

Family Involvement in the Treatment of Hypertensive Patients using Dunn's Health Grid: A Multiple Case Study

1stAntonius Yogi Pratama
Department of Nursing STIKES Bethesda Yakkum Yogyakarta
yogi@stikesbethesda.ac.idIndonesia

Abstract—Non-communicable diseases such as hypertension have overtaken infectious diseases as the leading causes of death in the world. However, it is considered to be a preventable disease. Family has a role in preventing and controlling this disease. The study aimed to analyze the involvement of family in the treatment of hypertensive patients in the community in Terban using qualitative research method with a multiple case study design. Using purposive sampling, four families were recruited to participate in this research, each of which represented four quadrants of Dunn's Health Grid. These characteristics include: (1) Case 1 is a family that has a patient with high-level of wellness in a favourable environment, (2) Case 2, has a patient with emergent high-level of wellness in an unfavourable environment, (3) Case 3, has a patient with protected poor health in a favourable environment, and (4) Case 4, has a patient with poor health in an unfavourable environment. To gather the data, this research used audio-recorded interviews, participant observation, field notes and documentation. The participants who were interviewed were 4 hypertensive patients, 4 family members (1 each family), a public health nurse and a physician. Data were analyzed using thematic analysis and case descriptions which developed 3 main points; a) family as primary support, b) self-care maintenance, and c) barrier to treatment. This study concluded that family involvement in hypertensive treatment varied from case to case. The family members' involvement includes psychological and instrumental supports which affect the patients' independence in self-care treatment of hypertension. However, there are still some barriers to treatment, especially among families living in unfavourable environment.

Therefore, the role of community health nursing becomes important to examine not only the health but also environmental conditions of hypertensive patients and to find out the weak points that need attention so that the role of family in managing hypertension patient can be maximized .

Keyword: Family Involvement, Treatment of Hypertension

1. INTRODUCTION

As the times progressed, public health has been changing rapidly. One of the most striking examples of the changes is the fact that non-communicable diseases have overtaken infectious diseases as the leading causes of death (WHO, 2013). Hypertension is still a major public health issue and a leading cause of death in the world. Worldwide, raised blood pressure is estimated to cause 7.5 million deaths, about 12.8% of the total of all deaths. This accounts for 57 million disability adjusted life years (DALYS) or 3.7% of total DALYS (WHO, 2018). Hypertension is responsible for at least 45 % of deaths due to hearth disease and 51 % of deaths due to stroke (WHO, 2013) The Third National Health and

Nutrition Examination Survey (NHANES) reported that the prevalence of hypertension grows significantly with increasing age in all sex and race groups. Adeneye (2014) states that the age-specific prevalence is 3.3% in white people (aged 18-29 y). RISKESDAS (2013) illustrates that the prevalence of hypertension in Indonesia based on the results of measurements on age ≥ 18 years amounts to 25.8 percent. Analysis of the last three years of data in the entire hospital in Yogyakarta showed cardiovascular diseases such as hypertension, stroke, heart or known as disease CVD (cardiovascular disease) was the highest cause of death (Dinas Kesehatan Daerah Istimewa Yogyakarta, 2013). While according to RISKESDAS (2013), the prevalence of hypertension in the Special Region of Yogyakarta at the age above 18 years was 25.7% (based on the research).

One of the aims of Global Plan of Action 2013-2020 is to reduce the number of people with high blood pressure. Nurses can contribute as global agents of change by being active in society and spreading a positive impact on Global Health Problems (Edmonson, McCarthy, Trent-Adams, McCain, & Marshall, 2017). Hypertension is actually a preventable cause of death. Family plays a role in preventing health problems and caring for sick family members as well. Studies found that families, friends and significant others are the supportive people who can directly prevent and improve patient's health (Ojo, Malomo, & Sogunle, 2016; Osamor, 2015; Padhy, Lalnuntluangi, Chelli, & Padiri, 2016). The influence of family involvement in chronic disease control especially hypertension had been proven by many studies. Costa & Nogueira (2008) identifies that the subcategories of "harmony in the family", "financial improvements in the family", "control of hypertension" and "well-being" get positive references, proving the influence of the family dynamics on the control of the disease is necessary for the hypertension treatment.

Respondents with strong perceived family support are approximately five times more likely to have controlled blood pressure than respondents without strong perceived family support. Olowookere et al. (2015) analyses that patients with good family support have better adherence compared to those with poor family support. This is also revealed by Osamor (2015) that says support from family by giving reminders about medication shows better treatment compliance than those who did not. In addition, Ojo et al. (2016) states that a strong perceived family support will improve their self-worth and motivation. Based on some observations, most hypertensive patients have good knowledge about hypertension but family does not realize that their support is crucial. Therefore the involvement of the family in the treatment of hypertensive patients needs to be studied more deeply.

2. MATERIALS AND METHOD

Overview

The study used qualitative research method with a multiple case study design. A multiple case study design was chosen because the commonality of these diseases. Other than that, having multiple cases might help the researcher to strengthen the findings from the entire study because the multiple cases might have been chosen as: replications of each other, deliberate and contrasting comparisons, or hypothesized variations (Yin, 2004). The cases were families that has a patient with hypertension. This study used the philosophical underpinning adopted from Imogene King (Masters, 2012) and Dunn (Dunn, 1959, 1972; Treas & Wilkinson, 2014). The interacting systems framework from King was used to discuss and analyzed each of case or a within case analysis. The Dunn's Health Grid and Yin's Theory were used to discuss and examined in a cross case analysis .

Setting

This research was conducted in Yogyakarta City located in Java Island, Indonesia. The researcher focused on the community in Terban under the Primary Health Center (CHC) of Gondokusuman in the city of Yogyakarta, where the average number of adult hypertension patients was 108 people. This number was obtained from the data from Puskesmas Gondokusuman II within a month calculated from January - December 2017.

Case participant

There were two levels in selecting the participants including (1) purposive selection of family and (2) purposive selection of interviewees.

The Selection of Family

The researcher selected four families with the help of Public Health Nurse in Puskesmas Gondokusuman II based on the characteristic explained by Dunn's Health Grid. The following are the characteristics of each case.

Case 1 is the family that has a patient with high-level wellness in a favourable environment. The patient is a man aged 68. He had been diagnosed with hypertension for nearly 12 years. He does not have any comorbidity. He began to control hypertension from the time he was diagnosed. He only lives with his wife. He does exercises, such as running and stretching at least twice a week. He takes the medicine once a day in the morning. He does not smoke nor consume alcohol. He has a good relationship with family and community. He has a good economic level because he was able to send his 4 children up to the level of Bachelor. Family gets water from a well drilled. He has the closed sanitation. He goes to the Puskesmas once in a month.

Case 2 is the family that has a patient with emergent high-level wellness in an unfavourable environment. The patient is a 45-year-old woman. She does not have any comorbidity and has good adherence to medication. She does not smoke and consumes alcohol. But, her job does not support him/her to live happy and healthy. Case 3 is the family that has a patient with protected poor health in a favourable environment. The patient is a 59-year-old man, who suffered a stroke 6 years ago (in 2012) due to high cholesterol. He does exercise but not in routine manner, never controlled the foods, is disobedient to medication, consumes alcoholic foods (like Tape and Durian). However, he has good sanitation, has access to safe drinking water, has trash can, has health insurance, and has no difficulty in getting healthy food and access to health provider. Case 4 is the family that has a patient with poor health in an unfavourable environment. The patient was an old woman aged 65 years. She was diagnosed with hypertension since nearly 12 years ago after diabetes. She has arthritis on both legs and has to use crutches to walk. She has not been in control since January (3 months ago). Lastly, she has less interaction among family members.

Selection of Interviewees

In order to gain the multiple perspectives about the involvement of family in treatment of hypertension, the researcher picked three sources as person triangulation including hypertensive patients themselves, family member(s) of patients and caregiver/ health care professional working in the CHC of Gondokusuman II.

Table 1. Interviewee Information Per Case.

Case	Interviewee	Age	Employment
1	Patient	68	Entrepreneur
	Wife	58	Entrepreneur
2	Patient	45	Entrepreneur
	Husband	47	Security guard
3	Patient	59	Retiree
	Wife	57	Housewife
4	Patient	67	No work
	Daughter	39	Housemaid
Health Care Professional	Physician	29	Physician
	Nurse	52	Public health nurse

For patient as participant, purposive sampling was used to select the patients in the family with inclusive and exclusive criteria. The inclusive criteria include an adult-aged 18 years or older who has a primary or secondary diagnosis of hypertension for two years or more to ensure adequate experience with the disease; has one or more anti-hypertensive medications prescribed; has been registered as a patient in Puskesmas: and is willing to participate in this study. While, the exclusive criteria include respondent with severe illness which make it difficult to follow the study protocol, respondent with major psychiatric illness, and respondent will be discontinued from the study if they experience a hypertensive crisis during the study period.

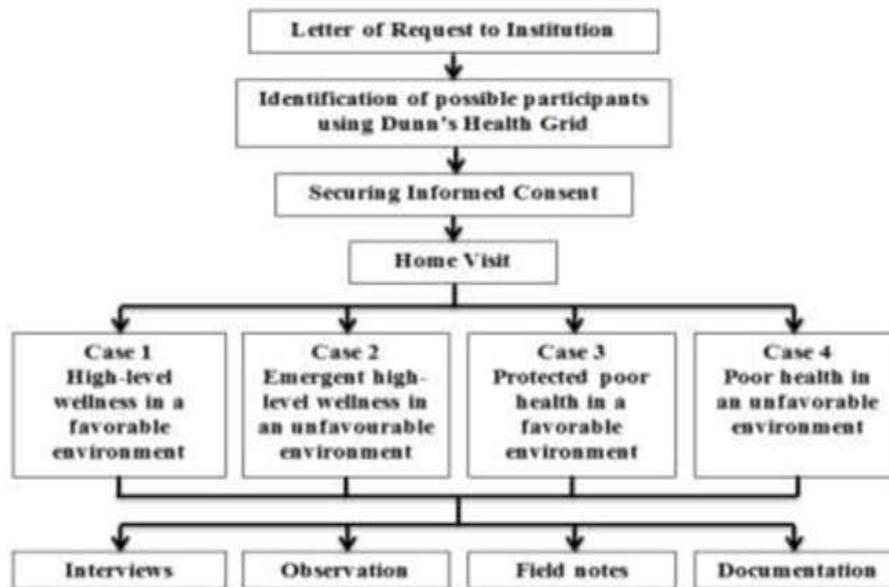
For the family member as the participant, the researcher selected one family member from each selected family to participate in the interview. Selection criteria include: participant is able to speak Indonesian well, living with patients, and willing to provide information about family involvement in hypertension treatment. Whereas for the Health Care Professional as participant, researcher approached community health nurse and physician. They have working experience for at least 5 years in Puskesmas.

Data collection

Prior to the data collection process, the researcher got some permission and continued by discussing and determining four families with one of the community health nurse (CHN) in Puskesmas (the Primary Health Center) using Dunn's Health Grid. Researcher and the CHN visited the family that has similar criteria. Researcher examined the family and the patient using assessment tool. The process of data gathering was conducted for four weeks. First day was for interview accompanied by a community health nurse or health care professional. It was conducted for 10-15 minutes for each respondent and was done in the respondent's house. Then, it was continued by the 6-day observation. The researcher documented what he heard, saw and experienced as Field Notes. Documentation and Archival Records were obtained by taking pictures and looking at the medical records of each patient in Puskesmas.

The semi-structured interview prepared and the researcher sought to investigate for more detailed impressions of the case participants. The interview was divided into three parts

(see Appendix 4). In the first part, researcher questioned the participant related to their profile such as: age, occupation, and some question about hypertension. The second part is grand tour question based on the statement of the problems: “How is your family involved in your treatment of hypertension? The last is the follow-up questions which are additional questions to ask the involvement of family regarding health life style and medicine. The process of data collection can be seen in the Figure 1.



This study employed thematic analysis through six steps of the recursive phases by Braun and Clarke (2006) in Smith (2015). Data from each case was analyzed and managed simultaneously through these following steps: Familiarization Notes, Coding Data, Searching for Themes, Reviewing Themes, Defining and Naming Themes, and Writing the Report.

While the Analysis of Multiple Cases from Yin was used to analyze all cases. The procedures included aggregating findings across a series of individual studies, creating of word tables that display the data from the individual cases according to some uniform framework and then analyzing the entire collection of word tables to draw cross-case conclusions (Yin, 2009).

3. RESULTS AND DISCUSSION CONCLUSION

CASE STORIES

Each case tells about the general characteristics of the family; medical history; stage of family development; communication, interaction and family roles, including verbal reminders, direct involvement, self-care treatment, family support for other health needs, problems arising during hypertension treatment, family satisfaction with family support; and case summary.

Based on the cross-analysis by Yin, three results were found: a) family as primary support, b) self-care maintenance, and c) barrier to the treatment. Each finding presents the case condition in accordance with the health and environmental background.

Family as primary support

In this theme, families become important part of patient care compliance in the home. The family pays attention to their family members who are experiencing health problems and

determine when they need help during illness (Efendy & Makhfudli, 2009).

The following are various forms of respondent's statement of family involvement during hypertension treatment:

She (wife) manages hypertension by reminding „If your mind is too tired, the blood goes up highly, rest or find a drug to lower. Eat the fruits, this fruit including cucumber, watermelon, melon“ [...]. She cared about my health. If the medicine runs out, I am warned [...] (P1) Do not eat a lot of salt“[...]“please eat only boiled food, do not eat fried foods“[...]“do not stay long in doing exercise“[...]. I remind him to sleep enough. (F1) If my wife complains sick. I told her to check to the puskesmas or I bought medicine for her (F2) I never used Micin (sodium salt glutamic acid) when cooking. I reduce salt. Then, sometimes I cook vegetables (F3) I heard that if people who have hypertension should not eat foods that are too salty, right? So I cook not too salty, I reduce the salt (F4) Family members tend to be the primary caregivers and sources of support for individuals during illness (Kaakinen, 2018). They are the closest people who always pay attention to family's health and are available every day for them (the patients).

Below was a respondent who stated the intense role of members of his family: I remind him (husband) always to take medicine and control, then keep his diet in order to keep his hypertension not going up (F1) If my blood pressure goes up. Usually they (husband and daughter) remind me to always take medicine every morning. My husband also reminds me to control to Puskesmas.(P2) Uchino (2006) stated that received support was obtained from stable relationships over time (eg, family) and was therefore probably in this way linked to the development of chronic diseases.

Most people suffering from chronic diseases consider the family as the main source of support and security, to exchange love, affection, respect and value, and family organizations and direct interactions affect the success of hypertension treatment (Costa & Nogueira, 2008).

Instrumental supports. Specifically, this study has found some instrumental social support such as: (1) delivering patients to puskesmas: my daughter often accompanies me to Puskesmas (P2) I advised him to check up, and I accompanied him to a doctor or health center (F3) There is one family that (2) helps the patient to complete the work which takes more time (as written in the 3rd story) and allows the patient to rest, as the family understands the health problems of the patient: Then for the job matters, they also help. So they let me rest (P2) Another example of instrumental support is one family that teaches patients to do gymnastics: I guided him to do the gymnastics. At home, I invited him to do it. We demonstrated at home, "let's do gymnastics, Sir". If the movement is like this, it will prevent us from getting heart disease, like this is to prevent symptoms of stroke. Then he was following my instructions (F1)

(3) Family cooks meals according to the patient's diet: I never use micin (sodium salt glutamic acid) when cooking. I reduce salt. Then, sometimes I cook vegetables (F3) I heard that if people who have hypertension should not eat foods that are too salty, right? So I cook not too salty, I reduce the salt (F4) Such supports would be especially meaningful for patients with chronic diseases requiring long-term treatment. Boutin-Foster (2005) observed about various types of instrumental support. He found that instrumental social support, which was most helpful in making lifestyle changes in patients, includes families that (1) make it easier and practical to engage in healthy behaviors, (2) relieve stressful situations, and (3) facilitate the process of receiving medical care.

Psychological supports. In addition to instrumental support, one family member expresses his psychological support to the patient: I(patient's wife) remind him while relaxing like this.

Because if I remind at the time he is high, it would make him offended [...].what we need only helping each other, do not get angry to each and I try not to make him offended. He never offended me. So, it's mutual understanding (F1) Support mentioned above shows that the family is able to create a harmonious atmosphere, understand and support each other. Emotional or psychological support from family and friends is associated with lower risk for hypertension (Cornwell & Waite, 2012). Even though, family members are more likely to provide instrumental support for older adults, but psychological support from friends is particularly beneficial for well-being in later life.

Another study explained that expressions of love, caring, concern, and affection buffer stress and enhance one's self-esteem (Thoits, 2011), which may reduce psychological reactivity, such as inflammation and blood pressure variation, and lead to better disease outcomes (Uchino, 2006). In addition, psychological support may also reduce risky health behaviors, such as smoking and drinking, as a way of coping with stress (Umberson, Crosnoe, & Reczek, 2010). Thus, perceived psychological support is directly related to better physical and mental health and usually buffers the damaging mental and physical health effects of major life events and chronic strains (Thoits, 1995)

The family was perceived as most important element for providing emotional and instrumental support. Psychological, information, and instrumental support done daily are very helpful for the patient's own self and can also maintain self-esteem, sense of importance for others, and the perceived control over minor or impending obstacles and thus indirectly maintaining psychological wellbeing and (through positive influences) physical well-being as well (Thoits, 2011)

Psychological and social aspects have a significant impact on the condition of hypertensive patients. Longitudinal studies revealed that people with higher levels of support had lower systolic blood pressure than those with lower support levels (Y. C. Yang, Boen, & Mullan Harris, 2015). Moreover, those with greater social support reported significantly lower perceived stress levels and depressive symptoms than those with less social support. It is highly likely that the impact of SBP from social support operates through a psychosocial process. In the present study, such condition has been found to be only case 1, where the patient is in a situation that enables him to obtain a holistic (biopsychosocial) support, while the other cases are still limited to instrumental support.

In addition to functional support (including instrumental and psychological support) it turns out that structural support is also important. Structural support is the availability of social network connections i.e., the existence of social ties in one's social network and an individual's integration with this network; number of friends, married vs. single, etc. (Tooley, Busch, McQuaid, & Borrelli, 2015). The relationship of both types of support is significant to one's health condition. As previous study, structural social support through social connectivity and the number of social ties is a necessary condition for improving health, because without social connections the functional aspect of social support is impossible (Y. C. Yang et al., 2015).

However, above the presence of social connections, the functional dimensions of social support are also important, as our results indicate that part of the beneficial effect of having a social connection operates through how this relationship improves physiological functions and disease risks such as hypertension. Thus, there is no doubt that the role of the family is fundamental to creating relationships within the family as well as other social connections.

Summary Overall, these themes have shown that all cases show their involvement in hypertensive treatment. However, each case has its own characteristics based on the

health and environmental background (see Table 2) .Case 1 demonstrates involvement through psychological and instrumental support. Psychological support provided by the family includes: caring for patients through always reminding to take medication, adhering to diet, going to Puskesmas, and reducing things that can trigger anger or creating a calm atmosphere). Whereas, instrumental support is shown by family through accompanying patient to a doctor or health center.

Involvement of family	Case	Case	Case	Case
	1	2	3	4
Psychological Support				
Reminding to take medicine	+	+	-	-
Reminding to obey diet	+	+	+	-
Reminding to go to Puskesmas	+	+	+	-
Creating a calm atmosphere	+	-	-	-
Instrumental Support				
Accompanying patient to doctor or puskesmas	+	-	-	-
Help alleviating the patient's work	-	+	-	-
Providing low-salt foods	-	-	+	+

(+) : exist
(-) : not found / not doing

In case 2, the family provides both support as in case 1. In psychological support, the family shows attention to the patient through: reminding to always take medication, adhering to diet and going to the Puskesmas. Whereas, instrumental support is shown by family through accompanying patient to the doctor or puskesmas and helping alleviate the patient's work.

Next, case 3 shows the psychological support through reminding to the Puskesmas and controlling the diet. The family has demonstrated his instrumental support through accompanying patient to check up to the Puskesmas and providing low-salt food.

Finally, case 4 only provides instrumental support through providing low-salt dishes. Based on the observation, family members have their concerns, such as: the husband suffering from illness after post-surgery that tends to pay attention to himself, so there is no time to take the patient to get the medicine. Moreover, her daughter is 5 months pregnant which needs the attention from her husband and other family members. Those factors have become the triggers for the lack of interaction with the patient.

Self-Care Maintenance

In this study, Self-Care Maintenance is defined as the actions that patients practice to do a healthy lifestyle, to meet their social, emotional and psychological needs, to take care of their long-term condition and to prevent illness or further injury. This is in line with Riegel,

Jaarsma, Strömberg, Clemmer, & Chair (2012) who stated that self-care maintenance referred to those behaviors performed to improve well-being, preserve health, or to maintain physical and emotional stability. The potential benefits of self-care are considerable (Greaves & Campbell, 2007). Based on interviews and observations, the researcher found it in all aspects including: adherence to medication, diet and physical activity.

There were some respondents who mentioned that they already knew the schedule of taking drugs and always take medicine: If it's about medicine, I know the schedule. Puskesmas officers usually give advice, right? And I always remember what they said (P1) If the medicine runs out, he can control himself to take it, "I'll take medicine". If the medicine runs out he goes alone to get the medicine (F1) One family member states that the patient has remembered the medication to be taken every day.

My mother has already known, it has been years, so she has memorized it. So every morning there is a drug she usually eats (F4).

A cross-sectional survey design study using 459 patients with type 2 diabetes assumes that the patient's health condition will be better and the quality of health will increase as patients perform routine self-care activities (Lee, Lee, & Moon, 2016).

Related to physical activity, there was one respondent who stated that the patient had his own regular schedule to do the exercise which was his hobby.

She (wife) has no reminder schedule. But I have my own schedule since the first. Three times a week, e.g. Sunday, Tuesday and Friday (P1) Doing exercise is indeed his hobby. So, if he does not do exercises he sometimes cannot feel well [...] he often does walking, running in a few hours. Usually leaving from home at 5 am and returning until at around 8 am (F1) Self-care is one method of disease treatment (Greaves & Campbell, 2007). It includes diet, physical activity, smoking, and drug use which is the foundation of many preventive health care. In addition, it is the majority of care received by patients with long-term conditions.

Although there was a respondent who stated that the sport was still not regular. However, there was at least a willingness to change lifestyles: Sometimes on Sunday I play badminton with wife [...] but not routine [...] just if we have time (P3) Researcher found that there were patients who were able to go to the Puskesmas independently to check their health condition and get their routine medication.

The distance from here is about 200 m. So I walked alone (P1) Because the distance is close, so sometimes I go there alone (P2) Looking at the data above, it can be concluded that self-care is also important and beneficial for disease improvement. Practicing self-care health behaviours has a positive impact on the reduction of modifiable risk factors and indirect effects on improving the quality of life of patients with chronic disease (Ahn, Song, & Choi, 2016).

Patient's independence in disease treatment must be supported by various parties, both family and health care provider. As the previous study suggested, self-care support is a key to the future of health care (Greaves & Campbell, 2007). Positively, it also has a better and more useful impact over the long term. Support for self-care is increasingly seen as a core component of long-term treatment of the condition (Kennedy, Rogers, & Bower, 2007).

As the literature that supports the finding, Riegel et al. (2012) stated that in healthy individuals, self-care focuses on self-improvement, but in the face of a chronic illness, many self-care maintenance behaviours mirror the recommendations of providers. These behaviours could be related to life-style (e.g. smoking cessation, preparing healthy food,

coping with stress) or the medical regimen (e.g. taking medication as prescribed). These activities may be imposed by others (e.g. health care professionals or family members) and then agreed on by the patient or solely chosen by the patient to meet his/her own goals. Self-care maintenance benefits from reflection about the usefulness of the behaviour, vigilance in performance of the behaviour, and an on-going evaluation of benefits and the effectiveness of the activities. In addition, adaptation is often needed to accommodate changing conditions.

In his first theory, Orem stated that self-care was a human regulatory function performed by individuals or others (dependent care). The purpose of self-care is to maintain life, to keep the essential physical and psychic functions going, and to maintain the integrity of a person's functions and development within the framework of conditions that are essential for life. This central focus is based on the presumption that individuals learn self-care practices through experience, education, culture, scientific knowledge, growth, and development. A relationship exists between deliberate self-care actions and the development and functioning of individuals and groups (Meleis, 2012).

This case study showed that the family has a desire to take care of themselves due to the experience of hypertension care where the family always reminds the patient to take medicine, adhere to diet and exercise, the patient knowledge of diseases from nurses, doctors and families, and the education provided by families and health workers.

Summary

Table 3 Self Care Treatment

	Case 1	Case 2	Case 3	Case 4
Do exercises	+	-	+	-
Has a structured plan for drug regimen	+	-	-	-
Visiting to Puskesmas	+	+	-	-

(+) : exist

(-) : not found / not doing

The table illustrates the self-care treatment of patients. There are three self-care treatment that the patient has done which includes doing the exercises, arranging the medication schedule and going to Puskesmas. Patients in Case 1 has all of the above self- treatment treatments. While in case 2, independence is seen only in the obedience of visiting Puskesmas. Next, case 3 has exercise habits as well. In contrast, case 4 has absolutely no independence, as it has a weakness of mobility as described in "case stories."

Barrier to Treatment It has been found that in the midst of family involvement in managing hypertension, there are some inhibiting behaviours that come from both the patient and family members. Below is a discussion on how the barrier took place in the family, where the data was obtained through interviews and observation.

Patient Induced Barrier The following are the habits that inhibit the treatment which come from the patient: Actually my son and wife understand very well that I have hypertension.

But I never diet [...]if the menu is suitable to my taste, I will eat. If not, I do not eat or I just let it. And buying food outside or I ask my child to buy (P3) That statement conveys limited view of the respondent with regard to the compliance of the treatment of hypertension. Difficulties in adhering to the diet was also expressed in a study, which found that adherence to lifestyle modifications, especially dietary changes, was lower than with antihypertensive drug therapy by between 13% and 76% (Burke, Dunbar-Jacob, & Hill, 1997).

Many factors are thought to affect adherence which include age, gender, education, understanding and disease perspectives, suggestions and types of health systems. However, it can be enhanced by good communication between patients and health professionals dealing with knowledge of the disease, active involvement of patients in decisions, setting goals that can be achieved and good family and community support (NICE, 2011).

According to King, interaction is created through communication between family members, which leads to optimal health. A respondent in Case 3 stated his lack of concern from the family about taking medicine:

My wife never (reminded to take medicine), my child also never. So I take the medicine or not it depends on me (P3) Based on the observations, the patient's wife takes care of their two grandchildren, so she does not have time to take care of the patient. From that data, it can be assumed that there is lack of support from the family. The previous study stated that the difficulty in treatment increases when there is no family involvement in daily care of the patient, and relationships in the family are problematic (Costa & Nogueira, 2008). Lastly, there is one patient in case 2. The job makes it hard for her to practice healthy lifestyle behaviors. Researcher observed that the patient was sleeping less. She worked nearly 18 hours per day. Such conditions are likely to have an impact on hypertension. Some research by experts have shown that there is a relationship between working hours and hypertension.

There are effects and risks for people with hypertension who are working for a long time. H. Yang, Schnall, Jauregui, Su, & Baker (2006) analyzed work hours and self-reported hypertension among the working population in the state of California. He found a positive association between work hours and self-reported hypertension. In particular, those who worked more than 51 hours per week were 29% more likely to report hypertension. In line with other study, Yeom et al. (2017) examined workers in a general hospital located in Ulsan about the effects of shift work on hypertension: cross sectional study. They observed that working continuously increases the risk for hypertension. Similarly, Yoo, Kang, Paek, Min, & Cho (2014) found that long hours (≥ 41 hours) may be an independent factor associated with hypertension among middle and older wage workers. Time treatment may be essential for the prevention of hypertension among workers.

Family Induced Barrier The surprising thing is that family does not provide good situations for patients obeying the treatment and practicing a healthy lifestyle. The following are some statements of a patient and a family member: The most often is tape. She (wife) often buys it for me. Because she knows my pleasure (P3) Tape or binuburang (called in the Philippines) is a traditional fermented food, which contains alcohol (Mughtaridi, Musfiroh, Hambali, & Indrayati, 2012). This food is a daily snack for Indonesian people. However, excessive consumption will lead to unfavourable effects, especially for people with hypertension. According to Kurniawan (2012) foods containing alcohols such as Durian and Tape should be reduced. This is supported by a previous study in Indonesia about

alcohol consumption, where there is a relationship between duration of consumption, and frequency of consumption with the incidence of hypertension (Komaling, Suba, & Wongkar, 2013). Another obstacle was also stated in case 4, as follows: I (family) used to pay attention. But now, my mother already know, it has been years, so she has memorized it [...] even though she is old but not too senile (F4) The researcher also noted that communication within the family in case 4 is less likely. A lack of communication within family about health can indicate that relationships are tensed, contradictory, or demanding, and consequently bring additional pressure to those suffering from chronic conditions (Cornwell & Waite, 2012). One study conducted by Felipe, Abreu, & Moreira (2008) at Fortaleza, which evaluated how nursing consultations were conducted with hypertensive patients, showed that family presence in patient monitoring was considered very important. They believed that this could encourage medication adherence. Moreover, the intense family participation could change the lifestyle of the patients (Treas & Wilkinson, 2014). Thus, regardless of the condition and the patient's ability to take care of themselves, family support must remain intense because it shows that the family loves the patient.

Summary

Table 4 . Barrier to the Treatment of the Four Cases

Case	Barriers	Inhibitor
Case 1	None	-
Case 2	work makes the patient difficult to practice healthy lifestyle behaviors	Patient
Case 3	less obedient to diet	Patient
	providing prohibited foods	Family
	no reminding to take medicine	Family
Case 4	assume patients do not need to be reminded to take medicine	Family

According to Dunn, in a favourable family that offers trust, love, and support, the individual does not have to expend energy to meet basic needs and can move forward on the wellness continuum. That statement is the same as to what happened in case 1. It can be assumed that people with good health and environmental backgrounds will find no difficulty in going to the continuum wellness. While in cases 2, 3 and 4, there are imbalances between environment and health.

In case 2, it has been found a barrier from the patient alone where the job makes the patient difficult to practice healthy lifestyle behaviours. Case 3 shows the barriers which come from both patients and families. First, the patient conveys a limited view of the respondent with regard to the compliance of treatment of hypertension, so it cannot practice healthy lifestyle behaviours (enough in the break). While on the family side, they do not provide support in adherence to drug therapy and also healthy lifestyle practices (especially diet). Finally, case demonstrated the presence of a lack of communication within the family so that patients are less likely to get attention in hypertensive treatment (especially medication adherence) Discussions of Dunn’s Health Grid In his book, Dunn started his talk with a definition of what health is. He referred to the healthy definition provided by the World Health Organization: "Health is a state of complete physical, mental,

and social well-being, and not merely the absence of disease and infirmity" (Dunn, 1972). "Complete physical, mental, and social well-being" means healthy both in body and mind. These include well-being in the family and in community life, even related to work. The complete well-being for all these conditions occurs together (well-being of body, mind, and environment). The body must be eager to do the activity. The mind must shine with interest. For maximum health, the environment must encourage individuals to live life with great fun (Dunn, 1972). In this study, researcher focused more on family involvement as a form of attention and on a social environment to maximize the treatment of hypertensive patients.

The research used the concept of "health grid" made by Dunn. It was made up of (1) the health axis, (2) the environmental axis, and (3) the resulting health and wellness quadrants, that is, (a) poor health in an unfavourable environment (as case 4 of this present study), (b) protected poor health in a favourable environment (as case 3), (c) emergent high-level wellness in an unfavourable environment (as case 2), and (d) high-level wellness in a favourable environment (as case 1) (Dunn, 1959).

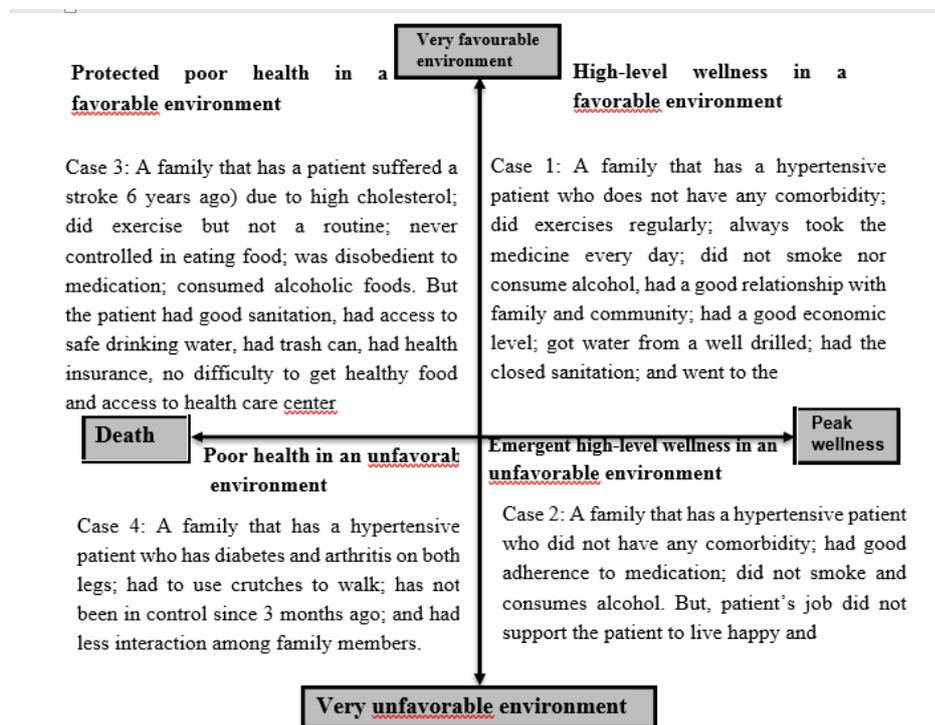


Figure 2 The Findings of Cases in Dunn's Health Grid

The findings from this case study generally have suggested that although each family has a different background, it does not prevent families from providing support or engaging in managing hypertensive patients. Meaning that all cases in the study have shown the existence of family support.

In case 1, there were no inhibitors. A healthy lifestyle attitude and support from a complete family support the patient to always maintain even maximize healthy conditions. This is in line with Dunn's statement: In a well family that offers trust, love, and support, the individual does not have to expend energy to meet basic needs and can move forward on the wellness continuum (Treas & Wilkinson, 2014).

Love is a vital factor in our lives (Dunn, 1972). Everyone cannot achieve high-level wellness without it. In this study, family involvement is a form of love.

Beside the current study, researchers have also found inhibitors that can worsen the health condition of hypertensive patients. It came from the patients themselves and also from the family members. As in case 2, a barrier to healthy behavior are time-consuming tasks. Related to the work, Dunn (1972) stated that the family and the community and the job, all had their part to play in connection with keeping the body well. They generated lines of influence which affect us. It can be deduced that in this case a job plays a role in establishing a healthy condition for the patient.

Whereas, Case 3 shows the barriers are coming from both patients and families. First, the patient conveys a limited view of the respondent with regard to the compliance of treatment of hypertension. While on the family side, they do not provide supports in adherence to drug therapy and also healthy lifestyle practices (especially diet). Case 4 demonstrates the presence of a lack of communication within the family so that patients are less likely to get attention in hypertensive treatment (especially medication adherence).

From the explanations of cases 3 and 4, what matters is the understanding and knowledge of both patient and family about health issues. The concept that complete well-being for all these conditions occurs together (well-being of body, mind, and environment). The body must be eager to do the activity. The mind must shine with interest. For maximum health, the environment must encourage individuals to live life with great fun (Dunn, 1972). Because the focus of the research is on family involvement, then if it is associated with cases 3 and 4, the family as the primary source of support should be able to create a pleasant situation for the patient so that positive situation will provide a good quality of life. As a practical example, for case 3, family members can explain to the family that there are times when dietary patterns are irregular and drugs are not taken routinely, it can lead to a second stroke. This understanding will enhance the patient's passion for medication adherence and diet as well. As for case 4, the family can improve its communication, because it is a form of attention. (Dunn, 1972) says that "if you care for him, you will feel responsibility. That is, you will have the ability to respond to him." With that responsibility the patient will feel that he has the meaning and will have the spirit to maintain and even to improve his health.

Thus, High-level health can never be achieved in fragments, ignoring overall unity, including family roles (Dunn, 1959). It means that although case 2 and 4 have fallen under unfavorable conditions, if family support can be modified, then it is possible that hypertensive patients can control and improve their quality of life.

CONCLUSION

Based from the findings, this study concluded that family involvement in hypertensive treatment varied from case to case. The family members' involvement included psychological and instrumental support which affected the patient's independence in self-care treatment of hypertension. However, there were still some barriers to treatment, especially among families with the unfavorable environment.

Public health nurses have a responsibility to take part in addressing this global problem, specifically in overcoming the problem of hypertension. They should become actively involved in assessing the conditions of all families who have been in charge, because the family has a very big role in helping patients and health workers to obtain information in depth. When all have been assessed, then community health nurses will be able to maximize their role in controlling hypertension which, when it is not controlled, leads to complications and even death. This study has presented a variety of cases of hypertension based on the patients' background and this can be the basis and overview to initiate

interventions, especially the community health nursing to jointly reduce mortality caused by hypertension in Yogyakarta.

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