

The Relation Between Gymnastics Elderly With Elderly Stress in Village of Polaman Argorejo District Bantul Yogyakarta

Jaka Sarwadhamana¹, Tri Prabowo².

¹Department of Hospital Administration, Faculty of Health Science, Universitas Alma Ata, Jalan Brawijaya No.99 Yogyakarta, Indonesia 55183

²National Nurses Association Indonesia

*Corresponding author: jackclepto45@gmail.com

ABSTRACT

Background: Physical activity on elderly can be a mechanism of dealing with stress to increase wellbeing. However older people are rarely engage in the physical activity. The purpose of this study to know the relationship between gymnastics elderly with the level of stress on seniors in village of Polaman Argorejo, District of Bantul Yogyakarta.

Objectives: The purpose of this study to know the relationship between gymnastics elderly with the level of stress on seniors in village of Polaman Argorejo, District of Bantul Yogyakarta.

Methods: This study is an analytic quantitative research with cross sectional design. The population in this study was elderly live in village of Polaman which totaled 90 people. The sample used in this study who as many as 90 people taken using total sampling techniques. The data collected were analyzed using a chi-square statistics test.

Results: The results showed the seniors actively participate in gymnastic and not subjected to stress is 16 respondents (76.2%), while seniors actively participate in exercise and subjected to stress is 5 respondents (23.8%). Based on the analysis Chi Square obtained the result of the value of $p=0.000$. It shows there is a significant relationship between gymnastic seniors with the level of stress.

Conclusions: There is the significant relationship between gymnastics for the elderly with the stress level on elderly in village of Polaman Argorejo Bantul Yogyakarta.

Keywords: *Gymnastics Elderly, Stress, Elderly*

INTRODUCTION

Human growth into old age is part of the growth stage of human life that could not be avoided. Healthy despite entering old age is everyone's hope. Various attempts were made to keep the body healthy and avoid all diseases. The elderly are both male and female individuals aged between 60-69 years (1).

The number of elderly people worldwide is currently estimated at 500 million with an average age of 60 years and it is estimated that by 2025 it will reach 1.2 billion. In developed countries such as the United States, aging increased to 1.000 per day in 1985 so the term baby-boom in the past changed to an explosion of elderly population (2).

The development of the elderly population in Indonesia is interesting to observe, from year to year the number tends to increase. In general, based on the results of the 2010 population census, the number of elderly residents in Indonesia is 18.04 million people or 7.59 percent of the total population of Indonesia. The population of elderly female (9.75 million people) is greater than the population of elderly male (8.29 million people). It is far more in rural areas (10.36 million people) than in urban areas (7.69 million people). The largest elderly population is in the province of Special Region of Yogyakarta with an elderly population of 448.223 people or 12.96 percent of the total population, consisting of 249,784 elderly female population and 198.439 elderly male population (2). In 2020-2025, Indonesia will rank in the country with the structure and number of elderly population after China, India and the United States, with life expectancy above 70 years (1).

Elderly is often perceived negatively, is considered a burden on the family and surrounding community. This fact encourages the development of the notion that growing old is synonymous with the increasing number of health problems experienced by the elderly. Negative perceptions like that are of course not all true, because there are also elderly who play an active role not only in their families, but also in the surrounding community. Lack of attention to the elderly group, can cause complex problems for the elderly, given that health is a very important aspect that needs to be considered in elderly life (4).

In the course of elderly experience changes in the body system. These changes include physiological changes, functional changes, cognitive changes, and psychosocial changes (5). Further explained that psychosocial changes during the aging process will

involve the process of life transition and loss. The longer a person's life, the more transitions and losses they face. This can cause stress in the elderly and the possible risk of suicide (5).

Stress is a body response that is not specific to any demands or burdens on it. Based on this understanding can be said to be stressful if a person experiences a heavy burden or task but the person cannot cope with the assigned task, then the body will respond unable to the task, so that the person can experience stress. Conversely, if a person with a heavy workload but overcomes the burden with a good body response, then that person is not experiencing stress (6).

Research shows high levels of stress in the elderly, with 21.25% showing severe complaints and 18.75% showing moderate complaints. While the factors that cause stress in the elderly include changes in daily activities, changes in family gatherings, death of spouses, death of family members, and changes in sport quantity and changes in work (7). Based on the results of the research described above it can be seen that one of the problems often faced by the elderly is stress due to natural changes in the elderly. The elderly who live at home and who live in elderly homes are also at risk for experiencing stress, whether severe, moderate, or mild. To overcome this, the elderly need a way to deal with stress.

Sports activity is one mechanism to deal with stress in the elderly. Sports activities will help the body stay fit and fresh because it keeps the bones strong, encourages the heart to work optimally, and helps eliminate free radicals in the body. The most appropriate type of exercise for the elderly is gymnastics exercises that are accompanied by strength exercises plus rhythmic movements and stretching (1). Elderly gymnastics including low impact aerobics (avoiding jumping movements), mild to moderate intensity, is comprehensive with movements that involve most of the body's muscles. The benefits of movements in elderly exercise are expected to increase muscle strength and endurance and can reduce psychological disorders such as stress in the elderly (1).

Based on the background of the problems that have been stated above, the formulation of the problem studied is whether there is a relationship between elderly gymnastics with stress levels in the elderly in Polaman Argorejo Hamlet, Sedayu 2 Subdistrict, Bantul Regency, Yogyakarta. The purpose of this study is to determine the elderly gymnastics in the Polaman Hamlet, to find out the stress levels of

the elderly who are active and not actively following the elderly gymnastics in the Polaman Hamlet, and to identify the relationship between the elderly gymnastics with the stress level in the elderly living in the Polaman Hamlet, Argorejo Yogyakarta.

MATERIALS AND METHODS

This type of research is quantitative analytic research with cross sectional design. The population in this study is the elderly who live in the hamlet of Polaman, amounting to 90 people. Sampling in this study uses a total sampling technique that is taking all members of the sample into a sample that matches the inclusion and exclusion criteria living in Polaman Hamlet, amounting to 90 people.

Data analysis using univariate and bivariate analysis with Chi-Square test. In addition, this independent research variable is elderly gymnastics, while the dependent variable is the stress level of the elderly.

RESULTS AND DISCUSSION

Characteristics of research subjects

Table 1. Frequency distribution of respondent characteristics in the Polaman Argorejo District Bantul Yogyakarta

Characteristics	F	%
Gender		
Male	41	45,6
Female	49	54,4
Age (Years)		
60-65	47	52,2
66-70	30	33,3
>70	13	14,4
Occupation		
Trader	15	16,7
Farmer	40	44,4
Retired employees	6	6,7
Unemployment	29	32,2

Education Level		
No Formal School	6	6,7
Primary School	46	51,1
Junior High School	24	26,7
Senior High School	8	8,9
College	6	6,7
The activity of elderly gymnastics		
Active	21	23,3
Not Active	69	76,7
Stress Level		
Not Stress	22	24,4
Stress	68	75,6
Total	90	100

Source: Primary data for 2015

Based on the results of the analysis of **Table 1** shows that the elderly gymnastic activities in the Polaman Hamlet area are mostly followed by female respondents (32.7%), because many female respondents who are not working, only stay at home doing household activities, so they still have plenty of time to follow gymnastics activities. The number of female respondents in the Polaman Hamlet area was higher than that of male respondents, namely 49 female respondents (54.4%). This is in accordance with one theory that life expectancy in female is higher than life expectancy for male, so many elderly people are female. Elderly female are more involved in gymnastics activities than elderly male because they are still working to support their family, there are also elderly male who feel reluctant to do these activities (8). Most of the elderly male in the Polaman Hamlet area have livelihoods as farmers, traders, and some have retired as civil servants. Samples obtained were 90 respondents aged ≥ 60 years due to elderly gymnastics shown at the elderly. Someone referred to as the elderly because it has more than 60 years of age and above.

In the distribution of the education level of the elderly shows that most of the elderly have a low level of education, namely Elementary Schools, amounting to 46 respondents (51.1%) while the elderly who arrive at tertiary education are only 6 respondents (6.7%). The data explains that the large number of elderly who do not attend formal school and have low education is because in earlier times when the elderly were at school age, schools were still rare and only certain people could attend formal school (9).

Elderly gymnastics activities in the Polaman Hamlet area are not followed by the elderly who are more than 70 years old because many elderly people cannot participate in activities such as elderly gymnastics, some are not permitted by families for fear of unwanted things happening. One theory explains, the older a person's age there are several processes of change in which sensitivity increases or the limit of adaptation becomes reduced which is often known as geriatric giant, where the elderly will experience problems namely impaired immobilization, instability (easy fall), intellectual disorders (dementia), isolation (depression), immunodeficiency, constipation, and impairment in vision, hearing, taste, smell, and communication (10).

The study also showed that 21 respondents (23.3%) actively participated in the elderly gymnastics, while 69 respondents (76.7%) did not actively participate in the elderly gymnastics. Respondents with active categories following the elderly gymnastics are respondents who took the elderly gymnastics for 4 times in a row for 4 weeks without any pauses, while the elderly with inactive categories were respondents who did not follow the elderly gymnastics for the elderly for 4 times in a row take part in 4 weeks or there is a break not following the elderly gymnastics.

The results of this study are supported by one of the data that shows that most of the elderly in the four Posyandu areas of the elderly are not actively participating in elderly gymnastics. Inactivity of respondents in participating in gymnastics is due to respondents who reside far from gymnastics place, busyness or because of physical conditions that are not possible (11). Poor physical or fitness conditions can also be influenced by age, sex, smoking habits, and exercise (12). This research also shows that most of the elderly who live in the hamlet of Polaman have busy working as farmers and traders, and more than 65 years of age reach 47.7% of the total population. The theory reveals, as a person ages there are several processes of change wherein sensitivity increases or the limits of adaptation become less commonly known as geriatric giants, where the elderly will experience problems namely impaired immobilization, instability (easy fall), intellectual disorders (dementia), isolation (depression), immunodeficiency, constipation, and impaired vision, hearing, taste, smell, and communication (10).

The stress level of the elderly shows that as many as 68 respondents (75.6%) experienced stress while the other 22 respondents (24.4%) did not experience

stress. The results of this study are supported by research data showing that elderly people who experience severe stress as much as 81.25% and moderate stress levels as much as 18.75%. Factors that cause stress in the elderly include changes in daily activities, the death of a spouse, death of family members, the quality of sports and recreation, as well as changes in work (13). This is in accordance with one theory that the disorder that often occurs in old age is stress (6).

Stress as a demanding stimulus where the higher or greater the pressure experienced by someone, the higher the stress experienced (6). Stress experienced by individuals has several stages including, first stage stress, second stage stress, third stage stress, fourth stage stress, fifth stage stress, and sixth stage stress (14). One theory says that the occurrence of stress due to the stressor is felt and perceived by the individual as a threat giving rise to anxiety which is a general and initial sign of physical and psychological health disorders (15). Stressors are any conditions or events that can cause changes in a person's life (children, adolescents, adults, and parents), so that the individual is forced to adapt or cope with stressors that arise (14).

Tabel 2. Relation between gymnastics elderly with elderly stress in the Polaman Argorejo District Bantul Yogyakarta

Elderly gymnastics	Stress Level		Total	P Value
	Not Stress	Stress		
Active	16 76,2%	5 23,8%	21 100%	0,000
Not Active	6 8,7%	63 91,3%	69 100%	
Total	22 24,4%	68 75,6%	90 100%	

Source: Primary Data 2015

In Table 2 the results of the analysis illustrate that respondents who experienced stress mostly came from respondents who did not actively follow gymnastics while respondents who did not experience stress were respondents who actively participated in elderly gymnastics. From these results we can conclude that the more inactive respondents follow the elderly gymnastics, the higher the level of stress experienced.

The results of this study also illustrate that elderly gymnastics is stated to be statistically related to stress levels as indicated by the Chi-Square statistical test obtained p value of $0.000 < 0.05$, so it

can be concluded that there is a relationship between elderly gymnastics with elderly stress levels, while the closeness the relationship is moderate because the contingency coefficient value is 0.553. This can be influenced by other factors that can reduce stress such as recreation, regulation of nutrition, rest and sleep, dietary arrangements, and social and family support (6). The results of this study are supported by research data that show the results of statistical tests using Wilcoxon which is p-value 0.000 ($p < 0.05$), and it can be concluded that there is an influence of elderly gymnastics on decreasing the level of stress (16). This study is also supported by research data with the result that physical activity can reduce stress in the elderly by exercising at the fitness center for 60 minutes for 3 times a week in 8 weeks (17).

Sports in this case elderly gymnastics will help the body stay fit and fresh because it keeps the bones strong, encourages the heart to work optimally, and blood flow more smoothly. Besides regular exercise such as gymnastics will pump Endorphin production in the brain which will give the effect of feeling happy and comfortable. One of the benefits of this hormone is controlling stress and increasing immunity. Endorphins in the body can be triggered by the emergence of various activities such as sports, deep breathing, relaxation, and meditation. In addition, regular exercise allows the body to control stressful situations.

Elderly gymnastics provide benefits in the formation of better mood conditions so that elderly who regularly participate in sports activities will always be in a comfortable feeling condition. Comfortable feeling conditions make individuals able to optimize the functioning mental processes and also affect the individual's ability to deal with any problems that can cause stress. Especially because elderly gymnastics is done in groups and is usually accompanied by music so as to provide a feeling of comfort and security, as well as creating a joy and togetherness among fellow elderly people. Therefore, sports in this case the elderly gymnastics still provides a role in changes in individual stressful situations even though there are still other factors that influence.

CONCLUSIONS

Based on the research results, the following conclusions can be drawn:

1. Most of the respondents who live in Polaman Hamlet are not actively participating in the elderly gymnastics
2. Most respondents who do not actively follow the elderly gymnastics experiencing stress.
3. There is a relationship between elderly gymnastics with stress levels in the elderly as indicated by the results of the chi-square statistical test obtained p value of $0.000 < 0.05$ with moderate relationship closeness and the direction of positive correlation (+) which indicates more inactive respondents follow the elderly gymnastics the higher the stress experienced.

RECOMMENDATION

1. Universitas Alma Ata
This research can be an additional reference in library of Universitas Alma Ata of Yogyakarta as well as reference materials to improve Evidence Based Practice, especially regarding stress management in the elderly.
2. Health Agency
It is hoped that will always be able to increase routine activities for the elderly so that the elderly can take advantage of the available time with useful activities and remain active as they age.
3. Respondents
Elderly people need to increase physical activity according to their ability with one of the ways to participate in elderly gymnastic activities that will improve fitness. Elderly gymnastics itself can be a good coping strategy in dealing with stress.
4. Further Researchers
Requires further research that is similar to more complete research variables such as in-depth research about other factors that affect stress levels in the elderly.

REFERENCES

1. Nugroho, Wahjudi. 2010. *Keperawatan Gerontik dan Geriatrik*. Edisi 3. EGC: Jakarta
2. Bandyah, siti. 2009. *lanjut usia dan keperawatan gerontik*. Nuha medika. Yogyakarta.

3. Badan Pusat Statistik. 2010. Statistik Penduduk Lanjut Usia Indonesia dalam <http://bps.go.id>. Diakses tanggal 12 desember 2014 pukul 09.00 WIB
4. Widuri, Hesti. 2010. *Asuhan Keperawatan Pada Lanjut Usia Ditatanan Klinik*. Fitramaya: Yogyakarta.
5. Perry & Potter. 2009. *Fundamental of Nursing*. Edisi 7. Salemba Medika: Jakarta.
6. Hidayat, A. Aziz Alimul. 2008. *Pengantar Konsep Dasar Keperawatan*. Edisi 2. Salemba Medika: Jakarta.
7. Hidayat, A. Aziz Alimul. 2008. *Riset Keperawatan dan Teknik Penulisan Ilmiah*. Edisi III. Salemba Medika: Jakarta.
8. Suadirman, S. 2011. *Psikologi Usia Lanjut*. Yogyakarta: Gajah Mada University.
9. Rohmah. 2012. Hubungan senam Lansia Dengan Tingkat Stres di PSTW Dharma Bhakti. Skripsi. Surakarta: Politeknik Kesehatan Surakarta.
10. Darmojo. 2011. *Geriatric (Ilmu Kesehatan Usia Lanjut)*. FKUI: Jakarta
11. Nidya. 2011. Hubungan senam Lansia Dengan Fungsi Kognitif Pada Lansia Di Empat Posyandu Lansia Di Yogyakarta. Skripsi. Universitas Gajah Mada Yogyakarta.
12. Afriwadi. 2011. *Ilmu Kedokteran Olahraga*. EGC: Jakarta.
13. Indriani, Yeniar. 2008. Tingkat Stres Lansia di Panti Werdha Pucang Gading Semarang. *Jurnal Psikologi Undip* Vol. 8, No. 2, Oktober 2010.
14. Yosep, Iyus. 2011. *Keperawatan Jiwa*. Refika Aditama: Bandung
15. Rasmun. 2004. *Stres Koping dan Adaptasi*. Edisi 1. Sagung Seto: Jakarta.
16. Pratiwi, Erna. 2013. "Pengaruh Senam Lansia Terhadap Tingkat Stres Pada Lanjut Usia di PSTW Dharma Bakti". Skripsi. Surakarta: Fisioterpi Politeknik Kesehatan Surakarta.
17. Westerterp R. Klaas. 2012. Physical Activity and Oxidative Stress In The Elderly. *European Journal of Applied Physiology*. Vol. 2, No. 2. Desember 2013.