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EFFECTIVENESS OF FAMILY-BASED HEALTH EDUCATION IN INCREASING KNOWLEDGE ABOUT REGULAR MEDICATION AMONG HYPERTENSION PATIENTS' FAMILIES

Dewi Nur Sukma Purqoti[1*], Dian Istiana[2]
[1,2]INKES Yarsi Mataram

** Corresponding author: purqotidewi87@gmail.com*

Abstract

Hypertension remains a major global health problem, with low adherence to antihypertensive medication contributing significantly to poor disease control and increased risk of complications. One of the key determinants influencing medication adherence is knowledge, not only among patients but also within their family environment. However, limited family knowledge regarding the importance of regular medication remains a critical barrier in hypertension management. This aims to analyze the effectiveness of family-based health education in increasing knowledge about regular medication among families of hypertension patients.

Method: This study employed a pre-experimental design with a pre-test and post-test approach. The sample consisted of 16 respondents selected using purposive sampling. The questionnaire used in this study is the MMAS-8 questionnaire. The intervention provided was in the form of health education, intervention were given 3 times in one week. Data were analyzed using the Wilcoxon test to determine differences in knowledge before and after the intervention.

Results: The results showed a significant increase in knowledge after the intervention ($p = 0.001$). A total of 12 respondents experienced an improvement in knowledge, while no respondents showed a decrease, and 4 respondents had no change. These findings indicate that family-based health education is effective in improving knowledge, even among respondents with relatively low educational backgrounds.

Conclusion: family-based health education is a feasible and effective strategy to enhance knowledge regarding regular medication in hypertension management. The study highlights the importance of involving family members in health education programs to support better treatment adherence. Future research is recommended to include larger sample sizes and assess behavioral and clinical outcomes.

Keywords:
Family-based health education; hypertension; knowledge; regular medication

1. INTRODUCTION

Hypertension remains one of the most prevalent non-communicable diseases globally and constitutes a major risk factor for cardiovascular morbidity and mortality, particularly in low- and middle-income countries such as Indonesia [1]. The condition is characterized by persistently elevated blood pressure, which, if not adequately managed, leads to severe complications including stroke, coronary artery disease, and kidney failure [2]. Effective management of

hypertension relies heavily on long-term adherence to prescribed pharmacological therapy; however, poor medication adherence continues to be a widespread problem, undermining treatment outcomes and increasing healthcare costs [3]. Therefore, it is necessary for us to explore the factors that increase compliance, one of which is by making the family the basis in the treatment program [4]. In Indonesia, national health survey data indicate that a significant proportion of hypertensive patients fail to take medications regularly, often due to inadequate knowledge and lack of continuous support systems within the family environment [5]. This issue highlights the critical role of knowledge and behavioral determinants in shaping treatment adherence.

Nationally, the results of Riskesdas 2018 show that the prevalence of the population with high blood pressure is 34.11%. The prevalence of high blood pressure in women is 36.85%, higher compared to men at 31.34%. The prevalence in urban areas is slightly higher at 34.43% compared to rural areas at 33.72% [6]. According to data from the 2016 National Health Indicator Survey, among men with hypertension, 30.0% comply with taking antihypertensive medication and 70.0% do not comply, while among women with hypertension, 30.7% comply with taking medication and 69.3% do not comply. This indicates that only 30% of hypertensive patients take antihypertensive medication. Riskesdas 2018 states that the prevalence of hypertension based on measurements in the population aged >18 years is 34.1%, highest in South Kalimantan at 44.1%, and lowest in Papua at 22.2%. The estimated number of hypertension cases in Indonesia is 63,309,620 people. Meanwhile, the number of deaths in Indonesia due to hypertension is 427,218 deaths [6]. Hypertension occurs in the age group 31-44 years (31.6%), age 45-54 years (45.3%), and age 55-64 years (55.2%). From the hypertension prevalence of 34.1%, it is known that 8.8% are diagnosed with hypertension, 13.3% of people diagnosed with hypertension do not take medication, and 32.3% do not take medication regularly. This shows that a large portion of hypertension sufferers do not know that they have hypertension and therefore do not receive treatment. Based on data from the Gunung Sari Health Center in 2021, it was found that the total visits from hypertension clients recorded at UPT Puskesmas Gunungsari, West Lombok, were 2,644 people (44.7%), in 2022 there were 1,752 people (89.4%), and in 2023 the target was 2,213 people with an achievement of 2,258 (99.9%). Hypertension patients who received outpatient care at Puskesmas Gunungsari, West Lombok Regency, amounted to 164 hypertension patients.

Family involvement has been increasingly recognized as a crucial determinant in managing chronic illnesses, including hypertension, as family members often serve as primary caregivers and decision-makers in health-related behaviors [7]. The level of family knowledge regarding hypertension and the importance of regular medication significantly influences patient compliance, as informed families are more likely to provide emotional, informational, and instrumental support [8]. Existing evidence suggests that many families lack adequate understanding of hypertension management, particularly regarding the necessity of lifelong medication adherence even in asymptomatic conditions [9]. This knowledge gap contributes to misconceptions, such as discontinuing medication once symptoms improve, which ultimately leads to uncontrolled blood pressure and increased risk of complications [10].

Various interventions have been implemented to address this issue, including patient-centered education, counseling, and digital health interventions. While these approaches have demonstrated some effectiveness, their impact is often limited by their focus on individual patients rather than the broader social context in which health behaviors occur [11]. Family-based health education has emerged as a promising approach that integrates family members into the educational process, thereby fostering a supportive environment for behavior change [12]. Studies have shown that involving family members in health education can significantly improve patient outcomes, including medication adherence and disease self-management [13]. Nevertheless, the implementation of family-based interventions remains inconsistent, particularly in primary healthcare settings in developing countries, where resources and structured educational programs are often limited [14].

In addition, the effectiveness of health education interventions is influenced by the methods and media used to deliver information. Traditional approaches such as lectures and printed materials may not sufficiently engage participants or address varying levels of health literacy [15]. Recent studies suggest that interactive and culturally tailored educational strategies, including

audiovisual media and participatory learning methods, are more effective in improving knowledge and retention [16]. Despite these advancements, there is still limited empirical evidence examining how family-based health education interventions specifically impact knowledge about regular medication adherence in hypertension patients, particularly within the Indonesian context. Furthermore, most studies focus on patient outcomes rather than evaluating changes in family knowledge as a primary variable, thereby leaving a critical gap in the literature.

Theoretical frameworks such as the Health Belief Model and Social Cognitive Theory emphasize the importance of knowledge and perceived benefits in influencing health behaviors [17]. These models suggest that increasing knowledge about the risks of uncontrolled hypertension and the benefits of regular medication can enhance motivation and adherence behaviors. However, the application of these theories in family-based interventions for hypertension management has not been extensively explored in recent studies. There is a need to integrate theoretical perspectives into the design of health education programs to maximize their effectiveness and sustainability.

Unfortunately, despite ongoing efforts to improve hypertension management through various educational interventions, the problem of poor medication adherence persists, indicating that existing approaches have not fully addressed the underlying determinants of behavior [4]. More comprehensive approach that includes family engagement is necessary. On the other hand, while previous studies have demonstrated the benefits of family support, there is still insufficient evidence on how structured family-based health education programs can systematically improve knowledge about regular medication adherence. However, this gap presents an opportunity to develop and evaluate innovative educational strategies that involve families as active participants in the care process.

This study is therefore important both practically and theoretically. Practically, it aims to provide an evidence-based intervention model that can be implemented in primary healthcare settings to improve family knowledge and support medication adherence among hypertensive patients. Theoretically, it contributes to the existing body of knowledge by examining the role of family-based education in shaping health behaviors and expanding the application of behavioral theories in chronic disease management. By addressing the identified research gap, this study is expected to offer significant insights into improving hypertension control and reducing the burden of cardiovascular diseases.

2. METHODOLOGY

This study employed a pre-experimental design with a pre-test and post-test approach. The research is located in the working area of the Gunungsari Health Center, West Lombok. The time of implementation of this research is in June 2024. The population in this study is the families of hypertension patients at the Gunungsari Community Health Center in West Lombok Regency 164. The sample consisted of 16 respondents selected using purposive sampling.Inclusion criteria: Willing to be a respondent, able to read and write, not blind or deaf, living in the same household with a hypertension patient, meanwhile, the exclusion criteria in this study are: Having mental illness/disorders and being uncooperative in the study. The intervention involved structured family-based health education sessions focusing on hypertension management and the importance of medication adherence. The questionnaire used in this study is the Morisky Medication Adherence Scale (MMAS-8), which is a self-report questionnaire consisting of eight items used to assess the level of patient adherence to medication. It was developed by Dr. Donald E. Morisky, with the result category good if the score is 76–100%, sufficient if the score is 56–75%, and poor if the score < 56%. The questionnaire consists of 8 questions, with a Cronbach's alpha value of 0.6 and inter-class correlation coefficient of 0.78, thus considered valid and reliable. Data were analyzed using the Wilcoxon test to determine differences in knowledge before and after the intervention.

3. RESULTS

Table 1. *characteristics of respondents*

No	*Respondents' knowledge pre test*	Category	N	Persent %
1.	Age	46-55	8	50
		56-65	8	50
2.	Gender	Female	16	100
3.	Level of education	elementary school education	7	43.8
		JHS	6	37.5
		SHS	3	18.8
4.	Occupation	Housewive	11	68.8
		Farmer	5	31.3
	Total		16	100

Based on Table 1, it shows the distribution of respondents based on age, namely the distribution of respondents aged 46-55 years totaling 8 respondents (50%), and aged 56-65 years totaling 8 respondents (50%). Meanwhile, in terms of gender, it is more dominated by females, totaling 16 respondents (100%). As for the distribution based on education, the majority of respondents have an elementary school education, totaling 7 respondents (43.8%). Meanwhile, the distribution based on occupation is more dominated by housewives, totaling 11 respondents (68.8%).

Table 2. Respondents' knowledge before and after education

No	*Respondents' Knowledge (pre test)*	N	Persent%
1.	Good	2	12.5
2.	Sufficient	13	81.3
3.	Poor	1	63
	Respondents' Knowledge (post test)	**N**	**Persent%**
1.	Good	13	81.3
2.	Sufficient	3	18.8
3.	Poor	0	0
	Total	16	100

Based on Table 2, it shows the distribution of The knowledge scores of respondents before education were more dominant in the moderate category, with 13 respondents (81.3%), and a minority in the low category, with 1 respondent (6.3%), Meanwhile, the knowledge scores after education were dominant, with the good category consisting of 13 respondents (81.3%) and the sufficient category consisting of 3 respondents (18.8%).

Tabel 3. Analisis Bivariat menggunakan Uji Wilcoxon

Kategori	N	%	mean rank	sum of Ranks	P Value

Negative Ranks	O	.0	0.00	.00	
Positive Ranks	12	75	6.50	78.00	0,001
Ties	4	25			
Total	16				

Based on Table 3, the Negative Ranks category shows a result of 0, meaning there was no decrease in knowledge after being given health education, whereas the Positive Ranks category shows a result of 12 respondents (75%) who experienced an increase in knowledge after being given health education, and Ties show a result of 4 respondents (25%), meaning there were 4 respondents whose knowledge did not increase or decrease after being given health education.

The findings of this study indicate that family-based health education has a significant effect on increasing knowledge regarding the importance of regular medication among hypertension patients' families, as evidenced by the Wilcoxon test result showing a p-value of 0.001 (< 0.05). This result confirms that structured educational interventions can significantly improve knowledge outcomes, which are critical determinants of medication adherence in chronic disease management [4].

The demographic characteristics of respondents, dominated by female participants (100%) and housewives (68.8%), highlight the central role of women in family health management. This finding is consistent with prior studies indicating that women are often primary caregivers and play a significant role in influencing health behaviors within households [7]. Their involvement enhances the effectiveness of educational interventions because they directly supervise medication routines and provide emotional support to patients. Furthermore, the majority of respondents had low educational attainment, which is typically associated with limited health literacy and poorer health outcomes. However, the observed increase in knowledge after the intervention suggests that appropriately designed health education can overcome educational barriers [16]. Interactive and culturally adapted educational approaches have been shown to improve comprehension even among populations with low literacy levels, thereby supporting the effectiveness of the intervention used in this study.

The Wilcoxon test results showed that 12 respondents experienced an increase in knowledge (positive ranks), while none experienced a decrease (negative ranks = 0). This indicates a uniformly positive impact of the intervention. Similar findings have been reported in previous studies, where structured health education significantly improved knowledge and adherence behaviors among hypertensive patients and their families [9]. The absence of negative ranks also suggests that the intervention did not introduce confusion or misinformation, reflecting the clarity and appropriateness of the educational materials. The presence of ties in 25% of respondents indicates that some participants did not show measurable improvement. This condition may be influenced by several factors such as differences in educational background, age, motivation, family support, learning ability, or previous exposure to similar information. Nevertheless, the overall findings still indicate that the intervention was effective for the majority of respondens, four respondents showed no change in knowledge (ties), which may be attributed to several factors such as limited engagement, cognitive differences, or external influences such as family dynamics. This finding aligns with research suggesting that individual differences in learning capacity and motivation can affect the outcomes of health education interventions [11]. Future interventions should consider more personalized or adaptive educational strategies to ensure effectiveness across diverse participant groups. From a theoretical perspective, the findings support the Health Belief Model (HBM), which posits that increased knowledge enhances perceived severity and perceived benefits, ultimately influencing health behavior [17]. By improving family understanding of the risks associated with uncontrolled hypertension and the benefits of regular medication, the intervention likely strengthened motivation for adherence. Additionally, the results align with Social Cognitive Theory (SCT), emphasizing the role of social support and observational learning in behavior change. Family members who are knowledgeable can act as role models and reinforce adherence behaviors through daily interactions [13].

Empirically, the findings are consistent with global evidence highlighting the importance of family involvement in chronic disease management. Studies have shown that family-based interventions significantly improve treatment adherence, self-management, and health outcomes [2,10]. In the context of hypertension, where treatment is lifelong and often asymptomatic, family support becomes a critical factor in ensuring continuity of care.

Despite its strengths, this study has several limitations. The small sample size (n = 16) limits the generalizability of the findings, and the quasi-experimental design without randomization may introduce bias. Additionally, the study focused primarily on knowledge outcomes and did not directly assess behavioral changes such as medication adherence or clinical indicators like blood pressure control. Previous research suggests that knowledge improvement does not always translate into behavior change without reinforcement and follow-up interventions [3]. Future studies should incorporate longitudinal designs and additional outcome measures to assess the sustainability of the intervention. In terms of practical implications, this study demonstrates that family-based health education is a feasible and effective strategy for improving knowledge in primary healthcare settings, particularly in low-resource environments. This approach aligns with current public health priorities emphasizing community and family engagement in chronic disease management [14]. By integrating family members into health education programs, healthcare providers can enhance the support system for patients and improve long-term treatment outcomes.

In conclusion, the study provides strong evidence that family-based health education significantly improves knowledge regarding regular medication in hypertension management. The findings reinforce the importance of family-centered approaches in health promotion and offer valuable insights for the development of sustainable interventions aimed at improving chronic disease outcomes.

4. CONCLUSIONS

This study concludes that family-based health education is effective in increasing knowledge about the importance of regular medication among families of hypertension patients. The statistical analysis using the Wilcoxon test demonstrated a significant improvement in knowledge after the intervention ($p = 0.001$), indicating that the educational program successfully enhanced participants' understanding of hypertension management. The findings also highlight that family characteristics, particularly the dominance of women as primary caregivers and the prevalence of low educational backgrounds, play an important role in shaping the effectiveness of health education. Despite relatively low levels of formal education, respondents showed meaningful improvements in knowledge, suggesting that the intervention was appropriately designed, accessible, and adaptable to the target population.

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