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Review Article

Family-Centered Education for Older Adults with Hypertension: A Scoping Review

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Abstract

Background: Older adults are the most hypertensive population compared to other age groups. The purpose of this study was to determine an education model involving the family and the outcomes of the program.

Methods: Studies conducted in 2023. The search terms "Aged or Older Adult or Elderly and Family-centered or Family Nursing and Hypertension or High Blood Pressure" were used to conduct a scoping review in the journals PROQUEST, SCOPUS, MEDLINE, COCHRANE, and PubMed until 2022. The flowchart for the PRISMA Scoping review shows the search and selection procedure. Tools from the Joanna Briggs Institute (JBI) for Randomized Controlled Trials and Quasi-Experimental Studies are used to critically evaluate a few chosen papers.

Results: There were 11 articles found out of 2,355 articles in the search results. To increase perceived threat, self-efficacy, and self-confidence, the family-involved education intervention is implemented in phases. Knowledge, family involvement, blood pressure, cholesterol, uric acid, quality of life, and behavioral changes were among the outcomes that were evaluated.

Conclusion: Education involving families of the elderly with hypertension can affect a decrease in blood pressure, an increase in self-efficacy and good behavioral change, an increase in self-esteem, improved life quality, and family empowerment.

Keywords: Older adults; Hypertension; Family-centered; Scoping review

Introduction

One major risk factor for cardiovascular disease is high blood pressure (1). Globally, hypertension is thought to be the cause of up to 17 million deaths annually. The world is now burdened with hypertension, which leads to cardiovascular disease and all-cause death. As a major contributor to the incidence of cardiovascular disease, stroke, and mortality, hypertension has become a public

health concern. Only 21% of hypertension patients were under control, and only 42% of them received medication, according to survey results (2). According to data from the 2018 Basic Health Research survey, hypertension was 31.7% common in Indonesia and primarily affected adults and the elderly (3).

A major contributing factor to cardiovascular disease (CVD) includes both systolic and diastolic hypertension (4–8). Since it frequently shows no symptoms, hypertension is also referred to as the silent killer because it can cause ongoing, irreversible harm to important organs like the heart, kidneys, blood vessels, eyes, and brain. In terms of worldwide death and morbidity, CVD is the leading cause (9–14). According to studies conducted in the US, older persons account for 57.5% of all deaths from hypertension (15). Additionally, hypertension has a comparatively large financial impact (16).

Because age has a major role in impairing the proper function of the cardiovascular system, older people are more susceptible to cardiovascular diseases (CVD). As people age, the prevalence of this condition rises (9). The age group 60 and above has the highest prevalence of hypertension (17). Everyone should aim for blood pressure regulation below 90/140 mmHg due to the risks of complications from organ damage brought on by CVD (18,19).

Diabetes mellitus, a cardiometabolic condition, was found to be the leading cause of hypertension in 176 hypertensive patients in Iran (20). This study demonstrates that diabetes mellitus is a risk factor that can be changed because it is a lifestyle choice, in addition to being caused by genetic factors. Modifiable risk factors for CVD include lipid abnormalities, diabetes mellitus, and smoking (21). These risk factors can be altered by controlling blood pressure, managing hypertension with medication, and altering lifestyle choices (22). Family support and individual factors impact lifestyle changes since the family is crucial in forming the beneficial lifestyles of its members (23).

Family support influences treatment and prevention behaviors related to hypertension (24). Family support considers the patient's needs and the support provided, such as medication adherence, daily meals, physical activity, and stress management (25). Family advocacy is an important strategy to support family members in thinking, decision-making, monitoring, and problem-solving (26,27).

Family support in self-care behaviors can enhance self-confidence in adopting healthy behaviors, demonstrating that family support contributes to hypertension self-care behaviors(28). Another systematic review mentioned the impact of social support on adherence, and family or peer support can improve adherence in certain hypertension patient groups(29). However, these studies do not specifically explain the interventions involving the family. The purpose of this scoping study was to find family-based education models and investigate the results of interventions for patients with hypertension.

A proper study of how the education process is carried out for hypertension patients and their families is necessary because care that is focused on the client's family implies that not only the patient but also his family can manage hypertension optimally and in an organized manner and contribute positively to blood pressure control (30).

Methods

Study design

This scoping review utilizes the framework of family-centered empowerment model implementation. This model is one of the nursing interventions supporting family health tasks in controlling hypertensive patients. The model emphasizes the family as an open system with interactions among its members. Therefore, the interventions focus on improving the health and well-being of all family members by enhancing the internal dynamics of the family relationship, structure, and function. This approach incorporates systems theory, considering the community group to be the suprasystem and family members to be interacting subsystems (31). The purpose of this study

was to examine the educational model involving families and the outcomes measured after the provision of such education. The protocol was created using the template provided by Cochrane.

Setting and sample

The article searches were conducted using the Databased PubMed (1979-2022), Scopus (All articles up by April 11, 2022) databases, Medline (Up until 2022), and Cochrane (All articles up until April 11, 2022). Grey literature related to this research topic was searched using Proquest (Up until April 11, 2022). The search strategy used boolean operators and the following keywords: (aged OR older adult OR elderly) AND (family-centered OR family nursing) AND (hypertension OR high blood pressure). All selected articles underwent a screening process using the Rayyan.ai application (32). The results of searching for articles in the database can be seen in Table 1.

Table 1: Search Results for Articles in the Database

Databases	Keyword	Number of identified articles
PUBMED	(Aged OR older adult OR elderly) AND (family-centered OR family nursing) AND (hypertension OR high blood pressure).	615
SCOPUS	aged OR "older adult" OR elderly AND "family-centered" OR "family nursing" AND hypertension OR "high blood pressure"	636
MEDLINE	(aged OR "older adult" OR elderly) AND ("family-centered" OR "family nursing") AND (hypertension OR "high blood pressure")	10
COCRANE	aged OR "older adult" OR elderly in All Text AND "family-centered" OR "family nursing" in All Text AND hypertension OR "high blood pressure" in All Text - (Word variations have been searched)	9
PROQUEST	(aged OR "older adult" OR elderly) AND ("family-centered" OR "family nursing") AND (hypertension OR "high blood pressure")	1085

Inclusion and exclusion criteria

The inclusion criteria for this study were articles with experimental or quasi-experimental designs that investigated the effects of family-centered nursing interventions on hypertensive patients. The selected articles included those published up until Apr 11, 2022. The focus of the selected articles was on research involving interventions that provided education through training involving patients and their families, interactions or communication between healthcare providers and patients and their families in the context of elderly hypertensive patients, and studies conducted in both hospital and community settings. The exclusion criteria included secondary research such as scoping reviews, systematic reviews, thesis literature, books, reviews, conference papers, public policies, guidelines, and patients with chronic conditions resulting from hypertension.

Data collection

Two researchers searched for articles based on keywords and performed selection through several stages. Firstly, they read the titles of the studies and then reviewed the abstracts based on inclusion and exclusion criteria. Next, they independently reviewed the full texts of all selected articles. Any disagreements were resolved through discussions with the entire research team. In addition to the review, the researchers also conducted a critical appraisal to assess the quality of the articles obtained using tools from the Joanna Briggs Institute (JBI) (33). The selection process for study inclusion in the scoping review can be seen in Fig. 1.

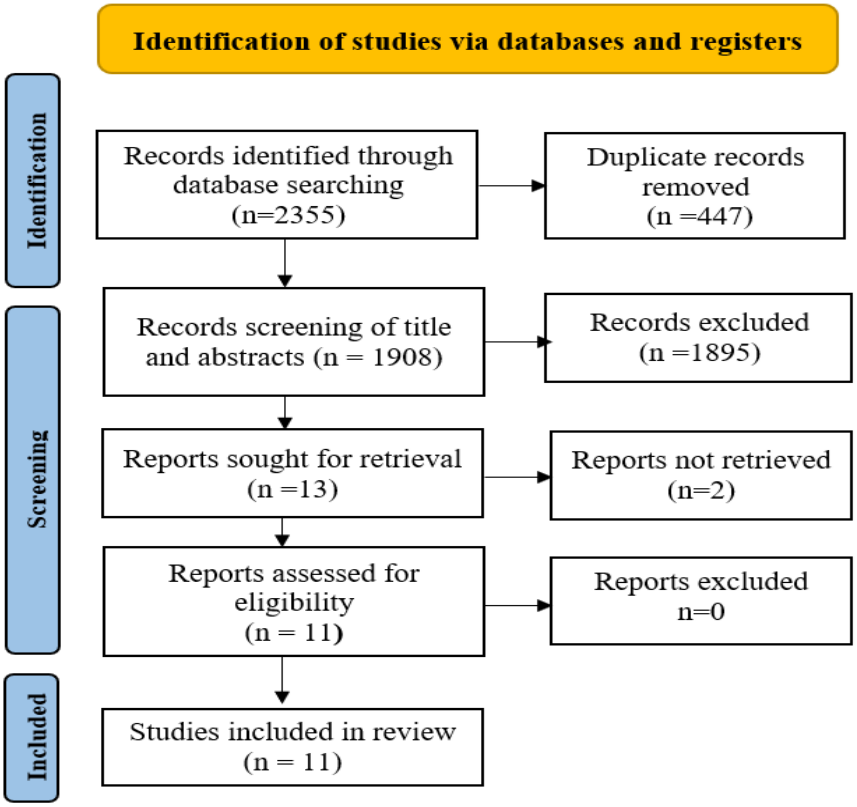

Fig. 1: Selection Process for Inclusion of Studies in the Scoping Review

The results of the article search are presented in the scoping review flowchart (34,35). The screening stage was carried out using the Rayyan.ai application, a website designed to help researchers carry out reviews and speed up the process of screening and selecting studies (32). By using keywords, we identified 2,355 articles, of which 447 were duplicates, resulting in 1,908 remaining articles. Based on the title, abstract, and predefined criteria, we excluded 1,895 articles. After reading the full text, we selected 13 articles. Upon detailed re-reading, we excluded 2 articles that did not align with the research subjects in the protocol. From the screening process, we obtained 11 articles for review.

Methodological quality appraisal

We used the 13 essential items from the Joanna Briggs Institute (JBI) to conduct assessments for Randomized Controlled Trials of the quality of five studies with a score of > 10, which means they are considered to be of high quality, apart from that, we also assessed six articles with 9 items from the JBI scoring criteria for Quasi-Experimental research, with a score of > 7, which means this study also has high quality.

Results

Data extraction

The data were extracted from the selected articles that met the criteria. The extraction included author, year of publication, study title, study settings (country name and research location), participants, sample size, study design, description of family intervention, intervention duration, outcome, and follow-up duration. Description of the intervention model data extraction, duration, results and duration of follow-up can be seen in Table 2.

Table 2: Data Extraction Description of Intervention Model, Duration, Outcome, and Duration of Follow-up

Author	Country	N	Description of intervention	Duration	Outcome	Duration of follow-up
Rabiei, et al,2013(36)	Iran	64	Beginning with growing threat perceptions, the phases are implemented, followed by problem-solving, educational engagement, and assessment. facilitated group talks to comprehend and identify issues, talk about finding solutions to issues, and refine suggestions based on feedback from others. To conclude, pamphlets were distributed and subsequently assessed.	Each of the ten sessions that the participants participated in lasted 45 minutes.	Quality of life, self-efficacy self-esteem	After Intervention
Hedayati,2015 (37)	Iran	62	The intervention began with a group discussion to comprehend the threat and boost self-efficacy through abilities in managing activities, lowering stress, utilizing a blood pressure monitor, adjusting lifestyle, and scheduling medications. Talk about and impart to the family the knowledge that the elderly have acquired to boost self-esteem. Process evaluation and final evaluation are the last steps.	Participants participated actively during four sessions.	Self-Esteem	One and a half months following the intervention, and twice a week
Keshvari et al,2015(38)	Iran	62	Increasing perceived danger, self-efficacy, and self-confidence is the first step in the phased implementation of the intervention, which concludes with evaluation. Small group sessions are used to implement the intervention, which aims to empower older adults and their families by promoting observation, practice, sharing of real-world experiences, and reflection on the lessons learned.	Participants participated actively during four sessions and each session lasted 45 minutes.	Blood Pressure, dimensions of empowerment	A month and a half after the intervention, twice a week
Hedayati,2018(39)	Iran	62	First, there is a group discussion to improve understanding of threats; second, there is a group discussion and practical presentation to increase self-efficacy; third, the material learned by parents is transferred to family members to promote self-esteem; and fourth, there is a family evaluation in the form of questions and answers.	Participants actively participate in each of the four sessions.	Self-Efficacy	One and a half months following the intervention, twice a week
Maslakpak et al,2018(40)	Turkey	100	Short lectures on healthy lifestyles and group discussions with family members to exchange experiences and goals to alter attitudes and boost positive emotions for a healthy lifestyle are used to implement the intervention. It also encourages the elderly and their families to create action plans.	The four months of education involve active participation from the participants.	Medication adherence, blood pressure	After the intervention
Someia et al,2020(41)	Iran	60	Discussions, lectures, and question-and-answer sessions are used to conduct interventions with patients and their families at the following stages: evaluation, problem-solving, perceived threat, and educational involvement. Posters and instructional books enhance the learning process.	Participants play an active role during education, activities are carried out once a week for ten weeks.	Health-promoting behavior, glycemia, serum lipid profile, liver and renal function, 25-hydroxy Vit D, and serum calcium.	At two and six months following the intervention, twice

Table 2: Continued …

Marlina et al, 2020(42)	Indonesia	32	In order to implement the intervention, family members were trained to take their blood pressure, uric acid, and cholesterol readings, given control cards to record the data, and given the expertise to interpret the results.	Participants actively participate in once-performed instructional activities.	Blood Pressure,Cholesterol, Uric Acid	Not Described
Shaafii et al, 2020(43)	Iran	150	Family members participate in home visits and provide lifestyle education as part of the intervention.	Participants take an active role twice per week for eight sessions	Lifestyle	Once, twice, and three times following the intervention
Boonyathee et al,2021(44)	Thailand	268	The intervention was carried out to build self-efficacy skills by sharing experiences, modeling by telling successful experiences of family care and involvement of the elderly, nutritional education by practicing cooking together with the DASH diet guidelines, and physical activity information. Caregivers and elderly people are also given a diary to record daily activities (blood pressure, diet, exercise)	Participants play an active role and it is held once a week for twelve weeks	Self-efficacy, health care behavior, blood pressure, and cholesterol levels	Three months and twelve weeks following the operation, respectively.
Hamedani et al,2021(45)	Iran	70	Increasing perceived danger, self-efficacy, and self-confidence is the first step in the phased implementation of the intervention, which concludes with evaluation. The elderly and their families are given the tools to improve their knowledge and attitudes about physical activity, nutrition, and managing hypertension by enhancing mental health through a spiritual approach, practicing, and exchanging real-world problem-solving experiences.	Participants are active for four sessions and each session lasts 60 min	Quality of life	After three months, once
Usman et al, 2021(46)	Indonesia	289	Together with the family, the intervention was implemented in three stages: first, sharing salt-using habits and experiences; second, cooking together with a low-salt menu; third, discussing and sharing salt-reduction experiences; and fourth, evaluation and motivation. The first stage involved teaching the family about the effects of salt intake on blood pressure and the advantages of family support.	Participants actively participated in two sessions.	Adherence to a low-salt diet	One week, one month, two months, and four times following the intervention

Characteristics of the included studies

In 9 articles, the respondents were aged above 60 years, which falls under the advanced age category (36–39, 41,43–46); in 2 articles, the respondents included both elderly and adults (40, 42,45). The article describes an intervention model involving families. All articles describe educational interventions involving families in groups and community settings. The next two articles provide similar interventions and also conduct home visits to patients and families (43,44). One article describes the educational offerings provided in community health centers (42).

A family approach to teaching and assistance for elderly hypertensive patients was used in all articles. Five articles used the Randomised Control Trial (RCT) design (40,41, 43,45,46), and four articles used the quasi-experimental design (36, 38, 42,44). The intervention details, meeting sessions, duration, outcomes, and follow-up time of educational activities are summarized in Table 2.

Implementation of the family center education model

From the 11 intervention articles on hypertension patients involving families, we reviewed 10 articles due to the completeness of information on intervention methods, intensity, duration, and post-test intervals. One article needed to provide detailed explanations of the interventions and timeframes (42).

Intervention and implementation duration

Initiatives for health promotion involve family members to guarantee that education is provided to both individuals and the family as a whole. Families that participate in education are those who live with the patients, have decision-making authority, are willing to participate, and understand the need of maintaining good health as people age. This article also includes the inclusion requirements for families, which are those with moderate and low levels of empowerment (38). Several stages of meetings are used to conduct education. The first phase starts with programs designed to improve how people view the elderly by increasing their knowledge, attitudes, and awareness through group conversations. The second stage is all about boosting self-efficacy, and the one after that is about boosting self-confidence (36,38).

The educational approach is implemented through both small and large group meetings, empowering the elderly and their families through discussions that encourage participants to observe, try to practice, share experiences, and reflect on their learning experiences (38, 40,45). Education with a duration of 10 sessions is conducted through group discussions aimed at understanding, identifying problems, and discussing solutions. The next stage involves providing education related to diet, physical and spiritual health, and stress management. The participation stage involves transferring the topics discussed in previous sessions to family members in the presence of researchers. At the end of the session, an assessment is conducted, and educational materials in the form of pamphlets are provided (36,41). The two primary tasks of the 12-week-long social support family caregiver training program (SSFCTP) intervention model are fostering connections between caregivers and the elderly and enhancing knowledge via video content. Additionally, researchers provide daily diaries to the elderly and caregivers to document regular tasks including blood pressure, nutrition, and physical exercise (44). The two-session educational program covers disease education, the value of family support in the management of hypertension, and a low-salt diet. Patients and their families next demonstrate how to select, cook, and prepare low-salt foods for hypertension patients. After that, a conversation about experiences and perceived challenges with adopting a low-salt diet follows (46). Three groups receive further education: one group attends lectures, one group receives home visits, and the third group includes the family in the educational process (43).

Education in all article findings uses the stages of the family empowerment model, namely the stage of increasing perceived threat, and the stage of increasing self-efficacy and self-confidence. The education is provided in the form of small group and large group meetings as well as discussions with family members, empowering the elderly and their families by encouraging participants to observe, try to practice, share practical experiences, and reflect on their learning experiences (36, 38, 40,44,45).

Educational Program Outcomes

In the four articles, the educational program involving external families resulted in a significant decrease in blood pressure in the treatment group compared to the control group, with a *P*-value below 0.005 (38, 40, 42,44). The following three articles reported an improvement in self-efficacy (44) (39)(36). Four of these studies identified lifestyle changes as outcomes, along with other outcomes(41, 43,44,46) . A part from blood pressure and self-efficacy, there are also other outcomes, namely self-esteem (36,37), and quality of life (36,45). Another outcome was an increase in empowerment scores after receiving education and training (38). One article reported lifestyle changes as an outcome(44), while two articles measured metabolic biomarkers as outcomes(42,44). Medication adherence (40) and improved quality of life after being given education involving the family (45). The evaluation of measured outcomes took place after one week of providing four educational sessions, followed by a follow-up after 1.5 months. The evaluation results showed that the average blood pressure significantly decreased with a p-value of 0.001 in the group that received education involving the fami-

ly, compared to the control group that only received one session of training (38). The empowerment dimension was also higher in the education group compared to the control group (38). Conclusions on the results of health education involving families for hypertensive patients present in Table 3.

Table 3: Conclusions in the Results of Health Education Involving Families for Patients with Hypertension

Outcome	Number of articles	Article
Reduction blood pressure	4	Keshvari et al (38); Marlina et al(42); Maslakpak et al(40); Boonyathee et al(44)
Increased self-efficacy	3	Boonyathee et al(44);Hedayati (39); Rabiei et al(36).
Lifestyle changes	4	Someia et ((41); Boonyathee et al(44)Shaafii et al(43); Usman et al (46)
Increased self-esteem	2	Hedayati et al(37) ; Rabiei et al(36)
Improved quality of life	2	Rabiei et al(36); Hamedani et al(45)
Increased family empowerment	1	Keshvari et al (38)
Decreased metabolic biomarkers	2	Boonyathee et al(44);Marlina et al 2020(42))
Treatment compliance	1	Maslakpak et al (40)

Discussion

In addition to identifying measurable outcome components from these educational models, the goal of this scoping study is to identify family-based educational models that are successfully implemented for older patients with hypertension. Scoping reviews are used to identify gaps in the literature and offer suggestions for further study. The eight articles' instructional phases clarify that the first step in educating patients and their families is to discover how well they comprehend risks, which boosts their self-efficacy and confidence to take blood pressure management measures (30). Involving the family in education empowers people and families to share responsibility, make decisions together, and help one another maintain their health. This strategy entails creating outcome-defined treatment plans that take into account the viewpoints and distinctive qualities of the patient and family.

According to the scoping review's findings, family-based education was linked to significant improvements in blood pressure control (P=0.001) (38, 40,42). An important factor in ensuring patient compliance with blood pressure management is family support (47,48) . Family groups are formed as part of educational strategies to improve self-efficacy, lower blood pressure, and encourage lifestyle changes. To start, the approach helps patients and their families have conversations, which helps them understand each other and harmonize their perspectives. Through this collaborative procedure, patients and their family members can share knowledge (44). The educational pattern became a component of the family's duty to provide for health requirements (31). The findings of this study are consistent with prior research showing that family empowerment and other empowerment techniques can

lower systolic and diatolic blood pressure in hypertension individuals (29). Facilities must establish cooperative relationships between patients and families through health professionals in order to empower families (49).

Other research related to this study looked for core aspects of the family-centered parenting model such as developing a parenting plan within the family (30). This study provides a detailed explanation of the phases of health promotion for hypertension patients in order to manage healthy living, as well as what family engagement in the educational process looks like. Another distinction is the thorough justification of the educational model's results with reference to the variables assessed and the timing of the post-intervention assessment.

Families are needed in the care of hypertensive patients because they cannot be separated from lifestyle changes and regular medication intake to help clients minimize complications due to hypertension(50). Self-management is effective in controlling blood pressure (51). Family support has been proven to be effective in increasing self-confidence and self-confidence (27). Self-efficacy determines how much confidence each individual has in their ability to carry out their learning process so that they can achieve optimal results because individuals who have high self-efficacy will better regulate themselves towards behavior that leads to controlled blood pressure behavior(44).

Education involving the family is proven to control blood pressure, so efforts need to be made to empower families effectively (52). Family empowerment is intended to help families to be able to change (30). The family-centered model of care emphasizes that care provides good outcomes with family support and increased family support and involvement of the ill family member (38,44). This educational model also enables families to know how to fulfill their own needs, can increase understanding of what families should do about their problems with existing resources plus outside support, and increases the ability to decide on appropriate actions to improve the healthy living standards of their family members (44).

The goal of this scoping review is also to determine which outcome components can be monitored following family-involved education. According to the synthesis, lowering blood pressure is the primary goal of the majority of the results evaluated from the inclusion of families in educational programs (38, 40, 44,46), boosting self-efficacy, and altering attitudes (39,41). Other measurable objectives, such knowledge, quality of life, and metabolic biomarker tests, are modified based on the patient's condition and the educational resources offered. The results of an educational model that involves families should be developed, as well as any potential effects on patient and family satisfaction.

Health promotion services for patients and families have proven to be effective in changing lifestyles, but the current reality is that in hospitals health promotion efforts in hospitals are still minimal, hospitals do not pay attention to long-term health such as lifestyle and quality of life of patients after leaving the hospital. A part from that, the Ministry of Health's policy is still oriented towards treatment, so a big challenge for hospitals is integrating health promotion activities (53).

Limitations

The evidence from these articles can help the world understand the steps that need to be taken to involve families in the management of hypertension, a global problem and cause of complications from heart disease, even though not all of the articles found provide a detailed explanation of who performs interventions in the form of education and home visits to patients and families.

Conclusion

Education involving the family is effective in reducing blood pressure, increasing self-efficacy, changing behaviors, improving self-esteem, enhancing the quality of life, and increasing family empowerment. Various educational models in-

volving families can be adapted to the conditions of the elderly and their families.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors declare that there is no conflict of interest.

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