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Case Study: Comparison of Hypertension Gymnastics, Isometric Handgrip Exercise, and Progressive Muscle Exercise in Changes on Blood Pressure in the Nursing Care of Mr. A's Family with Hypertension

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ABSTRACT

Introduction. Hypertension is a condition in which a person's systolic blood pressure is above 140 mmHg and diastolic is above 90m mHg which results in an increase in morbidity and mortality. Increased blood pressure that lasts for a long time (persistent), can cause damage to the kidneys (kidney failure), heart (coronary heart disease) and brain (causing stroke) if not detected earlier to get adequate treatment.

Methods. Assessment of family nursing care was carried out on Monday, May 9, 2022 at the home of Mr. A's family with hypertension survivors in the working area of Dukun Magelang Health Center. The nursing problems found were ineffective family health management and readiness to increase family coping. The nursing plan for the diagnosis of ineffective family health management was prepared with the aim of increasing the level of knowledge, family health management, and level of compliance. The diagnosis of readiness to improve family coping aims to improve family function and family coping status. Nursing interventions provided for ineffective family health management in the form of health education, promotion of support systems, support for family planning care, coordination of family discussions, support for adherence to treatment programs. Interventions for the diagnosis of improving family coping include family involvement and promotion of coping

Results: The nursing evaluation showed that the diagnosis of readiness to increase family coping was partially resolved and readiness to increase family coping was partially resolved.

Conclusion: The process of family nursing care from assessment to evaluation is carried out.

Keyword : Nursing Care; Schizophrenia; Hallucinations; Talking therapy.

Introduction

A person is diagnosed with hypertension when person's systolic blood pressure at a health facility or clinic is 140 mmHg and diastolic blood pressure of 90 mm Hg after repeated examinations¹. Hypertension is found in all populations with different incidence rates related to genetic, racial, regional, sociocultural, and lifestyle factors and the risk increases with age. The prevalence of hypertension globally in 2019 was 22% of the world's population². As many as 6-15% of hypertension survivors in Indonesia

have not reached health services, especially in rural areas³. The number of hypertension sufferers in 2020 in Magelang Regency was 62 452 people and it was the most common disease suffered by residents of Magelang Regency in 2020⁴. Based on information from the medical records section of the Dukun Magelang Health Center, the number of hypertension survivors who were routinely controlled at the Dukun Health Center from January to December 2021 was as many as 156 people.

Although hypertension can still be prevented, hypertension is a fatal risk factor that can cause cardiovascular disease, most of which end in death⁵. The Family Centered Nursing model states that the family is an open system that interacts with each other, therefore the family nursing provided is focused on improving the health and well-being of all family members through improving the dynamics of internal family relationships, structure, function, and interdependence among family members⁶. One of the goals of the family approach is to increase family access to comprehensive and quality health services.

The non-adequate of family health care functions and basic human needs at the family level with hypertension will cause nursing problems which are referred to as family nursing problems. One practice of the nurse's role in family nursing interventions in this case study is the Family Nursing Care of Mr. A in the Dukun Health Center working area with one of the family members of a hypertension survivor. Nursing problems that arise include ineffective family health management related to complex and/or long therapy programs with health education interventions, promotion of support systems, treatment programs, and family support planning care. The second nursing problem identified was the readiness to increase family coping with nursing interventions to support compliance, family involvement, and promotion of coping.

Methods.

This research is a case study that aims to provide a detailed description of the background, nature, and character of a case, in other words, a case study focuses on a case intensively and in detail⁷. The family as the subject of a case study is analyzed in depth both from factors related to the case itself, risk factors, which influence, events related to the case as well as the actions and reactions of the case to a certain treatment or exposure, even though the research in the case is only in the form of a unit. single family, but analyzed in depth.

The research population was a family with hypertension in the Dukun Health Center Work Area, Magelang. Determination of the research sample using purposive sampling technique on the population that meets the inclusion criteria in this study. The sample in this study is the family of Mr. A who has three family members with Mr. A as a hypertension survivor.

The whole process of family nursing care uses observation sheets and a list of interview questions according to the family assessment format to collect the necessary data. The family nursing assessment format includes the structure and nature of the family; social, economic, and family cultural factors; home and environmental factors; family medical history; and an assessment of five family tasks. In addition, to prioritize nursing problems

identified based on the results of the study, researchers used the Bailon & Maglaya scale.

Data collection was carried out by researchers by conducting home visits to observe the condition of the home environment. Data related to the structure and nature of the family; social, economic, and family cultural factors; family medical history; as well as an assessment of five family tasks obtained by interviewing families. Physical examination activities on all family members were also carried out during the data collection stage.

The family studied is the family of Mr. A as the head of the family who is 49 years old and is a high school graduate. Mr. A is a Muslim and works as a farmer every day. Mr. A's home address is in Sempon Hamlet, Wates Village, Dukun District, Magelang Regency which is the working area of the Dukun Health Center. Mr. A's family has three members. Mr. A as the head of the family has three family members. The following is an overview of the genogram of Mr. A's family:

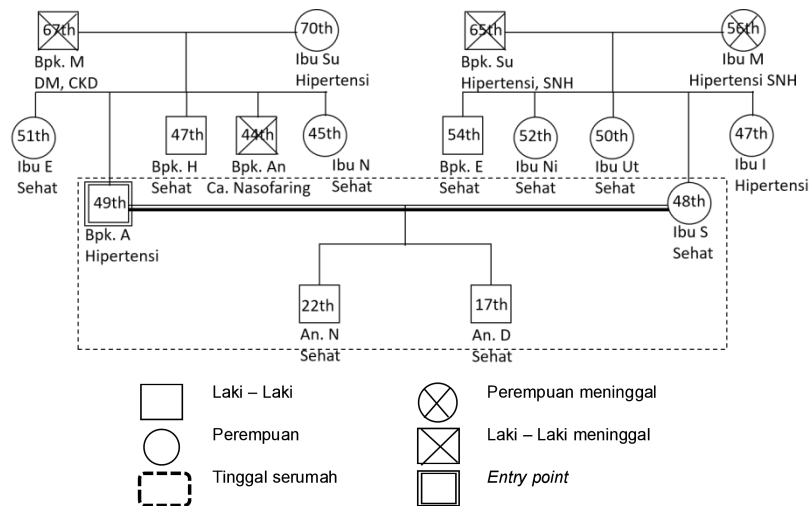


Figure 1. Genogram of Mr. A 's Family

Mr. A's wife, Mrs. S, who is a Muslim, is currently 48 years old. His educational background is strata two (S-2) and is a civil servant teacher. Mr. A's first son, Anak N, who is a Muslim, is currently 22 years old. His educational background is a bachelor's degree (S-1) and is a private teacher. Mr. A's second son, Anak D, who is a Muslim, is currently 17 years old. His educational background is junior high school and currently a high school student. Mr. A said that he and all his family members lived in one house which was privately owned. The following is an overview of Mr. A's family ecomap:

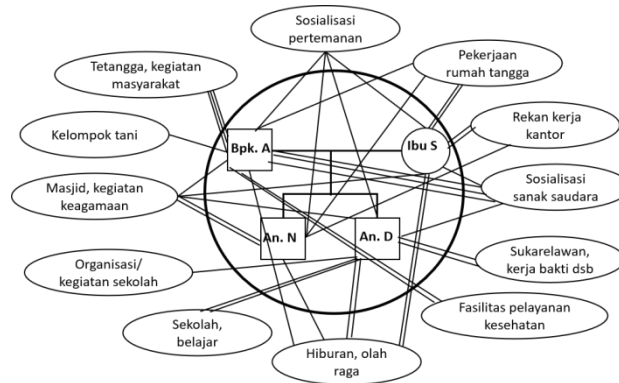


Figure 2. Mr. A 's family Ecomap

The stage of development of Mr. A's family is included in the "launching center family" because the first child of this family is not married and still lives with his parents even though he is already working. The developmental task of Mr. A's family now continues to play the role of releasing his first child to prepare for his own life and maintaining the intimacy of the husband and wife relationship between Mr. A and Ms. S. In addition, family members can help each other who is sick, such as Child A and Child D who take Mr. A went to the family doctor's clinic when she felt nauseous, vomiting, and dizzy. The tasks at the stage of family development with adult children that have not been carried out by Mr. A's family include accepting the departure of the first child to live independently because, at the age of 22, Child N has not been allowed to marry and live independently with his new family. In addition, the task of expanding the nuclear family into a large family also cannot be carried out because according to Mrs. S, it still needs a lot of financial and emotional preparation for Child N if he is going to get married and form a new family.

Result and Discussion.

The nursing diagnosis that emerged in Mr. A's family was ineffective family health management related to complex and/or prolonged therapy programs. Ineffective family health management is defined as a pattern of handling health problems in the family that is not satisfactory to restore the health condition of family members. Major symptoms and signs that can be identified in the family include difficulty in carrying out the prescribed treatment (PPNI, 2017) which can be seen in the results of the study that Mr. A said he objected to waiting too long in the queue at the hospital so that sometimes control was outside the specified time, Mr. A admits that he often forgets to take his hypertension medicine because sometimes he is active outside the house and does not bring medicine, and Mrs. S said that he cannot keep reminding Mr. A about the importance of taking hypertension medicine because he has to work from 07.00 to 16.00.

Other major signs, namely symptoms of family members' illness are getting worse (PPNI, 2017) were also found in Mr. A, namely saying that the palm of the hand and the fingertips of the right hand felt numb, Mr. A complained of dizziness and stiffness at the nape of the neck and red eyes

and felt spicy when tired from the fields, Mr. A's BMI: 25.17 (overweight), and Mr. A occasionally seems to massage his right palm.

Family activities in overcoming inappropriate health problems (PPNI, 2017) are major symptoms and signs studied in the family, namely Mrs. S said she did not prepare a special low-salt diet menu for Mr. A, Mr. A said smoked an average of five cigarettes a day, and Mr. A said there was no regular exercise agenda so he never did strenuous physical activity, and Mr. A admitted that he often forgot to take his hypertension medicine because sometimes he was doing activities outside the home and he didn't bring medicine. nausea again.

The second nursing diagnosis assigned to Mr. A's family being cared for is the readiness to increase family coping which is a pattern of adaptation of family members in dealing with the situation experienced by the client effectively showing the desire and readiness to improve the health of the family and clients (PPNI, 2017). Family members set a goal to promote a healthy lifestyle identified in Mr. A's family who said they wanted their blood pressure under control. Another major symptom and sign, namely being able to set goals to improve health is a major symptom and sign that can be found in Mr. A's family, namely Mrs. S who said that when Mr. A was still diligent in cycling in the morning there were never any complaints related to his hypertension, and Mr. A said he wanted to join in activities that are followed by fellow patients with hypertension.

The supporting factor in determining nursing diagnoses is the presence of a supervisor who is a community nursing specialist so that he can provide direction and guidance in determining nursing diagnoses according to the data from the assessment results. No inhibiting factors were found during the nursing diagnosis process.

Based on the results of the study, it was obtained that Mr. A said that there was no regular exercise agenda so he never did a strenuous physical activity. Higher physical activity is positively correlated with a lower incidence of hypertension in adult workers in Colombo⁸. People who are not physically active tend to have a higher heart rate. This causes the heart muscle to work harder with each contraction. The harder the heart muscle works in pumping blood, the greater the blood pressure imposed on the arterial walls so that the peripheral resistance causes an increase in blood pressure. Lack of physical activity can also increase the risk of being overweight which will cause the risk of hypertension to increase.

Apart from the lack of physical activity, Mr. A said that he smokes an average of five cigarettes a day. There is a relationship between smoking habits and types of cigarettes with the incidence of hypertension⁹. The buildup of harmful substances in the blood such as nicotine in cigarettes can cause various cardiovascular diseases such as hypertension and other complications. Nicotine and tar substances that enter the bloodstream can damage the lining of the artery walls and cause atherosclerosis and hypertension.

Mr. A said that the palm and fingertips of his right hand felt numb. The more and longer smoking history can increase the risk of blood vessel

disorders which are characterized by the appearance of tingling or numbness symptoms¹⁰. The longer the smoking history, the more endothelial dysfunction occurs as a result of the amount of nicotine that enters the body. Likewise, the process of atherosclerosis is chronic, so the longer the smoking history, the more occlusions that form in the blood vessels which can increase blood pressure.

Mrs. S said that she did not prepare a special low-salt diet menu for Mr. A. There is a relationship between family support and adherence to a low-salt diet at the Ulaweng Health Center, Bone District¹¹. The length of the treatment process can result in saturated hypertension survivors so that they are at risk of experiencing despair which can result in incomplete treatment and difficulty to cure. Family support regarding hypertension and adherence to a low-salt diet that is needed is related to the compliance of hypertensive patients to implement a balanced diet.

The priority of family nursing problems is determined according to the Bailon and Maglaya scale by assessing the nature of the problem, the possibility that the problem can be changed, the potential for the problem to be prevented, and the prominence of the problem¹². The priority nursing problem in Mr. A's family is that family health management is not effective because of the unhealthy nature of the problem, namely a family with hypertension.

The nursing action plan for the diagnosis of ineffective family health management based on the SLKI (PPNI, 2018) includes the main outcome in the form of family health management and additional outcomes in the form of family resilience, health behavior, family health status, level of compliance, and level of knowledge. Nursing goals agreed upon with Mr. A's family include family health management, level of compliance, and level of knowledge. Outcomes of family resilience nursing are not the goal because Mr. A's family does not experience difficulties or crises that need to improve adaptation and function of the family's capacity positively.

Given the limited time and resources, it is necessary to arrange nursing goals according to priorities and must be reasonable so that the health behavior outcomes that expect the ability of Mr. A's family to change lifestyle/behavior to improve health status are not used as the goal of nursing care. Mr. A's family can assess and respond to stressors and/or family abilities so that the outcome of the family's health status is not included in the goals of care. The planned nursing plan aims to improve the ability of Mr. A's family in managing and integrating the handling of health problems in daily life to achieve optimal health status after three visits.

The nursing diagnosis of a family coping readiness improvement based on the SLKI (2018) has the main outcome of family coping status and additional outcomes in the form of family function, family resilience, and level of anxiety. After three visits to Mr. A's family, it is expected that the behavior of family members in supporting, giving a sense of comfort, helping, and motivating other sick family members to adapt, manage and overcome health problems will improve. The goals of nursing care agreed

with Mr. A's family are family functions and family coping status. Outcomes of family resilience nursing are not the goal of nursing care because Mr. A's family does not experience difficulties or crises that need to improve adaptation and function of family capacity positively. Mr. A's family does not experience emotional conditions and subjective experiences of objects that are not clear and specific because they can recognize the problem of hypertension in family members so that the level of anxiety is not an outcome of nursing care.

The priority nursing diagnosis in Mr. A's family is that the ineffective family health management has been partially resolved. The problem of ineffective family health management nursing which was solved to increase the level of knowledge was achieved by teaching Mr. A's family the importance of administering drugs in an orderly manner and routine control. The results of the nursing evaluation showed that Mr. A could explain the reasons why he should not forget to take his medicine, as well as the reasons for taking medicine on time and regularly. Child N can also explain why Mr. A has to order routine health checks every month at the 'Aisyiyah Muntilan Hospital according to the date that has been instructed by the internal medicine doctor. Self-management education that is adapted to health literacy significantly improves adherence to treatment therapy in hypertensive patients¹³.

The evaluation results showed that Mrs. S was able to explain the importance of setting a low-salt menu for family members with hypertension and she was committed to cooking a low-salt menu and avoiding a special fried food menu for Mr. A. Health education on managing a low-salt diet in Mr. A's family was in accordance with research that states that knowledge, abilities, and health-related skills related to Na/salt and K intake need to be promoted through educational interventions¹⁴.

The goal of increasing hypertension management knowledge level is also achieved by nursing interventions in the form of teaching hypertension exercises so that families can independently perform hypertension exercises to reduce blood pressure in Mr. A. The results of the nursing evaluation show that Mr. A can imitate the hypertension exercise movements that are taught and Mr. A has a smartphone and can access educational video sources for hypertension exercise independently. The following is a graph of Mr. A's systolic and diastolic blood pressure before and after hypertension exercise:

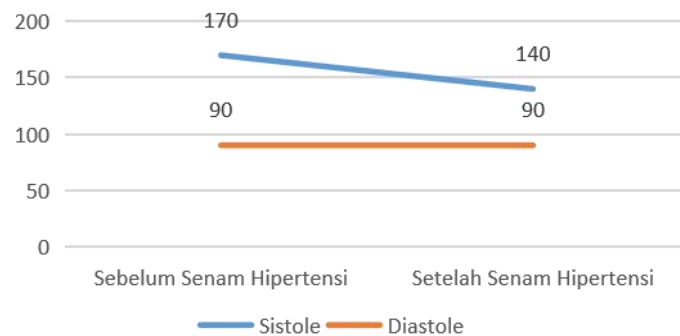


Figure 3. Graph of Mr. A's Blood Pressure Before & After Hypertension Gymnastics

Based on Figure 6, there is a difference in Mr. A's blood pressure before and after hypertension exercise. Mr. A's blood pressure after hypertension exercise dropped to 140/90 mmHg from the previous 170/90 mmHg. Hypertension exercise affects reducing systolic blood pressure¹⁵.

The results of the nursing evaluation showed that Mr. A said that he would routinely independently perform isometric handgrip exercises while watching video tutorials on YouTube as an interlude for hypertension exercise. Mr. A, Son D, Son N, and Mother S were enthusiastic and focused on following the isometric handgrip exercise tutorial. The following is a graph of Mr. A's systolic and diastolic blood pressure before and after the Isometric Handgrip Exercise (IHE):

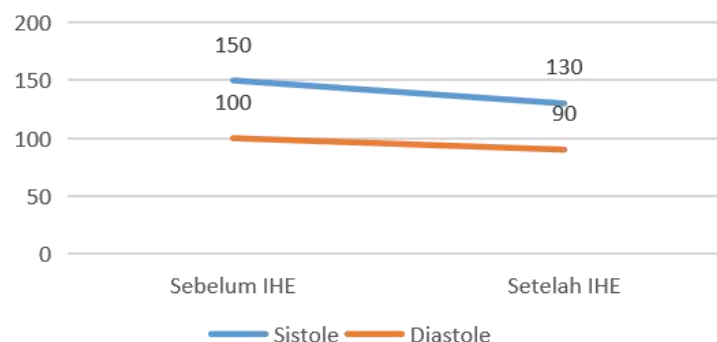


Figure 4. Graph of Mr. A's Blood Pressure Before IHE & After IHE

Based on Figure 4, it is known that there are differences in the results of Mr. A's blood pressure measurements before and after IHE. Mr. A's blood pressure before IHE was 150/100 mmHg changed to 130/90 mmHg after IHE. This is in accordance with the research that says IHE can reduce systolic, diastolic, and MAP (Mean Arterial Pressure) blood pressure in prehypertensive and hypertensive adults¹⁶.

Outcomes of family support nursing in planning care are achieved by nursing interventions in the form of identifying family needs and expectations about health, discussing family health problems, and identifying health problems for each family member. The results of the nursing evaluation showed that Mother A, Child N, and Child D said that they had no health complaints at this time and felt healthy. Mr. A said that since 2016 he has had hypertension and currently his right palm feels

numb. For some ongoing and urgent physical complaints or chronic conditions, trained nurses may provide the same quality of care or may even be better than doctors¹⁷.

The results of the nursing evaluation showed that Mrs. S was able to explain how to treat patients with hypertension at home, namely CERDIK Hypertension: health checks, getting rid of cigarette smoke, diligent physical activity, balanced diet, adequate rest, and stress control. Mr. A can mention the treatment program that must be carried out, namely routine blood pressure checks independently at home assisted by other family members, monthly routine health checks at the hospital (complete blood checks, cholesterol checks, EKG examinations), and being obedient to taking routine medications that have been prescribed by doctor. Mr. A's family knows how to treat hypertension patients that the family can do so that their care needs can be met. Health literacy related to hypertension and related factors can meet the health needs of patients and families¹⁸.

Mr. A's family was also taught how to care for sick family members with progressive muscle therapy. The results of the nursing evaluation showed that after progressive muscle exercise, Mr. A said he was more comfortable because the neck and neck were no longer stiff. Here is a chart of Mr A's blood pressure before and after progressive muscle training:

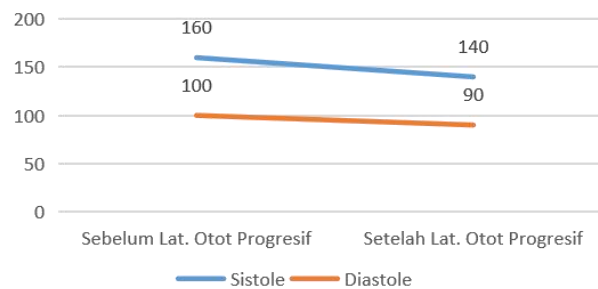


Figure 5. Graph of Mr. A's Blood Pressure Before & After Progressive Muscle Exercise

Based on the graph in Figure 8, it is known that there was a change in Mr. A's blood pressure before and after progressive muscle training. Mr. A's blood pressure before progressive muscle training was 160/100 mmHg changed to 140/90 mmHg after progressive muscle exercise. The more often you do progressive muscle relaxation therapy, the blood pressure in hypertensive patients can be better controlled.

While interacting with the family, the author also encourages family members to take advantage of existing resources in the community. This is important because health interventions must be carried out in a participatory community-based manner, developing new partnerships, and in line with cultural traditions²⁰.

Outcomes of nursing support for treatment program compliance are intervened with nursing actions in the form of involving Mr. A's family to support the treatment program being undertaken. There is a relationship between the role of the family and adherence to medication for hypertension patients²¹. In addition to involving the family, the

interventions carried out also included educating what treatment program Mr. A had to undergo. The results of the nursing evaluation showed that Mr. A could mention the treatment program that must be followed, namely routine blood pressure checks independently at home assisted by other family members, health control monthly routine at the hospital (complete blood count, cholesterol check, EKG examination), and adhere to routine medication prescribed by the doctor. Son D said he was willing to help Mr. A routinely check blood pressure independently after every Maghrib prayer using his digital sphygmomanometer. This is in line with research that states that there is a significant relationship between family support and medication adherence in hypertension patients¹¹.

Other nursing interventions also include the advice of Mr. A's family to accompany and care for Mr. A during the treatment program. The results of the nursing evaluation showed that Mrs. S, Child N, and Child D said they were willing to be actively involved in the care process for Mr. A, especially those that could be done independently by the family at homes such as setting food menus and medication adherence. The higher the family support is given to people with hypertension, the higher the compliance in the treatment process²².

The results of the nursing evaluation showed that Child A was willing to take Mr. A at any time to the family doctor's clinical practice or emergency room if suddenly he had complaints due to hypertension by using a car by taking advantage of the health insurance he had. This is in line with the results of research which states that health workers and patients' families need to monitor hypertension sufferers to better comply with all regulations regarding hypertension therapy²³.

Nursing diagnosis of readiness to improve family coping for the family function is achieved by several nursing interventions. During the intervention, the author always tries to create a therapeutic relationship between Mr. A and his family by applying therapeutic communication. Effective therapeutic communication can increase awareness in patients, especially regarding a low-salt diet for hypertensive patients²⁴.

Outcomes of family coping status that are expected to improve are achieved by nursing interventions in the form of introducing Mr. A's family to people/groups who experience the same experience related to hypertension so that social support will increase. The results of the nursing evaluation showed that Mr. A said he would try to contact the WA number of the nurse holding the PROLANIS (Chronic Disease Management Program) in Dukun Primary Health Center program who had been given to join other hypertension survivors in activities at the primary health care. Mrs. S said she knew the nurse who held the PROLANIS (Chronic Disease Management Program) at the Dukun Primary Health Center because her colleague was doing gymnastics at the Kadipuro gym and would try to ask questions about the PROLANIS (Chronic Disease Management Program) and the possibility for Mr. A to join. There is a significant relationship between social support and self-management behavior of hypertensive patients²⁵.

Conclusion and Suggestions.

The conclusion of family nursing care given to Mr. A's family shows that the problem of family health management: ineffective hypertension is partially resolved as well as the problem of readiness to increase family coping which is partially resolved. Sustainability of the intervention given is very dependent on family commitment and the recommended follow-up plan is to motivate Mr. A to participate in Prolanis activities at the Dukun Health Center and encourage Mr. A's family to make more use of the community around the house such as the healthy heart gymnastics community and PROLANIS.

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