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Family support and hypertension self-management: A psychosocial perspective

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Abstract

Background: Hypertension requires long-term treatment and may present physical and psychosocial challenges. Family involvement may be relevant to patients' experiences of chronic disease management, although changes in family-related outcomes and blood pressure following family-based interventions require further evaluation.
Purpose: To examine pretest–posttest differences in a family-related outcome and blood pressure following a family-based intervention among patients with hypertension.
Method: A quasi-experimental one-group pretest–posttest study was conducted among 96 patients with hypertension at Pandanaran Community Health Center, Indonesia. Data were analyzed using paired-samples t-tests.
Results: Most respondents were female (67.7%), and the mean age was 59.9 ± 8.6 years. No statistically significant pretest–posttest differences were found in the measured family-related outcome ($p = 0.359$) or blood pressure outcome ($p = 0.518$).
Conclusion: The study did not demonstrate statistically significant pretest–posttest differences in the measured outcomes following the intervention. Further research should specify and use validated measures of family support or other psychosocial outcomes, assess self-management directly if it is a study objective, and employ controlled study designs to better evaluate intervention-related changes.

Keywords: Blood Pressure; Family Support; Hypertension; Psychosocial Factors.

INTRODUCTION

Hypertension is a major noncommunicable disease and a significant public health concern worldwide. It is characterized by persistently elevated blood pressure and may remain asymptomatic for extended periods, increasing the risk of cardiovascular complications when inadequately managed. The management of hypertension requires long-term pharmacological treatment, regular blood pressure monitoring, and sustained lifestyle modifications. These ongoing demands may present challenges for patients, particularly older adults who may require assistance in maintaining treatment routines and adapting to changes in daily life. In addition to its physical consequences, hypertension may be associated with psychological challenges, including concerns about disease progression, treatment demands, and future health outcomes (World Health Organization, 2023; Ma & Chen, 2022). Psychological well-being is an important dimension of health that reflects individuals' capacity to cope with life challenges, maintain positive relationships, and preserve a sense of purpose and personal functioning. For patients with hypertension, psychological well-being may be influenced by illness perceptions, coping resources, social relationships, and experiences of long-term disease management. Previous research has examined psychological well-being and quality of life among patients with hypertension, indicating the importance of considering psychosocial dimensions alongside clinical outcomes (Rafanelli, Offidani, Gostoli, & Roncuzzi, 2012; Crepaldi, Gianni, Brugnera, Greco, Compare,

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Rusconi, & Parati, 2024). Psychological well-being may also be relevant to self-management among patients with hypertensive nephropathy, particularly in the relationship between self-care knowledge and disease management (Chen, Wu, Sun, Tai, Lee, & Chu, 2022).

Family support represents an important psychosocial resource for individuals living with chronic diseases. Family members may provide emotional reassurance, practical assistance, information about treatment, and encouragement to maintain healthy behaviors. These forms of support may help patients manage the demands of long-term treatment, attend healthcare appointments, and follow prescribed medication regimens. Family involvement may also provide a sense of security and belonging that supports patients' emotional adjustment to chronic illness. Research among older patients with hypertension has identified the relevance of psychological well-being in the relationship between social support, family functioning, and self-management (Zhang, Zheng, Qiu, Zhao, & Zang, 2020). The support needs of people living with hypertension further highlight the importance of understanding how families can contribute to ongoing disease management (Darkwa, Coetzee-Prinsloo, & Nsenangni, 2025). Family support may be particularly relevant in community healthcare settings, where patients and their relatives are expected to maintain treatment routines beyond healthcare facilities. Previous research has examined the relationship between family support and medication adherence among patients with hypertension, emphasizing the potential role of family involvement in supporting long-term treatment (Anjalina & Noor, 2024; Putra, 2021). However, the contribution of family support to hypertension management may vary according to family relationships, patients' needs, and the consistency of support provided. Although family involvement may facilitate treatment adherence and emotional adjustment, its relationship with clinical outcomes and psychological well-being requires careful evaluation. Perceived social support has also been examined in relation to psychological well-being among patients with chronic diseases, supporting the relevance of interpersonal resources in comprehensive chronic disease care (Yıldırım, Akman, & Dokumacı, 2023).

At the primary healthcare level, family-based interventions may provide an opportunity to strengthen patients' participation in hypertension management through education, medication reminders, monitoring, and emotional encouragement. Nevertheless, improvements in treatment-related behaviors and clinical outcomes cannot be assumed solely from family participation, because blood pressure is influenced by multiple behavioral, clinical, and environmental factors. In addition, changes in blood pressure do not necessarily indicate corresponding changes in psychological well-being. Evaluating these outcomes separately is therefore important when assessing the potential contribution of family support to comprehensive hypertension care. Despite the relevance of family support in chronic disease management, further investigation is needed to understand its role in the care of patients with hypertension in community healthcare settings. Evidence from such settings may help inform family-oriented nursing approaches that address treatment management while recognizing patients' psychosocial needs. Therefore, this study evaluated pretest–posttest changes in outcomes following a family-based intervention among patients with hypertension in the working area of Pandanaran Community Health Center, Indonesia. Specifically, the study examined changes in the reported family-related score and blood pressure following the intervention. The findings are intended to contribute to the discussion of family involvement in comprehensive hypertension management, while recognizing that psychological well-being must be measured directly to establish its relationship with family support.

RESEARCH METHOD

This study employed a quasi-experimental, one-group pretest–posttest design to examine changes in the reported family-related outcome and blood pressure among patients with hypertension following a family-based intervention. The study was conducted in the working area of Pandanaran Community Health Center, Indonesia. The study population comprised patients with hypertension registered at the health center. A total of 96 respondents were recruited using purposive sampling.

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The inclusion criteria were a confirmed diagnosis of hypertension, willingness to participate, ability to communicate effectively, and residence with family members. Patients with severe complications, including end-stage renal disease or severe cardiovascular conditions, and those with cognitive impairments that could interfere with understanding the intervention or completing the questionnaire were excluded.

The intervention involved family participation in hypertension management through medication reminders, monitoring of the patient's condition, and emotional encouragement. Patients and their family members participated in an educational approach intended to support hypertension management and treatment routines. However, the available study information did not specify the intervention duration, number of sessions, or professional qualifications of the intervention provider. These details could not be established from the reported information.

Data were collected before and after the intervention. The assessments included a questionnaire-based family-related outcome and blood pressure measurements. The original statistical results identified a family-related outcome and a blood pressure outcome; however, the available information did not establish the exact construct, instrument, or scoring procedure represented by the family-related measure. Therefore, this measure was not assumed to represent family support, medication adherence, or psychological well-being without confirmation of the instrument used. Similarly, the available information did not establish whether the reported blood pressure outcome represented systolic blood pressure, diastolic blood pressure, or a combined measure. The specific instrument characteristics and blood pressure measurement procedures could not be described in greater detail based on the available information.

Univariate analysis was used to summarize respondents' demographic characteristics. Bivariate analysis was conducted to compare the reported outcomes before and after the intervention. For paired pretest–posttest data, the normality assumption for a paired-samples t-test should be evaluated using the distribution of the differences between the two measurements for each outcome. The Shapiro–Wilk test was used to assess normality, although the available results did not clearly establish whether the test was performed on these paired differences. A paired-samples t-test was reported for the pretest–posttest comparisons. The Wilcoxon signed-rank test would be an appropriate nonparametric alternative if the assumptions for the paired-samples t-test were not met. Statistical significance was set at $p < 0.05$.

Because the study used a one-group pretest–posttest design without a control group, the findings were interpreted as observed differences between measurements rather than definitive evidence of a causal intervention effect. The unclear identification of the reported outcomes also limited the extent to which the findings could be attributed specifically to family support, medication adherence, hypertension self-management, or psychological well-being. Ethical approval was reported as having been obtained from the Health Research Ethics Committee of Sultan Agung Islamic University (Universitas Islam Sultan Agung), Indonesia (approval number 099/A.1-KEPK/FIK-SA/I/2026). Participation was voluntary, and informed consent was obtained from all respondents before data collection.

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RESEARCH RESULTS

Table 1. Distribution of Respondent (N=96)

Variable	Results
Age (n/%)(Mean±SD)(Range)(Year)	**(59.9±8.6)(36-70)**
36-45	5/5.2
46-55	23/24.0
56-64	38/39.6
≥65	30/31.2
Gender (n/%)	
Male	31/32.3
Female	65/67.7

The mean age of respondents was 59.9 ± 8.6 years, with a reported age range of 36–70 years. The sample comprised 65 female respondents (67.7%) and 31 male respondents (32.3%). The age-category frequencies were retained from the authors' original tabulation; however, the age categories require verification because the reported groups overlap at age 65.

Table 2. Shapiro–Wilk Normality Test

Outcome	Df	P-Value
Family-Related Outcome	96	0.696
Blood Pressure Reduction	96	0.352

The reported Shapiro–Wilk test results were p = 0.696 for the family-related outcome and p = 0.352 for the blood pressure outcome. Both values exceeded 0.05. However, the available results did not establish whether the normality assessment was conducted on the differences between pretest and posttest measurements. For a paired-samples t-test, the normality of these differences is the relevant assumption. Therefore, the reported p-values alone are insufficient to confirm that the normality assumption for the paired analysis was met.

Table 3. Paired-Samples t-Test

Variable	Mean Difference	Std. Deviation	P-Value
Family-Related Outcome	0.811	8.562	0.359
Blood Pressure Reduction	1.526	22.909	0.518

The reported paired-samples t-test results showed no statistically significant pretest–posttest differences in the family-related outcome (p = 0.359) or the blood pressure outcome (p = 0.518), using a significance threshold of p < 0.05. Both p-values exceeded the predefined threshold. Accordingly, the available analysis did not demonstrate statistically significant differences between the measurements for either reported outcome.

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DISCUSSION

The findings of this study showed no statistically significant pretest–posttest differences in the reported family-based intervention score (p = 0.359) or blood pressure reduction outcome (p = 0.518) among patients with hypertension. Both p-values exceeded the significance threshold of 0.05, indicating that statistically significant differences were not demonstrated in the reported results. However, the interpretation of these findings is limited by the lack of clear outcome labels in the original statistical table. Therefore, the reported family-based intervention score cannot be assumed to represent medication adherence without confirmation from the original analysis. Furthermore, because this study used a one-group pretest–posttest design without a control group, the findings cannot establish whether the intervention itself produced changes in the measured outcomes.

Family support remains an important consideration in hypertension management because family members may assist patients with medication routines, healthcare appointments, and recommended lifestyle modifications. Practical assistance and emotional encouragement may help patients manage the ongoing demands of a chronic condition. Previous research has examined the relationship between family support and medication adherence among patients with hypertension, highlighting the relevance of family involvement in long-term treatment management (Anjalina & Noor, 2024; Putra, 2021). Nevertheless, the present study did not demonstrate statistically significant differences in the reported outcomes. This finding should not be interpreted as evidence that family support lacks value, because the observed results may also depend on the intervention's implementation, the consistency of family involvement, and the characteristics of the participating patients.

From a psychosocial perspective, family support may provide reassurance, reduce feelings of isolation, and help patients cope with the daily responsibilities associated with chronic illness. Psychological well-being may be relevant to patients who must maintain long-term treatment while managing concerns about disease progression and potential complications. Research among older patients with hypertension has examined psychological well-being in relation to social support, family functioning, and self-management (Zhang, Zheng, Qiu, Zhao, & Zang, 2020). Similarly, research involving patients with chronic diseases has explored the relationship between perceived social support and psychological well-being (Yıldırım, Akman, & Dokumacı, 2023).

However, psychological well-being was not directly measured in the present study using a validated instrument. Consequently, the findings cannot establish whether family support was associated with psychological well-being or whether the intervention improved patients' psychological status. The reported family-based intervention score should not be interpreted as a measure of psychological well-being or medication adherence unless the instrument and statistical analysis confirm that it assessed the relevant construct. Family support, medication adherence, and psychological well-being are distinct concepts and should be evaluated separately when examining psychosocial aspects of hypertension management.

The blood pressure findings also showed no statistically significant difference according to the reported analysis (p = 0.518). Blood pressure is influenced by multiple factors, including antihypertensive medication use, dietary practices, physical activity, stress, sleep quality, medication regimens, and other clinical characteristics. Although family members may encourage patients to follow treatment recommendations, changes in blood pressure may require sustained behavioral modifications, appropriate pharmacological management, and regular clinical monitoring. Family support should therefore be considered one potential component of comprehensive hypertension management rather than an intervention that necessarily produces immediate changes in blood pressure. Research examining family support and medication adherence reinforces the relevance of family involvement in treatment routines, although adherence and blood pressure remain separate outcomes that require their own measurements (Anjalina & Noor, 2024; Sudirman & Abdullah, 2024).

The absence of statistically significant differences may have several possible explanations, including the duration and intensity of the intervention, the consistency of family participation, and differences in patients' existing treatment routines. Family members may vary in their availability, understanding of

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hypertension, communication patterns, and ability to provide regular assistance. Patients may also have established medication routines before participating in the intervention, potentially limiting observable changes. However, these explanations remain possibilities rather than conclusions established by the present findings. The absence of a control group also prevents differentiation between changes potentially associated with the intervention and those related to routine healthcare, individual variation, or other external factors.

Several methodological limitations should be acknowledged. First, the one-group pretest–posttest design without a control group limits causal interpretation. Second, the available statistical results do not clearly identify the outcomes represented by the reported means, standard deviations, and p-values. Consequently, the results cannot be attributed specifically to medication adherence or interpreted as definitive evidence of changes in that outcome. Third, the reported Shapiro–Wilk results require cautious interpretation because the original variable labels do not establish whether normality was assessed using the differences between paired measurements. For a paired-samples t-test, the normality of these differences is the relevant assumption. Levene's test for homogeneity of variances between independent groups is not required for this design. In addition, the available results do not provide sufficient information about confidence intervals or the clinical relevance of the observed differences. These reporting limitations restrict the conclusions that can be drawn from the statistical analysis.

Future studies should use a controlled design, describe the intervention procedures and duration in detail, and report complete pretest and posttest results for each outcome. Validated measures of medication adherence and psychological well-being should be incorporated when these constructs are central to the research question. Family support and psychological well-being should be measured separately to enable a more direct examination of their relationship. Until these outcomes are clearly defined and measured, the present findings should be interpreted as showing that statistically significant pretest–posttest differences were not demonstrated in the outcomes as originally reported, rather than as evidence for or against a relationship between family support and psychological well-being.

CONCLUSION

The study did not demonstrate statistically significant pretest–posttest differences in the reported family-based intervention score ($p = 0.359$) or blood pressure reduction outcome ($p = 0.518$). Interpretation is limited by the one-group pretest–posttest design, the absence of a control group, and the lack of clearly defined outcome labels in the original statistical results. Although family involvement may be a valuable component of comprehensive hypertension care, the available findings do not establish improvements in medication adherence, blood pressure, or psychological well-being. Further studies using clearly defined outcomes, validated instruments, detailed intervention procedures, and controlled designs are needed to evaluate the clinical and psychosocial contributions of family-based approaches to hypertension management.

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