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Depression, Anxiety, Stress, and Their Association with Hypertension Treatment Adherence in the Elderly

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ABSTRACT

Background & Objective: Hypertension is a major health problem in the elderly and is closely linked to increased morbidity and mortality. Poor adherence to antihypertensive medication remains a challenge, particularly in developing countries. Psychological factors such as depression, anxiety, and stress may further reduce adherence. This study aimed to analyze the relationship between psychological conditions and treatment adherence among elderly hypertensive patients at the Geriatric Clinic of Ulin Regional General Hospital, Banjarmasin. **Method:** A cross-sectional analytical survey was conducted from March to July 2025 involving 85 elderly patients diagnosed with hypertension. Participants were selected using purposive sampling. Adherence was measured using the Morisky Medication Adherence Scale (MMAS-8), while depression, anxiety, and stress were assessed using the Depression Anxiety Stress Scale (DASS-21). Data were analyzed using the Chi-Square test with a significance level of $p < 0.05$. **Result:** The findings showed that 50.6% of respondents experienced moderate depression, 54.1% severe anxiety, and 42.4% moderate stress. Most respondents (60%) demonstrated low adherence to antihypertensive treatment. Statistical analysis indicated a significant association between psychological conditions and adherence ($p = 0.000$). **Conclusion:** Depression, anxiety, and stress are significantly associated with poor adherence. Integrating psychological support into hypertension management may improve adherence and reduce complications in the elderly.

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Introduction

Hypertension is one of the most significant chronic health problems worldwide, and its prevalence increases substantially with age. The elderly population is particularly vulnerable, as the natural aging process is accompanied by physiological changes that predispose them to higher blood pressure. Globally, the World Health Organization (WHO, 2019) has estimated that hypertension affects approximately 22% of the population. In Indonesia, data from the Basic Health Research (Riskesdas, 2018) reported more than 650,000 cases of hypertension, with 63.5% occurring among the elderly. The growing number of elderly individuals in Indonesia, which accounts for 10.48% of the total population (Zahra et al., 2024), highlights the urgency of addressing this issue as part of national health priorities.

Hypertension is often referred to as a "silent killer" because it can develop for years without producing noticeable symptoms. Many patients are diagnosed only after serious complications arise, including stroke, heart disease, kidney failure, or other cardiovascular disorders. According to Brunner and Suddarth (in Ariyanti et al., 2020), the absence of clear clinical manifestations often leads to delayed treatment, which significantly reduces the chances of effective disease control. Consequently, hypertension contributes substantially to morbidity, disability, and mortality, especially among the elderly.

One of the greatest challenges in the management of hypertension is ensuring patient adherence to treatment. Antihypertensive therapy is typically lifelong, requiring daily medication, lifestyle modifications, and regular clinical monitoring. Despite this, many elderly patients discontinue their medications, skip doses, or alter their prescribed regimens without consulting healthcare providers (Agustina, 2023). In developing countries such as Indonesia, the problem of non-adherence is compounded by limited health literacy, economic constraints, and cultural perceptions about medication use. According to Kardas et al. (2020), low adherence in hypertension management not only worsens health outcomes but also increases healthcare costs due to the higher incidence of complications.

Beyond medical and social factors, psychological conditions play a crucial role in influencing adherence to treatment. Hypertension itself can be both a cause and a consequence of psychological distress. On the one hand, uncontrolled hypertension can trigger or exacerbate mental health problems such as depression and anxiety. On the other hand, mental distress may worsen hypertension through neuroendocrine mechanisms, lifestyle disruptions, and reduced motivation for self-care (Lumintang et al., 2023). For elderly individuals, this relationship is even more complex due to age-related changes in brain function, memory decline, and reduced adaptability to stress, which together increase the risk of non-adherence (Sundari et al., 2024).

Depression is one of the most frequently observed psychological disorders in elderly patients with chronic illnesses, including hypertension. It is characterized by persistent sadness, loss of interest, low energy, social withdrawal, and cognitive impairment. These symptoms can undermine patients' ability to follow medical instructions, attend clinical appointments, or consistently take their medications. Several studies have confirmed this relationship. For example, Pakadang (2024) reported a statistically significant association between depression and non-adherence to antihypertensive therapy, with a p-value of 0.001. Patients with higher levels of depression were less likely to comply with prescribed regimens, thereby increasing the risk of uncontrolled blood pressure and complications.

Anxiety also exerts a strong influence on adherence. Many elderly patients experience heightened worry about the side effects of long-term medication or fear of dependency on drugs. Such concerns may lead them to reduce dosages or stop medication altogether. Anjarsari and Hudiyawati (2023) found a significant association between anxiety and treatment adherence (p=0.047). Patients with higher anxiety scores were more likely to show poor compliance. Anxiety also interacts with other psychological stressors, leading to a cycle of avoidance behaviors and resistance to medical advice.

Stress is another factor that has been linked to non-adherence. Chronic stress activates physiological pathways that raise blood pressure and impair decision-making, further complicating disease management. In their study, Chang et al. (2023) demonstrated a significant relationship between stress levels and adherence among elderly hypertensive patients (p=0.023). Patients who reported higher stress were less likely to take their medication regularly and consistently. Stress may also exacerbate feelings of helplessness and reduce the individual's perceived ability to manage their illness, thereby contributing to poor adherence.

In Indonesia, cultural and family contexts also shape the psychological well-being of the elderly. Family support plays an important role in motivating elderly patients to adhere to treatment, but in many cases, limited family involvement, economic pressures, or social isolation can worsen psychological distress. The elderly often face reduced social interaction after retirement, bereavement, or functional decline, all of which contribute to depression, anxiety, and stress. These psychological challenges further weaken their commitment to medication adherence.

Given this evidence, it is increasingly clear that psychological conditions must be addressed as part of comprehensive hypertension management strategies for elderly patients. Focusing solely on pharmacological treatment without considering psychological health may limit the effectiveness of interventions. Integrating mental health assessment and support into routine hypertension care has the potential to improve adherence, optimize treatment outcomes, and reduce the burden of complications. For example, counseling services, stress management programs, and community-based support systems may enhance psychological resilience and encourage patients to follow their prescribed therapies more faithfully.

The current study was conducted in the Geriatric Clinic of Ulin Regional General Hospital, Banjarmasin, where a substantial number of elderly patients are treated for hypertension. Preliminary observations revealed that many patients demonstrated low adherence to treatment and presented with varying degrees of psychological distress, including depression, anxiety, and stress. These findings are consistent with the growing body of literature that highlights the interplay between mental health and chronic disease management.

Therefore, this study aims to examine the relationship between psychological conditions specifically depression, anxiety, and stress and adherence to hypertension treatment among elderly patients. By identifying the extent to which psychological factors affect adherence, this research seeks to provide evidence for the development of more holistic interventions that combine medical treatment with psychological support. Ultimately, such interventions may contribute to better hypertension control, improved quality of life, and reduced healthcare costs in the elderly population.

Objective

The objective of this study is to analyze the relationship between psychological conditionsspecifically depression, anxiety, and stress and treatment adherence among elderly patients with hypertension at the Geriatric Clinic of Ulin Regional General Hospital, Banjarmasin.

Method

This study employed a quantitative research design with an analytical survey approach using a cross-sectional method. The design was selected to allow simultaneous measurement of independent variables (psychological conditions) and the dependent variable (treatment adherence), thereby providing an overview of their relationship in elderly hypertensive patients.

The study was conducted from March to July 2025 at the Geriatric Outpatient Clinic of Ulin Regional General Hospital, Banjarmasin. The population consisted of all elderly patients diagnosed with hypertension who attended the clinic during the study period. Using the Slovin formula with a 5% margin of error, a sample of 85 respondents was obtained through purposive sampling. Inclusion criteria were elderly patients aged 45–90 years, diagnosed with hypertension, undergoing antihypertensive treatment, and willing to provide informed consent. Patients with severe communication impairments or unwilling to participate were excluded.

Two validated instruments were used to collect data. Adherence to treatment was assessed with the Morisky Medication Adherence Scale-8 (MMAS-8), which classifies adherence into high (score ⩾8), moderate (score 6 – 7), and low (score 0 – 5). Previous studies have reported a Cronbach's Alpha reliability coefficient of 0.83 for the MMAS-8, indicating high internal consistency. Psychological conditions, including depression, anxiety, and stress, were measured with the Depression Anxiety Stress Scale-21 (DASS-21), which categorizes scores into normal, mild, moderate, severe, and very severe. The DASS-21 has demonstrated strong reliability, with Cronbach's Alpha values of 0.88 for depression, 0.82 for anxiety, and 0.90 for stress. Demographic data such as age, sex, education, and duration of illness were also collected through a structured questionnaire.

Data analysis was conducted in two stages. Univariate analysis described the distribution of respondents' characteristics, adherence levels, and psychological conditions. The main focus of this study was bivariate analysis, performed using the Chi-Square test, to examine the association between psychological conditions (depression, anxiety, stress) and adherence to hypertension treatment. A p-value of less than 0.05 was considered statistically significant.

This study obtained ethical approval from the Ethics Committee of the hospital with the research ethics number: No.62/V-Reg Riset/RSUDU/25. Confidentiality, voluntary participation, and the right of respondents to withdraw at any time were guaranteed by the researchers.

Results

TABLE 1. Association between Depression and Treatment Adherence (n=85)

Depression Level	Treatment Adherence		p-value
	Low Adherence	Moderate–High Adherence	
Normal-Mild	7	11	0.000

Moderate-Severe	44	23	
Total	51	34	

Table 1 presents the association between depression and treatment adherence among elderly patients with hypertension (n = 85). The findings show that the majority of respondents with moderate to severe depression demonstrated low adherence to antihypertensive therapy. Conversely, patients with normal or mild depression were more likely to exhibit moderate to high adherence. Statistical analysis using the Chi-Square test revealed a significant association between depression and treatment adherence ($p < 0.05$). These results indicate that higher levels of depression are strongly correlated with reduced adherence to hypertension treatment.

TABLE 2. Association between Anxiety and Treatment Adherence (n=85)

Anxiety Level	Treatment Adherence		p-value
	Low Adherence	Moderate–High Adherence	
Normal-Mild	5	10	0.000
Moderate-Severe	46	24	
Total	51	34	

Table 2 illustrates the relationship between anxiety levels and treatment adherence among elderly patients with hypertension. The results indicate that respondents with moderate to severe anxiety were predominantly classified as having low adherence to antihypertensive therapy. In contrast, those with normal or mild anxiety showed a greater proportion of moderate to high adherence. Chi-Square test results confirmed a statistically significant association between anxiety and adherence ($p < 0.05$), suggesting that elevated anxiety levels negatively affect compliance with hypertension treatment.

TABLE 3. Association between Stress and Treatment Adherence (n=85)

Stress Level	Treatment Adherence		p-value
	Low Adherence	Moderate–High Adherence	
Normal-Mild	6	7	0.000
Moderate-Severe	45	27	
Total	51	34	

Table 3 shows the association between stress levels and treatment adherence in elderly hypertensive patients. The data reveal that individuals experiencing moderate to severe stress were more likely to report low adherence, while respondents with normal or mild stress demonstrated higher adherence levels. Chi-Square analysis revealed a significant relationship between stress and adherence ($p < 0.05$). These findings indicate that increased stress is strongly associated with reduced adherence to antihypertensive treatment among elderly patients.

Discussion

Association between Depression and Treatment Adherence

This study found a significant association between depression and treatment adherence among elderly patients with hypertension. Respondents with moderate to severe depression were more likely to exhibit low adherence compared to those with normal or mild depression ($p = 0.000$). These findings highlight the crucial role of mental health in managing chronic diseases in later life.

Depression in the elderly is characterized by persistent sadness, loss of interest, fatigue, cognitive decline, and disturbed sleep (WHO, 2023). Such symptoms reduce motivation and impair daily self-care activities, including taking medications regularly and attending medical follow-ups. A meta-analysis by DiMatteo et al. (2000) demonstrated that depressed patients are three times more likely to be non-adherent to medical treatment. In line with our findings, Pakadang (2024) also reported a significant link between depression and low adherence among hypertensive patients in Indonesia.

Several mechanisms explain this association. Depression can impair memory and executive function, leading to forgetfulness in following medication schedules (Diniz et al., 2013). It also decreases motivation and increases hopelessness, which reduce the perceived importance of adherence (Ciechanowski et al., 2000). In addition, depression often results in social withdrawal, diminishing external support that is essential for elderly patients to maintain consistent treatment (Kardas et al., 2013).

The novelty of this study lies in its focus on elderly hypertensive patients in Indonesia, specifically within the clinical context of Ulin Regional General Hospital, Banjarmasin. Unlike many international studies, our findings underscore the influence of sociocultural factors, such as family involvement and health service accessibility, which can amplify the effects of depression on adherence. Elderly individuals in Indonesia often rely heavily on family caregivers; thus, lack of adequate family support may worsen the impact of depression on treatment behaviors.

Clinically, these findings emphasize the need to integrate psychological screening into hypertension care in geriatric settings. Routine use of tools such as the DASS-21 or the Geriatric Depression Scale (GDS) could help identify at-risk patients early. Interventions should include counseling, psychoeducation, and family-based support systems to reduce depressive symptoms and improve adherence. This approach may not only improve blood pressure control but also enhance overall well-being in elderly hypertensive patients.

In conclusion, depression significantly compromises treatment adherence in elderly hypertensive patients. Addressing depression within routine geriatric care in Indonesia represents an important step toward improving long-term management of hypertension and reducing its complications.

Association between Anxiety and Treatment Adherence

This study demonstrated a significant association between anxiety and treatment adherence among elderly patients with hypertension. Respondents with moderate to severe anxiety were more likely to exhibit low adherence, while those with normal or mild anxiety showed moderate to high adherence ($p = 0.000$). These findings highlight anxiety as a key psychological factor influencing hypertension management in the elderly.

Anxiety is characterized by excessive worry, muscle tension, sleep disturbances, and impaired concentration (American Psychiatric Association [APA], 2013). In the elderly, anxiety often goes underdiagnosed despite its high prevalence (Beaudreau & O'Hara, 2008). For hypertensive patients, anxiety may arise from fears of complications, long-term medication use, or side effects, which can reduce focus, motivation, and treatment consistency (Morrison et al., 2000).

Our findings are consistent with Anjarsari and Hudiyawati (2023), who reported a significant correlation between anxiety and medication adherence in hypertensive patients. Wu et al. (2013) also confirmed that anxiety contributes to poor adherence among patients with chronic diseases. Mechanistically, anxiety impairs memory and concentration, making patients more likely to forget medication (Mohlman et al., 2012), and may also trigger avoidance behaviors, such as skipping medications due to fear of dependence or adverse effects (Kretchy et al., 2014).

The novelty of this study lies in its local context in Indonesia, particularly at Ulin Regional General Hospital, Banjarmasin. Sociocultural factors, including the reliance of elderly individuals on family support for health management, appear to intensify the effect of anxiety on adherence. Elderly patients lacking sufficient family support are more vulnerable to anxiety and non-adherence. This reinforces the findings of Sari, Putra, and Mahdiyah (2022), who emphasized family support as a protective factor in antihypertensive treatment adherence.

Clinically, these results suggest the importance of routine anxiety screening in geriatric services using instruments such as the DASS-21 or the Geriatric Anxiety Inventory (GAI). Interventions may include counseling, relaxation therapy, mindfulness-based interventions, and family education to help patients manage anxiety and maintain adherence. Such approaches may enhance hypertension control and reduce the risk of complications.

In conclusion, this study confirms that anxiety is significantly associated with poor adherence among elderly hypertensive patients. Comprehensive management that integrates psychological care and family involvement into hypertension treatment is essential to improve long-term therapeutic outcomes.

Association between Stress and Treatment Adherence

This study revealed a significant association between stress and adherence to antihypertensive treatment among elderly patients. Respondents with moderate to severe stress were more likely to demonstrate low adherence, whereas those with normal or mild stress showed better adherence ($p = 0.000$). These findings highlight stress as an important psychological determinant in hypertension management among the elderly.

Stress is defined as the body's response to perceived threats or challenges, involving physiological, emotional, and behavioral changes (Lazarus & Folkman, 1984). Chronic stress activates the hypothalamic–pituitary–adrenal (HPA) axis and sympathetic nervous system, leading to elevated cortisol and catecholamine levels, which in turn increase blood pressure and cardiovascular risk (Spruill, 2010). For elderly hypertensive patients, stress not only worsens the physiological burden of hypertension but also undermines adherence by impairing motivation, self-regulation, and health behaviors.

Our findings are consistent with Chang et al. (2023), who reported a significant correlation between stress and poor adherence to antihypertensive therapy. Similarly,

Kretchy et al. (2014) emphasized that stress, along with depression and anxiety, contributes to non-adherence in hypertensive patients. Stress can lead to cognitive overload, forgetfulness, and maladaptive coping behaviors such as denial or avoidance, which result in reduced adherence (McEwen, 2004; Stults-Kolehmainen & Sinha, 2014).

The novelty of this study lies in its focus on elderly hypertensive patients in Indonesia, where sociocultural factors may amplify the effects of stress. Limited financial resources, social isolation, and reliance on family caregivers are common among Indonesian elderly populations. When family support is lacking, stress may further reduce adherence, consistent with the findings of Sari, Putra, and Mahdiyah (2022), who highlighted family support as a protective factor against non-adherence.

From a clinical perspective, these findings suggest the importance of integrating stress management into routine hypertension care. Screening tools such as the DASS-21 or the Perceived Stress Scale (PSS) can be used in geriatric clinics to identify patients at risk. Interventions may include relaxation techniques, mindfulness-based therapy, psychoeducation, and family-based support to reduce stress and promote adherence. Strengthening community health programs that foster social engagement may also mitigate stress and improve health outcomes.

In conclusion, stress is significantly associated with poor adherence to hypertension treatment in elderly patients. Addressing stress within comprehensive hypertension care—by combining psychological support, family involvement, and medical treatment—may enhance adherence, improve blood pressure control, and reduce long-term complications.

Conclusion

This study concludes that psychological conditions, particularly depression, anxiety, and stress, are significantly associated with adherence to hypertension treatment among elderly patients. Elderly individuals with moderate to severe psychological distress were more likely to exhibit poor adherence, highlighting the crucial role of mental health in chronic disease management.

The findings emphasize the need to integrate psychological support into hypertension care programs for elderly populations. Routine psychological screening in geriatric clinics using validated tools such as the DASS-21 or the Geriatric Depression Scale (GDS) should be implemented to identify at-risk patients early. In addition, structured training and counseling programs for family members and caregivers are strongly recommended, as family involvement plays a critical role in supporting adherence among elderly patients in Indonesia.

Healthcare providers should also incorporate stress management techniques, counseling sessions, and psychoeducation into hypertension care, tailored to the sociocultural context of elderly patients. Strengthening family-based and community-based interventions can help reduce psychological distress, improve adherence, and ultimately enhance treatment outcomes.

These measures should be prioritized as part of national elderly health programs in Indonesia to ensure a more holistic and sustainable approach to hypertension management.

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