results of variable analysis. The characteristics of respondents are presented to provide a general overview of the demographic profile of elderly individuals with hypertension who constituted the study sample, while the variable analysis was conducted to address the research objectives related to factors associated with adherence to antihypertensive medication.

years, indicating that most participants were categorized as early to middle elderly.

In terms of gender, the respondents were predominantly female, with 41 individuals

(61.2%), while the male respondents totaled 26 individuals (38.8%). This finding is consistent with national data showing that women tend to have a higher life expectancy compared to men, thereby making them more prevalent in the elderly population.

Regarding employment status, nearly half of the respondents were homemakers (44.8%), followed by self-employed individuals (32.8%) and retirees (16.4%). Meanwhile, respondents who worked as government employees and fishermen each accounted for 3.0%. This condition reflects that most elderly in this study

were no longer formally employed, although a proportion of them remained economically active.

The table above shows that the majority of elderly people with hypertension have insufficient knowledge (61.2%), negative attitudes (53.7%), and low motivation (50.7%). Most respondents received family support (61.2%) and support from healthcare professionals (58.2%). However, only 47.8% of elderly people were compliant with their medication, while 52.2% were non-compliant

**Table 2.** Bivariat Analysis

| Variable                     | Medication Compliance |      |    |      | Total |     | pvalue |
|------------------------------|-----------------------|------|----|------|-------|-----|--------|
|                              | Obedient              |      | No |      | n     | %   |        |
|                              | n                     | %    | n  | %    |       |     |        |
| <b>Knowledge</b>             |                       |      |    |      |       |     |        |
| Good                         | 20                    | 76.9 | 6  | 40.5 | 37    | 100 | 0.000  |
| Not enough                   | 12                    | 29.3 | 29 | 70.7 | 30    | 100 |        |
| <b>Attitude</b>              |                       | 80.6 |    |      |       |     |        |
| Positive                     | 25                    | 19.4 | 6  | 19.4 | 31    | 100 | 0.000  |
| Negative                     | 7                     |      | 29 | 80.6 | 36    | 100 |        |
| <b>Motivation</b>            |                       |      |    |      |       |     |        |
| Good                         | 21                    | 63.6 | 12 | 36.4 | 33    | 100 | 0.020  |
| Not enough                   | 11                    | 32.4 | 23 | 67.6 | 34    | 100 |        |
| <b>Family Support</b>        |                       |      |    |      |       |     |        |
| Support                      | 25                    | 61   | 16 | 39   | 41    | 100 | 0.014  |
| Does not support             | 7                     | 26.9 | 19 | 73.1 | 26    | 100 |        |
| <b>Health Worker Support</b> |                       |      |    |      |       |     |        |
| Support                      | 25                    | 64.1 | 14 | 35.9 | 39    | 100 | 0.004  |
| Does not support             | 7                     | 25   | 21 | 75   | 11    | 100 |        |

The results of the bivariate analysis (Table 2) show a significant relationship between knowledge, attitude, motivation, family support, and support from health workers with adherence to hypertension medication in the elderly in the BLUD UPTD Benu-Benua Community Health Center Working Area. Elderly with good knowledge (76.9%), positive attitudes (80.6%), and good motivation (63.6%) were more compliant than those with poor knowledge (29.3%), negative attitudes (19.4%), and poor motivation (32.4%). Family and health worker support also played an important role, with higher adherence in elderly with family support (61.0%) and health workers (64.1%) compared to those with less support (26.9% and 25.0%). The Chi-Square test showed a  $p$

value  $<0.05$  for all variables, which means that these factors were significantly related to adherence in taking hypertension medication in the elderly.

The results of multivariate analysis using binary logistic regression show that only attitude variables significantly influence medication adherence in elderly with hypertension in the BLUD UPTD Benu-Benua Community Health Center Working Area ( $p = 0.009 < 0.05$ ). Elderly with positive attitudes are 7.881 times more likely to comply compared to elderly with negative attitudes. The 95% confidence interval (1.678–37.021) that does not cross the value of 1 confirms that this relationship is statistically significant. Thus, attitude is the most dominant

factor influencing medication adherence in elderly with hypertension (Table 3).

## Discussion

The findings of this study revealed a significant relationship between knowledge, attitudes, motivation, family support, and health worker support with medication adherence among elderly patients with hypertension in the Benu-Benu Community Health Center working area ( $\rho = 0.000$ ;  $\rho = 0.020$ ;  $\rho = 0.014$ ;  $\rho = 0.004$ ). These findings align with Harahap et al. (2019), Christiyani et al. (2023), and Juniarti et al. (2023), who similarly demonstrated that knowledge contributes to improved adherence despite not always guaranteeing consistent behavior. Attitudes also showed a strong

association with adherence, consistent with Purnamasari & Meutia (2023) and Novianti et al. (2022), confirming that beliefs shape behavioral decisions. Motivation was likewise associated with adherence, as reported by Suling et al. (2023) and Mahardika & Adyani (2023), emphasizing the role of internal drive. Family support enhanced adherence in ways similar to those noted by Sumarni et al. (2020), Susanto (2015), and Ningrum (2018). Health worker support further strengthened adherence, aligning with findings by Susanto & Purwantiningrum (2022) and Sasih et al. (2023). Collectively, these variables demonstrate an integrated behavioral system in which cognitive, affective, and social factors interact.

**Table 3.** Multivariate Analysis

|                       | B      | SE   | Wald   | df | Sig. | Exp (B) | 95% CI for EXP (B) |        |
|-----------------------|--------|------|--------|----|------|---------|--------------------|--------|
|                       |        |      |        |    |      |         | Lower              | Upper  |
| Knowledge             | .450   | .816 | .305   | 1  | .581 | 1,569   | .317               | 7,761  |
| Attitude              | 2,065  | .789 | 6,842  | 1  | .009 | 7,881   | 1,678              | 37,021 |
| Motivation            | .227   | .720 | .099   | 1  | .752 | 1,255   | .306               | 5,147  |
| Family Support        | .920   | .771 | 1,426  | 1  | .232 | 2,510   | .554               | 11,365 |
| Health Worker Support | 1,030  | .694 | 2,204  | 1  | .138 | 2,800   | .719               | 10,904 |
| Constant              | -2.144 | .627 | 11,683 | 1  | .001 | .117    |                    |        |

Knowledge functions as a cognitive foundation enabling elderly individuals to understand the benefits of medication and the risks of complications, supporting Premastutie (2016). However, as Harahap et al. (2019) noted, some individuals with adequate knowledge remain non-adherent, indicating that knowledge alone is insufficient. This limitation emphasizes the necessity of psychosocial reinforcement such as motivation and family involvement to sustain adherence behavior. Reverse causation may also explain the relationship, as elderly individuals who adhere to medication might gain better knowledge over time through health counseling. Confounding variables such as cognitive decline, health literacy, and illness duration could influence both knowledge and adherence simultaneously. These unmeasured factors may have contributed to the observed strength of the association. Nonetheless, knowledge remains a prerequisite component that interacts with other determinants.

Attitudes demonstrated a significant relationship with adherence ( $\rho = 0.000$ ), confirming that positive perceptions reinforce behavioral commitment. These findings are consistent with Purnamasari & Meutia (2023) and Novianti et al. (2022), who emphasized that attitudes operate within a broader cognitive and social framework. Attitudes serve as a bridge between knowledge and motivation, transforming beliefs into action. Reverse causation remains possible because those who consistently adhere may develop more favorable attitudes over time. Unmeasured factors such as self-efficacy, depression, and trust in healthcare providers may also influence both attitudes and adherence. These confounders complicate interpretation of the observed association. Nevertheless, attitudes appear central in behavioral regulation among elderly patients with hypertension.

Motivation was significantly associated with adherence ( $\rho = 0.020$ ), supporting Suling et al.

(2023) and Mahardika & Adyani (2023), who found that self-motivation strengthens treatment consistency. Motivation acts as an internal driver that translates understanding and beliefs into concrete behavior. The possibility of reverse causation exists because consistent medication use may strengthen motivation as individuals observe improved health outcomes. Unmeasured variables such as depression, cognitive status, or healthcare accessibility may also mediate this relationship. In the socio-cultural context of Benu-Benua, motivation often emerges from family encouragement rather than intrinsic drive. This pattern differs from urban contexts described by Mahardika & Adyani (2023), where individual autonomy is greater. Thus, motivation operates dynamically within a social-behavioral system.

Family support showed a significant relationship with adherence ( $\rho = 0.014$ ), confirming findings by Sumarni et al. (2020), Susanto (2015), and Ningrum (2018). Family members provide emotional encouragement, instrumental assistance, and treatment supervision. Reverse causation is plausible because adherent individuals may encourage more involvement from family members. Confounders such as caregiver literacy, socioeconomic status, or medication complexity may influence both family support and adherence simultaneously. In semi-rural settings like Benu-Benua, extended family structures create a strong caregiving culture. This dynamic differs from findings by Nade & Rantung (2020), who reported no significant association. The influence of family support is thus context-dependent.

Health worker support was significantly associated with adherence ( $\rho = 0.004$ ), reinforcing findings by Susanto & Purwantiningrum (2022) and Sasih et al. (2023). Regular counseling, monitoring, and follow-up visits enhance understanding and behavioral consistency. Reverse causation cannot be ruled out because adherent individuals may receive more intensive support from health workers. Confounding factors such as visit frequency, communication quality, and staff-patient ratio may influence both perceived

support and adherence. Self-reported data may also introduce bias due to social desirability. In semi-rural areas with limited access to care, family involvement often compensates for constrained health worker availability. Thus, professional support interacts with social structures.

The multivariate analysis showed that attitude was the only variable remaining significantly associated with adherence ( $p = 0.009$ ;  $\text{Exp}[B] = 7.881$ ;  $95\% \text{ CI} = 1.678\text{--}37.021$ ). This result indicates that elderly individuals with positive attitudes are nearly eight times more likely to adhere compared to those with negative attitudes. This finding aligns with the Health Belief Model (Rosenstock, 1974), which asserts that perceived susceptibility, severity, benefits, and barriers influence health behavior. Positive attitudes likely reflect stronger perceptions of risk and confidence in treatment efficacy. Cross-sectional design limitations prevent causal inference, making reverse causation possible. Multicollinearity may have suppressed other variables such as knowledge or motivation. Thus, attitude emerges as a dominant mediator of adherence.

The prominence of attitudes in the final model may reflect behavioral patterns in semi-rural communities like Benu-Benua. In such settings, attitudes are shaped not only by personal beliefs but by family encouragement and periodic counseling from health workers. Elderly individuals often rely on collective decision-making, making attitudes a reflection of both internal and external influences. Knowledge and motivation may be present but insufficient without a positive attitude to sustain behavior. Findings from urban studies, such as those by Purnamasari & Meutia (2023), show different patterns where knowledge and self-efficacy often play stronger roles. Therefore, context must be considered when interpreting these results. Attitude remains the primary determinant within this community-based framework.

In conclusion, knowledge, attitudes, motivation, family support, and health worker support all contribute to medication adherence, yet their influence varies depending on psychosocial

dynamics and contextual factors. Attitude emerged as the strongest predictor, acting as a behavioral mediator linking cognitive and social determinants into consistent treatment behavior. The interactions among these variables are complex and potentially bidirectional, influenced by cultural norms, collectivist values, and structural limitations. Future studies should employ longitudinal and mixed-method approaches to clarify causal pathways. These approaches could better account for confounders such as depression, cognitive decline, and socioeconomic conditions. Interventions should combine education, attitudinal enhancement, motivational strengthening, and family engagement. Such integrated strategies are essential for promoting long-term adherence in elderly populations with hypertension.

This study had several limitations that may influence interpretation of the findings. Purposive sampling limited the representativeness of the sample and restricts generalizability beyond the Benu-Benu Community Health Center. The relatively small sample size may have reduced statistical power to detect subtle associations among variables. Self-reported questionnaires created potential response bias, particularly social desirability bias among elderly participants. Contextual factors such as traditional beliefs, health service accessibility, and socioeconomic conditions were not fully explored. The cross-sectional design also prevented causal inference and left open the possibility of reverse causation. Despite these limitations, the study provides meaningful insights into the dominant role of attitudes and the interplay of psychosocial factors in determining adherence.

## **Conclusion and Recommendation**

Based on the results of this study, it can be concluded that medication adherence among elderly individuals with hypertension in the working area of the Benu-Benu Community Health Center is significantly influenced by several factors, including knowledge, attitude, motivation, family support, and support from healthcare workers. Among these variables, attitude emerged as the most dominant factor, indicating that elderly individuals with a

positive attitude are substantially more likely to adhere to their prescribed antihypertensive medication regimens.

A positive attitude plays a crucial role in encouraging consistent treatment behavior, as it enhances the elderly's awareness of the importance of managing hypertension, increases motivation, and promotes active participation in health-related decision-making. While knowledge and external support systems such as family and healthcare workers remain important, the internal disposition of the elderly has the strongest influence on adherence.

These findings suggest that efforts to improve medication adherence in elderly populations should not only focus on increasing knowledge but also on fostering positive attitudes through targeted education, counseling and support programs. Enhancing motivation and strengthening both family and professional support are also essential strategies to ensure effective and sustained hypertension management in the elderly.

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The authors declare no competing interests.

### **Declaration on the Use of AI**

No AI tools were used in the preparation of this manuscript.

### **References**

- Apsari et al. (2021). The Relationship Between Family Support and the Role of Pharmacy Professionals on Antihypertensive Medication Adherence. *Jurnal Ilmiah Medicamento*, 19-26, Vol. 7 No. 1.
- Central Bureau of Statistics of the Republic of Indonesia. (2022). *Southeast Sulawesi in Figures 2021*. Kendari: Indonesia.
- BLUD UPTD Benu-Benu Health Center. (2023). *Profile of the BLUD UPTD Benu-Benu Health Center*. Kendari.
- BPS. (2023). *Elderly Population Statistics 2023 (Publication No. 20)*. Jakarta: Central Statistics Agency.
- Christiyani et al. (2023). The Relationship between Knowledge Level and Medication Compliance in Hypertension Patients in Yogyakarta. *Caring*, Vol. 7, No. 1.
- Kendari City Health Office. (2024). *Kendari City Health Profile 2023*. Kendari: Indonesia.
- Southeast Sulawesi Health Office. (2022). *Southeast Sulawesi Health Profile 2021*. Kendari: Indonesia.
- Habil, R., & Berlianti. (2023). Economic, Social, and Health Life of the Elderly in Family Care in Neighborhood IV Galang City. *Sosmaniora (Journal of Social Sciences and Humanities)*, 108-121, Vol. 2 No. 1.
- Haldi et al. (2021). The Relationship between Knowledge and Attitude of Hypertension Patients on Compliance with Amlodipine Medication Use at the Arjuno Community Health Center, Malang City. *Journal of Community Pharmacy*, 27-31, Vol. 8, No. 1.
- Handayani et al. (2022). The Effect of Family Support on Medication Compliance of Hypertension Patients at the Muara Wis Community Health Center. *Manuntung Scientific Journal*, 226-233, Vol. 8, No. 2.
- Harahap et al. (2019). The Relationship between Hypertension Patients' Knowledge about Hypertension and Compliance with Taking Antihypertensive Medication in the Kampa Community Health Center Work Area in 2019. *Jurnal Ners*, 97-102, Vol 3 No 2.
- Hartono, D. (2016). *Printed Teaching Material Module for Psychological Nursing*. Jakarta: Indonesia: Ministry of Health of the Republic of Indonesia.
- Juniarti et al. (2023). The Relationship between Knowledge Level and Medication Compliance in Hypertension Patients. *Cendekia Medika: Jurnal Stikes Al-Ma'arif Baturaja*, 43-53, Vol. 8, No. 1.
- Ministry of Health of the Republic of Indonesia. (2019). *Hypertension: The Silent Killer*. Jakarta: Indonesia: Data and Information Center of the Ministry of Health of the Republic of Indonesia.
- Kindang et al. (2024). Education on Medication Compliance in Elderly with Hypertension at the Elderly Posyandu in Baliase Village. *Amma: Journal of Community Service*, 2(12), 1556-1559, Vol. 2, No. 12.
- Longa et al. (2023). The Relationship between Knowledge Level and Medication Compliance. *Gorontalo Journal of Public Health*, 12-21, Vol. 6, No. 1.
- Mahardika, M., & Adyani, SA (2023). Client Motivation and Medication Compliance in Hypertension Patients. *Widya Gantari Indonesian Nursing Journal*, 79-86, Vol. 7 No. 1.
- Massa, K., & Manafe, LA (2021). Hypertension Medication Compliance in the Elderly. *Sam Ratulangi Journal of Public Health*, 46-52, Vol. 2, No. 2.
- Nade, MS, & Rantung, J. (2020). Family Support and Medication Compliance of Elderly with Hypertension in the Parongpong Community Health Center Work Area, West Bandung Regency. *CHMK Nursing Scientific Journal*, 192-198, Vol. 4, No. 1.
- Novianti et al. (2022). The Relationship between Knowledge Level, Attitude, and Family Support on Medication Compliance of Hypertension Patients at Batujaya Community Health Center. *Lambung Farmasi: Journal of Pharmaceutical Sciences*, 349-354, Vol. 3, No. 2.
- Nurdin et al. (2023). The Relationship between Compliance with Antihypertensive Medication and Blood Pressure Reduction in Hypertensive Patients at the Parit Timur Kubu Raya Community Health

- Center. *Scientific Journal of Nursing Research*, 21-26, Vol. 5, No. 2.
- Nurlita. (2017). The Relationship between Health Worker Support and Elderly Hypertension Prevention Behavior at the Nurus-Asyfa Integrated Health Post. Semarang: Muhadiyah University Semarang.
- Premastutie. (2016). The Knowledge Level of Hypertension in Patients for Drug Therapy in The Primary Health Care of Malang. *Indonesian Journal of Clinical Pharmacy*, 26-34.
- Purnamasari, EF, & Meutia, R. (2023). The Relationship between Attitude and Motivation to Medication Compliance in Hypertensive Patients at Medan Adventist Hospital. *Jambura: Journal of Health Science and Research*, Vol. 5, No. 2.
- Purnawinadi, IG, & Lintang, IJ (2020). The Relationship Between Family Support and Medication Compliance in Hypertension Patients. *Scholastic Journal of Nursing*, 35-41, Vol. 6, No. 1.
- Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, 2(4), 328-335.  
<https://doi.org/10.1177/109019817400200403>
- Roslandari et al. (2020). The Relationship Between Family Support and the Level of Treatment Compliance of Outpatient Hypertension Patients in the Chronic Disease Management Program. *Pharmaceutical Journal of Indonesia*, 131-139, Vol. 2, No. 2.
- Sasih et al. (2023). The Relationship between Knowledge Level, Family Support, and the Role of Health Workers on Medication Compliance in Elderly Hypertension Patients at the Kintamani V. *J Sci Mandalika Community Health Center*, 151-163, Vol. 4, No. 9.
- Setiyaningsih, R., & Ningsih, S. (2019). The Influence of Motivation, Family Support, and the Role of Cadres on Hypertension Control Behavior. *Indonesian Journal on Medical Science*, 79-85, Vol. 6, No. 1.
- Silalahi et al. (2024). Forms of Guidance for the Elderly at the Social Services Unit for Children and the Elderly in Siborong-Borong. *Creative Student Journal*, 50-61, Vol. 2, No. 1.
- Suling et al. (2023). Motivation of Hypertensive Patients in Relation to Medication Compliance. *Journal of Nursing*, Vol. 15, No. 3.
- Sumarni et al. (202). Family Support on Medication Compliance in Hypertensive Elderly in Muara Sanding. *BSI Nursing Journal*, 239-246, Vol. 8, No. 2.
- Sunaryo. (2017). *Psychology for Nursing*. Medan: North Sumatra: Egc.
- Sundari et al. (2024). Compliance with Antihypertensive Medication in Elderly Hypertension Patients. *Permas Scientific Journal: Kendal Health College Scientific Journal*, Vol. 14, No. 3.
- Susanto, A., & Purwantiningrum, H. (2022). Analysis of Knowledge, Family Support, and the Role of Health Workers with Hypertension Patients' Adherence to Taking Antihypertensive Medication. *Journal of Health Management, Dr. Soetomo Hospital Foundation*, Vol. 8, No. 2.
- Susanto, Y. (2015). The Relationship between Family Support and Medication Compliance of Elderly Hypertension Patients in the Sungai Cuka Community Health Center Work Area, Tanah Laut Regency. *Manuntung Scientific Journal*, 62-67, Vol. 1, No. 1.
- Tiara, UI (2020). The Relationship between Obesity and the Incidence of Hypertension. *Journal of Nutritionists*, 167-171, Vol. 2, No. 2.
- United Nations. (2023). *United Nations Indonesia: International Day of Older Persons Celebration*.
- Usman, MB (2023). The Effect of Guided Imagery Therapy on Lowering Blood Pressure in Hypertension Patients at Kendari City Hospital, Southeast Sulawesi Province. *Nursing Journal*, 1-7, Vol. 6, No. 3.
- Wahyudi, JT, & Mustika, M. (2024). Self-Efficacy in Preventing Complications in Hypertension Patients at Muhammadiyah Hospital, Palembang: A Descriptive Study. *Journal of Health Inspiration*, 156-167, Vol. 2, No. 2.
- Wanta et al. (2024). Family Support and Medication Compliance. *Journal of Nursing Care*, 12-27, Vol. 10, No. 1.
- WHO. (2021). *Women Tend to Live Longer Than Men In All Countries-But The Sex Gap in Life Expectancy is Not a Constant*.
- WHO. (2024). *World Hypertension Day 2024: Measure Your Blood Pressure Accurately Control it, Live Longer*.
- Widyaningrum et al. (2019). The Relationship between Family Support and Medication Compliance in Elderly Patients with Hypertension. *Journal of Community Nursing Science*, 21-26, Vol. 2, No. 2.