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The Relationship between Weight and Age on the Decline in Functional Activities in State Civil Apparatus at the Cirebon City Environmental Service

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ABSTRACT

The decline in functional activities is a health problem that is increasing globally, especially among workers of productive age, including the State Civil Apparatus (ASN). Internal factors such as age and weight are known to contribute to an increased risk of musculoskeletal disorders, including low back pain. This study aims to determine the relationship between weight and age to the decrease in functional activity in ASN at the Cirebon City Environmental Service. The study used a correlational analytical design with a cross sectional approach. The sample was taken by purposive sampling with a total of 51 respondents who met the inclusion criteria. Data was collected through a Google Form-based questionnaire that included biodata, Numeric Pain Rating Scale (NPRS), and Oswestry Disability Index (ODI). Data analysis was carried out using the Shapiro-Wilk normality test and the hypothesis test with parametric correlation analysis. The results showed that both age and weight were significantly related to decreased functional activity. Respondents with older age and above-normal weight have a higher prevalence of experiencing low back pain complaints in the moderate to severe category. It was concluded that the increase in age and body mass index contributed to an increased risk of decreased functional activity in ASN.

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1. INTRODUCTION

Decrease in Functional Activity According to the WHO itself As of 2022, cases of Low Back Pain, Myalgia, Parkinson's, and Osteoarthritis have increased by 40% worldwide and it is estimated that the number of cases will continue to increase along with the increase in the elderly and people with obesity. Decreased functional activity can be experienced at all ages, and everyone experiences it at least once in their lifetime.

The State Civil Apparatus (ASN) is a total of human resources who are in charge of running the wheels of government both from the lowest level of government The working duration of government agencies and the working hours of ASN employees are 37 hours and 30 minutes in one week excluding rest hours, while the working hours of government agencies and the working hours of ASN employees in one week in the month of Ramadan are 32 hours and 30 minutes, excluding rest hours with 235 effective working days (Presidential Decree No. 21, 2023).

The working duration of government agencies and the working hours of ASN employees is 37 hours and 30 minutes in one week excluding rest hours, while the working hours of government agencies and the working hours of ASN employees in one week in the month of Ramadan are 32 hours and 30 minutes, excluding rest hours with 235 effective working days (Presidential Regulation No.21, 2023).

And it is known that due to this excessive workload, the State Civil Apparatus tends to be stressed which is a factor that causes non-communicable diseases such as Diabetes Mellitus, Stroke, Hypertension, Coronary Heart as well as musculoskeletal diseases such as Carpal Tunnel Syndrome, Myalgia, and Low Back Pain.

Main Topic

Decreased functional activity refers to symptoms that can be caused by various abnormalities, including fatigue or fatigue due to work. Generally, people who experience fatigue tend to be prone to experiencing stiff and tolerant muscle conditions as a result of the individual's ability to carry out daily activities related to self-care, work, and social interaction. These daily activities including work, school, household affairs, and community will be disrupted.

The decrease in Functional Activity itself generally occurs in workers due to a fairly high workload, which is as much as 37 hours and 30 minutes in one week, excluding rest hours with 235 effective working days. From the workload above, most civil servants tend to experience fatigue both physically and mentally.

Low Back Pain, Myalgia, Parkinson's, and Osteoarthritis are the second most common diseases after influenza. There is no exact number of data on Low Back Pain sufferers in Indonesia. The government estimates the number of cases of this decline in functional activity between 7.6% and 37%. The prevalence of musculoskeletal disease in Indonesia is 11.9% who have been diagnosed, and 24.7% have symptoms. The number of people with low back pain is not well known, but it is estimated to be around 7.6% to 37%. The prevalence of joint disease based on the diagnosis of health workers in West Java Province is 8.86% and the prevalence in Bogor City is 6.82% (Riskesdas, 2018).

As for the factors that will affect functional activities such as internal factors such as genetics, gender, weight and age, then there are also external factors, namely *ADL (Activities Daily Living)* or lifestyle. And these factors ultimately affect and even accelerate cell degeneration in the body. In the case of office employees themselves being in the same working position for a long period of time, it is one of the problem factors in the body that will affect musculoskeletal which results in pain that can interfere with functional activities (Andini, 2015).

From the results of the interview that I conducted during the preliminary study, I found that many ASN of the Environmental Service experienced a decrease in functional activities from the daily information that I found as follows, the duration of work is 8 hours, sitting which tends to bend forward for a long time. As for the additional explanation from the DLH representative who explained to me that the age of the workers varies accompanied by work needs that require a lot of energy so that most employees have quite a lot of eating habits, from this it was explained that there are some employees who end up tending to have an il-ideal weight towards obesity.

Etiology

According to the WHO itself, in 2022 cases *of Low Back Pain*, *Myalgia*, *Parkinson*'s, and *Osteoarthritis* increased by 40% worldwide and it is estimated that the number of cases will continue to increase as

the elderly and people with obesity increase. Decreased functional activity can be experienced at all ages, and everyone experiences it at least once in their lifetime. The prevalence of cases of decreased functional activity itself increases with age from 50 to 80 years old, while the highest number of cases occurs at the age of 50–55 years. more common in women. The most common case is low back pain in about 65% of cases.

Decreased functional activity is often caused by stress and fatigue levels. The second biggest cause is the result of degenerative processes such as osteoarthritis and osteoporosis. Risk factors for lower back pain include excessive physical activity over a long period of time, stress and anxiety, lifting excess weights, and sitting for a long time. (Brewer, 2014)

Causative factors

Factors that affect the occurrence of a decrease in functional activities, including internal and external factors, can be seen based on the following factors:

1. Internal Factors

Internal factors are factors that come from within the body, including:

a. Age

In general, musculoskeletal complaints begin to be felt at the working age, which is 25-59 years. The number of cases of decline in functional activity is highest at the age of 40-59 years and gets higher with age (Peng, 2014)

The age at which low back pain is affected by low back pain itself will vary, but it tends to attack the elderly due to the degeneration process.

b. Gender

The prevalence of Low Back Pain is more in women than in men. Gender greatly influences the risk level of skeletal muscle complaints. This happens because physiologically, women's muscular abilities are lower than men's.(Guesteva et al., 2021)

c. Body mass index (BMI)

The latest guidelines from the WHO in 2000 categorized the body mass index for Asian adults into underweight (BMI <18.5), normal range (BMI 18.5-22.9) and overweight (BMI ≥23.0). Overweight is divided into three, namely at risk (BMI 23.0-24.9), obese 1 (BMI 25-29.9) and obese 2 (BMI ≥ 30.0).

An overweight person is 5 times more at risk of suffering from Low Back Pain compared to a person who has an ideal weight (Andini, 2015) Obesity and Risk of Low Back Pain Scale BMI (Body Mass Index) 25-29.9: The risk of low back pain increases by 1.5-2 times. BMI 30-34.9: The risk of low back pain increases by 2-3 times. BMI ≥ 35: The risk of low back pain increases by 4-5 times.

2. External Factors

External factors are factors that come from outside the human body and this will later affect the body condition of sufferers with decreased functional activities, including:

a. Working period

The length of service relates to the length of time a person has worked in a place. Related to this , workers who experience the most complaints of decreased functional activities are workers who have a working period of >10 years compared to those with a working period of < 5 years or 5-10. the longer the working time, the greater the likelihood of a person being exposed to risk (Kardi et al., 2020)

b. Physical activity Sedentary lifestyle

Physical activity is an activity that involves muscle activity over a certain period of time. Sufficient physical activity and regular exercise can help prevent a decline in functional activity. The recommended physical activity for patients with decreased functional activity is Stretching and Strengthening so that it can reduce the symptoms of Low Back Pain (Durahim et al., 2023)

c. Workload

Workload is the burden of physical, mental, and social activities received by a person that must be completed within a certain time, according to the physical ability, as well as the limitations of the

worker who receives the load. Heavy loads will cause irritation, inflammation, muscle fatigue, damage to muscles, tendons and other tissues. (Tanderi & Hendrianingtyas, 2017)

d. Job position

An unanatomical position when doing work has a negative effect on the normal body position. This is because Working with a bad position increases the amount of energy needed in work. As a result, it often causes stiffness or if left for a long time, often causes injury (Guesteva et al., 2021).

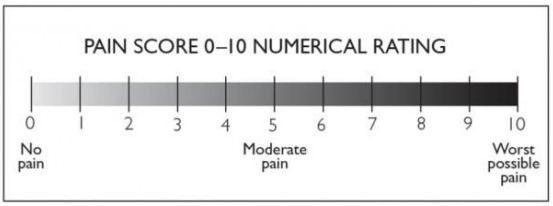
Anatomical Physiologists

Physiological anatomy consists of the spine with 7 bones, Cervical Spine, 12 Thoracal Spine, 5 Lumbar Spine, Sacrum and coccyx, spinal muscles such as the erector and rotator spinae.(Farhana, 2019)

there are also 5 abdominal muscles that are important in spinal function, namely M. rectus abdominis, M. obliqus external, M. obliqus internal, M. obliqus internal and M. transversalis abdominis (global muscle). This muscle group is a very strong trunk flexor and plays a role in flattening the lumbar curve. In addition, internal and external M. obliqus play a role in trunk rotation (Farhana, 2019).

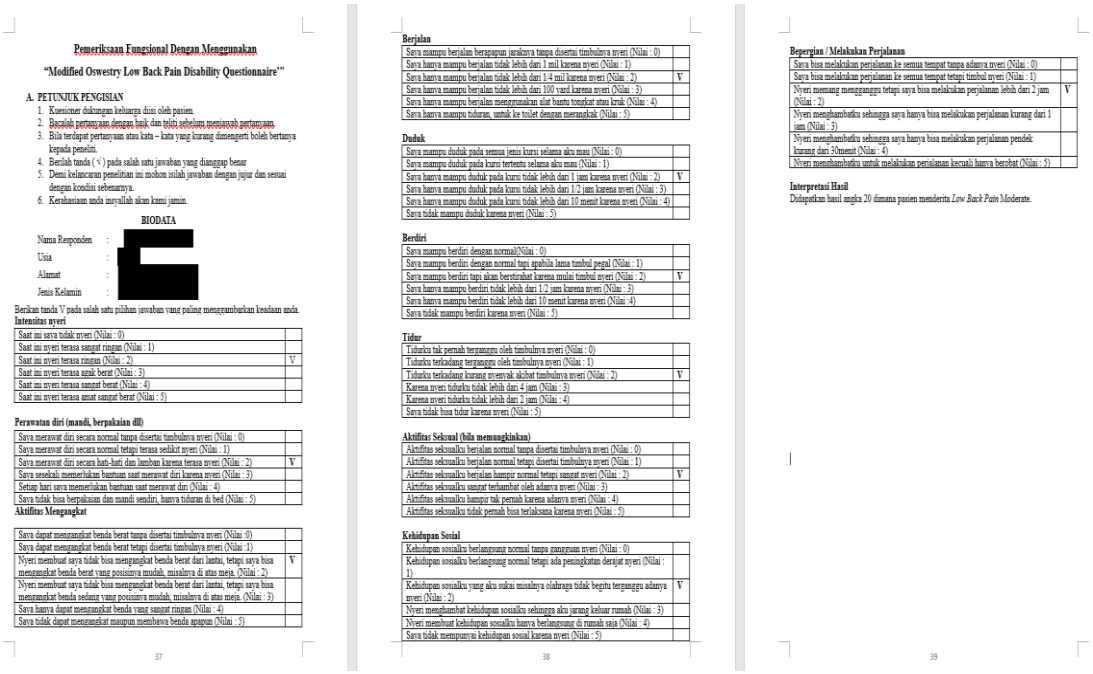
Measurement

Pain intensity is a description of how severe the pain is felt by the individual. Pain intensity measurement is highly subjective and individual. The measurement is carried out using the Numeric Pain Rating Scale (NPRS), the application of NPRS is to direct patients to measure how much pain they experience using a scale of 0-10, with a value of 0 meaning no pain, 1-3 somewhat painful, 4-6 painful and 7-10 very painful.



Numeric Pain Rating Scale (NPRS))
Source: *Physio-Pedia.com/Numeric Pain Rating Scale/*

Added to the patient's ODI, the ODI contains 10 questions designed to find out the patient's ability in daily life where each question contains a score of 0 – 5 and has a maximum value of 50. The level of disability is divided into five, namely the percentage of 0 – 20 % minimal, 20 – 40 % moderate, 40 – 60 % severe, 60 – 80 % parable, and 80 – 100% only exaggerating their symptoms (Febriana, 2015)



Pemeriksaan Fungsional Dengan Mengeunakan

"Modified Oswestry Low Back Pain Disability Questionnaire'"

A. PETUNJUK PENGISIAN

1. Kuesioner diskungan keluarga diisi oleh pasien.
2. Bacalah pertanyaan dengan baik dan teliti sebelum menjawab pertanyaan.
3. Bila terdapat pertanyaan atau kata – kata yang kurang dimengerti boleh bertanya kepada peneliti.
4. Berilah tanda (√) pada salah satu jawaban yang dianggap benar
5. Demi kelancaran penelitian ini mohon isilah jawaban dengan jujur dan sesuai dengan kondisi sebenarnya.
6. Kerahasiaan anda insyallah akan kami jamin.

BIODATA

Nama Responden :
Usia :
Alamat :
Jenis Kelamin :

Berikan tanda V pada salah satu pilihan jawaban yang paling menggambarkan keadaan anda.

Intensitas nyeri

Saat ini saya tidak nyeri (Nilai : 0)	
Saat ini nyeri terasa sangat ringan (Nilai : 1)	
Saat ini nyeri terasa ringan (Nilai : 2)	V
Saat ini nyeri terasa agak berat (Nilai : 3)	
Saat ini nyeri terasa sangat berat (Nilai : 4)	
Saat ini nyeri terasa amat sangat berat (Nilai : 5)	

Perawatan diri (mandi, berpakaian dll)

Saya merawat diri secara normal tanpa disertai timbulnya nyeri (Nilai : 0)	
Saya merawat diri secara normal tetapi terasa sedikit nyeri (Nilai : 1)	
Saya merawat diri secara hati-hati dan lambat karena terasa nyeri (Nilai : 2)	V
Saya sesekali memerlukan bantuan saat merawat diri karena nyeri (Nilai : 3)	
Setiap hari saya memerlukan bantuan saat merawat diri (Nilai : 4)	
Saya tidak bisa berpakaian dan mandi sendiri, hanya tiduran di bed (Nilai : 5)	

Aktifitas Mengangkat

Saya dapat mengangkat benda berat tanpa disertai timbulnya nyeri (Nilai :0)	
Saya dapat mengangkat benda berat tetapi disertai timbulnya nyeri (Nilai :1)	
Nyeri membuat saya tidak bisa mengangkat benda berat dari lantai, tetapi saya bisa mengangkat benda berat yang posisinya mudah, misalnya di atas meja. (Nilai : 2)	V
Nyeri membuat saya tidak bisa mengangkat benda berat dari lantai, tetapi saya bisa mengangkat benda sedang yang posisinya mudah, misalnya di atas meja. (Nilai : 3)	
Saya hanya dapat mengangkat benda yang sangat ringan (Nilai : 4)	
Saya tidak dapat mengangkat maupun membawa benda apapun (Nilai : 5)	

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Berjalan

Saya mampu berjalan berapapun jaraknya tanpa disertai timbulnya nyeri (Nilai : 0)	
Saya hanya mampu berjalan tidak lebih dari 1 mil karena nyeri (Nilai : 1)	
Saya hanya mampu berjalan tidak lebih dari 1/4 mil karena nyeri (Nilai : 2)	V
Saya hanya mampu berjalan tidak lebih dari 100 yard karena nyeri (Nilai : 3)	
Saya hanya mampu berjalan menggunakan alat bantu tongkat atau kruk (Nilai : 4)	
Saya hanya mampu tiduran, untuk ke toilet dengan merangkak (Nilai : 5)	

Duduk

Saya mampu duduk pada semua jenis kursi selama aku mau (Nilai : 0)	
Saya mampu duduk pada kursi tertentu selama aku mau (Nilai : 1)	
Saya hanya mampu duduk pada kursi tidak lebih dari 1 jam karena nyeri (Nilai : 2)	V
Saya hanya mampu duduk pada kursi tidak lebih dari 1/2 jam karena nyeri (Nilai : 3)	
Saya hanya mampu duduk pada kursi tidak lebih dari 10 menit karena nyeri (Nilai : 4)	
Saya tidak mampu duduk karena nyeri (Nilai : 5)	

Berdiri

Saya mampu berdiri dengan normal(Nilai : 0)	
Saya mampu berdiri dengan normal tapi apabila lama timbul pegal (Nilai : 1)	
Saya mampu berdiri tapi akan berstirahat karena mulai timbul nyeri (Nilai : 2)	V
Saya hanya mampu berdiri tidak lebih dari 1/2 jam karena nyeri (Nilai : 3)	
Saya hanya mampu berdiri tidak lebih dari 10 menit karena nyeri (Nilai :4)	
Saya tidak mampu berdiri karena nyeri (Nilai : 5)	

Tidur

Tiduhku tak pernah terganggu oleh timbulnya nyeri (Nilai : 0)	
Tiduhku terkadang terganggu oleh timbulnya nyeri (Nilai : 1)	
Tiduhku terkadang kurang nyenyak akibat timbulnya nyeri (Nilai : 2)	V
Karena nyeri tiduhku tidak lebih dari 4 jam (Nilai : 3)	
Karena nyeri tiduhku tidak lebih dari 2 jam (Nilai : 4)	
Saya tidak bisa tidur karena nyeri (Nilai : 5)	

Aktifitas Seksual (bila memungkinkan)

Aktifitas seksualku berjalan normal tanpa disertai timbulnya nyeri (Nilai : 0)	
Aktifitas seksualku berjalan normal tetapi disertai timbulnya nyeri (Nilai : 1)	
Aktifitas seksualku berjalan hampir normal tetapi sangat nyeri (Nilai : 2)	V
Aktifitas seksualku sangat terhambat oleh adanya nyeri (Nilai : 3)	
Aktifitas seksualku hampir tak pernah karena adanya nyeri (Nilai : 4)	
Aktifitas seksualku tidak pernah bisa terlaksana karena nyeri (Nilai : 5)	

Kehidupan Sosial

Kehidupan sosialku berlangsung normal tanpa gangguan nyeri (Nilai : 0)	
Kehidupan sosialku berlangsung normal tetapi ada peningkatan derajat nyeri (Nilai : 1)	
Kehidupan sosialku yang aku sukai misalnya olahraga tidak begitu terganggu adanya nyeri (Nilai : 2)	V
Nyeri menghambat kehidupan sosialku sehingga aku jarang keluar rumah (Nilai : 3)	
Nyeri membuat kehidupan sosialku hanya berlangsung di rumah saja (Nilai : 4)	
Saya tidak mempunyai kehidupan sosial karena nyeri (Nilai : 5)	

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Bepergian / Melakukan Perjalanan

Saya bisa melakukan perjalanan ke semua tempat tanpa adanya nyeri (Nilai : 0)	
Saya bisa melakukan perjalanan ke semua tempat tetapi timbul nyeri (Nilai : 1)	
Nyeri memang mengganggu tetapi saya bisa melakukan perjalanan lebih dari 2 jam (Nilai : 2)	V
Nyeri menghambatku sehingga saya hanya bisa melakukan perjalanan kurang dari 1 jam (Nilai : 3)	
Nyeri menghambatku sehingga saya hanya bisa melakukan perjalanan pendek kurang dari 30menit (Nilai : 4)	
Nyeri menahambatku untuk melakukan perjalanan kecuali hanya berobat (Nilai : 5)	

Interpretasi Hasil

Didapatkan hasil angka 20 dimana pasien menderita *Low Back Pain* Moderate.

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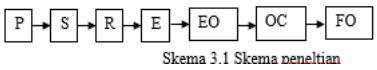
Figure 2.7 (Filling out *the DOI form)*
Source: *Researchgate.to/DOI+Form/*

2. METHOD

The type of research I conducted was Correlation Analytical Study research where I conducted Cross Sectional, Sampling in the research using non-probability sampling (consecutive sampling) or sequential samples. By providing a Questionnaire which will later be used as a tool for data collection on DLH ASN as a research subject. This study used 2 variables, namely weight and age accompanied by pain measurement using the Numeric Pain Rating Scale. Then the Quisioner will be given to DLH through a representative and filled in with the duration of data collection for 3 days calculated from the day the Quisioner is given. So that the research design can be prepared as follows:



Skema 3.1 Skema peneltian

Information:
Q : Population
Q : Sample
R : Random Sampel
E : Research with data collection
EO: data from the research results
OC: Data processing
FO: data from data processing

1) Variabel

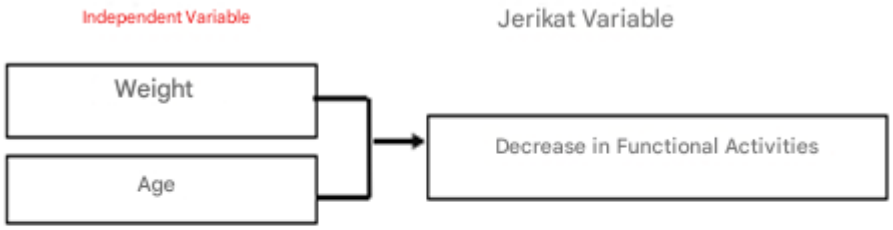
a) Independent Variables

An independent variable is a variable that affects or causes its change or the emergence of a bound variable. This variable is also commonly called an exogenous variable (Hikmah, 2020) in this study the bound variable is Decrease in Functional Activity.

b) Bound Variables

The bound variable is the variable that is influenced or that is the result, because of the existence of an independent variable (Hikmah, 2020) here my independent variables are Weight and Age of the sample.

2) Relationships between variables



Scheme 3.2 Research Variables

3) Population and Sample

a) Populasi

The population in this study is 350 total population, the affordable population in this study is 24 State Civil Apparatus (ASN) people who work at the Cirebon City Environmental Service (DLH) both Structural and Functional Employees after being selected according to the criteria.

b) Sample

The sample technique in this study is purposive sampling, this technique is used by considering certain characteristics or characteristics with respondents that can be included in the study in accordance with the inclusion criteria.

1. Inclusion Criteria

- ASN Employees of the Environmental Service Both Structural and Functional
- Willing to be a respondent in the research by filling out the informed consent to the Quisioner.
- Willing to fill out the questionnaire to the end and be honest.
- Experiencing a decrease in functional activity.

2. Exclusion Criteria

- Respondents did not want or had time to fill out the questionnaire.

3. Kriteria Drop Out

- Respondents did not want or had time to fill out the questionnaire.
- The respondent did not fill out the Questionnaire until it was completed.
- Respondents whose data is incomplete on the Quisioner.

4. Research Ethics

The relationship between the researcher and the research subject can be compared to the relationship between the party seeking or needing the information and the party contributing to provide the information. As a party who needs information, researchers should be humble and respect the contributions or information provided by the research subjects or respondents. This will be described in the research ethics as follows:

a) Informed Consent

Informed Consent is a consent document that is required before carrying out any action against the research subject. The researcher is required to explain in detail to the research subjects the procedure of the action, the type of action to be taken, the potential risks that may arise, and the benefits that can be obtained from the action. Actions can only be carried out after the research subject agrees by signing an Informed Consent document.

b) Anonymity (Identity Withheld)

Anonymity is an act where the researcher will hide the real identity of the research subject, this aims to maintain the confidentiality of the data, respect and also respect the rights of the subject in the ethics of the research. The writing of the identity of the informant or respondent is replaced by writing the initials of the name or being given a number code.

c) Confidentiality

Confidentiality or confidentiality of research results is the commitment of the researcher to ensure that the data of the research subject will be kept confidential. The researcher is committed to processing and will not disclose such data solely for research purposes and will not disclose or use such data for any other purpose.

d) Safety

Safety is a guarantee of the safety of the sample by providing information about various potential problems or problems that may occur in the sample.

4) Data Collection Tools and Methods

a) Data collection tools

Tools and materials used in data collection :

- Inform Consent
- Quisioner in the form of Gform
- Form Numeric Pain Rating Scale & Oswestry Disability Index

b) Data Processing

This data processing has four activities that need to be carried out, namely editing, coding, data entry, and tabulation.

c) Editing

Editing is the activity of checking and editing data obtained during research. The purpose of this activity is to ensure that the collected data is complete and ready to be entered into a computer program and processed.

d) Coding

After all the data is collected, coding is carried out, which is the change of data in the form of letters or sentences into numerical data

e) Entry Data

Entering data using SPSS so that the data continues neatly by creating data tables according to the research objectives.

f) Tabulasi

Create data tables according to the research objectives or desired research.

g) Data Analysis

The results of the research were processed using the SPSS Computer Program. The researcher used several statistical tests in analyzing the data, including;

1. Descriptive statistical test to analyse age, sex and BMI
2. The data normality test with the Shapiro Wilk test aims to determine the distribution of data in each group. Used a with a value of P0.05 to see the position of its probability value (P). If the value is P>0.05, then the data is normally distributed. If the data is abnormally distributed, it is done using Kolmogrov Smirnnov
3. Parametric statistical test using correlation analysis test

h) Uji Hypothesis

The normal distribution is included in the parametric statistics and is followed by using the Shapiro Wilk test. If the value is P>0.05 then the normal distribution is included in the parametric statistic. The test will be carried out to compare between two data variables that are interrelated or not.

1. Uji Hypothesis I

That is, there is a relationship between weight and age on a decrease in functional activity. Using the Shapiro Wilk test. Ho: there is an influence of weight and age on the decline of functional activity, Ha; There was no effect of weight and age on decreased functional activity. A significant value of 0.05 is that the P value is greater than 0.05 (P>0.05), then Ho is accepted and Ha is rejected.

a) Research Plan

1. Conducting preliminary studies in two government institutions, namely the Environment Agency and the Cirebon Sitopeng Health Center.
2. Submit a preliminary study letter from Aisyiyah University Yoyakarta to apply for a research site permit.
3. Prepare research proposals with lecturer supervisors.
4. Conducting proposal seminars.
5. Carry out research in the form of respondents Filling out the questionnaire that has been created by the author for data collection.
6. After the data is collected, data processing is carried out through several stages, namely checking completeness, data uniformity (editing), providing marks (coding) on each data to make it easier to re-recognize the record and facilitate analysis, moving the existing ones to the table (tabulation). Then a data analysis test was carried out.
7. Carry out results seminars.

Research Process

This research was carried out at the Cirebon City Environment Agency which is located at Jl. Ampera II No.10, Gunung Sari, Pekiringan, Kesambi District, Cirebon City, West Java. With the number of State Civil Apparatus around 350 employees in the office and employees of the recycling center. In their daily lives, environmental service employees have dense activities such as office employees who conduct meetings, data processing, and supervision in the field. Then the employees of the recycling center who every day have to transport recycled waste and reprocess the waste, both separating and destroying the waste. So that the energy needed by employees of the Cirebon City Environmental Agency tends to be large. As a result, food consumption in employees has a lot of impact, there are several employees who are obese.

The implementation of the research will begin on April 14, 2025. In the form of providing a Google Form page containing Inform Consent, Patient Biodata and ODI Form. which is filled by employees of the Environment Agency as a response. With a data filling duration of 1 day. Data are presented in the form of the results of the Respondent's descriptive statistical test, the normality test with a parametric statistical test for the hypothesis test.

Hipotesis

That is, there is a relationship between weight and age on Decline in Functional Activity. Using the Chi square test. Ho: there is an influence of weight and age on low back pain, Ha; there is no effect of weight and age on Low Back Pain. A significant value of 0.05 is that the P value is greater than 0.05 (P>0.05), then Ho is accepted and Ha is rejected.

3. RESULTS AND DISCUSSION

1) Descriptive Statistical Test

The data presented in the descriptive statistical test is data from the Google form filled in by the respondents, in the form of respondents' characteristics in the form of gender, age, and age. As well as the results of ODIs.

a) Respondent Characteristics

The characteristics of the respondents in this study include gender, age, and weight. From these characteristics, several characteristics of the research respondents can be described as follows:

1. Distribution of respondents by gender

The distribution of respondents by gender was 51 people with the number of dominant subjects in male subjects compared to female subjects. The frequency of male subjects was 37 people or with a percentage of 72.5% and the frequency of female subjects was 14 people or with a percentage of 27.5%.

2. Distribution of respondents by age

The distribution of respondents based on the age of the respondents with the most age of 20-29 amounted to 18 people or 35.29% with 9 males and 9 females, followed by the age of 50-59 amounting to 12 people or 23.53% with 10 males and 2 females, ages 40-49 amounting to 11 people or 21.57% with 10 males and 1 female and respondents with the minimum age of 30-39 amounting to 10 people or 19.61% with 8 males and 2 women.

It was concluded that male subjects were dominant in the age categories of 20-29, 40-49, and 50-59 with a total of 29 people out of a total of 37 male subjects. Meanwhile, the dominant female subject is in the age category of 20-29 with a total of 9 people out of a total of 14 female subjects.

3. Distribution of respondents based on BMI results

The distribution of respondents based on the BMI category is with the highest number, namely the Normal Range of 14 people or 27.46% with 12 males and 2 females, then Obese 1 amounted to 13 people or 25.49% with 9 males and 4 females, Underweight amounted to 10 people or 19.6% with 5 males and 5 females, Obese 2 amounted to 7 people or 13.72 with 5 males and 2 females, At Risk amounted to 4 people or 7.84% with 4 men, and with the least number in the Overweight category amounted to 3 people or 5.89% with 2 men and 1 woman.

It was concluded that the dominant male subjects were in the Normal Range category with a total of 12 people, followed by Obese 1 with a total of 9 people out of a total of 37 male subjects. In the dominant female subject with Underweight, namely 5 people, followed by the Obese 1 category with 4 people out of a total of 14 female subjects.

2) Normality Test

The normality test uses the Shapiro-Wilk test if the value is $P>0.05$, then the data shows that it is normally distributed. If $P<0.05$ is abnormally distributed, the Kolmogrov Smirnnov test is carried out, if $P<0.05$, then the data is considered abnormally distributed. If the results of the two data normality tests are found to be abnormal, the data will be considered nonparametric statistical data.

a) Based on Age Variables

The test of normality of age variables was found that the Age 20-29 and 50-59 categories had a value of $P<0.001$ and $P=0.014$, then a value of $P<0.05$ so that the data was distributed abnormally. While the Age categories of 30-39 and 40-49 have values of $P=0.198$ and $P=0.251$, then the value of $P>0.05$ so that the data is normally distributed, It is concluded that the variable data of Age is normally distributed, where age can affect the occurrence of a decrease in functional activity in an individual.

b) Based on BMI Value Variables

Based on Table 4.15 Test of normality variable, the value was found that the Underweight and Normal Range categories had values of $P = 0.026$ and $P = 0.013$, then the value of $P<0.05$ so that it was considered abnormal distributed data. While the Overweight, At Risk, Obese 1 and Obese 2 categories have a P value of $P=0.220$, $P=0.940$, $P=0.436$ and $P=0.292$, then the $P>0.05$ value so that the data is considered to be normally distributed.

In the At Risk category, males have a P=0.940 value, then in the obese category 1 male with a P=0.330 value and female P=0.797, and in the obese category 2 males with a value of P=0.129. Therefore, it is concluded that the data of the BMI value variable is normally distributed, where weight has a significant effect on the decrease in functional activity.

3) Uji hypothesis

Based on the data, it is concluded that the data is distributed Normal and is considered parametric statistics. So the hypothesis tested with the Shapiro Wilk test proves the correlation between variables.

Based on the data, it can be seen that at a certain age and weight, P> 0.05 means that there is a relationship between Age and BMI Score to back pain complaints where the older a person is and the heavier the weight of the person, the more prone to back pain complaints.

From the data obtained from the age category 20-29 to the age category 50-59, it was found that most of the respondents had experienced low back pain, and most were experiencing complaints of low back pain in the *moderate* or moderate category, but there were also some respondents who were indicated to have mild low back pain. Plus the disorders experienced vary and not only those aged 50-59, there are also some who are found to have complaints due to low back pain In line with the research of Kardi *et al*., (2020).

Also on the other hand, there are several respondents aged 50-59 years who are not experiencing low back pain disorders. From the data above, and the results of data processing, a Sig> value of 0.05 was obtained, which is the mean of the Sig value of 0.115, meaning that there is a significant relationship between age and back pain complaints In line with the research of Kardi *et al*., (2020).

		Shapiro-Wilk		
	Age	Statistic	Df	Sig.
ODI Results	Age 20-29	,756	18	<.001
	Age 30-39	,896	10	,198
	Age 40-49	,911	11	,251
	Age 50-59	,816	12	.014

a. Lilliefors Significance Correction

Based on the results of the research in the form of filling out questionnaires carried out, there are several categories of respondent weight. That is the normal range with 14 people or 27.46%, then obese 1 13 people or 25.49%, underweight 10 people or 19.6%, obese 2 7 people or 13.72, at risk 4 people or 7.84% and overweight 3 people or 5.89%. It can be seen from the grouping above, it can be concluded that in the research place, precisely the Environment Agency tends to have the characteristics of employees with overweight weight. In line with Hasriana's research, 2025.

It is proven that many employees experience low back pain. And it was found that cases where those who had a weight above the normal *range category* experienced more symptoms of low back pain. And it was found from the results of the hypothesis test that the Sig value > 0.05, namely the mean Sig. value of 0.321, meaning that there is a significant relationship between the BMI value and back pain complaints In line with the research (Hasriana, 2025).

		Shapiro-Wilk		
	Nilai IMT	Statistic	Df	Sig.
Hasil ODI	Underweight	.820	10	.026
	Normal range	.832	14	.013
	Overweight	.842	3	.220
	At risk	.987	4	.940
	Obese 1	.938	13	.436
	Obese 2	.893	7	.292

a. Lilliefors Significance Correction

4. CONCLUSION

Based on the results of a study on the relationship between weight and age and the incidence of low back pain at the Cirebon City Environmental Service, it can be concluded that both age and weight have a significant influence on the decrease in a person's functional activity. These findings suggest that age and weight factors contribute significantly to an individual's quality of life, particularly in the context of daily functional ability. Therefore, it is recommended that the agency where the research is conducted routinely carry out medical check-ups as a preventive measure, in order to increase the awareness of employees on the importance of maintaining body health. In addition, the next researcher is expected to be able to implement the results of this study in daily life as a tangible form of efforts to maintain health and prevent musculoskeletal disorders in the future.

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