

Maintaining Elderly Health Related Fitness (HRF) through Dance

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Abstract: Elderly people are very susceptible to various diseases, especially non-infectious diseases such as high blood pressure, stroke, coronary heart disease, diabetes mellitus, and obesity. The presence of these increasing numbers of elderly if not properly anticipated will be a national tragedy. The more awake and increased physical fitness of society will reduce the risk of death by non-infectious diseases. The purpose of this research is to know the effectiveness of aerobic exercise with SKJ 2012 on the increase of physical fitness to Health Related Fitness (HRF) in middle aged group. The research method used is experiment method with the two group pretest-posttest design. The population taken as the sample of the study was the elderly association in Bandung City and the sample in this study was the middle aged of 10 people for Aerobic Gymnastics and 10 people for SKJ 20m. Data processing using t-test statistics for each gain score and assisted with computer program SPSS for windows. Conclusions of this study Aerobic exercises are more effective in improving Health Related Fitness (HRF).

1 INTRODUCTION

Progress in the field of health, has a lot of human benefit, with the discovery of various drugs for diseases, especially infectious diseases that originally no medicine is now there such as for malaria, tuberculosis or tuberculosis, some cancers, in addition found also ways to avoid outbreaks of various deadly diseases including immunization and healthy living behaviors, so that humans are more health-conscious (Haapanen-Niemi, 2000). This will increase the life expectancy of humans. Global life expectancy increased from 65.3 years in 1990, to 71.5 years in 2013 (Naghavi, 2015).

Increasing life expectancy becomes an important issue that can affect not only health but also long-term quality of life (Kusmaedi et al., 2017). Based on the results of the National Socio-Economic Survey (Susenas) in 2011 the number of elderly Indonesian population has reached 18.27 million people or about 7, 58 percent of the total population of Indonesia (Badan Pusat Statistik, 2012).

This needs to be anticipated early. Increasingly elderly people then the implications need to handle health, both in a preventive, curative, and rehabilitative. What is meant by preventive handling is to prevent the occurrence of diseases or complications associated with lack of movement.

Curative is able to provide an alternative for disease curing efforts (exercise is medicine). Rehabilitative is expected to restore the disruption of body function due to disease and disability. Promotive is expected to improve physical fitness and endurance (Johnson, 1960).

It needs serious handling from various parties, both central government, local government, and community institutions. Elderly must be empowered in order to live independently independence in bio-psycho-sociological life. They must be biologically able to live his life independently, psychologically able to position himself in relation to God and all his creations, and sociologically able to socialize with the community environment (Giriwijoyo 2007). The presence of these increasing numbers of elderly if not properly anticipated will be a national tragedy.

The more people exercise will increase the person's physical fitness (community). The more sustained and increased physical fitness of the community will reduce the risk of death by non-infectious diseases such as heart disease, high blood pressure, and stroke, reducing the number of illnesses mentioned above (Garber et al., 2011)

Health sports conducted by the community are many kinds such as: leisurely walk, jogging, leisurely cycling, and gymnastics fitness. There are many kinds of sports gymnastics that are done by the

community both in the studios, in the fitness center, and in government agencies. Like the SKJ created by *Kemenegpora* Indonesia once every four years, from SKJ in 1984, 1988, 1992, 1996, 2000, 2004, 2008 and 2012.

In relation to the above description, the researchers would like to research more about the Comparison of Aerobic Gymnastics Effectiveness and SKJ 2012 Against Health Related Fitness (HRF) of the Middle Aged Elderly.

2 METHODOLOGY

The method used in this research is the experimental method with The Two Group Pretest-Posttest design. Namely by providing treatment to both groups which includes two independent variables that become the scope of research subjects, namely (1) Aerobic Gymnastics, and (2) Gymnastics Fitness 2012 (SKJ 2012). Attribute variable of this research is Middle Age Man (age 45-59 years) and dependent variable that is Physical Fitness related to Health.

The sampling technique is random sampling because the researchers take the mothers between the ages of 45 to 59 years old including the Middle Age group which is divided into two groups of 10 people for aerobic exercise and 10 people for SKJ.

The instruments used to view HRF are Testing the Elderly includes Cardiorespiratory endurance: 6-minute walk test (6 MWT), flexibility: Chair seat and reach test (CSRT), Muscle strength and endurance: Chair stand test (CST) and Arm curl test (ACT).

Coordination and agility: 8 Foot up and go test (8 FUGT).

3 RESULTS AND DISSCUSION

The purpose of this study is to determine whether there are differences in the impact of the provision of treatments in the form of aerobic dance with SKJ 2012 in the elderly. To answer the question then selected 20 elderly people who then divided into two groups namely the treatment group given aerobic dance and control group who were given SKJ 2012 gymnastics before and after the provision of treatments conducted in the form of Health related fitness test. The test results are listed in table 1.

Table 1: Pretest Posttest.

	GROUP <i>M</i> (<i>SD</i>)			
	PRETEST		POSTEST	
	T-Group	C-Group	T-Group	C-Group
CSRT	18.56 (13.1)	10.13 (6.7)	15.87 (5.38)	17.87 (9.65)
CST	15.75 (2.05)	17.85 (3.64)	18.12 (3.04)	19.25 (5.70)
ACT	19.13 (1.45)	20.13 (6.08)	21.75 (2.6)	19.13 (4.58)
8FUGT	5.29 (0.64)	5.27 (0.97)	4.83 (0.85)	5.07 (0.94)
6MW	479.63 (45.05)	514.87 (40.9)	534.63 (34.96)	548.2 (35.56)
TOTAL FITNESS	248.18 (27.86)	258.96 (68.47)	286.65 (31.44)	275.45 (64.38)

Based on table 1. It is known that the total fitness of both groups has increased from pre-test to post-test. In the treatment group the total fitness value at the time of pre-test was 248.18 to 286.65 at the time of post-test. The total fitness score of the control group at pre-test is 258.96 to 275.45 at the time of post-test.

The statistical analysis that is used to see if aerobic treatment is more effective in improving health related fitness compared with SKJ gymnastics is by comparing the average gain score (post-test value minus pre-test value) of each group with independent sample t test. The result is as follows table 2:

Table 2: Independent Samples Test.

		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
Gain score	Equal variances assumed	5.463	12	.000
	Equal variances not assumed	5.362	60.405	.000

There was a significant Gain Score difference between the groups treated with aerobic exercise and the group treated with SKJ ($P < 0.05$). Then it can be concluded that the provision of treatments in the form of aerobic exercise is more optimal in improving physical fitness of the elderly than the provision of physical fitness in 2012. This proves that aerobic exercise (aerobic exercise and SKJ 2012), if it is done regularly, measurably, and systematically can improve physical fitness. It turns out to be a moderate intensity exercise (Low Impact Aerobics) but it enters the pulse of an exercise zone according to age, with duration of 20 minutes, and performed four times a week is good for significantly improving physical fitness. Frequency

of exercise three to five times per week; exercise intensity 55/65% to 90% maximal pulse rate; long exercises 20 to 60 minutes continuously, or a minimum accumulation of 10 minutes throughout the day, have a good effect on improving physical fitness (Behm, 2015; Seo, 2012; Stahle, 1999).

The same thing is stated by Giriwijoyo (2007) that sports enough health within 10 to 30 minutes with an intensity of 65 to 80% DNM with a frequency of 3 to 5 times per week. So the experimental treatment of the researcher is appropriate, exercise time 20 minutes, intensity 60% to 85% DNM, and frequency four times a week

4 CONCLUSIONS

Physical activity is an important factor in maintaining physical fitness for the elderly. One of the forms of physical activity that can be done is to do gymnastics. There are several types of exercises that can be done by the elderly, such as aerobic, SKJ etc. Aerobics is more effective in improving health related fitness (HRF) in middle aged people.

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REFERENCES

- Badan Pusat Statistik, B., 2012. *Statistik Penduduk Lanjut Usia Indonesia 2011*, Badan Pusat Statistik. Jakarta.
- Behm, D. G., 2015. Effects of Strength Training Using Unstable Surfaces on Strength , Power and Balance Performance Across the Lifespan : A Systematic Review and Meta-analysis. *Sports Medicine*. 45(12), pp.1645–1669. Available at: "http://dx.doi.org/10.1007/s40279-015-0384-x.
- Garber, C. E., 2011. Quantity and quality of exercise for developing and maintaining cardiorespiratory, musculoskeletal, and neuromotor fitness in apparently healthy adults: Guidance for prescribing exercise. *Medicine and Science in Sports and Exercise*. 43(7), pp.1334–1359.
- Giriwijoyo, H. Y. S., 2007. *Ilmu Kesehatan Olahraga*, FPOK UPI. Bandung.
- Haapanen-Niemi, N., 2000. Body mass index , physical inactivity and low level of physical fitness as determinants of all- cause and cardiovascular disease mortality Đ 16 y follow-up of middle-aged and elderly men and women. *International Journal of Obesity*, 24, pp.1465–1474.
- Johnson, W. R., 1960. Science and medicine of exercise and sports. *Academic Medicine*. 35(10), p.989.
- Kusmaedi, N., Sultoni, K., Subarjah, H., 2017. The Effect of Social Participation on Elderly Live Satisfaction. *IOP Conference Series: Materials Science and Engineering*. 180, p.012221.
- Naghavi, M., 2015. Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990–2013: A systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*. 385(9963), pp.117–171.
- Seo, B. D., 2012. Effect of 12-week Swiss Ball Exercise Program on Physical Fitness and Balance Ability of Elderly Women. *Journal of Physical Therapy Science*. 24, pp.11–15.
- Stahle, A., 1999. Improved physical fitness and quality of life following training of elderly patients after acute coronary events A 1 year follow-up randomized controlled study. *European Heart Journal (1999)*. 20, pp.1475–1484.