



The Influence of Physical Activity, Knowledge, and Diet on The Incidence of Degenerative Diseases in The Gymnastics Community

Effendi¹, Budhi Setianto^{2,3}, Agus Aan Adriansyah³, Difran Nobel Bistara⁴, Susanti Susanti⁵

¹Departement of Medicine, Faculty of Medicine, Universitas Nahdlatul Ulama Surabaya, Surabaya 60237, East Java, Indonesia

²Head of Planning, Development and Information Systems, Surabaya Islamic Hospital, Surabaya 60246, East Java, Indonesia

³Department of Public Health, Faculty of Health, Universitas Nahdlatul Ulama Surabaya, Surabaya 60237, East Java, Indonesia

⁴Departement of Nursing, Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Surabaya 60237, East Java, Indonesia

⁵Department of Nursing, Sekolah Tinggi Ilmu Kesehatan Adi Husada, Surabaya, Indonesia

ARTICLE INFORMATION

Received: July 8, 2024

Revised: August 18, 2024

Available online: August 2024

KEYWORDS

Diet, Lifestyle, Degenerative, Physical activity

CORRESPONDENCE

E-mail: budhisetianto@yahoo.com

A B S T R A C T

According to statistics from the 2018 Basic Health Research, 65.7% of Indonesians suffer from degenerative illnesses, such as diabetes, high blood pressure, stroke, and joint disease. According to Ministry of Health data, the number of persons with diabetes would have increased to 6.2% (10.8 million) by 2020, and 236,710 diabetes-related fatalities were recorded in 2021. Data on risk variables and outcomes were gathered concurrently in this cross-sectional research, which uses a descriptive quantitative approach. Data for the research was gathered using Google Forms, and the study population consists of 62 senior citizens from RW 07, Wonokromo Village. The incidence of degenerative illnesses is the dependent variable, while physical activity, knowledge, food, and lifestyle are the independent factors. The Chi-Square test and cross-tabulation were used for analysis. The findings indicate that, albeit just once a week, most respondents participate in physical activities like gymnastics largely for their physical well-being. Most respondents stick to a set eating schedule even when they do not strictly follow a diet. The results suggest that although education, nutrition, and lifestyle do have a major impact on the occurrence of degenerative diseases, physical exercise alone does not.

INTRODUCTION

The general definition of degenerative disease is decreasing the function of the body's organs, which generally occurs in old age. However, there are times when it can occur at a young age; the result is a health decline, usually followed by disease. The most dangerous consequence of this disease is pain, and it is also costly, especially in old age, and can also end in death (Widiasari et al. 2021). Generally, before someone suffers or experiences a degenerative disease, some symptoms point to the disease but are often ignored. This collection of symptoms is known as metabolic syndrome. Metabolic syndrome can be defined as a condition where a person experiences high blood pressure, obesity, high blood sugar levels, and abnormal blood fat levels (Erik Kusuma, Ayu Dewi Nastiti, R.A Helda Puspitasari 2022).

The general definition of degenerative disease is decreasing the function of the body's organs, which generally occurs in old age. However, there are times when it can also occur at a young age (Sholikah, Febrinasari, and Pakha 2021), the result is a decline in health, usually followed by disease. The most dangerous consequence of this disease is pain, and it is also costly, especially in old age, and can also end in death. Generally, before someone suffers or experiences a degenerative disease, some symptoms point to the disease but are often ignored. This collection of symptoms is known as metabolic syndrome.

Metabolic syndrome can be defined as a condition where a person experiences high blood pressure, obesity, high blood sugar levels, and abnormal blood fat levels (Khasanah et al. 2022).

The main risk factors for degenerative diseases are unhealthy eating patterns, lack of physical activity, cigarette consumption, increased stress, and exposure to causes of degenerative diseases (Widiasari et al. 2021). This change in lifestyle regarding food consumption is mainly triggered by an increase in economic income, high work activity, and the promotion of trendy Western foods, especially fast food, which is popular in America and Europe but is not balanced with nutritional knowledge and awareness. Eventually, the food culture changed to one high in saturated fat and sugar, low in fiber, and low in micronutrients (Pane, Fikri, and Ritonga 2018). Socio-economic changes and food tastes will result in changes in people's eating patterns which tend to move away from the concept of a balanced diet, thus having a negative impact on health and nutrition (Harmawati and Etriyanti 2019). A diet high in saturated fat and sugar, as well as low in fiber and low in micronutrients, will cause problems of obesity, excess nutrition, and increased free radicals, which ultimately result in changes in disease patterns from infections to non-infectious chronic diseases or the emergence of degenerative diseases (Indrahadi, Wardana, and Pierewan 2021).

According to 2018 Basic Health Research (Riskesdas) data, the prevalence of degenerative diseases in Indonesia reached 65.7%. The degenerative diseases in question include diabetes, hypertension, stroke, and joint disease. Data from the Indonesian Ministry of Health also shows that the prevalence of diabetes sufferers in Indonesia rose to 6.2% in 2020 or 10.8 million people. In 2021, the number of deaths caused by diabetes in Indonesia will reach 236.71 (Khasanah et al. 2022).

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The study's objectives are to: (1) investigate the roles of physical activity, knowledge, dietary patterns, and lifestyle in the incidence of degenerative diseases; and (2) evaluate the association between these factors and the occurrence of degenerative diseases.

METHOD

This type of research is descriptive quantitative using a cross-sectional design. Cross-sectional design is the implementation of data collection carried out simultaneously between risk factors and their impacts. The total population in this study is all elderly people in RW 07, Wonokromo Village, totaling 62 people. Data was collected using a Google form. The data in the research variable collection consists of the independent variables: physical activity, knowledge, diet, lifestyle, and dependent variables. The incidence rate of degenerative diseases was cross-tabulated, and the relationship test was calculated using Chi-Square.

RESULT

The following are the characteristics of the respondents

Table 1 Characteristics of Respondents

No	Characteristics	Frequency	Percentage
Gender			
1	Man	2	3.2%
2	Woman	60	96.8%
Age Range			
1	< 45 Years	20	32.3%
2	> 65 Years	5	8.1%
3	45 - 55 Years	25	40.3%
4	56 - 65 Years	12	19.4%
Profession			
1	Housewife	55	88.7%
2	Private	7	11.3%
The type of disease			
1	Diabetes	5	8.1%
2	Hypertension/High Blood	9	14.5%
3	Does not have a generative disease	48	77.4%
Total		62	100.0%

Physical activity is any body movement that results from the work of skeletal muscles and increases energy and energy expenditure. Generally, physical activity is divided into 3 categories based on the intensity and amount of calories used, namely light physical activity, moderate physical activity, and heavy physical activity (Silalahi 2019). Physical activity is an important thing the WHO (World Health Organization) recommends preventing non-communicable diseases such as coronary heart disease, diabetes, hypertension, stroke, and other non-communicable diseases. Some of the diseases that have been mentioned are often suffered by the elderly, including the physical activities carried out by the respondents (Salsabila and Sjaaf 2022).

Table 2 Physical Activity of Respondents

No	Physical Activity	Frequency	Percentage
Exercise Frequency			
1	2 Times a Week	5	8.1%
2	Once a week	49	79.0%
3	Every day	7	11.3%
4	Not doing sports activities	1	1.6%
Type of Sport			
1	Walk	7	11.3%
2	Exercise	54	87.1%
3	Bicycle	1	1.6%
Sports Goals			
1	Lose weight	2	3.2%
2	To become healthy	60	96.8%
Total		62	100.0%

Table 2 shows that most respondents did physical activity once a week, with physical activity in gymnastics. Respondents have the most physical activity to be healthy. The following is the lifestyle of the respondents.

Table 3. Respondents' Lifestyles Related to Health Routines

No	Routinely carry out inspections	Frequency	Percentage
1	Sometimes	35	56.5%
2	Never	3	4.8%
3	Yes Routine	24	38.7%
Total		62	100.0%

Table 3 provides information that respondents carry out health checks occasionally. The following are the respondents' eating patterns.

Table 4. Respondents' eating patterns

No	Eating habit	No	Percentage	Yes	Percentage	Total
1	Currently on a diet	56	90%	6	10%	62
2	Scheduled meals	28	45%	34	55%	62
3	Food composition always varies	18	29%	44	71%	62

Table 4 shows that most respondents do not diet but only follow a scheduled eating pattern with food composition. The following are the incidence rates of degenerative diseases.

Table 5. Respondents' eating patterns

No	Degenerative disease incidence	Frequency	Percentage
1	No	49	71.0%
2	Yes	13	29.0%
Total		62	100.0%

Table 5 provides information that most respondents do not have degenerative diseases. The following are the degenerative diseases suffered by respondents.

Table 6. Degenerative diseases suffered by respondents

No	The type of disease	Frequency	Percentage
1	Diabetes	5	8.1%
2	Hypertension/High Blood	9	14.5%
3	Does not have a generative disease	48	77.4%
Total		62	100.0%

Table 6. The diseases suffered by respondents are hypertension and diabetes. The following is a cross-tabulation of physical activity on the incidence of degenerative diseases.

Table 7 Cross-tabulation of physical activity on the incidence of degenerative diseases

Physical_Activity	Degenerative Pain		Total	Exact Sig. (2-sided)
	Sick	Painless		
Good	1	11	12	0.159867
Not good	15	35	50	
Total	16	46	62	

Table 7 provides information that most respondents who did not engage in physical activity did not experience degenerative disease. SIG 2 tailed > 0.05 means there is no relationship between physical activity and the incidence of degenerative disease (Nurullita et al. 2022).

Table 8 Cross Tabulation of Dietary Patterns on the Occurrence of Degenerative Diseases

Dietary habit	Degenerative Pain		Total	Asymp. Sig. (2-sided)
	Sick	Painless		
Pretty good	0	2	2	0.0248
Good	12	39	51	
Not good	4	5	9	
Total	16	46	62	

Table 8 provides information that most respondents who have a diet do not experience degenerative diseases. sig 2 tailed < 0.05 means a relationship exists between a good diet and the incidence of no degenerative disease.

Table 9 Cross Tabulation of Dietary Patterns on the Occurrence of Degenerative Diseases

Lifestyle	Degenerative Pain		Total	Exact Sig. (2-sided)
	Sick	Painless		
Good	14	32	46	0.0199
No	2	14	16	
Total	16	46	62	

Table 9 provides information that most respondents who have a diet do not experience degenerative diseases. sig 2 tailed < 0.05 means a relationship exists between a good diet and the incidence of no degenerative disease.

Table 10 Cross Tabulation of Dietary Patterns on the Occurrence of Degenerative Diseases

Descendants	Degenerative Pain		Total	Exact Sig. (2-sided)
	Sick	Painless		
No	12	32	44	0.0472
Yes	4	14	18	
Total	16	46	62	

Table 10 provides information that most respondents who have a diet do not experience degenerative diseases. sig 2 tailed < 0.05 means a relationship exists between a good diet and the incidence of no degenerative disease.

DISCUSSION

Physical activity Physical activity is any body movement that is caused by the work of skeletal muscles and increases energy and energy expenditure (Azrin and Suyanto 2020). Generally, physical activity is divided into 3 categories based on the intensity and number of calories used, namely light physical activity, moderate physical activity, and heavy physical activity. Physical activity is one of the important things recommended by the WHO (World Health Organization) to prevent non-communicable diseases such as coronary heart disease, diabetes, hypertension, stroke, and other diseases (Pane, Fikri, and Ritonga 2018).

In this study, it was illustrated that respondents carried out the most physical activity once a week; the activity they carried out was exercise, which aimed to maintain health. According to WHO, regular physical activity has been proven to help prevent and treat non-communicable diseases such as heart disease, stroke (Nurbidayah et al. 2024), diabetes, and various types of cancer. In addition, physical activity can also help prevent high blood pressure and maintain a healthy weight. Physical activity can also help to maintain and improve mental health, quality of life, and well-being (Hafsah et al. 2022).

Knowledge efforts to maintain the health of the elderly need to be made from the start. This aims to ensure that elderly people can continue to live healthy, quality, and productive lives with human dignity (Jamaluddin et al. 2022). The health of the elderly needs to be strived for by maintaining personal hygiene, consuming balanced nutrition, doing regular physical activity, having a social life, having opportunities to work, and having an environment that is friendly to the elderly. Physical and mental health are factors that need to be considered in the elderly. Someone who has entered old age must pay attention to healthy and balanced food intake. Apart from that, elderly people also need to do regular physical activity, such as walking or light exercise, to maintain a healthy heart, lungs, muscles, and bones (Amila, Sembiring, and Aryani 2021).

Eating Patterns Healthy eating patterns for elderly people may be different. This is because increasing age can cause a decrease in appetite, the body's ability to digest food, as well as health problems that affect the process of chewing and swallowing food (Shakespeare 2014). **Lifestyle** Healthy eating patterns for elderly people may be different. This is because increasing age can cause a decrease in appetite, the body's ability to digest food, as well as health problems that affect the process of chewing and swallowing food (Handa Muliasari, Candra Dwipayana Hamdin, Agus Dwi Ananto 2019).

CONCLUSION

The study concludes that participants' primary incentive is their physical health, and they participate in physical activity, primarily gymnastics, no more than once a week. Most responders have a set eating pattern but do not follow a particular diet. According to the data, the incidence of degenerative illnesses is

not greatly impacted by physical exercise alone. However, the incidence of these illnesses is significantly influenced by lifestyle, food, and information.

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