

## **The Relationship between Family Support and Low-Salt Diet Compliance on Hypertension Patients in Kendalsari Primary Health Care Malang**

Tony Suharsono<sup>1</sup>, Esthi Dwi Yuliawati<sup>2</sup>, Lilik Supriati<sup>3</sup>  
School of Nursing, Universitas Brawijaya

### **ABSTRACT**

#### **Introduction**

Hypertension as a chronic disease has become major health problem in the world and Indonesia. The number of hypertension cases has increased along with lifestyle changes related to diet pattern. One of hypertension managements includes compliance to low-salt diet. Family as the nearest external environment among hypertension patients is expected could provide good support to increase low-salt diet compliance. The aim of this study was to determine the relationship between family support and low-salt diet compliance among hypertension patients in Kendalsari Primary Health Care Malang.

#### **Methods**

The study used a cross sectional design. The sample of this study included 53 hypertension patients and their family carrying out treatment in Kendalsari Primary Health Care Malang. Data were collected using family support questionnaire and DSRQ (*Dietary Sodium Restriction Questionnaire*).

#### **Results**

The results showed that family support level was fair (22.68%) and low-salt diet compliance in hypertension patients were moderate (55.30). Based on *Pearson* correlation statistical test, it found that there was a significant correlation between family support and low-salt diet compliance with  $p = 0.002$  at  $\alpha = 0.05$ , proved a moderate correlation  $+0.425$ .

#### **Conclusion**

It could be concluded that better family support provides more obedient hypertension patients in low-salt diet. The study suggests that health workers at Kendalsari Primary Health Care Malang should provide education not only to patients but also families to improve support of dietary information.

#### **Keywords**

Family Support; Low-Salt Diet Compliance; Hypertension

### **BACKGROUND**

Hypertension is an increase in blood pressure of more than 140mmHg / 90mmHg in two measurements with an interval of five minutes in a rest / quiet state (Depkes RI, 2014). Globally, hypertension is a major health problem both in the world and in Indonesia. According to WHO in 2011, around 972 million people in the world or 26.4% of the population suffer from hypertension and is estimated to increase to 29.2% in 2025. In Indonesia, hypertension is the third leading cause of death after stroke and tuberculosis, i.e. 6.7% of the population Death at all ages. The result of Basic Health Research of Health

Research and Development Agency in 2007 showed the prevalence of hypertension nationally reached 31,7% (Ministry of Health RI, 2010).

Data from World Hypertension League (WHL) in 2009 states that more than one third of 1.5 billion people with hypertension worldwide are caused by excessive salt intake (9-12 g / day). WHO recommends sodium consumption patterns that can reduce the risk of hypertension by consuming no more than 1 teaspoon of salt (5-6 g / day). However, in Indonesia, the recommended consumption patterns is hard to be implemented because of the salt consumption patterns in Indonesian who like salty foods. According to Indonesian Hypertension Association, Indonesia's salt consumption pattern is about 15 g/day of 3 times larger than WHO's recommendation.

Some of the factors that become obstacles for those who suffer hypertension in implementing low-salt diet is the existence of chronic illness, boredom, lack of family support, and lack of motivation of healthy life style (Sumarman, 2010). In contrast to other factors, family support is the closest external factors to patients that can serve as a reinforcing factor that can affect a person's behavior and lifestyle, thereby impacting the health status and quality of life (Green & Kreuter, 2011).

A research conducted by Piferi & Lawler in 2006 states that individuals who get good family support can improve self-efficacy and self-esteem, and reduce depression and stress, compared to those who do not get support. The results of this study illustrate that providing support can provide an effect on health, that is by controlling blood pressure and can help minimize complications and improve adherence to therapeutic management. Conversely, poor family support can be an obstacle for hypertensive patients in the fulfillment of daily food.

Different results were obtained by a study conducted by Leon *et al.*, 2015 and Britain *et al.*, 2010. Based on both studies, psychosocial factors including family support were not significantly related to blood pressure or dietary adherence of DASH (Dietary Approach to Stop Hypertension) In hypertensive patients in America and Benin. This is due to differences in culture, where in both journals mentioned that the research respondents are more independent, therefore the internal factors of knowledge and understanding of complications of hypertension is a determinant of DASH diet compliance.

The purpose of this study was to determine the correlation between family's support and low salt diet adherence in hypertensive patients in Kendalsari Primary Health Care Malang.

## **METHODS**

### **Research Design**

The applied research design was using *Correlative Analysis* with cross-sectional approach.

### **Research Sample**

The sample of this research is 53 patients of hypertension and the family (spouse) who are undergoing treatment and living in Kendalsari Malang. The sampling technique was using Non Probability Sampling Technique by applying Purposive Sampling Approach, which sampling was based on the consideration and conformity with the predetermined criteria.

The criteria for the respondents of hypertensive patients are willing to be respondents, aged 20-60 years old, able to communicate well, live with spouse, have been diagnosed as having hypertension for at least 6 months, have obtained information about low salt diet from Primary Health Care, no complications like DM, Stroke, and heart disease, and not in a state of pregnancy. While the criteria for the respondents of family (spouse), among others, are willing to be respondents, aged 20-60 years, able to communicate well, and already acknowledged about low-salt diet.

### Research Instruments

The measuring tool for family support in this study was a closed modified questionnaire of DSRQ (Dietary Sodium Restriction Questionnaire) which linked to Friedman's 4 family supports, 2010 in the forms of emotional, judgmental, instrumental, and informational support. Each support was made into 4 questions in Likert measurement scale with the weights of 3 = always, 2 = frequent, 1 = rare, and 0 = never.

The measuring tool for low salt diet adherence in this study was using a DSRQ (Dietary Sodium Restriction Questionnaire) that has been modified. The questionnaire consists of 16 items consisting of 6 attitude items, 3 behavior control items, and 7 subjective norm items. The applied scale was using Likert measurement scale with score weights of 5 = strongly agree, 4 = agree, 3 = cannot decide, 2 = less agree, 1 = disagree.

**Table 1. Dimension in DSRQ**

<b>Attitude</b>
- Belief to the result when applying low salt diet
- Positive confident to change the diet pattern into low salt diet
<b>Subjective Norm</b>
- Applying the discipline of low salt diet Based on the influence from other people
<b>Behavior Control</b>
- Trying to limit the consumption of salt In daily diet
- Trying to restrict the consumption of foods with high salt
- Reading nutrition information on the food label
- Having high spirit and will in controlling

### Analisis Data

Bivariate Analysis for the test of correlation between family's support with low salt diet adherence was using Pearson Correlation Test.

## RESULTS

### A) Analysis of Univariate Data

## 1. Respondents' Characteristic

**Table 2. Result of Analysis of Age and Blood Pressure**

Respondents' Characteristic	Mean	SD	Min-Max
Patients' age	53,26	5,575	38-60
Family's age	55,26	5,234	39-60
<b>Patients' Blood Pressure</b>			
Systolic			
Diastolic	151,32	15,93	120-200
	96,23	9,035	80-110

Based on table 2 above, it can be stated that the average age of hypertensive patients in Kendalsari Primary Health Care was 53.26, with the youngest age was 38 years old and the oldest age was 60 years. While the respondent family (spouse) of hypertensive patients in Kendalsari Primary Health Care in average was 55.26 years. The youngest age was 39 years old and the oldest age was 60 years. For hypertensive blood pressure in Kendalsari Primary Health Care, the systolic and diastolic mean were 151,31 and 96,23. The minimum value for systolic was 120 and the minimum value for diastolic was 80. While the maximum value for systolic was 200 and the maximum value for Diastolic was 110.

**Table 3. Result of Analysis of Sex, Education, and Occupation**

Respondents' Characteristic	Frequency (n)	Percentage (%)
<b>Patients' sex</b>		
Male	5	9
Female	48	91
<b>Family's sex</b>		
Male	48	91
Female	5	9
<b>Patients' Education</b>		
Elementary School		
Junior High School	17	32
Senior High School	13	24
College	19	36
	4	8
<b>Family's Education</b>		
Elementary School		
Junior High School	14	26
Senior High School	15	28
College	20	38
	4	8
<b>Patient's Occupation</b>		
Housewife		
Entrepreneur	33	62
Private Sector	9	17
Retiree	8	15
Teacher	1	2

Lecturer	1	2
	1	2
<b>Family's Occupation</b>		
Housewife		
Entrepreneur	3	6
Private Sector	8	15
Retiree	22	41
Teacher	9	17
Labor	1	2
	10	19

Based on table 3 above, it can be stated that from the 53 studied respondents, the results obtained that most of hypertensive patients in the Working Area of Kendalsari Primary Health Care , the 48 respondents (91%) are female, 19 people (36%) has finished education in Senior High School with 62% or 33 people has a livelihood as a Housewife. For respondents of family (spouse) from the hypertensive patients in Kendalsari Primary Health Care , the result showed that from the 53 studied respondents, 48 people (91%) are male, where 20 people (38%) has finished education in high school education level, and 41% (22 people) has livelihoods at private sector.

## 2. Analysis on the Data of Family's Support (Spouse)

**Table 4. Result of Analysis on Family's Support**

Variable	Mean	SD	Min-Max
Family's Support	22,68	6,83	9-35

Table 4 above shows that most family support of hypertensive patients in Kendalsari Primary Health Care has an average of 22.68 with a standard deviation of 6.83. The minimum value is 9 and the maximum value is 35. The average of family's support in Kendalsari Primary Health Care is quite supportive.

**Table 5. Result of Analysis on Family's Support (Spouse) based on Indicator Value**

Indicators of Support	Mean	SD	Min-Max
Instrumental Support	4,64	1,68	1-9
Emotional Support	6,64	2,13	2-10
Appreciative Support	7	1,81	3-11
Informational Support	4,40	3,39	0-10

Based on table 5 above, it can be seen that the instrumental, emotional, appreciative, and informational support provided by the family (spouse) of hypertensive patients in the Working Area of Kendalsari Primary Health Care has a mean of > 4, therefore the average of support provided by family (spouse) above was sufficient.

## 3 Analysis on the Data Low Salt Diet Adherence

**Table 6. Result of Analysis on Low Salt Diet on Hypertensive Patients**

Variable	Mean	SD	Min-Max
Low Salt Diet Adherence	55,3	6,72	36-67

Based on table 6 above, it shows that most hypertensive patients in Kendalsari Primary Health Care had an average adherence score of 55.3 with a standard deviation of 6.72. The minimum score is 36 and the maximum score is 67. The average of Low-salt diet adherence is moderate.

**Table 7. Result of Analysis on Low-Slat Diet based on Indicator Value**

Indicators of Diet Adherence	Mean	SD	Min-Max
Attitude	20,28	3,14	13-30
Subjective Norms	11,24	2,2	6-15
Behavior Control	23,77	3,45	16-30

Based on table 7 above, it can be seen that the dimensions of attitude, subjective norms, and behavior control shown by hypertensive patients in the Primary Health Care for Kendalsari work area has a mean >7, therefore the average adherence to low salt diet in the patients in each dimension is moderate.

### B) Analysis of Bivariate Data

**Table 8. Analysis on Bivariate Data of Family's Support and Low-Salt Diet Adherence**

Variables	Mean	SD	Min-Max	p-value	R
Family's Support	22,68	6,83	9-35	0,002	0,425
Low Salt Diet Adherence	55,3	6,72	36-67		

Based on table 8 above, it can conclude the bivariate data analysis with Pearson correlation test. The analysis results obtained p value of 0,002, therefor it can be concluded that the value of Pearson test coefficient has a significant correlation because it has p value <0,05. The value of correlation coefficient r value is 0.425 with the medium correlation strength (0.40-0,599) (Dahlan, 2009). The correlation value of 0.425 also shows that there is a positive relationship, therefore, the higher the variable of family's support means the higher of low-salt diet adherence.

## DISCUSSION

### Family's Support to Hypertensive Patients in the Working Area of Kendalsari Primary Health Care , Malang

Based on the research data, the obtained average value of family support score is 22.68 (sufficient support). Families (spouses) in the Working Area of Kendalsari Primary Health Care , Malang have provided sufficient support in helping their hypertensive families in executing a recommended low-salt diet but still not maximally.

The family has four forms of support: instrumental, emotional, appreciative, and informational support. Instrumental support is a direct assistance provided by family in the form of money, equipment, time, and environmental modification in hypertensive patients on diet (Friedman, 2010). Based on the results of the conducted research, it is known that instrumental support given by family (spouse) has an average of 4,56 (sufficient support).

Families (spouses) in Kendalsari Primary Health Care in Malang are sufficient in providing direct assistance in the form of required facilities such as providing food for family members who are hypertensive, but still not maximal because most spouses (48 people) in this study are male and rarely in cooking foods that appropriate for a low-salt diet.

The second support is emotional support. Emotional support is an expression of empathy, concern, and affection for family members who suffer hypertension to be able to run their diet (Friedman, 2010). Based on the results of the conducted research, it is known that emotional support provided by family (spouse) has an average of 6.64 (sufficient support). Family (spouse) in the Working Area of Kendalsari Primary Health Care, Malang is sufficient in giving attention, care, and motivation to their spouse that suffers hypertension to run the diet.

The third support is appreciative support. Appreciative support is a positive expression of respect for people with hypertension in their diet, therefore it can increase his/her self-esteem (Friedman, 2010). Based on the results of the conducted research, it is known that appreciative support given the family (spouse) has the highest average compared to the 3 other supports with score 7 (sufficient support). The family (spouse) in the Working Area of Kendalsari Primary Health Care, Malang is sufficient in giving positive expression (accompanying, giving praise, and not eating high salt diet in front of hypertension patient) to increase confidence in the diet.

The fourth support is informational support. Informational support is the support provided by family in the form of delivery of information, advice, and spirit in supervising the daily diet (Friedman, 2010). Based on the results of this research, it is known that informational support provided by family (spouse) has the lowest average compared to 3 other supports with a score 4.40 (sufficient support). Families (spouses) are still lacking in receiving and providing information, advice, and encouragement to families to run the diet. It can be because of most the spouses (48 people) are male.

This is consistent with Khan's research in 2014 which says that the support provided by female family (spouse) is higher because it can provide appropriate food for hypertension treatment, providing information about what to eat and what to avoid, and always accompanying and paying attention to what Needed by his hypertensive family (spouse) who is on low-salt diet. In contrast, the support provided by male family (spouse) is lower because of the tendency to follow whatever is done by his partner. The insignificant result in this study might be caused by the comparison of male and female respondents which is unbalanced.

### **Low Salt Diet Adherence in Hypertensive Patients in the Working Area of Kendalsari Primary Health Care, Malang**

Based on the research data, the average low salt diet adherence score was 55.30 (medium). Patients have been able to follow the rules in restricting the recommended low-salt diet but still not maximally.

Low salt diet adherence consists of 3 dimensions, they are attitude dimension, subjective norms, and behavior control. Attitude dimension is a strong belief from the individual related to the results in the low-salt diet (Bentley, 2009). Based on the results of this research, it is known that the attitude dimension in hypertensive patients in Kendalsari Primary Health Care Malang has an average score of 20.28 (Medium adherence). Hypertensive patients in the Working Area of Kendalsari Primary Health Care , Malang have sufficient self-confidence to change the eating patterns and beliefs related to the results of consuming low-salt foods. This is because of most patients with hypertension are women. According to Agustina's research, 2007, shows that women have a good self-efficacy in controlling their daily eating behaviors.

The second dimension is the dimension of subjective norm, that is influence from others on the decision to obey or reject the low-salt diet (Bentley, 2009). Based on the results of this research, it is known that the dimension of subjective norm has a lower average than the other two dimensions, which is only 11.25 (medium adherence). Hypertensive patients in Kendalsari Primary Health Care in Malang have sufficient ability in low-salt diet behavior based on the influence of others although the results are lower than the other two dimensions.

The third dimension is the dimension of behavior control, that is the inner self-power to control diet based on the impetus and restrictions in low-salt diet (Bentley, 2009). Based on the results of this study, it is known that the dimension of behavior control has the highest average score compared to the other 2 dimensions, which is 23.77 (medium adherence). Hypertensive patients in the Working Area of Kendalsari Primary Health Care , Malang have been able to limit the consumption of salt and foods containing high salt content (such as butter, MSG, salted fish, canned food, snack, and fast food).

There are several factors that influence low-salt diet adherence, such as age, blood pressure, gender, education, and occupation, but the results are varied. This is due to differences in cultural, socioeconomic, and psychological background in each region (Jing Jin et al, 2008).

### **The Correlation Between Family Support with Low Salt Diet Adherence on Hypertensive Patients in the Working Area of Kendalsari Primary Health Care , Malang**

Based on the results of Pearson correlation test, it showed that both variables have significant relationship because it has p value  $0,002 < 0,05$ . The correlation coefficient value of r value is 0.425 with medium correlation strength and there is a positive correlation. The higher the family support, the higher is the low-salt diet adherence.

The results show that the four family supports reflect sufficient support. Family (spouse) of hypertensive patients in the Working Area of Kendalsari Primary Health Care , Malang is good enough to provide appreciation and attention support, but still lacking in providing facilities in the form of providing foods suitable for low-salt diet, and the information. This is in accordance with the results of research by Tumenggung, 2013, which suggests that some hypertensive patients are not fully adhere to the diet for the reasons of less acknowledged and also get less attention from the family in the form of emotional attention and information.



On the average of sufficient family support, the average of low salt diet adherence score was also in average. Hypertensive patients in Kendalsari Primary Health Care , Malang already have confidence from themselves and the influence of others in running a low-salt diet and have been able to control the foods in accordance with the diet.

This is in accordance with the research conducted by Rosana and Lidya, (2008), which revealed that family involvement in the treatment is important for controlling blood pressure, and lack of family support may lead to the unstable of the whole treatment plan.

### **Limitations**

The limitations in this study were the researchers did not homogenize the sex of the respondents, therefore it is not known whether family support is associated with low-salt diet adherence on male respondents alone or female respondents only. Though the support provided by the families (spouses) of women and men is certainly different in terms of providing low-salt diet, and accuracy in providing information, attention, and appreciation in helping families with hypertension to run the recommended low-salt diet.

### **CONCLUSIONS**

1. In the results of this study, it is obtained that the average family support provided by spouse is quite supportive.
2. Based on the results of low salt diet adherence, it is obtained that the average results of patient's adherence is moderate.
3. There is a significant correlation between family support with low salt diet adherence in hypertensive patients in Kendalsari Primary Health Care , Malang, with moderate correlation strength and positive correlation. The higher the family support, the higher is the low-salt diet adherence.

### **Suggestions**

1. It is expected that the next researcher can further homogenize the respondent's gender, so that it can be seen whether family support can influence low-salt diet adherence on male respondents only or female respondents only.
2. It is expected that health workers at Kendalsari Primary Health Care , Malang, can provide important education related to low salt diet, not only to patients but also to the families, either through Primary Health Care or Integrated Service Post for Elder, therefore the families have enough information to be given to the family member which suffers hypertension.

### **REFERENCES**

1. Agustina, E. 2007. Hubungan Efficacy Diri
2. dengan Perilaku Diet Wanita Dewasa Awal yang menderita Hipertensi. Skripsi. Diterbitkan, Program Studi Psikologi, Universitas Sanata Dharma, Yogyakarta

3. Bentley B., Lenny T.A., Biddle M., Chung
4. M.L., and Moser D.K. Demonstration of Psychometric Soundness of the Dietary Sodium Restriction Questionnaire in Patient with Heart Failure. *J Heart and Lung*, 2009, 38 (2) : 121-128
5. Britain K., Taylor J.Y., and Wu, C.Y. Family Adaptability among Urban American Woman with Hypertension. *The Journal of Nurse Practitioners*, 2010, 6 (10) : 786-793
6. Depkes RI. 2014. Infodatin Pusat Data dan Informasi Kementerian Kesehatan RI : Situasi Kesehatan Jantung. Jakarta
7. Friedman, M M. 2010. Buku ajar keperawatan keluarga : Riset, Teori dan Praktek. Jakarta
8. Green L. W. & Kreuter M.W. 2011. *Health Promotion Planning an Educational and Environmental Approach*. 2nd ed. Mountain view : Mayfield Publishing Company
9. Khan M. S., Bawany F. I., Mirza A., Hussain M., Khan A., Lahari M. N. Frequency and Predictors of Non-compliance to Dietary Recommendations Among Hypertensive Patients. *J Community Health*, 2014, 39 : 732-736
10. Leon, N., Charles, S., Victoire A. V., Magloire D., Clemence M., Azandjeme C., Paraiso N. M., Laurent O.T., Makoutode M., and Dismand H. Determinans of Adherence to Stop Hypertension in Adults with Hypertension Treated in a Hospital in Benin. *Universal Journal of Public Health*, 2015, 3 (5) : 213-219
11. Piferi R. L., and Lawler K. A. Social Support and Ambulatory Blood Pressure: An Examination of Both Receiving and Giving. *International Journal of Psychophysiology*, 2006, 62 (2) : 328-336
12. Rosana, S. C., Lidya, T. N. 2008. Family
13. Support in the Control of Hypertension. *Rev Latino-am Enfermagem* 16(5):871-6
14. Sumarman. 2010. Penderita Hipertensi Primer : Pengetahuan tentang Diet Rendah Garam, Kepatuhan, dan Gejalanya. TESIS. Universitas Sebelas Maret
15. Tumenggung. 2013. Hubungan Dukungan Sosial Keluarga Dengan Kepatuhan Diet Pasien Hipertensi Di RSUD Toto Kabila Kabupaten Bone Bolango. Politeknik Kesehatan Gorontalo. Gorontalo
16. World Hypertension League. 2009. *Salt and High Blood Pressure*. Burnaby, Canada
17. WHO, 2011, Department of Sustainable Development and Healthy Enviroments, *Non Communicable Disease: Hypertension*