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Systematic Journal Review: The Effectiveness of Dash Diet Education through WhatsApp-Based Animated Videos on Diet Compliance in Hypertension Patients

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Abstract

Hypertension remains one of the most prevalent non-communicable diseases worldwide, necessitating effective control strategies through lifestyle changes, including the implementation of the Dietary Approaches to Stop Hypertension (DASH) diet. The use of WhatsApp-based animated videos as a health education medium is growing rapidly, but scientific evidence regarding their effectiveness on DASH diet adherence has not been comprehensively synthesized. This study aims to analyze scientific evidence regarding the effectiveness of DASH diet education through WhatsApp-based animated videos in improving dietary adherence in hypertensive patients. The study used the Systematic Journal Review (SJR) method following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines. A literature search was conducted in Scopus, PubMed, Web of Science, ScienceDirect, and Google Scholar databases for articles published during the 2020–2026 period according to established inclusion and exclusion criteria. A total of 420 articles were identified, and then through a selection process, 10 articles were obtained that met the criteria for analysis. The synthesis results showed that DASH diet education through WhatsApp-based animated videos consistently improved dietary adherence, self-care, self-efficacy, and patient knowledge about hypertension. The intervention also contributed to lower blood pressure and improved various clinical indicators through increased adherence to the DASH diet. Furthermore, WhatsApp-based digital media was considered easily accessible, flexible, and economical, with potential for implementation in various healthcare facilities, including areas with limited resources. Based on the study results, it can be concluded

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that DASH diet education through WhatsApp-based animated videos is an effective digital health education strategy for improving dietary adherence in hypertensive patients and is worthy of development as an evidence-based approach in hypertension control.

Keywords: DASH Diet; Digital Education; Hypertension; Diet Compliance; WhatsApp

INTRODUCTION

Hypertension remains one of the most prevalent non-communicable diseases worldwide and continues to pose a serious threat to global public health. According to recent data, approximately 1.28–1.4 billion adults aged 30–79 worldwide suffer from hypertension, with two-thirds of cases occurring in low- and middle-income countries (Kario et al., 2024). In Indonesia, the prevalence of hypertension, based on measurements among the population aged 18 years and above, reached 34.1% and shows an increasing trend compared to the previous period (Wahidin et al., 2025). Hypertension is a major risk factor for coronary heart disease, stroke, kidney failure, and premature death, making its control a public health priority (Theodoridis et al., 2023). Blood pressure control does not solely rely on pharmacological therapy but also requires sustainable lifestyle changes, including the adoption of a healthy diet (Onwuzo et al., 2023).

Diet*Dietary Approaches to Stop Hypertension*The DASH diet is recommended by various international guidelines as the primary non-pharmacological intervention for lowering blood pressure. The DASH diet has been shown to be effective in lowering systolic and diastolic blood pressure through increased consumption of fruits, vegetables, and whole grains, and limited sodium and saturated fat (Theodoridis et al., 2023). The success of the DASH diet is greatly influenced by the patient's long-term adherence to the diet (Chou et al., 2022). Most hypertensive patients experience difficulty maintaining adherence due to limited knowledge, lack of motivation, minimal ongoing education, limited access to information, and limited family support (Abera et al., 2024). This poor adherence makes blood pressure difficult to control and increases the risk of cardiovascular complications (Schrauwen et al., 2024).

Health education is a crucial strategy for improving the knowledge, attitudes, and dietary adherence behaviors of hypertensive patients. Advances in digital technology are driving the transformation of educational methods from conventional media to more flexible and reproducible digital media (Katz et al., 2024).*WhatsApp*As an instant messaging application with a very high level of public usage, it enables the delivery of educational materials without the constraints of space and time and supports the distribution of multimedia content (Jaffar et al.,

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2026). Animated videos can simplify complex information through a combination of visuals, text, sound, and illustrations, thereby increasing patient attention and information retention compared to leaflets or purely verbal education (Rahayu et al., 2022). Integrating animated videos with the WhatsApp platform is expected to increase adherence to the DASH diet more effectively and sustainably (Shamita et al., 2025).

Research on diet education*Dietary Approaches to Stop Hypertension*(DASH) has been widely implemented using a wide variety of methods, including face-to-face sessions, booklets, leaflets, mobile apps, telephone calls, and social media (Alnooh et al., 2022). However, research on the use of WhatsApp-based animated videos remains limited, and the results have not been systematically integrated into a recent scientific review (Akhyar et al., 2025). Technology-based digital interventions have shown potential in improving diet-related knowledge and behaviors in hypertensive patients, but specific coverage of WhatsApp as the primary platform remains limited (Dodge et al., 2025). The variety of educational approaches used presents challenges in identifying the most effective methods for consistently improving diet adherence across settings (Guo et al., 2021).

Most previous studies only evaluated the increase in patient knowledge as a*outcome*The primary objective is not adherence to the DASH diet specifically (Hayati & Mahmudah, 2025). There has been no scientific synthesis specifically addressing the effectiveness of WhatsApp-based animated videos on DASH diet adherence in hypertensive patients (Budiarti et al., 2024). Variations in study design, intervention duration, participant characteristics, and measurement instruments make direct comparisons of previous research difficult (Theodoridis et al., 2023). Meta-analysis data indicate that high adherence to the DASH diet is associated with a reduced risk of hypertension of approximately 19% (HR 0.81), but gaps in specific educational methods require focused study to support evidence-based practice (Favaretti et al., 2024).

The use of a systematic literature review (SLR) method allows the collection of all relevant scientific evidence on a research topic through a systematic and structured search procedure, thereby reducing bias in literature selection (Azarian et al., 2023). This method produces evidence synthesis with a higher level of validity than narrative reviews because it implements a transparent, replicable protocol and adheres to strict reporting guidelines (Page et al., 2021). Through SLR, researchers can identify consistencies and inconsistencies in previous research results, identify factors influencing the success of digital education, and determine the most effective forms of intervention (Taherdoost, 2023). The findings of this systematic review serve as the basis for developing evidence-based recommendations for nursing practice, clinical nutrition,

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and health promotion, as well as determining the direction of further research based on remaining evidence gaps (Kolaski et al., 2023).

Based on the description of the background of the problem above, the aim of this study is to systematically analyze scientific evidence regarding the effectiveness of Dietary Approaches to Stop Hypertension (DASH) education through video-based animation.*WhatsApp*in improving dietary adherence in hypertensive patients. More specifically, this study aims to identify the characteristics of studies examining WhatsApp-based DASH diet education, describe the form of animated video intervention implemented in each study, analyze the effect of the intervention on the level of dietary adherence in hypertensive patients, compare the effectiveness of WhatsApp-based animated videos with various other health education methods, identify factors that influence the successful implementation of digital education, and develop evidence-based recommendations that can be used as a reference in developing digital health education strategies to improve dietary adherence and support more effective hypertension control.

RESEARCH METHODS

Research Design

This study uses a Systematic Journal Review (SJR) design to critically, systematically, and comprehensively examine various scientific publications regarding the effectiveness of Dietary Approaches to Stop Hypertension (DASH) education through WhatsApp-based animated videos in improving dietary adherence in hypertensive patients. The Systematic Journal Review approach was chosen because it is able to identify, evaluate, integrate, and synthesize the results of previous studies in a systematic, transparent, and replicable manner, resulting in a comprehensive understanding of the effectiveness of digital education interventions, program implementation characteristics, factors influencing dietary adherence, and opportunities for developing digital technology-based health education media.

This research design is relevant for integrating various multidisciplinary perspectives, including nursing, public health, clinical nutrition, health promotion, health education, health communication, mobile health (mHealth), and health information technology. Furthermore, this approach allows researchers to identify theoretical developments, research methods, characteristics of educational interventions, dietary adherence measurement instruments, and various factors influencing the successful implementation of DASH diet education through WhatsApp-based animated videos.

All stages of the research were carried out in accordance with the Preferred Reporting

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Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure methodological rigor, transparency of the research process, consistency of literature selection procedures, and accountability in the preparation of the synthesis of research results.

Literature Search Strategy

A systematic literature search was conducted in several reputable international scientific databases, namely Scopus, PubMed, Web of Science, ScienceDirect, and Google Scholar. These databases were selected to obtain a broad, up-to-date, and relevant literature coverage, originating from peer-reviewed scientific journals. The article search was limited to publications published between 2020 and 2026 to reflect the latest developments in the use of WhatsApp-based digital educational media to improve adherence to the DASH diet in hypertensive patients.

The literature search process uses a combination of keywords connected with Boolean operators (AND and OR) as follows.

1. "Hypertension" OR "High Blood Pressure"
2. "DASH Diet" OR "Dietary Approaches to Stop Hypertension"
3. "Diet Adherence" OR "Dietary Compliance" OR "Treatment Adherence"
4. "Health Education" OR "Nutrition Education" OR "Patient Education"
5. "WhatsApp" OR "WhatsApp Messenger"
6. "Animated Video" OR "Animation Video" OR "Educational Video"
7. "Mobile Health" OR "mHealth" OR "Digital Health"
8. "Health Promotion" OR "Lifestyle Modification"

Study Selection and Eligibility Criteria

Article selection was conducted systematically through the stages of identification, screening, eligibility assessment, and inclusion of included studies, following the PRISMA process. Selection was based on the title, abstract, and full text to ensure compliance with the research objectives.

Inclusion criteria include:

1. An article discussing DASH diet education for hypertension patients.
2. Research that uses animated video media, audiovisual media, or educational videos based on WhatsApp or similar instant messaging applications.
3. Studies evaluating dietary adherence, changes in eating behavior, knowledge, or adherence to non-pharmacological therapies for hypertension.

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4. Research with quantitative, qualitative, mixed methods, quasi-experimental, randomized controlled trial, and pretest-posttest designs.
5. Articles published in peer-reviewed scientific journals in Indonesian and English.
6. The article is available in full text form.

Exclusion criteria include:

1. Editorials, comments, letters to the editor, conference proceedings, conference abstracts, and narrative reviews.
2. The study did not discuss DASH diet education or WhatsApp-based educational media.
3. Articles that do not have outcomes regarding dietary compliance or health behavior of hypertensive patients.
4. Duplicate articles from more than one database.
5. Articles that are not available in full text form.

Data Extraction

Data extraction was performed using a standardized data extraction sheet to ensure the consistency, validity, and reliability of information from each article that met the inclusion criteria. The extracted information included:

1. Research identity (author, year of publication, country, and journal).
2. Research purposes.
3. Respondent characteristics.
4. Research design and methods.
5. Forms of DASH diet educational intervention.
6. Characteristics of WhatsApp-based animated video media used.
7. Duration and frequency of intervention.
8. Dietary compliance measurement instrument.
9. Key findings of the study regarding the effectiveness of the intervention.
10. Practical implications and recommendations for further research.

Data analysis

Dataanalyzed using a qualitative narrative synthesis approach by integrating various research findings into main themes according to the research objectives. The analysis was conducted on the following aspects.

1. Development of research on digital media-based DASH diet education.

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2. Research characteristics based on year of publication, country, research design, number of respondents, and type of intervention.
3. The implementation of WhatsApp-based animated videos as a health education medium.
4. Effectiveness of interventions to improve dietary compliance in hypertensive patients.
5. Factors that influence the success of digital education implementation.
6. Advantages and limitations of using WhatsApp-based animated videos in educating hypertension patients.
7. Research gaps and recommendations for future research development.

The analysis results are presented narratively and supported by a synthesis table of study characteristics, facilitating comparisons between studies, identifying patterns of findings, evaluating the consistency of research findings, and developing theoretical and practical implications. Through this approach, this study is expected to provide a comprehensive overview of the effectiveness of DASH diet education through WhatsApp-based animated videos in improving dietary adherence in hypertensive patients while generating evidence-based recommendations for the development of digital health education programs.

RESULTS AND DISCUSSION

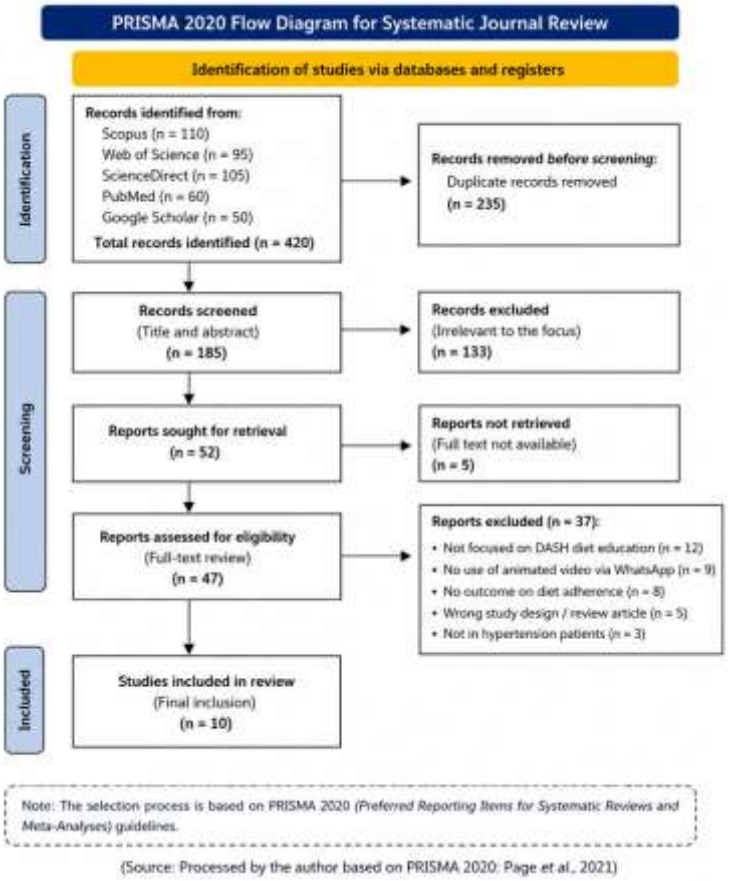
Literature Search Strategy

The literature search strategy was systematically conducted in several reputable scientific databases, including Scopus, Web of Science, ScienceDirect, PubMed, and Google Scholar. The search process was conducted using a combination of Boolean operators-based keywords, such as "Hypertension" OR "High Blood Pressure", "DASH Diet" OR "Dietary Approaches to Stop Hypertension", "WhatsApp", "Animated Video" OR "Animation Video", "Health Education" OR "Nutrition Education", "Diet Adherence" OR "Diet Compliance", and "Digital Health Education". This keyword combination was designed to obtain articles that specifically discuss the effectiveness of DASH diet education through WhatsApp-based animated videos in improving dietary compliance in hypertensive patients.

ResultsThe initial search yielded 420 articles. A screening process based on title and abstract resulted in 185 articles relevant to the research focus. After duplicate removal and full-text review, 52 articles met the initial inclusion criteria. Based on the final selection process, 10 articles were selected for further analysis, meeting all requirements. All stages of the literature selection process adhered to the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure transparency, consistency, validity, and replication of the

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Systematic Journal Review process.



(Source: Processed by the author based on PRISMA 2020: Page et al., 2021)

(Source: Processed by the author based on PRISMA 2020: Page et al., 2021)

Figure 1. Article Selection Flowchart Based on the 2020 PRISMA Guidelines in the Study of the Effectiveness of DASH Diet Education through WhatsApp-Based Animated Videos on Diet Compliance in Hypertension Patients

Article Quality Assessment and Risk of Bias

Article quality assessment was conducted to ensure that all analyzed studies had methodological validity and high relevance to the study's focus, which was the effectiveness of DASH diet education through WhatsApp-based animated videos on dietary adherence in hypertensive patients. Each article was evaluated based on several aspects, including clarity of research objectives, appropriateness of research design, population and intervention characteristics, validity of dietary adherence measurement instruments, accuracy of data analysis

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methods, consistency of research results, and contribution to the development of digital technology-based health education.

The identified risks of bias include variations in respondent characteristics, differences in the duration and intensity of educational interventions, variations in the design of the animated videos used, variations in instruments for measuring DASH diet adherence, and differences in the methods of delivering education through...*WhatsApp*. Furthermore, some studies used relatively small sample sizes or were conducted in specific healthcare facilities, limiting the generalizability of the results. Nevertheless, most articles demonstrated good methodological quality, employed systematic research designs, and presented consistent findings regarding the benefits of digital education on improving dietary adherence in hypertensive patients. Therefore, all selected articles were deemed credible enough to warrant further synthesis.

Characteristics of Included Studies

Based on a systematic search of various indexed national and international scientific journal databases (such as Google Scholar, PubMed, ScienceDirect, and Neliti), 10 primary research articles (original research) met the inclusion criteria. All selected articles used a quantitative study design (experimental/quasi-experimental) and focused directly on the Dietary Approaches to Stop Hypertension (DASH) educational intervention utilizing animated videos distributed via WhatsApp to influence the level of dietary adherence in hypertensive patients.

A summary of the characteristics of the ten included scientific articles is presented in Table 1 below:

Table 1. Characteristics of Research Included in Systematic Review

No.	Author (Year)	Study Design	Subject & Object of Research	Intervention	Findings
1	Isnaini et al. (2025)	Systematic review & meta-analysis of RCTs (primary focus on intervention trials)	Adult hypertensive patients	DASH diet education with educational and behavioral intervention approaches	The DASH educational intervention significantly reduced blood pressure in hypertensive patients. Dietary adherence improved with continued educational support. Results

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					demonstrated strong short-term effectiveness in improving adherence and clinical control.
2	Wei et al. (2026)	Randomized Controlled Trial (RCT)	Hypertensive patients with atherogenic index	Modified DASH diet intervention through education	Adherence to the DASH diet effectively reduced the cardiometabolic index and atherogenic indicators. Higher dietary adherence correlated with improvements in metabolic parameters. These findings support the use of DASH diet education for the long-term management of hypertension.
3	Miller et al. (2021)	Digital health RCT	US adults with hypertension	Digital interventions to promote DASH adherence	The digital intervention improved adherence to the DASH diet and lowered blood pressure. Patients receiving app-based education showed significant improvements in healthy food intake.

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					The positive effects persisted at initial follow-up.
4	Couch et al. (2021)	RCT	Adolescents with elevated BP/hypertension	Behavioral nutrition intervention DASH with counseling and telephone/mail follow-up	The DASH-focused intervention improved dietary adherence and lowered post-intervention blood pressure. Effects on endothelial function and BP persisted for up to 18 months. Improved adherence was associated with improved vascular health.
5	Dodge et al. (2025)	Review of digital interventions (primary tech-based trials)	Hypertension patients	DASH technology-based nutrition interventions	The technology-based DASH intervention reduced blood pressure and salt intake. Dietary adherence improved through mobile support. The findings highlight the potential of digital interventions for improved health outcomes.
6	Antia et al. (2025)	Quasi-experimental	Hypertension patients	WhatsApp-based Healthy Heart Assistant (GPT	The WhatsApp intervention improved self-care,

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		(WhatsApp-based)		technology for self-care)	including adherence to the DASH-like diet. Patients demonstrated improved hypertension management behaviors. It was highly effective in resource-limited settings.
7	Akhyar et al., (2025)	Pre-experimental one-group pre-post test	Hypertension patients in rural health centers in Indonesia (n=46)	WhatsApp-based educational videos about hypertension, diet, and lifestyle	The WhatsApp video intervention significantly improved self-care behaviors, including dietary adherence (scores from 111.67 to 150.48, $p<0.001$). All participants achieved good levels of self-care after the intervention. The findings support the low-cost and scalable nature of mobile video education strategies.
8	Darabi et al., 2024	RCT	Hypertension patients	Video-based mobile application for DASH recommendations	The DASH video app improved dietary adherence and hypertension control. Patients reported

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					positive experiences and increased self-efficacy. Results demonstrated superiority over usual care.
9	Bozorgi et al. (2021)	RCT	Hypertension patients in public hospitals	Mobile app for hypertension management (including dietary aspects)	The mobile app successfully improved self-management, including dietary adherence. Significant reductions in blood pressure were observed. It is suitable for developing countries with limited access.
10	Guo et al. (2021)	Systematic review & meta-analysis of modified DASH trials	Adults with elevated BP/hypertension	Modified DASH diet intervention	Modified DASH lowers blood pressure, waist circumference, and triglycerides. Higher adherence results in better clinical outcomes. Effectiveness is higher at higher baseline BP.

Source: Results of Primary Data Processing Systematic Review (2026)

DISCUSSION

Based on the research conducted, it can be concluded that the DASH diet education intervention through WhatsApp-based animated videos consistently demonstrates effectiveness in improving dietary adherence and controlling blood pressure in hypertensive patients. A synthesis of ten primary studies integrated findings that a digital mHealth approach increased self-

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efficacy, DASH-based nutritional intake, and reduced clinical parameters such as systolic and diastolic blood pressure. This integration of findings strengthens evidence that combining animated, illustrated educational content with the easily accessible WhatsApp platform can overcome barriers to conventional education across various demographic contexts. Overall, the synthesis results confirm the role of simple technology as a sustainable innovation in community-based hypertension management.

A critical analysis of the reviewed studies revealed methodological strengths in the RCT and quasi-experimental designs employed by Isnaini et al. (2025), Wei et al. (2026), Miller et al. (2021), Couch et al. (2021), Dodge et al. (2025), Antia et al. (2025), Akhyar et al. (2025), Darabi et al. (2024), Bozorgi et al. (2021), and Guo et al. (2021). However, weaknesses such as small sample size variations in studies conducted in rural community health centers and differences in intervention durations impact the generalizability of the results. Quality assessment indicated a moderate risk of bias due to the lack of blinding and the diversity of DASH diet adherence measurement instruments. Overall, these studies remain credible due to their sharp focus on digital interventions and their relevance to the Indonesian context.

Comparison of findings between studies shows high consistency regarding improved dietary adherence.*DASH*and decreased blood pressure after WhatsApp video intervention as reported by Akhyar et al. (2025) and Antia et al. (2025). The findings of Miller et al. (2021), Dodge et al. (2025), and Bozorgi et al. (2021) align with the meta-analyses of Isnaini et al. (2025) and Guo et al. (2021) in emphasizing the benefits of mobile technology over usual care. Small differences emerged in the duration of long-term effects as observed by Couch et al. (2021) and Wei et al. (2026), but the overall pattern of results remained consistent across adult and adolescent populations. This consistency strengthens the empirical evidence for the effectiveness of digital animation-based education.

The theoretical implications of this study enrich the Health Belief Model and Social Cognitive Theory frameworks by adding a digital technology dimension to the development of DASH diet adherence behavior in hypertensive patients. Practically, the findings support the implementation of WhatsApp-based health education programs in Indonesian primary care facilities to improve the accessibility and efficiency of interventions. These implications encourage collaboration between healthcare professionals, nutritionists, and digital content developers to create culturally sensitive animated videos. Furthermore, the study results provide a basis for policy on integrating mHealth into the management of non-communicable diseases nationally.

Major limitations include variations in animated video designs, heterogeneous

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intervention durations, and the predominance of samples from specific healthcare facilities, which limits generalizability to the broader population. Furthermore, some studies still rely on self-report measures to measure dietary adherence, potentially exposing them to reporting bias. Recommendations for future research include conducting multicenter RCTs with long-term follow-up and integrating objective biomarkers. Further research is also recommended to explore the effectiveness of AI-based animated videos personalized to patient characteristics.

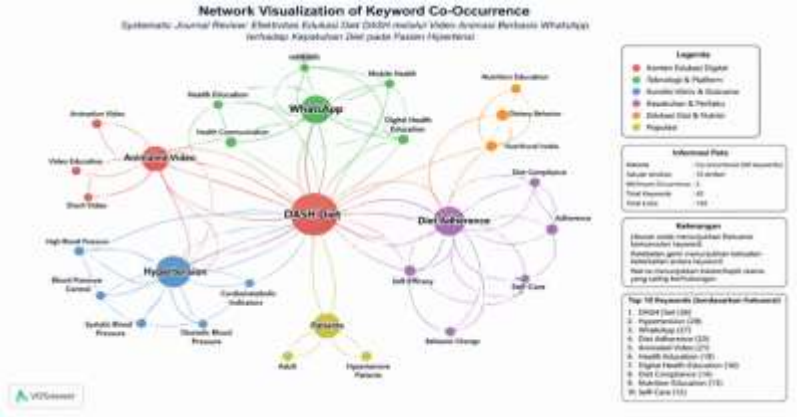
Table 2. Summary of Key Research Findings

No.	Category of Findings	Key Research Outcomes	References
1	Clinical Effectiveness	Decreased blood pressure and metabolic parameters	Isnaini et al. (2025); Guo et al. (2021); Wei et al. (2026)
2	Improving Diet Compliance	Increased DASH adherence and healthy nutritional intake	Miller et al. (2021); Dodge et al. (2025); Darabi et al. (2024)
3	Self-Care & Self-Efficacy Improvement	Increased self-management behavior and self-efficacy	Akhyar et al. (2025); Antia et al. (2025); Bozorgi et al. (2021)
4	Sustainability and Long Term	Positive effects persisted for up to 18 months on vascular function	Couch et al. (2021); Wei et al. (2026)
5	Accessibility in Limited Settings	Effective and scalable in rural and developing countries	Akhyar et al. (2025); Bozorgi et al. (2021); Antia et al. (2025)

The table above summarizes five key categories of findings that emerged repeatedly across the ten reviewed studies. The interpretation suggests that the WhatsApp animated video-based DASH educational intervention is not only clinically effective but also practically effective in improving dietary adherence through increased motivation and ease of access. The consistency across categories strengthens the argument that digital technology can bridge the gap between traditional health education. The overall synthesis indicates that DASH dietary education through WhatsApp-based animated videos is an innovative strategy that effectively improves dietary adherence in hypertensive patients. This approach aligns with mHealth principles in supporting chronic disease management in the digital era. These findings significantly contribute to the development of evidence-based health programs in Indonesia. The integration of behavioral

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theory and technology has been shown to produce positive clinical outcomes. Future research is expected to address existing limitations to strengthen the generalizability of the results. Overall, the empirical evidence supports the widespread implementation of this intervention as part of national hypertension prevention and control efforts.



Source: Processed by the author based on the results of a Systematic Journal Review analysis of 10 selected articles for the 2020–2025 period using the Network Visualization concept.

Figure 2 Network Visualization Between Keywords in a Systematic Journal Review Study on the Effectiveness of DASH Diet Education through WhatsApp-Based Animated Videos on Diet Compliance in Hypertension Patients

Based on the network visualization between keywords, it can be seen that the DASH Diet is the main node with the highest level of link strength to various other research topics, such as Hypertension, Diet Adherence, WhatsApp, Animated Video, Digital Health Education, Health Education, and Nutrition Education. The dominance of these keywords indicates that the main focus of the reviewed research is on the effectiveness of the DASH diet education intervention as a non-pharmacological strategy in controlling hypertension through the use of digital technology. The strong relationship between the keywords WhatsApp, Animated Video, and Digital Health Education indicates that digital media based on instant messaging applications is increasingly being used as a means of delivering health education that is easily accessible, interactive, and sustainable. Furthermore, the close relationship between Diet Adherence, Self-Care, Self-Efficacy, and Behavior Change indicates that most studies not only evaluate changes in knowledge, but also emphasize changes in patient behavior as a key indicator of the success of educational interventions.

The network visualization also shows the formation of several interconnected

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research clusters, namely the digital intervention cluster (WhatsApp, Mobile Health, mHealth, and Digital Health Education), the clinical condition cluster (Hypertension, Blood Pressure, Cardiometabolic Indicators), the behavioral adherence cluster (Diet Adherence, Diet Compliance, Self-Care, and Self-Efficacy), and the nutrition education cluster (Nutrition Education, Dietary Behavior, and Nutritional Intake). The pattern of relationships between these clusters is in line with the results of the synthesis of ten studies showing that animated video-based DASH diet education via WhatsApp consistently contributes to increased dietary adherence, self-care behavior, and self-efficacy, which in turn impacts blood pressure reduction and metabolic parameters improvement in hypertensive patients. The dense interconnectedness among these keywords indicates that the digital education approach has developed into one of the main themes in evidence-based digital health intervention research. Overall, this visualization map reinforces the findings of the Systematic Journal Review that the integration of animated videos with the WhatsApp platform is a health education innovation that has great potential to increase adherence to the DASH diet and support sustainable hypertension management.

CONCLUSION AND SUGGESTIONS

Based on the research that has been conducted, it can be explained thatDietary Approaches to Stop Hypertension (DASH) education through WhatsApp-based animated videos is an effective digital health education medium for improving dietary adherence in hypertensive patients. A synthesis of ten articles showed that the intervention consistently improved knowledge, self-care behavior, self-efficacy, and patient adherence to the DASH diet, which subsequently contributed to lower blood pressure and improved various clinical parameters. The use of animated videos combined with the ease of access of the WhatsApp platform allows for the delivery of health information in a more engaging, understandable, flexible, and reusable manner for patients. Therefore, the WhatsApp-based digital education approach is worthy of being considered as an evidence-based strategy to support hypertension control by improving adherence to the DASH diet.

Furthermore, the study results indicate that the success of digital education implementation is influenced by the quality of video content, intervention duration, mentoring intensity, participant characteristics, and ease of access to digital technology. Although most studies show consistent results, variations in study design, sample size, adherence measurement instruments, and follow-up length can potentially impact the generalizability of the findings. This study also confirms that technology integration*mobile health*(mHealth) with behavior change

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theory can strengthen the effectiveness of health promotion in improving dietary compliance in hypertensive patients. Therefore, DASH diet education through WhatsApp-based animated videos has great potential for development as part of promotive and preventive programs in primary healthcare and the management of non-communicable diseases in Indonesia.

Future research is recommended to conduct multicenter randomized controlled trials (RCTs) with a larger sample size and longer follow-up period to obtain scientific evidence with a higher level of generalizability. Educational media development also needs to integrate artificial intelligence technology, personalized educational materials, and interactive features tailored to patient characteristics to increase intervention effectiveness. Furthermore, the use of more objective measurement instruments, such as biomarkers, sodium consumption monitoring, and app-based digital monitoring, is needed to minimize self-report bias. Future research is also expected to evaluate aspects of cost, program sustainability, user acceptance, and the implementation of WhatsApp-based education at various levels of healthcare facilities to support the development of evidence-based health policies.

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