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THE EFFECTIVENESS OF FACEBOOK-BASED HEALTH EDUCATION IN IMPROVING HYPERTENSION KNOWLEDGE AND HEALTHCARE VISIT INTENTION AMONG OLDER ADULTS

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ABSTRACT

Hypertension remains a major public health problem among older adults because it often develops without specific symptoms and may lead to serious complications if not properly controlled. Limited knowledge about hypertension and low motivation to visit healthcare facilities may hinder early detection and routine monitoring among older adults. Facebook, as a familiar social media platform, has the potential to support health education by delivering simple, repeated, and accessible health messages. This study employed a quantitative pre-experimental approach with a one-group pretest–posttest design to examine the effectiveness of Facebook-based health content in improving hypertension knowledge and healthcare visit intention among adults aged 50 years and older in the working area of Pemali Primary Health Center in 2026. A total of 92 respondents were selected using purposive sampling. The intervention consisted of hypertension-related health content delivered through Facebook using simple language, visual support, and communicative messages. Data were collected using a hypertension knowledge questionnaire and a healthcare visit intention questionnaire before and after the intervention. Data analysis was conducted using descriptive statistics, the Kolmogorov–Smirnov normality test, and the paired sample t-test. The findings showed that the mean hypertension knowledge score increased from 5.82 before the intervention to 8.58 after the intervention. The mean healthcare visit intention score also increased from 27.78 to 32.82. Statistical analysis revealed significant differences in both hypertension knowledge and healthcare visit intention before and after the intervention ($p < 0.001$). These findings indicate that Facebook-based health content is effective in improving hypertension knowledge and healthcare visit intention among older adults. This digital health promotion strategy may support primary healthcare services in strengthening preventive education and encouraging routine health visits for hypertension control.

Keywords: Facebook, health education, hypertension, older adults, primary healthcare, visit intention.

INTRODUCTION

Hypertension remains one of the most important public health problems worldwide and continues to place a substantial burden on primary healthcare services, particularly among older adults. The World Health Organization reported

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that approximately 1.4 billion adults aged 30–79 years were living with hypertension in 2024, and many of them were still unaware of their condition. This situation is concerning because hypertension often develops without clear symptoms, yet it can lead to severe complications such as stroke, heart disease, kidney failure, and premature death when it is not properly detected and controlled (World Health Organization, 2025). In Indonesia, hypertension is also widely recognized as a major non-communicable disease and is often referred to as a "silent killer" because many individuals do not experience specific complaints before complications occur (Ministry of Health of the Republic of Indonesia, 2024).

Older adults are among the most vulnerable groups to hypertension because aging is associated with physiological changes in the cardiovascular system, including decreased arterial elasticity and increased vascular stiffness. These changes may increase systolic blood pressure and make blood pressure control more difficult in later life. In addition, older adults may have multiple risk factors, such as physical inactivity, unhealthy dietary patterns, excessive salt intake, obesity, medication non-adherence, and limited access to regular health monitoring. Therefore, hypertension management among older adults should not only focus on pharmacological treatment, but also on continuous health education, early detection, and routine visits to primary healthcare facilities (Mancia et al., 2023; Egan et al., 2024).

Knowledge plays a central role in hypertension prevention and control. Older adults who understand the meaning of hypertension, its risk factors, warning signs, complications, and the importance of routine blood pressure monitoring are more likely to recognize the need for preventive action. Adequate knowledge can also help older adults make better health decisions, including reducing salt intake, maintaining physical activity, taking medication as recommended, and seeking care before complications occur. From the perspective of health behavior theory, knowledge is an important foundation for shaping perception, attitude, intention, and eventually health-related behavior (Glanz, Rimer and Viswanath, 2024). Health literacy is an important factor in hypertension prevention and control among older adults. Older adults with adequate health literacy are more likely to obtain, understand, evaluate, and use health information to make appropriate health decisions, including recognizing hypertension risks, following treatment recommendations, and attending routine health monitoring. In the context of digital health education, eHealth literacy is also essential because older adults need the ability to access, understand, and apply health information delivered through online platforms such as Facebook. Therefore, Facebook-based health education should be designed using simple language, clear visuals, and practical messages to help older adults understand hypertension and encourage regular visits to primary healthcare services (Babazadeh et al., 2024; Jiang et al., 2024).

Primary healthcare centers have a strategic role in controlling hypertension among older adults through health promotion, early detection, blood pressure monitoring, counseling, and follow-up care. In Indonesia, the strengthening of primary healthcare emphasizes promotive and preventive services across the life cycle, including services for older adults. However, the utilization of primary healthcare services by older adults is not always optimal. Preliminary data from Pemali Primary Health Center showed that older adult visits fluctuated during January to March 2026, with 118 visits in January, 259 visits in

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February, and 128 visits in March. In the same setting, hypertension was also identified as one of the major health problems among older adults, with 181 recorded cases. These local conditions indicate the need for a more accessible and engaging health promotion strategy to improve older adults' awareness and encourage routine healthcare visits.

The rapid development of digital technology has created new opportunities for health promotion. Social media is no longer used only for social interaction, but also serves as a channel for health communication, health education, and community engagement. Social media-based health education can provide repeated exposure to health messages, support two-way interaction, and reach audiences beyond conventional face-to-face education. Previous studies have shown that social media can improve health knowledge, increase engagement, and support health-related behavioral change when the content is clear, credible, and relevant to the target audience (Chen and Wang, 2021; Duregon et al., 2022).

Facebook is one of the social media platforms that remains familiar to adult and older populations. Compared with platforms that are more popular among younger users, Facebook has a broader age range of users and allows health messages to be delivered through text, images, videos, captions, comments, and repeated posting. For older adults, Facebook-based health education may be useful when the content is designed in a simple, visual, and communicative manner. Nevertheless, older adults may experience challenges related to digital health literacy, such as difficulty in understanding online health information, evaluating information credibility, and applying digital information to daily health decisions. Therefore, health content for older adults should use simple language, clear visual messages, trusted communicators, and practical examples that are close to their daily lives (Zhao, Zhao and Song, 2022; Jiang et al., 2024).

Several previous studies have discussed the role of digital health education and social media in improving health knowledge and supporting chronic disease management. Online education has been reported to improve knowledge, motivation, self-efficacy, and self-care behavior among patients with hypertension (Upoyo et al., 2024). Other studies also suggest that social media may support hypertension management by increasing awareness, promoting lifestyle modification, and improving communication between patients, families, communities, and healthcare providers (Saputra et al., 2022). However, studies that specifically examine Facebook-based health content for improving hypertension knowledge and healthcare visit intention among older adults in a primary healthcare setting remain limited. Most previous studies have focused on general health behavior, digital service acceptance, or hypertension self-management, rather than directly evaluating the effect of Facebook health content on older adults' intention to visit a primary healthcare center.

Based on this gap, the present study was conducted to examine the effectiveness of Facebook-based health education in improving hypertension knowledge and healthcare visit intention among older adults in the working area of Pemali Primary Health Center in 2026. This study is expected to contribute to the development of digital health promotion strategies that are simple, accessible, and relevant to older adults. The findings may also provide practical input for primary healthcare centers in strengthening promotive and preventive services for hypertension control through social media-based education.

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METHODS

This study used a quantitative pre-experimental design with a one-group pretest–posttest approach. The study was conducted in the working area of Pemali Primary Health Center, Bangka Regency, Bangka Belitung Islands Province, Indonesia, from April to June 2026. The target population consisted of individuals aged 50 years and older (operationally defined in this study as older adults), comprising a total population of 505 individuals. This age threshold was selected because individuals in this demographic begin to experience natural physiological functional declines and an elevated risk of hypertension. The sample size of 92 respondents was calculated using the Slovin formula with a 10% margin of error (e = 0.1) from the total population of 505 older adults (N = 505, resulting in a minimum required sample of n = 84). Respondents were selected using purposive sampling based on the following inclusion criteria: (1) aged 50 years or older, (2) residing in the working area of Pemali Primary Health Center, (3) having or able to access a Facebook account, (4) willing to participate in the entire research process, and (5) able to communicate properly. The exclusion criteria included older adults with severe cognitive impairment, failure to complete the intervention, or incomplete questionnaire responses. All eligible candidates agreed to participate, and no participants dropped out or were excluded during the study. The term "older adults" is used consistently throughout this manuscript to refer to this participant group.

The intervention consisted of hypertension-related health education delivered through Facebook over a period of 2 to 4 weeks. The educational materials exclusively comprised short educational videos, with a duration of 3 to 5 minutes per content. The content was posted regularly at a frequency of 2 to 3 times per week, specifically during optimal morning (08.00–10.00) or evening (18.00–20.00) hours. The topics covered included general health for older adults, the definition of hypertension, risk factors, symptoms, complications, prevention, blood pressure control, medication adherence, and the importance of routine visits to primary healthcare services, delivered using simple, communicative language by a local host. Participants accessed the video materials through their personal Facebook accounts. Exposure and engagement were monitored and maintained through video view metrics, interactive communication in the comment sections, discussions, and tracking participant activity within the Facebook platform throughout the intervention period.

Data were collected using two structured questionnaires administered before (pretest) and after (posttest) the intervention.Hypertension knowledge was measured using a 15-item multiple-choice questionnaire adapted from established guidelines and modified by the authors. The instrument covers three domains: (1) general definition and blood pressure thresholds, (2) risk factors and complications, and (3) blood pressure control and medication adherence. Each item is scored binary (1 = correct, 0 = incorrect/do not know), yielding a continuous total score from 0 to 15. Knowledge level was operationally categorized based on standard score percentages into Low (<56%), Moderate (56–75%), and High (76–100%). Healthcare visit intention was measured using a 10-item questionnaire developed based on the Theory of Planned Behavior, assessing attitudes, social support/norms, and perceived control regarding regular visits to primary healthcare services. Responses were recorded on a 4-point Likert scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree),

Article History:
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resulting in a total score range of 10 to 40, where higher scores reflect stronger intention.Both instruments underwent face and content validation by a panel of experts. Prior to data collection, the questionnaires were pilot-tested on 30 older adults possessing identical inclusion criteria in a neighboring community. Content item validity was confirmed via Pearson's product-moment correlation (r_{count}> 0.361, $p < 0.05$). Internal consistency reliability was demonstrated with Cronbach's alpha values of 0.82 for the knowledge scale and 0.86 for the intention scale, indicating good to excellent instrument reliability.

Data were analyzed using IBM SPSS Statistics for Windows, Version 25.0 (IBM Corp., Armonk, N.Y., USA). Descriptive statistics were used to present the minimum value, maximum value, mean, median, and standard deviation. The normality assumption for the paired-samples t-test was assessed on the pretest–posttest difference scores using the Shapiro-Wilk test. Since the difference scores were normally distributed ($p > 0.05$), differences between pretest and posttest scores were analyzed using the paired-samples t-test, with a significance level of $p < 0.05$. This study strictly applied ethical research principles, including informed consent, voluntary participation, anonymity, confidentiality, beneficence, and non-maleficence.

RESULTS AND DISCUSSION

A total of 92 older adults participated in this study. The results showed an increase in both hypertension knowledge and healthcare visit intention after the respondents received Facebook-based health education. The mean hypertension knowledge score increased from 5.82 ± 2.516 before the intervention to 8.58 ± 2.868 after the intervention. The mean healthcare visit intention score also increased from 27.78 ± 4.450 before the intervention to 32.82 ± 4.146 after the intervention.

Table 1. Hypertension Knowledge and Healthcare Visit Intention Before and After the Intervention

Variable	Pretest Mean ± SD	Posttest Mean ± SD	Mean Difference	p-value
Hypertension knowledge	5.82 ± 2.516	8.58 ± 2.868	2.761	<0.001
Healthcare visit intention	27.78 ± 4.450	32.82 ± 4.146	5.033	<0.001

The normality test using the Kolmogorov–Smirnov test showed that all data were normally distributed. The p-values for hypertension knowledge were 0.060 before the intervention and 0.068 after the intervention. Meanwhile, the p-values for healthcare visit intention were 0.162 before the intervention and 0.200 after the intervention. Since all p-values were greater than 0.05, the paired sample t-test was used to analyze the differences between pretest and posttest scores.

The paired sample t-test showed a significant difference in hypertension knowledge before and after the intervention, with a mean difference of 2.761 and $p < 0.001$. This finding indicates that Facebook-based health education was effective in improving older adults' knowledge about hypertension. The increase in knowledge may be related to the delivery of health messages in a simple, repeated, and visually supported format. Through Facebook, respondents were

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able to access hypertension-related information more easily, including information about risk factors, symptoms, complications, prevention, blood pressure control, medication adherence, and the importance of routine health monitoring.

This finding is consistent with the concept of health education, which emphasizes that repeated exposure to relevant and understandable information can improve knowledge and awareness. In the context of older adults, simple language and familiar examples are important because digital health literacy may vary among individuals. Previous studies have also shown that social media-based health education can improve health knowledge, increase engagement, and support health-related behavioral change when the content is credible, clear, and appropriate for the target population (Chen and Wang, 2021; Zhao, Zhao and Song, 2022; Jiang et al., 2024).

The improvement in hypertension knowledge is also relevant to the Health Belief Model. Health education can act as a cue to action by helping older adults understand their susceptibility to hypertension, the severity of possible complications, and the benefits of regular blood pressure monitoring. When older adults understand that hypertension can occur without clear symptoms and may lead to stroke, heart disease, or kidney problems, they may become more aware of the need to prevent and control the disease. This supports previous evidence that health education based on behavioral concepts can improve knowledge, health beliefs, and hypertension-related self-care practices (Glanz, Rimer and Viswanath, 2024; Wang et al., 2024).

The results also showed a significant increase in healthcare visit intention after the intervention. The mean score increased from 27.78 before the intervention to 32.82 after the intervention, with a mean difference of 5.033 ($t = 14.52$, $df = 91$, 95% CI [4.34, 5.73], $p < 0.001$). This finding suggests that Facebook-based health content was not only able to improve knowledge, but also encouraged older adults to have a stronger intention to visit primary healthcare services. The messages delivered through Facebook may have helped respondents understand that visiting the primary healthcare center is important not only when they are sick, but also for routine monitoring, early detection, and prevention of hypertension complications.

This result can be explained through the Theory of Planned Behavior, which states that intention is an important predictor of behavior. In this study, Facebook-based health education may have influenced older adults' attitudes toward healthcare visits by emphasizing the benefits of routine blood pressure checks and consultation with health workers. The interactive features of Facebook, such as comments and repeated posts, may also support social encouragement and strengthen respondents' motivation to use healthcare services. This is in line with previous studies showing that digital health information and social media can influence health-seeking decisions, especially when the information is perceived as useful, accessible, and trustworthy (Saputra et al., 2022; Jokisch, Schmidt and Doh, 2022; Wang et al., 2024).

The findings of this study strengthen the role of Facebook as a potential digital health promotion tool in primary healthcare settings. Facebook allows health messages to be delivered repeatedly and accessed at any time by older

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adults and their families. This is particularly useful for older adults who may need repeated explanations to understand health information. In addition, Facebook can help primary healthcare centers expand their health promotion activities beyond face-to-face education. However, digital education should not completely replace direct communication with health workers. For older adults, family support, assistance from health cadres, and direct guidance from healthcare providers remain important to transform visit intention into actual healthcare utilization.

Overall, this study found that Facebook-based health education was effective in improving hypertension knowledge and healthcare visit intention among older adults in the working area of Pemali Primary Health Center. These findings suggest that social media can be used as a supportive strategy for promotive and preventive healthcare services, particularly in hypertension control among older adults. To optimize its use, health content should be simple, visually clear, culturally appropriate, credible, and regularly updated according to the needs of older adults.

CONCLUSION AND RECOMMENDATIONS

This study indicates that Facebook-based health education is associated with improvements in hypertension knowledge and healthcare visit intention among older adults in the working area of Pemali Primary Health Center. Following the intervention, participants demonstrated higher knowledge scores and stronger intentions to utilize primary healthcare services. These findings suggest that Facebook can serve as a supportive digital health promotion tool to deliver accessible health messages. However, several limitations must be acknowledged. Due to the pre-experimental one-group pretest-posttest design without a control group and the use of purposive sampling, causal claims cannot be definitively established, and external factors cannot be fully controlled. Furthermore, the findings may not be generalizable beyond the specific characteristics of the study setting and participants.

Primary healthcare centers are recommended to utilize Facebook more actively as part of promotive and preventive health services for hypertension education. Health content should be delivered in simple language with clear visuals, tailored to the needs and abilities of older adults, and should include practical messages regarding routine blood pressure monitoring, medication adherence, healthy diets, physical activity, and regular primary care visits. Health workers and community health cadres are encouraged to support older adults in accessing and understanding digital content, with family involvement recommended for those with limited digital literacy. Finally, future studies should employ a randomized controlled trial design with a control group, involve a larger and more representative sample, and evaluate actual health behaviors, blood pressure control, and the long-term sustainability of digital health interventions.

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