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Hypertension Patients' Adherence in Chronic Disease Care Program at Public Health Center

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Abstract---*Hypertension has a significant role in hypertension management. Thehypertension control program can be performed throughfour Prolanis (chronic disease management program) programs and four hypertension management obedience programs.*

Objective:*Explaining the correlation between the patients' obedience following Prolanis and patients' hypertension.*

Method:*This study employed a quantitative design with the correlation method. The respondents were twenty-four hypertension Prolanis participants, with total population sampling method. The dependent variables were Prolanis and patients' obedience to join Prolanis. The independent variable was hypertension. The data were collected by using special data, dietary compliance questionnaire, physical activity (Baecke), medication (MMA-8) and medical records. The statistic test employed Chi-square with Fisher exact as an alternative test with significant value of less than 0.05.*

Result:*There was a correlation between Prolanis implementation and hypertension patients' obedience.*

Conclusion*Half of the patients are obedient in implementing Prolanis.Therefore,the obedient patients and the disobedient patients are of equal numbers. There is a significant correlation between Prolanis implementation and patients with hypertention. The patients' compliance in implementing Prolanis and blood pressure in patients with hypertension have a significant correlation. The assessment of the four patient obediences in implementing Prolanis in hypertension needs to be performed, considering the importance of maintaining normal blood pressure and preventing the complications.*

Keywords---*Prolanis, Hypertension, Blood Pressure, Patients' Obedience*

I. Introduction

In Indonesia, hypertension is one of the degenerative diseases which still ranks highest in terms of the number of sufferers (1). In 2000, 26.4% of the adult global population suffered from hypertension (2). In Indonesia, the highest prevalence of hypertension (70.2%)is found in the age group ≥ 65 years (3). Hypertension is prone not only to men but also to women (4). Hypertension can be caused by various factors such as lifestyle, fast foods obesity, smoking habits, excessive salt consumption, reused cooking oil consumption, drinking alcohol habit,rarely doing physical

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activity, low medication compliance and blood pressure control (5). The effects caused by hypertension include activity intolerance disorders, headache, and high risk of injury. If not treated properly, it can cause complications such as stroke, coronary heart disease, heart failure,and also kidney failure. Parents who suffer from hypertension can pass the disease to their children genetically. This phenomenon is due to the several genes associated with hypertension, includeingnatrium-kalium transport abnormalities, central nervous system responses to psychosocial stimuli, and neurohormonal responses (7). The increasing number of people with hypertension can be caused by an increase in urbanization and a westernized lifestyle,causing the prevalence of people who suffer from hypertension in urban areas becomes more than those in rural communities (8). In 2025, the number of adults with hypertension is predicted to increase by around 60% to reach 1.56 billion people (9).

To overcome this issue, the Government of Indonesia has attempted to find solutions and overcome these problems through *Program Pengelolaan Penyakit Kronis*or commonly abbreviated as Prolanis (Chronic Disease Management Program). Prolanis is a Government program that aims to invite participants with chronic diseases, especially hypertension, to achieve a normal quality of life, thus it can prevent the occurrence of disease complication. If the Prolanis program is not implemented, hypertension cases are estimated to take longer time to resolve.The program can be utilized as a screening mechanism to hypertension cases and an evaluation media to determine the extent of hypertension cases experienced by the community. However, in its implementation, it is found that there are still participants who do not attend monthly visits to*Puskesmas* (Community Health Center) due to their busy activities. In addition, many participants claims they are busy with their work so that they could not attend the visits regularly. The participants' disobedience in taking medication regularly brings a negative impact, i.e., fail treatment process, complications, and the increased health costs that the patients must spent (11).

The obedience of patients with high blood pressure in following Prolanis can be related to Lawrence Green's theoretical approach, which explains that obedienceis influenced by 3 main factors, i.e. predisposing factors, enabling factors, and reinforcing factors (12). Patients' obedience in joining Prolanis can be influenced by their knowledge, attitude, conviction, health facilities, family health regulations, and health workers. Prolanis is utilized to identify the patient's control status and as a media for evaluating patients with hypertension, hence this study is expected to be able to determine the implementation of Prolanis and patients' obedience in implementing Prolanis with blood pressure. The activities in Prolanis involve medical consultation, education, reminder, and a home visit. The patients' obedience in implementing Prolanis includes their compliance to follow education session, dietary guidelines, physical activity, and medication (13).

Based on the aforementioned description, the researchers are interested to examine the "Correlation of Patients' Obedience in Following Prolanis with the Blood Pressure of Patients with Hypertension at Mojo Public Health Center, Surabaya".

II. Methods

This study was conducted in July, 2017 in Mojo Public Health Center, Surabaya. The samples employed were twenty-fourpeople whereas the population was all of patients with hypertension who actively participated in Prolanis activities. The inclusion criteria for the selected samples were hypertensive patients who had been members of Prolanis for at least 3 months and had participated in Prolanis activities while the study was conducted.

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The data were obtained by using four questionnaires and one research medical record, namely specific data, diet adherence (14), Baecke Questionnaire (15), medication adherence (16), and blood pressure examination documentation (17). The research instruments include:

1) specific data in the form of open-ended questions that included demographic data, such as the patient's identity, age, sex, education level, and occupation.
2) diet adherence with 20 questions to record the hypertension diet. The questionnaire was divided into two types, namely favorable and unfavorable.
3) compliance to physical activity, consisting of work index, sports index, and leisure time index.
4) treatment compliance, measured by the Modified Morisky Adherence Scale which consists of 8 questions that had been translated into Indonesian.The answers were assessed by using the Guttman scale, where the answers were not limited to only "yes" and "no" answers.
5) documentation sheet, containing the names, number of Prolanis attendance at Prolanis activities, blood pressure checking and information. The data obtained were then tabulated and processed using the Chi-square statistical test with the Fisher Exact as an alternative test.

This study was approved by the Health Research Ethics Commission of the Faculty of Nursing, Universitas Airlangga, Surabaya with Letter Number 459-KEPK. The data were analyzed using SPSS software for Windows version 21 with univariate and bivariate analysis.

III. Results

Table 1 explains the result of respondent demography concerning on their characteristics of 24 respondents based on their age, gender, education, and occupation. Most of the respondents were female (62.5%) with an age range between 56-65 years old (54.2%). The respondents with low education degree reached 45.8% while the majority of the respondents were retired and jobless (54.2%).

Table 1:Respondents' DemographyCharacteristics (n=24)

Characteristics of Respondents	**Category**	**N (%)**
Gender	Male	9 (37.5)
	Female	15 (62.5)
Age	Young old (46-55 years old)	7 (29.2)
	Middle old (56-65 years old)	13 (54.2)
	Very old (>65 years old)	4 (16.7)
Education background	Elementary school graduate	11 (45.8)
	Junior high school graduate	7 (29.2)
	Senior high school graduate	6 (25.0)
Occupation	Retired/ jobless	13 (54.2)
	Housewife	5 (20.8)
	Entrepreneur	3 (12.5)
	Private employee	2 (8.3)

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	Civil servant/ army/police	0 (0)
	Driver	1 (4.2)

Table 2 explains the implementation of the Prolanis activities. The table suggests that most of the program activities were not implemented (66.7%). The program activities mostly carried out included medical consultation (58.3%), education (66.7), and home visit (62.5%).

Table 2: Activities of Chronic Disease Service Program

CDSP activity	**Category**	**F (%)**
CDSP activity	implemented	16 (66.7)
	Not implemented	8 (33.3)
Medical consultation	implemented	10 (41.7)
	Not implemented	14 (58.3)
Education	implemented	16 (66.7)
	Not implemented	8 (33.3)
Home Visit	implemented	9 (37.5)
	Not implemented	15 (62.5)
Reminder	implemented	21 (87.5)
	Not implemented	3 (12.5)

Table 3 displays that half of the patients were obedient in implementing Prolanis activity (50%). Most of the respondents got involved in activities such as attending education program (54.2%), complying with the hypertension diet (87.5%), doing physical activity (83.3%), and doing therapy (79.2%). Hypertension patients who join the program mostly had normal blood pressure (70.8%) and the rest (29.2%) had abnormal blood pressure.

Table 3: Frequency distribution of patients' obedience on implementing Prolanis

Patients' Obedience	**Category**	**F (%)**
Obedience on attending education program	Obedient	13 (54.2)
	Disobedient	11 (45.8)
Obedience on hypertension diet	Obedient	21 (87.5)
	Disobedient	3 (12.5)
Obedience on physical activity	Obedient	20 (83.3)
	Disobedient	4 (16.7)

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Obedience on theraphy	Obedient	19 (79.2)
	Disobedient	5 (20.8)

Most of program activities were not implemented (66.7%) with significant number of disobedient patients(45.8%). Meanwhile, 33.3% of the Prolanis activities were implemented with the support of 29.2% of obedient respondents. These data were then analyzed by using Chi-square test. However, the result was ineligible to analyze because there was cell which has expected value of less than 5 (>20%) of the total number of cells. Therefore, the analysis was conducted by using alternative test called the Fisher Exact. With 95% credibility level, the analysis obtains p-value of 0.027, which is less than 0.05 (0.027<0.05). To sum up, there is a correlation between the implementation of Prolanis and the obedience of hypertension patients at Mojo Public Health Center, Surabaya.

Half of the obedient patients implementing the program had normal blood pressure. Meanwhile, disobedient patients had abnormal blood pressure (29.2%). Based on the data obtained and analyzed by using Chi-square test,the result was ineligible to analyze because there was a cell with expected value of less than 5 (>20%) of the total number of cells. Therefore, the analysis was done by using alternative test called as Fisher Exact. With 95% credibility level, the analysis obtained p-value of 0.005 which is less than 0.05 (0.005<0.05). In summary, there is a correlation between patients' obedience on implementing Chronic Disease Service Program and blood pressure of hypertension patients at Mojo Public Health Center, Surabaya.

IV. Discussion

There is an equal number of obedient and disobedient patients in implementing Prolanis. Most compliance was found in the adherence to the hypertension diet and physical activity, while the least adherence was found in the education session and medication. Patients' compliance in implementing Prolanis can be realized because of healthy behavior. Lawrence Green's theory says that healthy behavior can be influenced by several factors, including predisposing factors such as education, knowledge, conviction, attitudes and culture; supporting factors such as health facilities; and driving factors such as family and health workers (13). The factors that influence the disobedience in attending the education program were attitude and personality, while family support determined the conviction to participate in therapy. The education process is inseparable from the messagesbrought by the nurses or health workers as the information providers in increasing the knowledge and changing healthy dietary behaviors (18). Behavior is related to habits that can yield positive or negative aspects that affects patients with hypertension to behave or to not adhere to the hypertension diet (16). The treatment success in patients with hypertension is influenced by several factors, one of which is the adherence to taking drugs so that hypertensive patients can control their blood pressure within the normal limits (18). The factors related to non-adherence in the treatment include knowledge, patient attitudes, and motivation (19).

The highest number of patients' compliance in implementing Prolanis was obtained in their compliance with the hypertension diet. Many Prolanis participants have implemented a hypertension diet well, such as consuming good and healthy food and reducing or avoiding unhealthy food in accordance with the advice of the health personnel when providing health education.With the adherence to the hypertension diet, blood pressure can be reduced to normal level. The Prolanis activities starts at 6.00 a.m.. This situation has resulted in the absence of attending the monthly

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education sessionunder the reason of urgent businesses. In addition, some of the participants were traders and housewives who cannot leave their daily routines to attend the sessions.

Most of the hypertensive patients who follow Prolanis has normal blood pressure. The respondents who did not comply with the Prolanis implementation indicated abnormal blood pressure.Such an adherence included being presence in the education session, compying with the hypertension diet, doing physical activity, and taking medication. The cross tabulation on the respondents' characteristics suggested that the majority of respondents aged 56-65 years, with normal blood pressure.The aging process causes some physiological changes in the elderly, such as an increase in peripheral resistance and sympathetic activity.

Other factors that can influence the results of the study include the low level of education and the age of the elderly. This is not in line with the research conducted by Joho (2012) which states that the level of education did not have any significant effect on compliance (20).

Based on the data analysis, it is found that there is a correlation between the implementation of Prolanis and patients' compliance in implementing Prolanis. The more Prolanis events that can be carried out,the more the patientscomply with the Prolanis implementation. Prolanis activities include medical consultation, education session, reminders, and home visit activities. Prolanis management for hypertension patients includes education, diet, physical activity and treatment (6). The most carried out implementation of Prolanis activities were the reminder and education session. On the other hand, the highest compliance were on the hypertension diet, physical activity and medication. With the reminder, participants can find out about the education session.Furthermore, the education session can influence the level of adherence to the hypertension diet. The hypertension diet includes low salt diet, low cholesterol diet, high fiber and low calories. The educational factors can affect the medication adherence. Treatment compliance includes blood pressure control checking and the ability to continue taking the drugs. Knowledge has a significant influence and is the most powerful factor influencing the compliance of hypertensive patients in taking antihypertensive drugs (18).

The respondents with high compliance in implementing Prolanis indicated normal blood pressure, whereas the respondents who did not comply with the program suggested abnormal blood pressure. The results of data analysis found that there was a correlation between patient compliance in implementing Prolanis with the blood pressure of hypertensive patients.

The knowledge level is one of the factors that can affect one's adherence to the treatment process. The high level of knowledge indicates that a person already knows, understands and is well-informed on the purpose of the treatment being undertaken (21). The nurses in this study provided education to hypertensive patients in Prolanis activities conducted by Mojo Public Health Center. Therefore, the hypertensive patients at the facility had a good understanding of the ability to control themselves to continue taking drugs and check blood pressure control which can further affect patients' compliance in taking medication to obtain normal blood pressure. The supports from health workers also play an essential role in the treatment of hypertension sufferers because they provide most of the information about the disease and treatment. Health workers' supports, in addition to providing information, can also be in the form of services and good attitudes during the service process (22).

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V. Conclusion

The Prolanis activities of medical consultations, education and reminders are implemented well. The Prolanis activities of home visit is not well implemented. The number of obedient patients in implementing Prolanis is the same woth those who are not. The patients who follow Prolanis indicate normal blood pressure while thos who do not join the program suggest abnormal blood pressure. Prolanis implementation with patients' compliance in implementing Prolanis in hypertensive patients has a significant correlation. Patients' compliance in implementing Prolanis indicate significant correlation with blood pressure level in hypertensive patients.

It is recommended that other researchers who want to conduct research about Prolanis and blood pressure modify different research designs such as comparing blood pressure with non-pharmacological therapy in Prolanis patients. In addition, other researchers are expected to develop this study with qualitative methods to obtain a better ideason Prolanis and blood pressure.

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