Factors Associated with Exercise among Elderly in Boyolali, Indonesia

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ABSTRACT

Background: The elderly will face more problems by getting older. One of which is degenerative disease due to aging process, such as cardiovascular disease. In the year 2001 (SKRT) data indicated that there were 26.4% elderly suffered from hypertension disease. Exercise for elderly is one of primary preventive actions. Research should be done related to the practice exercise for elderly. This study was aimed to determine the factors of physical exercise for elderly based on health belief model (HBM).

Subjects and Method: This was an analytic qualitative study with cross-sectional design. This conducted in Sobokerto, Ngemplak, Boyolali, Central Java, Indonesia. A total sample of 80 elderly with hypertension and participate in physical exercises. Data analysis used chi square and logistic regression.

Results: The results showed that the perceived susceptibility, perceived benefits, perceived barriers and cues to action have relationship with physical exercise. There is positive relationship and statically significant between perceived susceptibility with high physical exercise (OR= 27.01; 95% CI= 2.04 to 357.91; p= 0.012), high perceived benefits (OR= 26.95; 95%CI= 2.20 to 392.05; p= 0.010), high perceived barriers (OR= 0.021; 95%CI= 0.00 to 0.90 p= 0.044), cues to action (OR= 21.37;95%CI= 1.94 to 259.92; p = 0.044).

Conclusion: The HBM constructs on the physical exercise of elderly who are at risk for hypertension. The most important HBM predictors of physical exercise were perceived susceptibility.

Keywords: physical exercise, elderly, hypertension, health belief model

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hypertension in the elderly is very high, ie 60%-80% at the age above 65 years. Hypertension can lead to various complications include heart failure and stroke (Muhammad, 2010).

The Ministry of Health improve the health status of the elderly does some programs, one through integrated health post or Posyandu program. Government program in 2004 improved health with the occurrence of physical training or exercise. Regular physical exercise is essential to maintaining the physical condition of the elderly, lower the risk of falls and into the street to live independently (WHO, 2011). Physical exercise is recommended gymnastic elderly (Sumintarsih, 2006).

Based on interview with the chairman of cadre Posyandu, the number of the elderly on April 2014 with 629 elderly and 150 elderly were actively participated in exercises for elderly in Posyandu. It means 23% of the elderly reproductive in district Ngemplak, Boyolali. The data indicate that there is still less elderly who participated in physical exercises.

The diversity of factors involved lack elderly doing exercise, we need a study to determine what factors are influential to increase participation elderly doing gymnastic activities. Development of the concept of participation or adherence behaviors related to the interaction with one's health trust is the Health Belief Model (HBM). Rosenstock (1966) explains that HBM can be used to predict the behavior of health improvement that is based on the behavior of individuals is determined by the motives and beliefs of individuals. HBM concept explains that an individual's behavior depends on the value of, a particular outcome or the perceived benefits and the estimated results obtained from the action taken (Erackel et al., 1984 in Stanley and Beare, 1999).

**SUBJECTS AND METHOD**

This was an observational analytic study with cross sectional design. This was conducted in Sobokerto, Ngemplak, Boyolali, Indonesia. A total of 80 samples were aged 45 years and over who suffer from hypertension. The sampling technique used random cluster sampling.

The independent variables are the perception of the seriousness, the threat of disease, perceptions of barriers, perceived benefits, and user behavior to act. The dependent variable in this study is the physical exercises for elderly.

Data collection was using primary data obtained directly from the elderly with hypertension who were doing physical exercises. The instrument used a questionnaire that was tested with Pearson product moment validity and reliability Cronbach Alpha.

**RESULTS**

The analysis bivariate using Chi Square obtained the following results: there is a relationship between the perceived threat of the seriousness of the threat of disease to practice gymnastics elderly and statistically significant (p<0.001), there is a relationship perceptions of benefits to the practice gymnastics elderly and statistically significant (p<0.001), there is a relationship perception barriers to practice gymnastics elderly and statistically significant (p<0.001), there is a relationship behaviors instructions to act with practice gymnastics elderly and statistically significant (p<0.001).

Multivariate analysis using multiple logistic regressions is used to determine the seriousness of the relationship of perception, the perception of the benefits and perceived barriers, behavioral instructions to act with elderly gymnastics.
Table 1. Analysis Logistic Multivariate Regression

| Variables         | OR   | 95% CI            | p     |
|-------------------|------|-------------------|-------|
|                   |      | Low limit | Upper limit |       |
| Perceived Seriousness | 27.01 | 2.04 | 357.91 | 0.012 |
| Perceived Benefits | 26.95 | 2.20 | 329.95 | 0.010 |
| Perceived Barriers | 0.021 | 0.00 | 0.90 | 0.04  |
| User Behavior     | 21.37 | 1.94 | 235.92 | 0.012 |
| N Observational   | 80   |         |         |       |
| -2 log likelihood  | 24.979 |         |         |       |

Table 1 can be explained as follows, Odd Ratio value variable at 27.01 perception of seriousness of the disease means that elderly people with high perception of the seriousness of the threat of disease has 27.01 times greater possibility of doing gymnastics elderly compared with the perceived threat of the seriousness of the disease is low. Wald test results showed no association with the perception of the seriousness of the threat of disease and the elderly gymnastics statistically significant.

Negelkerke value R² of 83.7% means that four independent variables (perceived seriousness of the threat of disease, perceived benefits, perceived barriers, and user behavior act) able to explain the implementation of the elderly gymnastics practice of 83.7% and the remaining 16.3% is explained by other factors outside the research model.

**DISCUSSION**

The results showed that the higher the respondent’s perception about the seriousness or severity of hypertension or hypertension respondents is prone to statistically guarantee of doing gymnastics elderly. They sought to avoid being struck by the severity or complications of the disease. The results of this study are supported by research Iranagh & Montelbi (2015) that the perception of vulnerability has the highest influence on the behavior of 200 elderly women in physical activity. The more people have a perception of severity of hypertension is high then the more it will take action to prevent hypertension in order to avoid a more severe illness or complications. The results of Kamran et al., in 2014 found 80.7% of respondents stated that hypertension is a very serious disease and take action to stop smoking and exercise. While those whose seriousness lower not take action to stop smoking and exercise.
Respondents with high benefit perception which means the benefit of an action to prevent the disease, it will prefer to perform these actions on a regular basis. Results Iskandar (2012) showed that exercisers elderly have an influence on changes in blood pressure of hypertensive patients. With the benefits of exercise makes the elderly more elderly maintain her health by doing gymnastics elderly.

Increasingly feeling the magnitude of the barriers to the success to behave behavior is getting smaller. The results of this study are supported by research Pertiwi (2013) which states that the distance to health care is an important factor in the use of health services. Suhadi study in 2011 describe the factors that most affect adherence in the treatment of hypertension is the cost of treatment. Society tends to take advantage of existing facilities around their homes at a low cost.

The stronger the user behavior act of family, environment and health workers to the elderly hypertension through material support, information and emotion, the more increase the participation of the elderly gymnastics. Rachma in 2010 resulted that the family support and the support of health workers affect the implementation of the elderly gymnastics practice.

This study concludes that the most dominant variable in implementing elderly gymnastics practice is variable threat perception seriousness of the disease, which means the use of theoretical Health Belief Model appropriate to describe implementation of the elderly gymnastics practice.

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