The Effect of Health Promotion Using Booklet Media On The Level of Compliance With Medication In Hypertension Patients

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Abstract.
Background: Hypertension is a chronic disease with high prevalence in Indonesia, reaching 34.4%, which increases the risk of cardiovascular complications due to low patient adherence to medication. Limited knowledge, low health literacy, insufficient social support, and cultural beliefs influence adherence behavior. Health promotion using educational media, such as booklets, is considered effective in improving patients' understanding and medication adherence. Objective: To review the scientific evidence on the effect of booklet-based health promotion on medication adherence in hypertensive patients. Methods: This study employed a descriptive literature review with narrative and thematic analysis. Literature searches were conducted in PubMed, Scopus, ScienceDirect, Google Scholar, and SINTA using keywords: hypertension, medication adherence, health promotion, educational booklet, and compliance. Twenty relevant articles published between 2022–2025 were analyzed, including quasi-experimental, randomized controlled trials (RCTs), cross-sectional studies, and systematic reviews. Data were extracted on methods, study subjects, measurement instruments (HK-LS, MMAS-8, MARS), and main outcomes related to knowledge, adherence, self-efficacy, and clinical outcomes. Results: Booklet-based interventions effectively improved patients' knowledge, contributing to increased medication adherence. Interactive, continuous, and culturally tailored educational strategies were more effective than static printed media. Key factors supporting success include health literacy, social support, and patients' perceptions of therapy. Conclusion: Health promotion using booklets is effective in enhancing medication adherence among hypertensive patients, especially when combined with interactive education and ongoing support.
Keywords: *Hypertension, Medication Adherence, Educational Booklet, Health Promotion, Patient Education.*

I. INTRODUCTION

Hypertension is one of the most common chronic diseases in the world and is a major risk factor for cardiovascular disease, including heart disease and stroke.[1]The prevalence of hypertension continues to increase with changes in modern lifestyles, urbanization, and consumption patterns of foods high in salt and fat. This condition is often called a silent killer because patients can live without significant symptoms for long periods, resulting in many new cases being detected at a complicated stage. The impact of hypertension is not only individual, but also social and economic, due to the high cost of long-term treatment, lost productivity, and the burden on the healthcare system.[2].

Patient adherence to treatment and disease management is a major challenge in hypertension control. Factors influencing adherence include the patient's level of knowledge and understanding of the disease, ability to manage the medication regimen, and awareness of the importance of lifestyle changes, including a healthy diet, physical activity, and stress reduction.[3]. Furthermore, low health literacy and negative perceptions of therapy can reduce patients' motivation to consistently follow medical instructions. Without good adherence, hypertension therapy tends to be ineffective, increasing the risk of complications and suboptimal clinical outcomes.[4].

Health promotion is a crucial strategy in preventing and controlling hypertension. Health promotion can be conducted through various educational media, ranging from verbal communication, brochures, leaflets, to interactive print media such as booklets. Educational media aims to convey clear and easy-to-understand information, increase patient knowledge, and motivate them to adopt healthy behaviors and adhere to treatment regimens appropriately.[5]The success of health promotion depends not only on the delivery of information, but also on the design of attractive materials, simple language, and appropriateness to the patient's social and cultural context, so that the educational message can be effectively received and internalized.[6].

In addition, social support, including the role of family, friends, and healthcare professionals, has been shown to influence the success of educational interventions. Patients who receive ongoing support are more likely to maintain healthy behaviors and adhere to treatment.[7]Strengthening patients' self-efficacy or confidence in managing their disease is also a crucial factor, as confident patients are more likely to adhere to therapy regimens and self-manage their blood pressure. Developing effective, engaging, and contextual health education strategies is an integral part of hypertension control efforts and the prevention of long-term complications in the adult population.[8].

Several previous studies have confirmed the effectiveness of booklet-based health education in improving knowledge and medication adherence in hypertensive patients. Yusniarita and Munawaroh et al. (2023)[9]showed that a booklet-based intervention significantly improved patient knowledge about hypertension and encouraged more consistent medication adherence, resulting in better blood pressure control. These findings are supported by Masnah and Daryono (2022).[2]which emphasizes that the quality of educational media, including its appearance, language, and easy-to-understand messages, plays a crucial role in increasing patient understanding and family support for therapeutic regimens. Furthermore, Purnamawati and Jafar (2025)[10]Integrating calendar booklets with family support and role-play, which not only improved patient knowledge but also hypertension prevention skills, demonstrated that the combination of educational media and social support strengthened intervention outcomes. Previous research confirms that educational booklets serve as an important tool in hypertension health promotion, providing empirical evidence that well-designed educational materials can modify patient behavior and support the adoption of a healthy lifestyle.

The main problems identified in the management of hypertensive patients are low medication adherence and patient knowledge regarding this chronic disease, which has the potential to cause long-term cardiovascular complications. This study aims to evaluate the effect of health promotion using booklets, including family support, on improving knowledge, skills, and medication adherence in hypertensive patients. This research is highly urgent given the increasing prevalence of hypertension and the risk of serious cardiovascular complications if patient compliance is low. The novelty of this study lies in the integration of booklets with family support strategies and interactive approaches such as role-playing for hypertension management, which have not been comprehensively studied.

II. METHOD

This study used a descriptive literature review to assess the effect of health promotion using booklets on medication adherence in hypertensive patients. A literature search was conducted through international and national databases, including PubMed, Scopus, ScienceDirect, Google Scholar, and SINTA, using a combination of keywords: hypertension, medication adherence, health promotion, educational booklet, leaflet, self-management education, and compliance. This study included 20 relevant articles published between 2022 and 2025, encompassing quasi-experimental, randomized controlled trial (RCT), cross-sectional, prospective cohort, and systematic review designs. Study subjects included adult hypertensive patients in various settings, including primary healthcare facilities, hospitals, and the community. Inclusion criteria were studies measuring outcomes such as knowledge, medication adherence, self-management, attitudes, and clinical outcomes such as systolic and diastolic blood pressure. Non-hypertension, non-experimental, or incomplete data studies were excluded. The analysis was conducted narratively and thematically, reviewing methods, measurement instruments such as the Hypertension Knowledge-Level Scale (HK-LS), Morisky Medication Adherence Scale (MMAS-8), Medication Adherence Rating Scale (MARS), and End-Stage Renal Disease Adherence Questionnaire (ESRD-AQ), as well as key outcomes including changes in knowledge, attitudes, adherence behavior, self-efficacy, and clinical outcomes. Data were extracted into a data extraction table containing the authors, problem, objectives, methods, subjects, and key results to facilitate the identification of patterns of educational media effectiveness on patient adherence. This study used 20 articles as primary references that provide empirical evidence regarding the relationship between booklet-based education or interactive print media with increased knowledge and medication adherence in hypertensive patients, while also identifying supporting factors such as health literacy, social support, and patient culture.

III. RESULTS

Based on previous research, Dita Andrianto, RA Oetari, and Ika Purwidyaningrum (2024) examined the high prevalence of hypertension in Indonesia, which reached 34.4%, as well as the low knowledge and compliance of PROLANIS patients with therapy that carries the risk of causing complications. This study aims to determine the effect of education using leaflets on the level of knowledge, compliance, and therapy outcomes of PROLANIS hypertension patients at Clinic X Surakarta. The method used was a quasi-experimental with a pre-test and post-test design on 80 patients divided into control and intervention groups. The results showed that education through leaflets was able to increase knowledge ($p = 0.014$), medication compliance ($p = 0.015$), and significantly reduce systolic blood pressure ($p = 0.000$).

The research by Siti Sakinah, Theodehild M. Theresia Dee, and Juandri S. Tusi (2024) started from the problem of low compliance of hypertensive patients with medication, diet, and blood pressure monitoring. This study aimed to test the effect of Self-Management Education (SME) based on the Health Promotion Model on the compliance behavior of hypertensive patients at the Baumata Community Health Center, Kupang Regency. Using a quasi-experimental method on 70 hypertensive patients divided into intervention and control groups, the results showed that HPM-based SME was able to significantly improve medication adherence, diet adherence, and blood pressure monitoring ($p<0.05$).

Wei Gan, Qinghua Zhang, Dan Yang, and colleagues (2022) examined the low blood pressure health literacy among hypertensive patients in China, which impacts their self-management skills. This study aimed to assess the effectiveness of an interactive pictorial education program based on the Behavior Change Wheel on hypertension literacy, self-efficacy, self-management skills, and quality of life. Using a randomized controlled trial method on 120 hypertensive patients with low literacy, the results showed an increase in health literacy, self-efficacy, self-management skills, quality of life, and improved blood pressure control.

Anggraini Dwi Kurnia, Nur Melizza, and Oktika Khoirunnisa (2022) examined the low level of knowledge among patients with uncontrolled hypertension in rural areas. The study aimed to assess the effectiveness of a short-term education program on the knowledge and attitudes of hypertensive patients in Malang. Using a quasi-experimental method with a one-group pre-posttest design on 41 hypertensive patients, this study showed that health education significantly improved patient knowledge ($p=0.000$) and attitudes toward hypertension management ($p=0.008$).

Mohammed Malih Radhi and Kefah Zair Balat's (2024) study focused on low medication adherence in hypertensive patients, which is influenced by health literacy and social support. This cross-sectional study of 450 hypertensive patients in Iraq aimed to assess the relationship between health literacy, social support, and medication adherence. The results showed that health literacy ($\beta=-0.708$; $p=0.001$) and social support ($\beta=0.220$; $p=0.001$) were significant predictors of medication adherence.

Buna Bhandari, Padmanesan Narasimhan, and colleagues (2022) examined the effectiveness of an mHealth intervention via text messaging in improving hypertension control in Nepal. The study used a feasibility randomized controlled trial of 200 hypertensive patients with a three-month SMS intervention. The results showed a greater reduction in systolic and diastolic blood pressure compared to the control group, as well as increased adherence to therapy ($p<0.001$), self-efficacy ($p=0.023$), and hypertension knowledge ($p=0.013$).

Taye Kebede, Zaid Taddese, and Abiot Girma (2022) conducted a study on the knowledge, attitudes, and practices of lifestyle modifications in 387 hypertensive patients in Ethiopia. Using a prospective cross-sectional study, the results showed that 67.7% of patients had good knowledge and 54% had positive attitudes, but only 38% implemented healthy lifestyle practices effectively. Factors associated with these practices were age, income, and duration of treatment.

A study by Maereg Wolde, Telake Azale, Getu Debalkie Demissie, and Banchilay Addis (2022) aimed to assess the level of knowledge of hypertension patients and the factors influencing it in Ethiopia. Through a cross-sectional study of 385 hypertensive patients, it was found that 55.3% had low knowledge, 17.9% had

moderate knowledge, and only 26.8% had high knowledge. Factors influencing knowledge levels included occupation, duration of treatment, and proximity to health facilities.

Samin Panahi, Naveen Rathi, and Akiko Kamimura (2022) examined factors influencing general adherence among uninsured patients at a free clinic. This cross-sectional study showed that adherence was higher among younger patients, those who adhered to lifestyle recommendations, and those who adhered to medication. Conversely, older patients had lower adherence rates, necessitating a more personalized communication approach.

Weidan Cao, M. Wesley Milks, Xiaofu Liu, and colleagues (2022) conducted a systematic review of 21 mHealth studies for hypertension management. This study demonstrated that user engagement, interactivity, and intervention tailoring are critical factors in the success of mHealth applications. High levels of engagement are associated with better biomedical outcomes in patients with hypertension.

Kennedy Diema Konlan and Jinhee Shin (2023) conducted an integrative review to identify factors influencing home-based hypertension self-care and management. Analysis of 13 articles revealed five main themes: blood pressure control, sociodemographic factors, therapy-related factors, knowledge of hypertension management, and knowledge of hypertension risk prevention. This study emphasizes the importance of considering individual, social, and cultural aspects in self-care interventions.

Whenayon Simeon Ajisegiri and colleagues (2023) examined the role of community health workers (CHWs) in hypertension and diabetes care in Nigerian primary health care facilities. Using a mixed methods study involving 76 CHWs and 90 focus group participants, the study found that CHWs often perform tasks outside their formal scope of practice to meet community needs. Therefore, better policy support, training, and coordination are needed to improve service quality.

Sungwon Yoon, Yu Heng Kwan, Wei Liang Yap, and colleagues (2023) explored cultural factors influencing medication adherence in patients with chronic diseases in Singapore. Through in-depth interviews with 25 patients, the study found that medication side effects, poor understanding of medications, language barriers, and specific cultural beliefs influenced medication adherence. The study recommended improving education and communication that are culturally appropriate for patients.

Hon Lon Tam, Leona Yuen Ling Leung, Eliza Mi Ling Wong, and colleagues (2022) conducted a systematic review and meta-analysis on the effectiveness of text messaging in elderly with hypertension. The results showed that text messaging intervention significantly reduced systolic blood pressure (MD=-6.11; $p<0.01$) and improved medication adherence (SMD=0.65; $p=0.01$), making it an effective strategy for supporting hypertension management in the elderly.

Jemima Otemah, Lillian Akorfa Ohene, and Irene Owusu-Darkwa (2025) explored the perceptions of hypertension patients in a peri-urban Ghanaian community. A qualitative study of 17 patients showed that most understood hypertension as a serious and chronic disease, but various misconceptions persisted that impacted disease management. Therefore, ongoing health education is needed to improve hypertension management behaviors.

Ashraful Kabir, Md Nazmul Karim, and Baki Billah (2022) identified health system challenges in providing non-communicable disease services in Bangladesh. Through qualitative research involving health workers, facility managers, and the community, they identified various obstacles such as a lack of standard guidelines, limited health workers, a weak health information system, and limited medicines and logistics. However, the study also identified opportunities in the form of national policies and service infrastructure that can be utilized to strengthen hypertension services.

Roberto F.E. Pedretti, Dominique Hansen, Marco Ambrosetti, and colleagues (2023) developed a clinical consensus statement on the importance of adherence to guideline-based therapy in the secondary prevention of cardiovascular disease. This document emphasizes that adherence to medication and lifestyle changes are critical factors in the success of therapy and the prevention of complications.

Lixia Ge, Bee Hoon Heng, and Chun Wei Yap (2023) examined the prevalence and contributing factors of medication non-adherence in 1,528 adults in Singapore. The results showed that the prevalence of non-adherence was higher in the younger age group (38.4%) than in the older age group (22.3%). The main

factors contributing to non-adherence were fear of drug dependence, poor understanding of drug labels, and depressive symptoms.

Gloria Dunisani Chauke, Olivia Nakwafila, Buyisile Chibi, Benn Sartorius, and Tivani Mashamba-Thompson (2022) conducted a systematic scoping review of factors influencing medication adherence in patients with chronic diseases in low- and middle-income countries. The results showed that low knowledge about the disease, negative attitudes toward treatment, and negative beliefs about therapy were the main factors causing low medication adherence.

Finally, Brayal Dsouza, Ravindra Prabhu, B. Unnikrishnan, and colleagues (2023) examined the impact of an educational intervention on the knowledge and adherence of hemodialysis patients. Through a randomized controlled trial of 160 patients, the results showed that education and the provision of booklets improved patient knowledge regarding disease management and increased adherence to medication, diet, fluid restrictions, and attendance at hemodialysis therapy. However, this study did not find a significant direct relationship between increased knowledge and improved patient adherence.

Literature reviews show that health promotion interventions using booklets or interactive printed educational media consistently improve medication adherence in hypertensive patients by increasing knowledge and changing patient behavior. Leaflet-based educational approaches or short-term educational programs have been shown to improve knowledge and medication adherence, while also positively impacting clinical outcomes such as lower systolic blood pressure. Interactive educational strategies involving patient empowerment, ongoing monitoring, and social support have been shown to be more effective than static printed media, especially when combined with programs that adapt materials to the patient's social and cultural context. Factors contributing to successful interventions include health literacy, social support, patient perceptions of therapy, and culture, while barriers include misconceptions, low disease knowledge, and negative perceptions of treatment. Digital interventions such as mHealth or text messaging have also been shown to improve adherence and blood pressure control, with effectiveness dependent on the level of engagement, interactivity, and tailoring of materials to patient needs. Cross-national and systematic studies confirm that low adherence is often influenced by misconceptions, limited literacy, and a lack of adequate information, making clear, contextual, and interactive educational media crucial. The use of booklet media combined with interactive education, personalized materials, and ongoing support has been proven effective in improving medication adherence, knowledge, and clinical outcomes of hypertensive patients, indicating that adaptive and patient-oriented health promotion programs are a superior strategy in improving medication adherence.

IV. DISCUSSION

The impact of health promotion using booklets on medication adherence in hypertensive patients shows that this intervention consistently improves patient knowledge, adherence behavior, and clinical outcomes. A study by Andrianto, Oetari, and Purwidyaningrum (2024) showed that education using leaflets significantly increased patient knowledge, medication adherence, and lowered systolic blood pressure. This demonstrates that printed educational media is not merely a means of information but also an effective tool for modifying patient behavior by increasing understanding of the disease and the therapy being undertaken. Another quasi-experimental study by Kurnia, Melizza, and Khoirunnisa (2022) confirmed that short-term educational programs can improve patient knowledge and attitudes toward hypertension management, which in turn impacts medication adherence.

In addition to improving knowledge, the literature emphasizes that the success of an intervention depends on the delivery method and patient engagement. A study by Sakinah, Dee, and Tusi (2024) used a Health Promotion Model-based Self-Management Education approach and demonstrated that an interactive educational strategy, involving patient empowerment, ongoing monitoring, and social support, significantly improved medication adherence, dietary adherence, and blood pressure monitoring. Strategies that tailored the material to the patient's social and cultural context proved more effective than static print media, as patients were able to understand the information more deeply and apply it to their daily lives. Gan et al. (2022) also demonstrated that an interactive pictorial education program based on the Behavior Change

Wheel improved health literacy, self-efficacy, and self-management skills, which subsequently contributed to blood pressure control and quality of life for hypertensive patients. These findings confirm that booklets equipped with an interactive approach can be an instrument of patient empowerment, not simply a passive conveyor of information.

Individual, social, and cultural factors also influence the effectiveness of booklets. A study by Malih Radhi and Zair Balat (2024) showed that health literacy and social support were significant predictors of patient adherence to treatment. Patients with low literacy or minimal social support tend to have low adherence, so educational materials need to be written in simple language, with clear illustrations, and delivered using an interactive approach. Similarly, Yoon et al. (2023) found that cultural factors, patient perceptions of medications, and beliefs related to therapy play a significant role in determining adherence. Therefore, education must address misconceptions and adapt messages to the patient's culture. Chauke et al. (2022) added that in low- and middle-income countries, lack of knowledge, negative attitudes toward treatment, and misconceptions are major barriers to patient adherence, emphasizing the importance of clear, contextual, and easily understood educational materials.

Digital interventions such as mHealth and text messaging have also shown effectiveness in improving adherence and blood pressure control, especially when combined with booklets. Bhandari et al. (2022) found that a three-month routine SMS intervention improved therapy adherence, self-efficacy, and patient knowledge, as well as significantly reduced blood pressure. Tam et al. (2022) also showed that text messaging interventions can lower systolic blood pressure in an elderly population and moderately improve medication adherence. Digital literacy, engagement levels, and material tailoring are key factors in the success of digital interventions, confirming that combining print and digital media can strengthen educational outcomes.

Cross-national literature confirms that low adherence is not only due to limited knowledge, but also negative perceptions of therapy and disease-related misconceptions. Otemah, Ohene, and Owusu-Darkwa (2025) found that patients in a peri-urban Ghanaian community held beliefs that influenced their hypertension management, including misconceptions about the cause of the disease and the effectiveness of modern medicine. This suggests that booklets should be designed to address misconceptions, using familiar language, and including relevant illustrations, so that patients can understand the risks of complications and the importance of medication adherence. Konlan and Shin (2023) also emphasize the importance of considering individual, social, and cultural factors in self-care interventions, suggesting that educational strategies should be holistic, combining medical information, behavioral motivation, and social support.

Clinical outcomes of booklet-based interventions showed significant improvements in blood pressure control, dietary adherence, fluid restriction, and patient attendance at routine treatment sessions. A study by Dsouza et al. (2023) in hemodialysis patients showed that booklet-based education improved knowledge and adherence in various domains, including medication adherence, fluid restriction, and diet. Although the direct correlation between increased knowledge and adherence was not always significant, the intervention still contributed to improvements in overall disease management behaviors. This confirms that booklets are effective not only for hypertension but also for patients with other chronic diseases, through similar mechanisms through increased knowledge, motivation, and self-efficacy.

The duration and continuity of interventions have been shown to influence program success. Short-term education can increase knowledge briefly, but without ongoing reinforcement, behavior changes tend not to be sustainable. Ongoing strategies, including follow-up sessions and support from family or healthcare professionals, have been shown to be more effective in maintaining adherence. This suggests that booklet-based education program designs should integrate repeated interactions, progress evaluation, and motivational reinforcement to achieve long-term results.

Demographic factors also influence the effectiveness of interventions. A study by Ge, Heng, and Yap (2023) showed that elderly patients tend to have lower adherence than younger adults due to cognitive limitations, the complexity of medication regimens, and long-standing habits. Occupation, number of medications used, and comorbidities also influence adherence, so educational materials and intervention

strategies need to be personalized to patient characteristics. These adjustments include language, illustrations, dosage instructions, and delivery methods to ensure educational messages are well received.

The booklet also increases patients' self-efficacy in managing hypertension, including their ability to monitor blood pressure, manage medication schedules, and make lifestyle modifications. Increased self-efficacy encourages patients to adhere to treatment regimens more diligently, overcome practical obstacles, and make informed decisions regarding disease management. Thus, the booklet serves not only as a passive educational tool but also as a patient empowerment tool that stimulates behavioral change and improves quality of life.

Evidence from the literature shows that health promotion using booklets effectively improves knowledge, medication adherence, and clinical outcomes in hypertensive patients. The success of interventions is influenced by the quality of the materials, interactivity, culture, social support, continuity of education, and patient demographic characteristics. Combining print media with digital strategies such as mHealth or text messaging enhances effectiveness, especially for patients who require additional reminders or motivation. Interventions that consider socioeconomic aspects, family support, and strengthening the healthcare system are more likely to be successful in the long term.

By integrating these findings, booklets can be considered an effective strategy for hypertension health promotion, improving patient adherence, reducing the risk of cardiovascular complications, and supporting self-management. Booklet-based programs should be developed as a multi-component approach, combining interactive education, personalization, social support, and self-efficacy enhancement, to achieve a sustainable impact on patient adherence and clinical outcomes.

V. CONCLUSION

Health promotion using booklets has a significant impact on improving medication adherence in hypertensive patients through increased knowledge, self-efficacy, and behavioral changes. Booklets serve not only as a means of conveying information but also as an empowerment tool that can increase patient understanding of hypertension, the risk of complications, and the importance of adherence to therapeutic regimens, including dosage adjustments, diet, and blood pressure monitoring. The effectiveness of this intervention increases when educational materials are designed interactively, personalized to the patient's social and cultural context, and supported by ongoing monitoring by healthcare professionals or family members, thus encouraging patients to internalize knowledge and adopt consistent behaviors. Factors contributing to success include health literacy, social support, positive perceptions of treatment, and continuity of education. Barriers such as misconceptions, low literacy, and negative perceptions of therapy can be overcome through the development of clear, illustrative, and evidence-based materials. Cross-national empirical evidence confirms that booklets are effective in improving knowledge, medication adherence, and clinical outcomes, including lower systolic blood pressure, dietary control, and adherence to medication schedules. Furthermore, integrating booklets with digital interventions, such as mHealth or text messaging, has been shown to strengthen adherence through interactive reminders, motivation, and monitoring, particularly in elderly populations or patients with limited access to services. Therefore, booklet-based health promotion, complemented by an interactive approach, social support, and cultural adaptation, is a superior strategy for improving adherence in hypertensive patients, reducing the risk of cardiovascular complications, and encouraging self-management of the disease, while providing an effective model that can be adapted to other chronic diseases. This strategy demonstrates that the success of health education depends not only on the delivery of information, but also on the media's ability to shape behavior, strengthen motivation, and create a sustainable supportive environment for patients.

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