



RESEARCH ARTICLE

URL of this article: <http://heanoti.com/index.php/hn/article/view/hn1406>

Preparation of Information Media About Isotonic Exercise For The Elderly Leyangan Ungaran Village

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ABSTRACT

Arthritis diseases that contribute to joint stiffness, pain and limitations of movement ranks second largest after hypertension in elderly in Indonesia based on data Ministry of Health RI in 2016. Data Puskesmas in Leyangan Ungaran Village there are 140 elderly who become built Posyandu Lansia Leyangan working area Puskesmas Leyangan . Approximately 70% of these numbers have degenerative disease problems such as stiffness in the joints and joint pain. The purpose of this study was to identify the complaints in the joints especially the elderly knee, so that will be developed information media by providing isotonic exercise appropriate and conducted intervention in elderly with complaints on the knee joint. The method used in the first stage is cluster random sampling technique of 103 elderly, second stage with purposive sampling technique at 15 elderly given intervention of isotonic movement exercise. Data were collected using questionnaire, measurement of motion range using Goniometer measured pre and post intervention, isotonic information and training media, isotonic exercise kits exercise equipment (isotonic exercise kits). Then tested by paired test t with result of difference of range of motion on right knee (p value 0.02) big difference 4.67. There is a difference of motion range on left knee (p value 0.02) big difference of 8.00.

Keywords: Isotonic motion exercises, Range of motion, Knee joints, Elderly

INTRODUCTION

Increasing UHH (Life Expectancy Age) can lead to an epidemiological transition in the health sector due to the increasing number of morbidity due to degenerative diseases. Increasing the degree of health and welfare of the population will affect the increase of UHH in Indonesia. The Central Bureau of Statistics (BPS) reports that the increase of UHH in 2000 in Indonesia was 64.5 years (with the percentage of elderly population 7.18%), increasing to 69.43 years in 2010 (with the percentage of elderly population is 7.56%) and in 2011 to 69.65 years (with the percentage of elderly population is 7.58%) (Risksedas, 2007).

Implementation of efforts to improve the elderly welfare including health services through healing and expanded efforts in the field of geriatric / gerontological services. One of the generative diseases in the elderly is the physical weakness both in physiological and pathological diseases. Data from the Ministry of Health RI in 2013 mentioned the disease in the joints of 2,164 people or 5, 08% of the 10 major diseases in the elderly. Data in Perumnas Leyangan Ungaran there are 140 elderly who become the elderly Posyandu Posyandu Leyangan Leyangan Puskesmas working area. Approximately 70% of these numbers have degenerative disease problems such as stiffness in joints and joint pain (Puskesmas Leyangan, 2017).

METHODS

This research was a quantitative research conducted through two stages of research. The first stages were taken by cluster random sampling technique by 103 respondents by using Slovin formula to obtain data about the characteristics of elderly, pain picture and joint stiffness, early understanding of elderly about isotonic exercise and the most desirable information media in doing isotonic exercise. The second stage used purposive sampling technique by taking samples as many as 15 elderly people according to the inclusion criteria such as: experiencing pain in knee joints, experiencing stiffness in the knee joint, there is a decrease in the degree of movement of the knee joint range, willing not to take the drug during 1 month training, able to tolerate

movement and pain during treatment and not suffering from heart disease and DM. In the first phase, an analysis was conducted to identify the distribution of age frequency, sex, education, occupation, frequency distribution of joint problems in the elderly in Leyangan Village. The second stage with quasi experiment, pre-post test without control group design in 15 elderly who experienced problems in joints isotonic exercise intervention with back flip media, video and isotonic movement exercise equipment.

RESULTS

Sampling of the second phase with purposive sampling technique, obtained 15 respondents who have been given the treatment an isotonic movement exercises using the image information media (sheet back) on the knee joint area. Treatment was given for 4 weeks with training portion 3x week for 10-15 minutes for each respondent. Isotonic Exercise Results presented in the table as follows:

Range of Knee Movement on the Elderly

Table 1. The range of knee joint motion on the right knee and left knee

Variabel	Intervention Group			p
	Mean	SD	Min-Max	
Right knee joint Pre	83.33	22.49	45-120	0.02
Right Knee Post	88	21.94	50-120	
Left Knee joint Pre	75.33	26.95	35-120	0.02
Left knee joint Post	83.33	25.04	50-20	

Table 1 shows the range of motion of respondents before treatment on the right knee 83.33 and on the left knee 75.33. While the range of motion of respondents after treatment on the right knee 88 while on the left knee 83.33.

Difference in Elderly Range of Motion Before and After Treatment

Table 2. Results of motion range analysis before and after intervention

Variabel	Intervention Group		
	Mean	p	Selisih
Right knee joint Pre	83.33	0.02*	4.67
Right Knee Post	88		
Left Knee joint Pre	75.33	0.02*	8.00
Left knee joint Post	83.33		

* Meaning at $\alpha = 0.05$.

The results of the analysis of the range of motion of the joints from table 1.2 showed a significant difference between the knee joint motion range before and after treatment on the right knee ($p = 0.02$; $\alpha = 0.05$). While on the left knee there was a significant difference between knee joint motion range before and after treatment with ($p = 0.02$; $\alpha = 0.05$).

DISCUSSION

Based on research result of right knee joint motion in elderly before and after isotonic exercise got result difference there is difference with p value 0,02 with difference 4,67. While the results of left knee joint motion research on the elderly before and after isotonic exercise is there is a significant difference with p value 0.02 with different differences of 8. This is because the elderly perform active activities during the four-week isotonic exercise program is done twice a day ie morning and evening. Physical activity is done actively by moving motor function on muscles and joints in the foot area, especially knee area.

Potter & Perry, 2006 mentions that muscles including lower extremity muscles, especially in elderly people who have rough motor function disorder within a certain period of time not used in activity, will lose its function permanently. This is because the muscles tend to be immobilized so that it will cause loss of endurance, decreased muscle mass, tissue reduction in knee joint muscle area and decreased stability.

Isotonic exercise (dynamic) is an exercise that shortens muscles to produce muscle contraction and active movement. Isotonic exercises as well as daily activities are actively activated causing muscle contraction, changes in muscle length and stimulates osteoblastic activity (muscle-forming cell activity). This isotonic

exercise also increases muscle tone, muscle mass and strength and maintains joint flexibility, range of movement and circulation (Potter and Perry, 2010).

Yogi research in Yuliasti, 2011 mentioned that given regular exercise can increase muscle strength in clients who have limited motor function so avoid the contractures and deformity. In line with research Widyawati, 2010 with given active lower exercise of range motion will increase the average muscle strength.

The results of Filantip's study, 2015 showed an increase in knee joint joint motion (left flexion 3.880 and right flexion 4,580) and motor movement ability increased by 12.68 seconds. Based on the results of research, active range of motion exercises can be an alternative exercise for elderly who menglami limitations of motion, such as wide movement of lower extremity joints and motor movement. Seniors should do range of motion exercises to help maintain and improve the flexibility of joints and motor movements.

CONCLUSION

The description of elderly knee-motion range in Leyangan Village shows the range of respondent's movement before treatment on the right knee 83.33 and on the left knee 75.33. While the range of motion of respondents after treatment on the right knee 88 while on the left knee 83.33. There was a significant difference between the knee joint motion range before and after the treatment on the right knee and left knee joint.

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