INDONESIAN JOURNAL OF COMMUNITY HEALTH NURSING
Vol. 9, No. 1 February 2024
https://e-journal.unair.ac.id/IJCHN

FAMILY-BASED CARE USING THE OREM SELF-CARE MODEL IN FAMILIES WITH HYPERTENSION: A CASE STUDY

Muhamad Gustaf Al Fajar[1], Desy Indra Yani[2], Nina Sumarni[2]
[1]Professional Nursing Student, Faculty of Nursing, Universitas Padjadjaran
[2,3]Department of Community Nursing, Faculty of Nursing, Universitas Padjadjaran

ARTICLE HISTORY

Received: 13 January 2024
Accepted: 22 February 2024

CONTACT

Fajar Muhamad Gustaf Al muhamad18022@mail.unpad.ac.id Professional Nursing Student, Faculty of Nursing, Universitas Padjadjaran

ABSTRACT

Introduction: Uncontrolled hypertension can negatively affect a person's physical well-being and quality of life. The implementation of family-based care helps families to achieve independence in maintaining family health. The Orem model approach can explain how the family's role in caring for family health independently. Objectives: This study aims to describe the application of family-based care with the Orem model approach in hypertensive families.

Methods: This research was conducted with a case study approach, using a nursing process consisting of assessment with the Orem model, namely assessment of basic conditional factor data, strength components, universal self care, developmental self care, and health deviation and Hypertension Self Management Behavior (HSMB), formulation of nursing diagnoses using SDKI, nursing plans using SIKI, implementation and evaluation.

Results: Intervention and implementation were carried out for four meetings including providing family-based health education using leaflet media, foot massage modality therapy and self-management monitoring sheets. The results obtained by both families experienced an increase in behavioral self-management scores and controlled blood pressure.

Conclusions: Family-based care can improve behavioral self-management in compliant families.
Keywords: *family-based care; hypertension; self-management*

Cite as: Fajar M.G.A., Yani D.I., Sumarni Nina (2024). Family-Based Care using the Orem Self-Care Model in Families with Hypertension: A Case Study. *Indonesian Journal of Community Health Nurs.*, 9(1), 26-36. Doi: 10.20473/ijchn.v9i1.47053

INTRODUCTION

Despite advances in the prevention and treatment of hypertension, hypertension remains a major health challenge and is the leading cause of premature death in the world. An estimated 1.28 billion adults worldwide suffer from hypertension and the majority (two-thirds) of them live in low- and middle-income countries (WHO, 2023). In Indonesia, hypertension is the focus of the government in an effort to reduce the number of non-communicable diseases. The 2018 Basic Health Research (Riskesdas) stated that nationally, hypertension increased from 25.8% to 34.1% in 2013 (Kementerian Kesehatan RI, 2018). West Java Province ranked second with the highest prevalence of hypertension in Indonesia in 2018 at 39.6% (Badan Pusat Statistik, 2018). This figure increased when compared to 2013, so stopping the spread of hypertension remains an important task for the government to improve the quality of public health (Dinas Kesehatan Provinsi Jawa Barat, 2021).

Hypertension is a blood pressure condition where the systolic pressure is more than 140 mmHg and/or the diastolic pressure is more than 90 mmHg (WHO, 2023). Hypertension or high blood pressure is nicknamed the "silent killer" because people with hypertension may not experience any symptoms. This can be dangerous as uncontrolled hypertension is a significant risk factor for stroke, heart failure, coronary artery disease, and chronic kidney disease which can be harmful as it negatively impacts quality of life (Jeemon & Chacko, 2020; Shen et al., 2017).

Poor quality of life due to hypertension is related to poor control, i.e., delay in diagnosis and inadequate treatment (Palafox et al., 2016). Optimal pressure control is essential in preventing self-mortality and disability caused by hypertension (Law et al., 2009). Comprehensive management of hypertension requires pharmacologic and lifestyle modifications. Lifestyle factors are the main cause of hypertension being difficult to control, even the trend of hypertension is not only experienced by adult individuals but has begun to shift to the child and adolescent population due to poor lifestyle (Ewald & Haldeman, 2016). Self-management behaviors play an important role in achieving optimal hypertension control (Jeemon & Chacko, 2020).

Self-management is a person's ability to manage their health independently with or without support from health care providers (WHO, 2019). Hypertension self-management is achieved through health education, self-monitoring of clinical data, behavioral management (diet, exercise, smoking, drinking alcohol), stress reduction and support of medication adherence according to prescribed regimen (Hallberg et al., 2016). A systematic review states self-management effectively results in a significant reduction in blood pressure (Innab & Kerari, 2022). Unfortunately, non-adherence to self-management makes hypertension difficult to control (AlHadlaq et al., 2019). This is due to barriers to hypertension management including lack of knowledge, competing health priorities, limited access to health services, financial problems, and lack of social and family support (Flynn et al., 2013; Tusa et al., 2020).

Every family has a unique way of dealing with their health problems. Improving the family's health status is the goal to be achieved through family nursing care. A person who receives support from the family will increase motivation and encourage optimism about treatment (P. A. Thomas et al., 2017). The family also plays a role in shaping the client's strength and courage, making the client feel safe, supporting the client during treatment and facilitating discussions between the client and the care provider (Costa & Nogueira, 2008). The presence of family nurses is an effective strategy in achieving family adherence to health recommendations (Zhu et al., 2014).

The roles of clients and family nurses are realized through the practice of family nursing care. Nursing care provided will be more directed, systematic and illustrate the role of nurses when using nursing models. One of the nursing models that can be used in family nursing care is the Orem self-care model. This model focuses on improving the family's ability to care for themselves and/or their family members independently. This concept is the basis for nurses in assisting families according to the level of dependence, not in a dependent position (Orem, 2001). Based on the above background, this case study aims to report the application of nursing care concepts with Orem theory in hypertensive families in Bandung City.

METHOD

This research is quantitative research with a case study approach. Case studies are used to solve client nursing problems and provide comprehensive nursing care. The research was conducted for 14 days from March 16 to April 11, 2023 in RT 03 RW 04 Kebon Kangkung Village, Bandung City. The subjects of this study were assisted families with hypertension health problems which were then used as management. The families chosen included Mr. E's family and Mrs. I's family. E's family and Mrs. I's family.

The case study was organized through a nursing process consisting of assessment, problem formulation and nursing diagnosis, intervention plan, implementation, evaluation, and nursing documentation (Kurniawan et al., 2020). The assessment was conducted with Orem's self-care model which assesses basic conditional factors, strength components, universal self-care, developmental self-care, and health deviation. In addition, the assessment was carried out with the Hypertension Self Management Behavior (HSMB) questionnaire to determine the level of self-management of family behavior. The distribution of results is categorized as scores 121-160 good, 81-120 sufficient, and 80-40 less. The results of the assessment become the basic data to determine the nursing diagnosis.

The preparation of nursing diagnoses is carried out using SDKI (Indonesian Nursing Diagnosis Standards, Interventions are arranged based on family health care functions using SIKI (Indonesian Nursing Intervention Standards) in accordance with evidence-based practice, namely by providing family-based health education using leaflet media. Based on the results of the study, it is known that health education using leaflets can increase knowledge about hypertension self-management which in turn affects blood pressure control (Ernawati et al., 2020; Pinjuh Markota et al., 2015; Ramadhini et al., 2021; Santosha et al., 2018). In addition, families are also taught foot massage therapy as an effort to control blood pressure. Based on the results of the study, giving foot massage showed a positive effect on systolic and diastolic blood pressure (Anwar, N, et al., 2022; Arslan et al., 2021; Eguchi et al., 2016; Kotruchin et al., 2021).

Implementation was conducted five times with the involvement of other family members. Each meeting was conducted for 30-45 minutes. Nursing evaluation was carried out by assessing cognitive, affective, and psychomotor aspects after the intervention was given. Ethical principles were applied by asking for family consent in the form of informed consent which was carried out after the family received all information about the research to be carried out. The family has the right to refuse not

to participate, and researchers will not force (autonomy). In addition, all data in this study were kept confidential and used only for research purposes (confidentiality).

RESULTS

The study was conducted for 12 visits starting from assessment, implementation, evaluation, and termination. The application of self-care theory to families aims to improve the family's ability to care for themselves, provide information, and increase family knowledge about the implementation of care.

Nursing Assessment

Basic Conditional Factor

Family System

The first family is Mr. E's family. Mr. E's family consists of a husband, wife, and 1 child. Mr. Mr. E is 84 years old, retired. Mr. Mr. E lives in the same house with his wife, Mrs. S, and his child, Mrs. Sr. Mrs. S is 65 years old, works as a housewife. Then, Mrs. Sr is the first child aged 45 years, married to Mr. Em who is 48 years old and has 1 child. Em who is 48 years old and has 1 child aged 21 years. Mr. E's family has no hereditary diseases. Mr. E's family has no hereditary diseases, but there are family members who have health problems, namely Mrs. S who has a history of hypertension since twenty years ago due to an unhealthy lifestyle. The family said that each family member has a role, namely Mr. E as the head of the family earns a living, Mrs. S as a wife takes care of the household, and Mrs. Sr and Mr. Em as children help parents. In making decisions, the family of Mr. Mr. E's family always discusses to get agreement among family members led by Mr. E, including in health care decisions. E, including in health care decisions. The family type is an extended family consisting of two family cards. The stage of Mr. E's family is an old age family. Mr. E's family is an old age family.

The second family is Mrs. I's family, which consists of Mrs. I as the head of the family and two teenage boys, Mr. A and Mr. M. Mrs. I is 47 years old, Mr. M is 18 years old and Mr. A is 8 years old. Mrs. I's occupation is casual laborer. Mrs. I and her husband are divorced. Mrs. I's family has no hereditary diseases, but there are family members who have a history of illness, namely Mr. M who has suffered from hypertension since she was 15 years old. The family said the cause was Mr. M's very bad lifestyle. Each family member has a role, namely Mrs. I acts as a mother as well as the head of the household who is tasked with earning a living and caring for her two children, while Mr. M and Mr. A have their own roles. Mr. M and Mr. A play the role of children who have the duty to help their parents and go to school. Mrs. I's family always discusses decisions with her extended family. Mr. M as the eldest child is not involved much because he has a less close relationship with Mrs. I. Mrs. I's family type is a large family consisting of 3 family cards because Mrs. I's family lives with 2 other families. The stage of Mrs. I's family is a family with teenage children.

Sociocultural dan Spiritual

Mr. E's family and Mrs. I's family are Sundanese. Mr. E's family and Mrs. I's family are Sundanese. Both families use Indonesian and Sundanese to communicate. The religion of Mr. E's family and Mrs. I's family is Islam. Mr. E and Mrs. I's family religion is Islam. Religious activities that are routinely carried out are praying in congregation and reciting the Quran together.

Health Status

The health problem in Mr. E's family focuses on Mrs. S's condition of uncontrolled hypertension due to unhealthy lifestyle. Mr. E's family focuses on the condition of Mrs. S who suffers from uncontrolled hypertension due to an unhealthy lifestyle. Mrs. S likes salty and fatty foods, but Mrs. S does not want to check her blood pressure and is not compliant with medication. Mrs. S often feels pain in the head to the back of the neck. Mrs. S has been prescribed Amlodipine 5 mg which should be taken every night. However, Mrs. S is currently not compliant because she feels that the drug has no effect. Instead, Mrs. S takes an anti-pain medication told to her by her neighbor. In addition, Mrs. S has never attended Posbindu because she is not strong enough to walk, and has never checked her health at the nearest health center or clinic except in emergency conditions. Currently, Mrs. S is diagnosed with hypertension, and since 2 years ago the disease has increased with rheumatism.

In Mrs. I's family, the health problem that arises is hypertension in an adolescent child, Mr. M. The family said Mr. M suffered from hypertension since 3 years ago, which was caused by a bad lifestyle such as not liking to eat fruits and vegetables, often staying up late, eating fast food and having difficulty controlling emotions. Since being diagnosed with hypertension, Mr. M refused to take medicine and go to health services. Mr. M only attends Posbindu once a month to check her blood pressure. Mr. M often feels headache but when invited to seek treatment, she refuses.

Health System Factors

Mr. E and Mrs. I's family use Posbindu for monthly health monitoring and the nearest clinic for emergencies. Mr. E and Mrs. I use Posbindu for monthly health monitoring, and the nearest clinic for emergencies. Both families rarely seek treatment at the health center because it is further away than the clinic.

Lifestyle

Mr. E's family's daily activities include housekeeping, community service, monthly recitation and community meetings. Mr. E's family does activities at home such as cleaning the house, community service, monthly recitation and

community meetings. Meanwhile, Mrs. S never leaves the house. Mr. E's child, Mrs. Sr, and her husband work everyday. E's daughter, Mrs. Sr, and her husband work everyday. For Mrs. I's family activities, Mrs. I works as a day laborer such as sewing, Mr. M goes to school and plays, and Mr. A plays at home.

Environmental Factors

The condition of Mr. E's family home is clean but cramped. Mr. E's family home is clean but cramped. Mr. E's family lives in a house measuring 6 meters long and 4 meters wide with two floors. Mr. E's family lives in a house measuring 6 meters long and 4 meters wide with two floors. the upper floor is used by Mr. E's family and the ground floor is used by his son, the rooms in the house are room 3 on the 2nd floor, kitchen, bathroom 1, kitchen, room to watch tv on the 2nd floor, living room and the number of windows in the house is only 1, for Mr. E's family disposal is into the sewer so they don't have a septic tank, the water source used is using a borehole source that is channeled to several communities and for drinking water sources using gallon refill drinking water. The family is worried about Mrs. S's condition who has difficulty walking but wants to live on the 2nd floor, and also the narrow environment worries the family if there is an infectious disease that will quickly spread.

The condition of Mrs. I's family home is a second floor house with a house size of 6 meters long and 7 meters wide. The house is inhabited by 3 families, namely the 1st floor is occupied by Mrs. I and her sister and the 2nd floor by her parents. Mrs. I's house type is permanent with 5 bedrooms, 2 bathrooms, 1 kitchen, and in front of her house is a shop which is her parents' business. Mrs. I's house faces east, there are 6 windows, and sunlight can enter. Lighting comes from electricity, the family toilet is clean using a septic tank with a distance of less than 10 meters from the water source. The family's drinking water source uses gallon water.

Resources

The family of Mr. Mr. E and Mrs. I said they did not have special savings for health, but if a family member was sick then the family would take them to the nearest clinic. Mr. E's family has BPJS health insurance, while Mrs. I's family does not have any insurance. Mr. E's family has BPJS health insurance, while Mrs. I's family does not have any insurance.

Developmental Stages

The stages of development of Mr. E's family E according to Sigmund Freud, namely Mr. E and Mrs. S are in the late adulthood stage and Mrs. Sr is in the middle adulthood stage. Meanwhile, the stages of development of Mrs. I's family are Mrs. I in the middle adulthood stage, Mr. M is in the adolescence stage, and Mr. A is in middle and late childhood.

Strength Component

The family of Mr. Mr. E has a daughter, Mrs. Sr, who is the head of the neighborhood and a health cadre, so the family has strength in maintaining health. The family has the desire to provide the best care for Mrs. S but Mrs. S sometimes does not follow the advice of her family members. The communication pattern formed by the family is democratic communication, the family always discusses the problems that occur.

In Mrs. I's family, the source of family strength was Mrs. I as the head of the family and her parents. Mr. M sometimes does not want to listen to Mrs. I's advice and Mr. M often resisted her mother's advice. Communication formed by the family tends to be closed because Mr. M does not want to be open and rarely interacts. However, communication within the family is good.

Universal Self Care

Assessment of universal self care in Mr. E's family. Mr. E's family obtained the following data: For Mr. Mr. E has a blood pressure of 150/80 mmHg, pulse frequency of 80x/min, breathing frequency of 17x/min, temperature of 36.7 C, and SpO2: 99%. Height 160 cm, body weight 67 kg. Mr. Mr. E has no complaints. For Mrs. S's assessment, it was found during the assessment complaining of head pain radiating to the back of the neck. Blood pressure 160/110 mmHg, pulse frequency 85x/min, breathing frequency 20x/min, temperature 36 C and SPO2 99%. He is 150 cm tall and weighs 65 kg. Mr. E's family's nutritional needs. Mr. E's family eats 3 times a day with rice and side dishes. Mr. E's family likes salty and fatty foods. Mr. E's family likes salty and fatty foods, especially Mrs. S. For fluid needs, Mr. E's family usually drinks water and tea. Mr. E's family usually drinks water and tea. Mr. E's family's elimination pattern Mr. E's family has an average of 1x/day for defecation and there are no complaints, while for BAK 3-6x/day there are no complaints. All members of Mr. E's family can perform activities independently. All of Mr. E's family members can carry out activities independently. Mrs. S said she was stressed by her illness because it did not heal, and the family said it was difficult to find a way out because Mrs. S's illness was due to her own lifestyle but Mrs. S was difficult to give input so it needed health workers who could educate Mrs. S.

Assessment of universal self care at Mrs. I's discharge obtained the following results: for data Mrs. I has a blood pressure of 100/70 mmHg, pulse frequency 87x/min, respiratory frequency 17x/min, temperature 36.5 C and SpO2: 99%. Height 160 cm and weight 58 kg. Mrs. I had no complaints regarding health problems. Furthermore, the assessment of Mr. M was found that he complained of throbbing headache with a pain scale of 5/10 (moderate pain). When assessed, blood pressure was 160/90 mmHg, pulse frequency 82x/min, respiratory frequency 18x/min, temperature 36.2 C and SpO2 99%. Height

168 cm and weight 55 kg. Mr. M has a medical history of hypertension. The family said the hypertension arose due to an unhealthy lifestyle. For Mrs. I's family's daily activity patterns, including nutritional needs are fulfilled with a frequency of eating 3x a day. However, Mr. M never eats vegetables, meat, or fruit because she doesn't like them. Mr. M prefers to eat fast food such as instant noodles and always does it every day. For fluid needs, Mrs. I's family drinks 1.5-2 liters of water per day. However, Mr. M often drinks coffee. For sleep rest patterns, Mrs. I's family has a habit of having difficulty sleeping, especially Mr. M. The family said An.M only sleeps 3-4 hours a day. The elimination pattern of Mrs. I's family, for defecation on average 1x/day and BAK 3-5x/day there are no complaints. Mrs. I's whole family can fulfill personal hygiene needs independently.

Developmental Self Care

Mr. E's family development Mr. E is in the advanced stage of family development, where his health condition limits self-care activities. An unfulfilled developmental task is maintaining living arrangements. Mr. E's family had received health education about hypertension by another student but had forgotten and was not very in-depth. Mr. E's family had received health education about hypertension by another student but had forgotten and was not very in-depth. Mrs. S wants someone to explain in detail and provide appropriate interventions to her.

Mrs. I's family is in the stage of family development with adolescent children. The unfulfilled task of family development is open communication between parents and children. Mrs. I as the head of the family wants her children to be more open to their parents, because so far the relationship between parents and children rarely communicates.

Health Deviation Self Care

Based on the results of the assessment, Mr. E's family and Mrs. Mr. E's family and Mrs. I's family said that if a family member is sick, other family members will immediately take them to the nearest health center or clinic. However, this is done if there are complaints that require immediate treatment, otherwise the family will take care of them at home. In controlling their health conditions, both families utilize Posbindu in the RT and RW. However, Mrs. S and Mr. M, who has a history of hypertension, often refuses to be taken to Posbindu or Puskesmas. In addition, the family did not apply hypertension care properly because the family did not have knowledge about hypertension. The family considers hypertension a common disease suffered by many people, so there is no need to do regular checks. Health education has been given to the family by other students to Mr. E's family but Mrs. I's family has never been given health education. Mr. E's family but Mrs. I's family has never received health education. Even so, the family of Mr. Mr. E's family said that the health education provided was not optimal and was only brief so that the family did not understand. Both families were worried that the disease would have a severe impact, especially Mrs. S and Mr. M who often refused to be advised by her family. Based on this, both families want health information about hypertension, how to treat it, and how to prevent it, and the family wants help in monitoring blood pressure, especially someone who can educate Mrs. S and Mr. M to comply with hypertension treatment. M to be compliant with hypertension treatment.

Nursing Diagnosis

Based on the results of the assessment, a nursing diagnosis was obtained for the family of Mr. E and Mrs. I, namely ineffective health management. Mr. E and Mrs. I's family is ineffective health management. This diagnosis is based on family ignorance in caring for family members with hypertension health problems characterized by the family diet of Mr. E and Mrs. I who are not good. Mr. E and Mrs. I's families are not good, both of them do not have health checks to control hypertension, never do activities, and are not compliant with antihypertensive drugs. Then in the family of Mr. E's family, Mrs. S often takes medicine carelessly and inappropriately.

Nursing Intervention and Implementation

Nursing planning uses three domains, namely cognitive, affective, and psychomotor. Interventions are arranged based on the results of the assessment, namely the family wants assistance and hypertension education to manage hypertension. Implementation is carried out in 5 (five) meetings including: the first meeting is health education about recognizing hypertension problems using leaflet media and providing notes in the form of self-management charts for monitoring. The second meeting, discussion with the family regarding family decision making about hypertension care about obstacles and solutions. The third meeting, training families about hypertension care, namely health education about self-management using leaflets and demonstrations of foot massage. Fourth meeting, discussion with the family about risk factors for hypertension and identification of the family's ability to modify the environment to prevent hypertension. The fifth meeting, health education on the role and function of health services and encouraging families to utilize the nearest health services.

The implementation of self-management in both assisted families considers the family's self-care needs consisting of wholly compensatory, partly compensatory and supportive-educative. Based on the results of the assessment, the implementation applied to both families is partly compensatory, namely nurses and clients have an equal role to measure the ability to do self-care (Orem, 2001).

Evaluation

After the nursing implementation, during the implementation of health education and foot massage, the process evaluation found that the family was enthusiastic and actively discussed during the implementation, the family also expressed satisfaction during the implementation because they received clear information.

In cognitive evaluation, it was found that there was an increase in family knowledge about hypertension and its treatment by being able to answer questions asked by researchers. In the affective evaluation, there was an increase in self-management behavior (table 1). In the psychomotor evaluation, it was found that the family actively participated in monitoring health and applying massage therapy to hypertensive family members. However, Mrs. I's family does not do routine massage because Mr. M often refuses to be given a massage. The results obtained were changes in blood pressure in Mrs. S and An.M (table 2). Based on the evaluation results, both families experienced an increase in the quality of self-care needs to be supportive educative, namely clients began to learn to apply self-care without assistance (Orem, 2001).

Behavioral Self-Management Level

Table 1
Behavioral self-management level

Category	Self-Management Score	
	Mr. E's family	Mrs. I's family
Before Implementation	67 (Less)	58 (Less)
After Implementation	90 (Sufficient)	66 (Less)
Two weeks post-implementation	90 (Sufficient)	68 (Less)
Four weeks post-implementation	101 (Sufficient)	83 (Sufficient)

Based on table 1, it is known that there is an increase in behavioral self-management in both families.

Blood Pressure

Table 2
Blood pressure

Category	**Blood Presure**	
	Mrs. S	**Mr. M**
Before Implementation	180/ 110 mmHg	160/90 mmHg
After Implementation	120/ 90 mmHg	140/ mmHg
Two weeks post-implementation	115/ 100 mmHg	140/90 mmHg
Four weeks post-implementation	150/ 90 mmHg	140/ 80 mmHg

DISCUSSION

In this case study, it was found that family-based interventions can improve behavioral self-management in families with hypertension health problems. Modification of self-management plays a role in the management of hypertension, especially lifestyle interventions, which are considered the main strategy that goes hand in hand with pharmacological efforts (Takami & Saito, 2011).

Based on the research results from case studies, family-based interventions can improve self-management of hypertension behavior. Success in self-management of hypertension behavior in families is influenced by various factors including personal factors (socioeconomic, education, knowledge, age, and perception of disease), self-motivation, spirituality, self-efficacy and family support (AlHadlaq et al., 2019; Romadhon et al., 2020).

Personal factors are closely related to behavioral self-management in hypertensive clients (Niriayo et al., 2019; Rahmawati & Bajorek, 2018). Families with low socioeconomic status tend to have low health literacy and high life stressors, which affect behavioral control of hypertension and do not maximize self-care (Lee & Park, 2017; Yang et al., 2017).

Adherence to hypertension self-management is closely related to clients' positive perceptions of their disease (Romadhon et al., 2020). Illness perception is a person's perception of their condition related to beliefs about their illness, duration of healing, ability to control the condition, treatment process, emotional response, concerns about their illness, and beliefs about the possible causes of the condition. Gholamnejad et al (2019) stated that hypertensive clients who have poor perceptions have an impact on poor self-care as well. The results of the evaluation showed that the family began to feel worried about the illness and complaints felt by their family members, and began to maintain a lifestyle to avoid recurrence of the disease.

In addition, the education and knowledge of hypertensive clients affect the level of behavioral self-management. The level of education affects the client's knowledge about hypertension (Romadhon et al., 2020). Education level is indirectly related to awareness of healthy behaviors and access to health services. In addition, education also affects the ability to receive health information (Musfirah & Masriadi, 2019). Based on the findings, most of the assisted family members, have general knowledge about the basics of hypertension and after being given health education, the family expressed a better understanding of hypertension and its management, the family's ability to understand the information provided is very good. Families believe that self-management can reduce blood pressure but implementation is often inappropriate due to a lack of comprehensive understanding of the condition. In line with Salihah & Mei (2017) which reported that

most patients with hypertension have knowledge and awareness but do not understand in detail for example the importance of blood pressure monitoring, the use of compliant and appropriate drugs, and the high risk of diseases that can arise from hypertension.

In addition, motivation also impacts the behavior of clients with hypertension. Poor behavior towards hypertension self-care leads to poor motivation (Abel et al., 2017). This can lead to clients feeling hopeless, refusing treatment, and frustration especially in clients who have been diagnosed for a long time (Dymek et al., 2019). High motivation can increase active participation in hypertension self-care (AlHadlaq et al., 2019). In addition, one's level of spirituality also affects adherence to behavioral management. A person who has low spirituality is prone to depression which leads to refusal to perform hypertensive self-care (Romadhon et al., 2020).

The self-efficacy factor is key to increasing one's motivation to carry out self-care (Tan et al., 2021). Individuals with high self-efficacy will be better able to motivate themselves to engage regularly in self-care behaviors and overcome perceived barriers (Huda et al., 2018). Forms of self-confidence in hypertensive patients include adherence to treatment, having concerns about the side effects and dangers of treatment, looking for ways to stop smoking and trying to control anxiety (Breaux-Shropshire et al., 2012). The belief to perform good hypertension self-management is formed through a dynamic process involving cognitive, affective, psychomotor, and environmental factors (Tan et al., 2021). In addition, family support also influences the process of self-management care in hypertensive patients (P. A. Thomas et al., 2017).

Family support is also closely related to better behavioral self-management (Zinat Motlagh et al., 2016). Family support provided in the form of emotional support, information support and instrumental support (financial) which influences the continuity of client self-care with hypertension (Hu et al., 2015). Both families have good family support. Mr. E and Mrs. I's family stated that all family members care about the health of each family member, such as helping to prepare healthy food, reminding about restrictions that must be avoided, reminding the time to take medicine, especially in emergencies, the family is ready to take treatment.

Non-compliance of hypertensive patients with self-management is also caused by a lack of information about the disease and its management (Paczkowska et al., 2021). Health education and promotion were selected as effective strategies in the prevention and management of hypertension. This is supported by research results Ekpenyong et al (2012) which states that educational interventions or health education can improve knowledge, and Ozoemena et al (2019) stated that community-based educational interventions can also improve knowledge, prevention, and self-care in adult and elderly hypertensive patients. The methods and media that are often used in supporting health education are videos, movies, radio, posters, flip charts, and leaflets (Fitriani, 2011).

Leaflet is an educational intervention media that contains information on matters related to the target audience (Ramadhini et al., 2021). Health education using leaflet media containing definitions, diets, lifestyles, and recommendations for medication compliance has a positive impact on increasing the knowledge of hypertensive patients (Ernawati et al., 2020). Lolita et al (2017) Using leaflets in providing family-based health education resulted in an increase in knowledge in the pre-test and post-test scores. Because the information contained in the leaflet is concise and clear, it is easily understood by families (Utami et al., 2016). Based on the evaluation results, it is known that the assisted families have increased knowledge as evidenced by the families being able to explain and restate the problem of hypertension (definition, causes, risk factors, impacts/dangers) and how to treat it. In addition, families can also explain the functions and benefits of health services.

In addition to increasing knowledge through health education, family skills in caring for family members with hypertension are also needed. One intervention that is being developed is foot massage therapy. Foot massage is one of the techniques that can lower blood pressure and make the body more relaxed in people with hypertension (Anwar et al., 2022). In theory, it can be explained that the decrease in systolic blood pressure after foot massage intervention is influenced by the activation of the parasympathetic nervous system which triggers a physiological response that makes a person more relaxed and calm (Kaur, J., Kaur, S., Bhardwaj, 2012). In line with the results of research by Anwar et al (2022) that foot massage can reduce systolic blood pressure by an average of 8.8 mmHg and diastolic 0.8 mmHg in hypertensive patients. Foot massage is a non-invasive, economical, and easy-to-implement method by families so that it is very helpful for families to control blood pressure in family members with hypertension.

In the evaluation of blood pressure, the results showed that An.M tended to be stable and controlled, while Mrs. S tended to be unstable and increased in the fourth week evaluation. This happened, because at the time of the evaluation Mrs. S was in a state of illness due to a relapse of her rheumatism. The family stated that Mrs. S when she was sick was often emotional, stressed, and her portion of food decreased due to pain. M. C. Thomas et al (2019) stated that stress has an impact on increasing systolic and diastolic blood pressure. Increased blood pressure due to stress is caused by activation of the sympathetic nervous system which responds by increasing heart rate, contractility and vasoconstriction of blood vessels (Ayada et al., 2015). In addition, people under stress often show reduced levels of physical activity, even though physical activity can reduce cardiovascular reactivity, which affects blood pressure (Morgan et al., 2015). Based on

the results of implementation in the two assisted families, it is found that family-based interventions with the application of self-care theory can improve family knowledge and skills in caring for hypertension independently in accordance with the objectives of Orem's self-care theory.

CONCLUSION

Family-based care using Orem's self-care theory approach can be a new approach to improving behavioral self-management of hypertension in families. As evidenced by the improvement in behavioral self-management scores and stable blood pressure. However, there are other inhibiting factors, behavioral self-management needs to be controlled by increasing family participation more and implementing family health care functions with longer implementation time according to the character and needs of the family.

This study has limitations in selecting fostered families because in the fostered area, the number of families who have health problems is only a few and homogeneous, namely hypertension and the research time has been determined so that it is limited. Then, other factors that can affect family behavior management such as self-efficacy and are not measured by researchers so that they become beyond the control of researchers. As well as family behavior that cannot be controlled by researchers, causing the last evaluation of family members to be sick, thus affecting the results.

Families are expected to provide better support and control of hypertensive family members so that care will be maximized. For Puskesmas, it is expected to provide health education about family-based care in providing care independently so as not to depend on health workers and health education in correcting incorrect health information in the community such as the use of drugs arbitrarily. This study can be developed by further researchers by providing a self-care orem model intervention on self-management of hypertension behavior by measuring other influencing factors such as the level of family self-efficacy.

REFERENCES

Abel, W. M., Joyner, J. S., Cornelius, J. B., & Greer, D. B. (2017). Self-care management strategies used by Black women who self-report consistent adherence to antihypertensive medication. *Patient Preference and Adherence*, *11*, 1401–1412. https://doi.org/10.2147/PPA.S138162

Al-Noumani, Huda., Wu, Jia-Rong., Barksdale, Debra., Knafl, George., AlKhasawneh, Esra., Sherwood, G. (2018). Health Beliefs and Medication Adherence in Omanis With Hypertension. *The Journal of Cardiovascular Nursing*, *33*(6), 518–526. https://doi.org/10.1097/JCN.0000000000000511

AlHadlaq, Razan K., Swarelzahab, Mazin M., AlSaad, Samaher Z., AlHadlaq, Abdulrahman K., Almasari, Saad M., Alsuwayt, Saleh S., Alomari, N. A. (2019). Factors affecting self-management of hypertensive patients attending family medicine clinics in Riyadh, Saudi Arabia. *Journal of Family Medicine and Primary Care*, *8*(12), 4003–4009. https://doi.org/10.4103/jfmpc.jfmpc_752_19

Anwar, N., Irwan, A, M., Saleh, A., Usman, S. (2022). Effect of Foot Massage on Decreasing Blood Pressure and Anxiety in Older People with Hypertension in Indonesia. *Journal of Health Management*, *24*(2). https://doi.org/https://doi.org/10.1177/09720634221087786

Arslan, G., Ceyhan, Ö., & Mollaoğlu, M. (2021). The influence of foot and back massage on blood pressure and sleep quality in females with essential hypertension: a randomized controlled study. *Journal of Human Hypertension*, *35*(7), 627–637. https://doi.org/10.1038/s41371-020-0371-z

Ayada, C., Toru, & Korkut, Y. (2015). The relationship of stress and blood pressure effectors. *Hippokratia*, *19*(2), 99–108.

Badan Pusat Statistik (BPS). (2018). *Prevalensi Tekanan Darah Tinggi Menurut Provinsi 2013-2018*. https://www.bps.go.id/indicator/30/1480/1/prevalensi-tekanan-darah-tinggi-menurut-provinsi.html

Breaux-Shropshire, T. L., Brown, K. C., Pryor, E. R., & Maples, E. H. (2012). Relationship of blood pressure self-monitoring, medication adherence, self-efficacy, stage of change, and blood pressure control among municipal workers with hypertension. *Workplace Health & Safety*, *60*(7), 303–311. https://doi.org/10.1177/216507991206000704

Costa, R. D. S., & Nogueira, L. T. (2008). Family support in the control of hypertension. *Revista Latino-Americana de Enfermagem*, *16*(5), 871–876. https://doi.org/10.1590/s0104-11692008000500012

Dinas Kesehatan Provinsi Jawa Barat. (2021). *Laporan Kinerja Instansi Pemerintah Dinas Kesehatan Provinsi Jawa Barat Tahun 2021*.

Dymek, J., Gołda, A., Polak, W., Lisowski, B., & Skowron, A. (2019). Effect of Education for Hypertensive Patients with Correctly Performed Self-Blood Pressure Monitoring (SBPM). *Pharmacy (Basel, Switzerland)*, *7*(3). https://doi.org/10.3390/pharmacy7030075

Eguchi, E., Funakubo, N., Tomooka, K., Ohira, T., Ogino, K., & Tanigawa, T. (2016). The Effects of Aroma Foot Massage on Blood Pressure and Anxiety in Japanese Community-Dwelling Men and Women: A Crossover Randomized Controlled Trial. *PloS One*, *11*(3), e0151712.

https://doi.org/10.1371/journal.pone.0151712

Ekpenyong, C. E., Udokang, N. E., Akpan, E. E., & Samson, T. K. (2012). Double Burden, Non-Communicable Diseases And Risk Factors Evaluation In Sub-Saharan Africa: The Nigerian Experience. *European Journal of Sustainable Development*, *1*(2), 249. https://doi.org/10.14207/ejsd.2012.v1n2p249

Ernawati, I., Fandinata, S. S., & Permatasari, S. N. (2020). The effect of leaflet on hypertension knowledge in hypertensive patients in community health center in Surabaya city. *Open Access Macedonian Journal of Medical Sciences*, *8*(E), 558–565. https://doi.org/10.3889/oamjms.2020.5327

Ewald, D. R., & Haldeman, L. A. (2016). Risk Factors in Adolescent Hypertension. *Global Pediatric Health*, *3*, 2333794X1562515. https://doi.org/10.1177/2333794x15625159

Fitriani, S. (2011). *Promosi Kesehatan*. Graha Ilmu.

Flynn, S. J., Ameling, J. M., Hill-Briggs, F., Wolff, J. L., Bone, L. R., Levine, D. M., Roter, D. L., Lewis-Boyer, L., Fisher, A. R., Purnell, L., Ephraim, P. L., Barbers, J., Fitzpatrick, S. L., Albert, M. C., Cooper, L. A., Fagan, P. J., Martin, D., Ramamurthi, H. C., & Boulware, L. E. (2013). Facilitators and barriers to hypertension self-management in urban African Americans: Perspectives of patients and family members. *Patient Preference and Adherence*, *7*, 741–749. https://doi.org/10.2147/PPA.S46517

Gholamnejad, H., Darvishpoor-Kakhki, A., Ahmadi, F., & Rohani, C. (2019). Self-Actualization: Self-Care Outcomes among Elderly Patients with Hypertension. *Iranian Journal of Nursing and Midwifery Research*, *24*(3), 206–212. https://doi.org/10.4103/ijnmr.IJNMR_95_18

Hallberg, I., Ranerup, A., & Kjellgren, K. (2016). Supporting the self-management of hypertension: Patients' experiences of using a mobile phone-based system. *Journal of Human Hypertension*, *30*(2), 141–146. https://doi.org/10.1038/jhh.2015.37

Hu, H. H., Li, G., & Arao, T. (2015). The association of family social support, depression, anxiety and self-efficacy with specific hypertension self-care behaviours in Chinese local community. *Journal of Human Hypertension*, *29*(3), 198–203. https://doi.org/10.1038/jhh.2014.58

Innab, A., & Kerari, A. (2022). Impact of Behavioral Interventions on Patient Activation in Adults with Hypertension: A Systematic Review and Meta-Analysis. *Inquiry (United States)*, *59*, 1–9. https://doi.org/10.1177/00469580221090408

Jeemon, P., & Chacko, S. (2020). Role of family support and self-care practices in blood pressure control in individuals with hypertension: Results from a cross-sectional study in Kollam District, Kerala. *Wellcome Open Research*, *5*, 1–15. https://doi.org/10.12688/wellcomeopenres.16146.1

Kaur, J., Kaur, S., Bhardwaj, N. (2012). Effect of 'foot massage and reflexology' on physiological parameters of critically ill patients. *Nursing & Midwifery Research Journal*, *8*(3). https://doi.org/https://doi.org/10.1177/0974150X20120305

Kementerian Kesehatan RI. (2018). *Hasil Utama Riset Kesehatan Dasar*.

Kotruchin, P., Imoun, S., Mitsungnern, T., Aountrai, P., Domthaisong, M., & Kario, K. (2021). The effects of foot reflexology on blood pressure and heart rate: A randomized clinical trial in stage-2 hypertensive patients. *Journal of Clinical Hypertension*, *23*(3), 680–686. https://doi.org/10.1111/jch.14103

Law, M. R., Morris, J. K., & Wald, N. J. (2009). Use of blood pressure lowering drugs in the prevention of cardiovascular disease: meta-analysis of 147 randomised trials in the context of expectations from prospective epidemiological studies. *BMJ (Clinical Research Ed.)*, *338*, b1665. https://doi.org/10.1136/bmj.b1665

Lee, E., & Park, E. (2017). Self-care behavior and related factors in older patients with uncontrolled hypertension. *Contemporary Nurse*, *53*(6), 607–621. https://doi.org/10.1080/10376178.2017.1368401

Lolita., Rahmawati, A., Rahmah, A.,Hasan, A, E., Afra, Y, Z., I. (2017). INFLUENCE OF HEALTH PROMOTION TOWARDS KNOWLEDGE FOR HYPERTENSION IN THE SUMBERAGUNG JETIS BANTULDISTRICT. *Pharmaceutical Journal of Indonesia*, *14*(2). https://doi.org/10.30595/pharmacy.v14i2.1835

Morgan, J. A., Corrigan, F., & Baune, B. T. (2015). Effects of physical exercise on central nervous system functions: a review of brain region specific adaptations. *Journal of Molecular Psychiatry*, *3*(1), 3. https://doi.org/10.1186/s40303-015-0010-8

Musfirah, & Masriadi. (2019). Analysis of Risk Factor Relation With Hypertension Occurrence At Work Area of Takalala Health Center, Marioriwawo Sub-District, Soppeng Regency. *Jurnal Kesehatan Global*, *2*(2), 93–102.

Niriayo, Y. L., Ibrahim, S., Kassa, T. D., Asgedom, S. W., Atey, T. M., Gidey, K., Demoz, G. T., & Kahsay, D. (2019). Practice and predictors of self-care behaviors among ambulatory patients with hypertension in Ethiopia. *PloS One*, *14*(6), e0218947. https://doi.org/10.1371/journal.pone.0218947

Ozoemena, E. L., Iweama, C. N., Agbaje, O. S., Umoke, P. C. I., Ene, O. C., Ofili, P. C., Agu, B. N., Orisa, C. U., Agu, M., & Anthony, E. (2019). Effects of a

health education intervention on hypertension-related knowledge, prevention and self-care practices in Nigerian retirees: a quasi-experimental study. *Archives of Public Health = Archives Belges de Sante Publique*, *77*, 23. https://doi.org/10.1186/s13690-019-0349-x

Paczkowska, A., Hoffmann, K., Kus, K., Kopciuch, D., Zaprutko, T., Ratajczak, P., Michalak, M., Nowakowska, E., & Bryl, W. (2021). Impact of patient knowledge on hypertension treatment adherence and efficacy: A single-centre study in poland. *International Journal of Medical Sciences*, *18*(3), 852–860. https://doi.org/10.7150/ijms.48139

Palafox, B., McKee, M., Balabanova, D., AlHabib, K. F., Avezum, A. J., Bahonar, A., Ismail, N., Chifamba, J., Chow, C. K., Corsi, D. J., Dagenais, G. R., Diaz, R., Gupta, R., Iqbal, R., Kaur, M., Khatib, R., Kruger, A., Kruger, I. M., Lanas, F., … Yusuf, S. (2016). Wealth and cardiovascular health: a cross-sectional study of wealth-related inequalities in the awareness, treatment and control of hypertension in high-, middle- and low-income countries. *International Journal for Equity in Health*, *15*(1), 199. https://doi.org/10.1186/s12939-016-0478-6

Pinjuh Markota, N., Rumboldt, M., & Rumboldt, Z. (2015). Emphasized warning reduces salt intake: a randomized controlled trial. *Journal of the American Society of Hypertension : JASH*, *9*(3), 214–220. https://doi.org/10.1016/j.jash.2014.12.022

Rahmawati, R., & Bajorek, B. (2018). Factors affecting self-reported medication adherence and hypertension knowledge: A cross-sectional study in rural villages, Yogyakarta Province, Indonesia. *Chronic Illness*, *14*(3), 212–227. https://doi.org/10.1177/1742395317739092

Ramadhini, D., Ritonga, N., Siregar, Y. F., & Aswan, Y. (2021). Pengaruh Penyuluhan Kesehatan dengan Menggunakan Media Leaflet terhadap Peningkatan Pengetahuan Penderita Hipertensi pada Pasien Rawat Jalan di Rumah Sakit Umum Daerah kabupaten Tapanuli Selatan. *Jurnal Kesehatan Ilmiah Indonesia (Indonesian Health Scientific Journal)*, *6*(1), 121–125. https://jurnal.unar.ac.id/index.php/health/article/view/417

Romadhon, W. A., Aridamayanti, B. G., Syanif, A. H., & Sari, G. M. (2020). Faktor-Faktor yang Mempengaruhi Self-care Behavior pada Klien dengan Hipertensi di Komunitas. *Jurnal Penelitian Kesehatan "SUARA FORIKES" (Journal of Health Research "Forikes Voice")*, *11*(April), 37. https://doi.org/10.33846/sf11nk206

Salihah, M. O., & Mei, T. W. (2017). Self-Management Approaches Among Hypertensive Residents in Nursing Homes in Malaysia. *Malaysian Family Physician*, *12*(3), 8–17. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5842418/pdf/MFP-12-08.pdf

Santosha Vooradi, Leelavathi D. Acharya, Shubha Seshadri1, G. T. and K. V. (2018). Preparation, Validation and User-testing of Patient Information Leaflets on Diabetes and Hypertension. *Indian Journal of Pharmaceutical Science*, *80*(1), 118–125. https://doi.org/10.4172/pharmaceutical-sciences.1000336

Shen, Y., Peng, X., Wang, M., Zheng, X., Xu, G., Lü, L., Xu, K., Burstrom, B., Burstrom, K., & Wang, J. (2017). Family member-based supervision of patients with hypertension: A cluster randomized trial in rural China. *Journal of Human Hypertension*, *31*(1), 29–36. https://doi.org/10.1038/jhh.2016.8

Takami, T., & Saito, Y. (2011). Effects of smoking cessation on central blood pressure and arterial stiffness. *Vascular Health and Risk Management*, *7*, 633–638. https://doi.org/10.2147/VHRM.S25798

Tan, F. C. J. H., Oka, P., Dambha-Miller, H., & Tan, N. C. (2021). The association between self-efficacy and self-care in essential hypertension: a systematic review. *BMC Family Practice*, *22*(1), 1–12. https://doi.org/10.1186/s12875-021-01391-2

Thomas, M. C., Kamarck, T. W., Li, X., Erickson, K. I., & Manuck, S. B. (2019). Physical activity moderates the effects of daily psychosocial stressors on ambulatory blood pressure. *Health Psychology : Official Journal of the Division of Health Psychology, American Psychological Association*, *38*(10), 925–935. https://doi.org/10.1037/hea0000755

Thomas, P. A., Liu, H., & Umberson, D. (2017). Family Relationships and Well-Being. *Innovation in Aging*, *1*(3), igx025. https://doi.org/10.1093/geroni/igx025

Tusa, N., Kautiainen, H., Elfving, P., Sinikallio, S., & Mäntyselkä, P. (2020). Relationship between patient activation measurement and self-rated health in patients with chronic diseases. *BMC Family Practice*, *21*(1), 225. https://doi.org/10.1186/s12875-020-01301-y

Utami, R. A., Annisa, N., Fitriani, V. Y., & Ramadhan, A. M. (2016). *Pengaruh Pemberian Leaflet Dan Reminder Terhadap Outcome Terapi Dan Kepatuhan Pasien Hipertensi Geriatrik Di Rsud a. Wahab Sjahranie Samarinda*. 20–21. https://doi.org/10.25026/mpc.v4i1.196

WHO. (2019). *Self-Care Interventions for Health*. https://www.who.int/reproductivehealth/self-care-interventions/en/

WHO. (2023). *Hypertension*. https://www.who.int/news-room/fact-sheets/detail/hypertension

Yang, Z.-Q., Zhao, Q., Jiang, P., Zheng, S.-B., & Xu, B. (2017). Prevalence and control of

hypertension among a Community of Elderly Population in Changning District of shanghai: a cross-sectional study. *BMC Geriatrics*, *17*(1), 296. https://doi.org/10.1186/s12877-017-0686-y

Zhu, X., Kam, F., Wong, Y., & Wu, L. H. (2014). Development and evaluation of a nurse-led hypertension management model in a community: a pilot randomized controlled trial. *Int J Clin Exp Med*, *7*(11), 4369–4377. www.ijcem.com/

Zinat Motlagh, S. F., Chaman, R., Sadeghi, E., & Ali Eslami, A. (2016). Self-care behaviors and related factors in hypertensive patients. *Iranian Red Crescent Medical Journal*, *18*(6). https://doi.org/10.5812/ircmj.35805