ORIGINAL RESEARCH

The Correlation of Family Support and Social Support with the Adherence to Physical Exercise among the Older Persons with Hypertension

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Abstract

This study is to determine the correlation of family support and social support with the adherence to physical exercise among the older persons with hypertension. It was a descriptive analytical type of quantitative research with the cross-sectional approach. Data were collected from the working area of Tugu Community Health Center, Depok involving 108 older persons with hypertension. Two questionnaires were used to measure the characteristic of the respondents (questionnaire A) and family support, social support, and adherence to physical exercise (questionnaire B). The data analysis included univariate, bivariate, and multivariate correlations. There is a significant correlation of family support and social support with the adherence to physical exercise among the older persons with hypertension. Family support has the greatest influence on the adherence to physical exercise among the older persons with hypertension (β coefficient value: 0.381). The older persons with hypertension need a strong support from the family or closest friends to improve the adherence to hypertension treatments, one of which is physical exercise. Family support has the major influence on the adherence to physical exercise among the older persons so that the development of community-based and family-based nursing strategies through the empowerment of the older persons care groups and family empowerment is essential to be carried out.

Keywords: Adherence; family support; hypertension; older persons; physical exercise; social support

Introduction

Hypertension is one of health problems often experienced by the older persons due to age and aging process. The older persons hypertension increases the susceptibility of the older persons to complications of other chronic diseases (Hung, 2016). Globally, hypertension serves as the major risk factor for the cause of the largest death among the older persons like ischemic heart disease and stroke (WHO, 2015).

Women have a higher risk of hypertension compared to men where hypertension is common in Asian, American, and Pacific races (Touhy & Jett, 2014). The diagnosis of hypertension is determined by Joint National Committee on Prevention, Detection, Evaluation and Treatment on High Blood Pressure VII (JNC VII) when a person has the systolic blood pressure higher than 140 mmHg and the diastolic blood pressure of more than 90 mmHg (Bell, Twiggs, & Olin, 2014).

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The prevalence of hypertension among the older persons in Indonesia in 2014 reached 21.2% (WHO, 2014). The hypertension occurring among the older persons can be attributed to the susceptibility of the condition accompanied by several risk factors such as age, medical record of hypertension, sex, and body mass index (Miller, 2012). This may also occur because of lifestyle, such as smoking, consumption of alcohol, lack of physical exercise, incapability in stress management, and high-fat and high-sodium diets (Touhy & Jett, 2014). Uncontrolled blood pressure is a perception among the older persons that this problem is a natural thing to happen in old age (Udompittayason, Boonyasopun, & Songwathana, 2015).

The high prevalence of hypertension among the older persons in Indonesia has caused some changes in the economic status of the country. Indonesia has spent 1.77 US dollars to handle hypertension cases (Bloom et al., 2015). One of the examples is the efforts of the government in the prevention of hypertension, such as the establishment of the older persons health programs, coaching on the nutrition for the older persons, and long-term care for the older persons. The goal is to reduce the prevalence of non-communicable diseases and ensure the sustainability of the early detection system of hypertension and its complications (Peraturan Menteri Kesehatan Republik Indonesia Nomor 25 Tahun 2016).

The management of hypertension can be done pharmacologically and non-pharmacologically. The use of concurrently pharmacological and non-pharmacological therapies has proven to increase the effects of the treatment (Johnson, 2010). Non-pharmacological therapies among the older persons like physical exercise, such as aerobics, endurance and strength training, and structured, planned, and progressive stretching can maintain and improve physical fitness so that the physical condition can be more optimal (Segura, 2010). It has been proven that physical exercise can improve the quality of life of the older persons, especially among the older persons with chronic diseases such as hypertension (Miller, 2012). It is supported by a study conducted by Devine (2012) showing that physical exercise among the older persons can prevent and slow the complications of hypertension and decrease blood pressure of 5-10 mmHg in the systolic and diastolic blood pressures.

Recommended physical exercise according to JNC VII is exercise with moderate intensity, 3 times a week, and with the duration of 10 minutes (Muhadi, 2016). Physical exercise performed by the older persons must be in accordance with the criteria of FITT (frequency, intensity, time and type) (Ambardini, 2014). Regularity in doing physical exercise among the older persons with hypertension has proven to lower blood pressure (Ifansyah, Herawati, Diani, 2012). A study carried out by Jatiningsih (2016) supports this finding. It reveals that low-impact exercises for the older persons based on the procedure starting from warming-up, core, and cooling exercises performed 3 times a week can lower blood pressure.

The contribution of physical exercise among the older persons has been reported to decrease from the age of 65 (U.S Department of Health And Human Service, 2012). Other physical exercise activities also have low intensity of occurrence among individuals with hypertension (Lim, Kang & Lee, 2016). The decline results from some factors such as lack of social support and family support for the older persons (Al-Baho et al., 2016). Ismael and Qadir's research (2015) explains that old age, lack of education, female, chronic diseases, and technological advances will also affect the adherence to do health programs such as the fulfillment of physical exercise. The adherence among the older

persons to carry out health programs is also influenced by the inner motivation that comes from the support of people around them. The older persons who do not have a spouse or live alone will experience a decreasing number of physical exercises (Joho, 2012).

The phenomenon of the high rate of hypertension among the older persons and the decrease of contribution and adherence level among the older persons in performing physical exercise has raised problems of non-pharmacological management of hypertension among the older persons. Hence, the researcher is interested in conducting an investigation on “The Correlation of Family Support and Social Support with the Adherence to Physical Exercise among the Older persons with Hypertension.”

Method

It was a descriptive analytical type of quantitative research with the cross-sectional approach. The researcher collected data from the working area of Tugu Community Health Center, Depok involving 108 older persons with hypertension. The location was selected based on the results of the annual census and survey results where in Tugu Community Health Center was the region with the highest prevalence of hypertension among the older persons in Depok. This was accounted by the annual report of Tugu Community Health Center recording that the prevalence of new cases of hypertension among the older persons was in the first rank and included in the top 10-disease list.

The non-probability sampling was used as a sampling method with some considerations. The older persons were those recorded in the attendance list of the Integrated Guiding Post (*Posbindu*) for the older persons, for they are able to do active and passive physical exercise, and able to read and write. The samples were calculated using a simple Slovin counting formula, and 10% of correction was done to avoid missing data.

This study did not give intervention or administration of any therapy. It just asked the respondents to fill out the questionnaire, an activity, which did not cause any physical harm although it might have resulted in psychologically, and emotionally discomforts. It was anticipated by the researcher by considering and watching the beneficence, no maleficence, autonomy, and justice of ethical test in research. The researcher had conducted an ethical review processed by the Faculty of Nursing, The University of Indonesia Ethics Committee. The researcher included the approval sheet of the respondent in the study.

The researcher used 2 questionnaires as the measuring instrument. The questionnaires were modified by the researcher by using the Health Belief Model theory and related research. Questionnaire A consisted of 7 items on the characteristics of the respondents including age, sex, obesity, education, income, and dietary patterns. The questionnaire was valid with the range of r-value of 0.501-0.532. Questionnaire B included family support, social support, and adherence to physical exercise. The validity of the test results showed a valid value with the range of r-value of 0.261-0.910. The reliability value of the questionnaires A and B showed the range of values of 0.669-0.795. The data was analyzed using univariate, bivariate (chi-square), and multivariate (logistic regression) correlations.

Questionnaire B consisted of 14 item with 4 item on the family support, 4 item on the social support and 6 item on the adherence to physical exercise. The scale used Likert scale with a value of 1 to 4 that is always, often, rarely and never. Measurements are done by asking respondents to fill in the answers to the question in accordance with the conditions. The higher the score the better the perception of the older persons associated with family support, family support and adherence to physical exercise

Results

The distribution of respondents in this study shows that 73 of them (67.6%) were 60-69 years old, and 79 respondents (72.2%) were female. Based on the Body Mass Index (BMI), most of them or as many as 62 respondents (57.5%) were in the normal category as seen in Table 1. The age category has been adjusted to the Regulation Republik Indonesia Number 25 of 2016.

The mean value of the family support perception is 9.78 with the standard deviation (SD) of 2.624, and the mean value of the social support is 10.92 with the SD of 3.027. The adherence level of the older persons has the mean value of 16.44 with the SD of 6,510 as seen in Table 2.

Table 3 shows the correlation of the age and sex of the older persons with their adherence to physical exercise. The older persons of 60-69 years shows the mean value of adherence of 17.22 with the SD of 7.056, whereas those older than 70 years old indicate the mean value of adherence of 14.80 with the SD of 4.886. The results of the analysis, indicates no significant correlation between age and the adherence to physical exercise with the p value of 0.70.

The female older persons show the mean value of adherence of 16.47 with the SD of 6.250, and for the males, they indicate 16.33 with the SD of 7.265. The results of the analysis show no significant correlation between sex and the adherence to physical exercise with the p-value of 0.92. It can be concluded that the older persons of 60-69 have a greater adherence level than those above 70 years old, and the female older persons also indicate a greater level than the male older persons.

Table 4 shows that the older persons in the overweight BMI category tend to show greater adherence to physical exercise than those with the normal and obese BMI categories. The older persons in the slim BMI category show the mean value of adherence of 12.83 with the SD of 4.491. Those with the normal BMI category indicate the mean value of adherence of 16.63 with the SD of 6.912. The older persons of the overweight BMI category show the mean value of adherence 17.30 with the SD of 6.410, and those in the obese category show the mean value of adherence of 13.71 with the SD of 2.812. The results of the analysis indicate no significant correlation between Body Mass Index and the adherence to do physical exercise with the p-value of 0.298.

Table 5 shows that family support and social support significantly influence the adherence level of the older persons with hypertension to do physical exercise with the p-value of 0.000. Family support has the greatest influence on the adherence level of the older persons with hypertension to physical exercise. It is indicated by the coefficient value (β) of 0.381. As for social support, it shows the coefficient value (β) of 0.261.

Table 1. The Characteristics of the Respondents Based on Age, Sex, and Body Mass Index (n=108)

	Variables	Number	Percentage
Age	60-69 years old	73	67.6
	≥ 70 years old	35	32.4
Sex	Female	79	72.2
	Male	29	27.8
Body Mass Index (BMI)	Slim	6	5.6
	Normal	62	57.5
	Overweight	33	30.4
	Obese	7	6.5

Table 2. The Characteristics of the Respondents Related to Family Support, Social Support, and the Adherence to Physical Exercise (n=108)

Variables	Mean	SD	Min-Max	CI 95%
Family Support	9.78	2.624	4-16	9.28 – 10.28
Social Support	10.92	3.027	4-16	10.34-11.49
Adherence Level	16.44	6.510	8-32	15.19-17.68

Table 3. The Correlation of the Age and Sex with the Adherence to Physical Exercise (n=108)

	Variables	Mean	SD	SE	p-value	N
Age	60 – 69	17.22	7.056	0.826	0.70	73
	≥ 70 years old	14.80	4.886	0.826		35
Sex	Female	16.47	6.250	0.708	0.920	78
	Male	16.33	7.256	7.256		30

Table 4. The Correlation between Body Mass Index (BMI) and Adherence to Physical Exercise (n=108)

	Variables	Mean	SD	95% CI	p-value
Body Mass Index	Slim	12.83	4.491	8.21 – 17.55	0.298
	Normal	16.63	6.912	14.87 – 18.38	
	Overweight	17.30	6.410	15.03 – 19.58	
	Obese	13.71	2.812	11.11 – 16.31	

Table 5. The Final Result of the Multivariate Analysis

Variables	β coefficient value	R Squared	p-value
Family Support	0.381	0.278	0.001
Social Support	0.261		

Discussion

Some previous studies on adherence to physical exercise indicate that it is affected by age, sex, weight, family support, and social support. These studies show there are statistical significances with a moderate correlation of family support and social support with the adherence to physical exercise.

The adherence to physical exercise among the older persons of 60-69 years old is greater than those of above 70 with the mean value of 17.22 and the standard deviation (SD) of 7.056%. As for the mean value of adherence among female older persons, it is greater than that of males (the mean value of 16.47 and the standard deviation of 6.270).

The finding is supporting the result of a study carried out by Churilla & Ford (2010) claiming that the increasing age of the older persons with hypertension will affect their willingness to increase the adherence to physical exercise. Lim, Kang & Lee (2016) in their study explain that the increasing age makes the older persons susceptible to chronic diseases. Such condition will encourage the older persons to improve their adherence to treatment regimens. This condition is not consonant with the findings which state that the increasing age of the older persons will result in the decline of the memory performance so that the adherence to treatment regimens will decrease, and this is significantly related (Ismail & Qadir, 2015).

The result of the analysis on Body Mass Index (BMI) shows that BMI does not have a significant correlation with the adherence to physical exercise with the p-value of 0.298. It is not in accordance with the findings reported by Khaled, Elfakharany, & ElAzab (2016), which states that overweight individuals tend not to have proper activities.

A research conducted by Andria (2013) and Roohafza et al. (2014) shows that obesity among the older persons results from the stress they experience which will tend to affect the adherence level of the older persons to do physical exercise. The older persons with obesity have a greater adherence level than those with normal BMI with the mean value of 17.30 and the standard deviation of 6.410. Furthermore, a research conducted by Oude Luttikhuis et al. (2009) shows that there is a significant correlation between weight and physical activities, especially outdoor physical activities or activities performed outside of the house (Oude Luttikhuis et al., 2009).

The results show that family support has the greatest influence on the adherence of the older persons to physical exercise than social support. The older persons tend to listen to their family members more and feel happier when getting support from their closest friends. Family members are the closest relatives to the older persons, and the ones who often meet them. Family can directly show empathy, show caring attitude, and monitor the schedule of the activities of the older persons (Prazeres & Santiago, 2015). The higher the support provided by the family for the older persons is, the more motivated the older persons to perform regular and sustainable activities are (Ojo, Malomo, & Sogunle, 2016).

This is also consonant with the findings reported by Miller & DiMatteo (2013) which states that there is a positive and significant correlation between family support and adherence where family can be a support system towards the health problems experienced by individuals. The support gained can change the situation to be more affective, can improve self-efficacy, and can change negative health behavior. Patients close to their family will show the adherence level of 3 times as much as those who are not close to their family or live alone (Miller & DiMatteo, 2013).

Conclusion

Family support and social support are important aspects of the adherence to physical exercise among the older persons. Several correlational studies have shown a significant positive correlation. This study has found out that family support has a greater impact on the adherence level of the older persons. Further research should be carried out to identify types of family support needed by the older persons to support the adherence to physical exercise. Thus, it is expected that the older persons with hypertension will be provided with the most conducive family support that corresponds with their lifestyle. More empirical evidence is required for direct provision of family support. This is because it can influence the progress of health condition, health service utilization, and behavioral changes to increase the adherence to pharmacological and non-pharmacological treatment regimens.

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