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Correlation of Individual Stress Levels with Intensity Changes in Knee Pain in Sports Injury

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***Abstract*— The knee is part of the main system of motion in humans and body support, if the knee that has an injury that is not handled properly will cause various problems, one of which is pain in the knee and surrounding tissue. Data at the massage clinic site explained that in one year there were 481 sports injury sufferers who had knee injuries, if the percentage of knee injuries in one year was 31.93% and the knee was the highest risk of injury. This study aims to determine the relationship of stress levels with changes in pain intensity in someone who has an injury due to exercise in the knee joint. The method used in this study was observational analytic. With a retrospective cohort design. The research sample was purposive sampling obtained 28 injured patients with criteria of injury level I and II and with regard to the age of someone injured. data collection uses two scales, namely watershed (depretion, anxiety and stress, and VAS scale. The results showed that the majority of respondents who suffered knee injuries were respondents who had chronic category injuries AND who were stressed were in the high and medium category. So this study found evidence that the duration of illness was related to knee pain in sports injuries. The conclusion of this study is that there is a significant relationship between stress and the intensity of pain in knee injuries due to sports activities.**

Keywords—stress, knee injury

I. INTRODUCTION

Pain in the knee due to sports injury is defined as pain that is felt in the knee as a whole or in part due to sports activities based on the level of injury that occurs such as tears or ligaments or the breakdown of ligaments. Injuries that occur are very diverse at the location of the human body, namely ankle, knee, pelvic, waist, elbow, shoulder and neck injuries. Complaints of injuries due to many daily activities experienced by all people, such as injuries experienced by patients in the MCO Ngijo Semarang clinic based on the most common injuries namely knee injuries percentage between 18.48 -19.60% for 2018, knee injury with. The knee is a joint to do various types of movement, and as a support for the body so that this joint is a joint that is not stable. Because this is often the shoulder injury.

Risk factors for knee injury equipment and place used, physical conditions that have decreased, direct physical contact, and so forth. As Dunkin (2004: 2) explains that injuries that occur during exercise are caused by several things, including: (1) accidents, (2) poor practice, (3) poor equipment, (4) lack of preparation physical conditions, and (5) inadequate heating and stretching. These injuries will be very disturbing and detrimental to sportsmen and athletes in terms of physical and mental health that results in stress.

Stress is defined as a physical or psychological event that is perceived as a potential threat to physical or emotional health. Stress and tension that arise, can come from various things, for example starting from family conflict, stress or pressure in the workplace or maybe reality that is not as expected. Therefore, if the treatment of the injury does not immediately recover and does not heal in the patient's cdera knee and becomes chronic, then it could be the emotional pressure that causes it.

This study uses a measuring instrument DASS (Depressant, Anxiety, Stress) Scale Measurement Dass (Depression Anxiety Stress Scale) is a standardized test instrument that does not need to be tested for validity anymore. DASS consists of 42 items that describe stress levels and anxiety [1].

DASS is a set of three self-report scales designed to measure negative emotional states of depression, anxiety and stress. The DASS is built not only as a set of scales to measure conventionally defined emotional states, but to advance the process of defining, understanding, and measuring emotionally ubiquitous and clinically significant states usually described as depression, anxiety and stress [2].

II. MATERIAL AND METHODS

This study was an observational analytic study with a retrospective cohort design with samples of cdera knee patients at the MCO clinic in Sports Injury management in Semarang. The inclusion criteria of this study were patients suffering from knee injuries due to sports activities, willing to be respondents, ceders patients of level I and II and allowed to receive massage treatment and those treated in MCO Ngijo Sports Injury management Semarang, patients with quality

pain: stiffness, kemeng, pain and not pain due to the breakdown of the ligament.

Samples are grouped with purposive sampling, namely choosing subjects according to the research criteria. Based on the sample formula, a minimum sample of 28 is needed. The independent variable of this study is stress. While the dependent variable is the change in the intensity of NPB. Data analysis using chi square and logistic regression test

III. RESULTS AND DISCUSSION

Characteristics of research subjects. This study was conducted on 28 knee injury sufferers in the Ngijo Semarang Sports Injury Management clinic that met the study criteria.

TABLE I. CHARACTERISTIC OF RESPONDENT

Characteristics	Frequency	%
Age		
20-25	4	14,28
26-30	5	17,85
31-35	19	67,85
Pria	28	100
Causes of injury		
Dislocation	5	17,85
Fall	18	64,28
Body contact	5	17,85
Kinds of injuries		
Acut	-	0
Sub acut	-	0
Crhonic	28	100
Stress category		
Low	4	14,28
Medium	15	53,57
High	9	32,14

Relationship between duration of injury and level of pain in knee injury. Based on the table above, most of the respondents who suffered knee injuries were more affected by respondents who had chronic category diseases. The results of statistical tests obtained a significance value of 0.451 which means there is no relationship between the duration of illness and pain in a knee injury.

The relationship between stress and injury with the level of pain in a knee injury. Based on the table above, most of the respondents who suffered knee injuries were more affected by respondents who were stressed in the high and medium categories. The statistical results obtained a significance value of 0.004 which means that there is a relationship between stress and knee injury due to exercise with the longer suffering from a knee injury, the more stressful because it cannot do sports activities

Based on the table above, it was found that the variable that had the strongest influence on changes in pain intensity in sports injuries to the knee was stress. So stress is the most powerful factor in increasing the intensity of pain in the knee pad. The second factor is age, then a factor that causes sports injuries

The results showed that the majority of respondents who suffered NPB were more than 31-35 years old. The aging process in the intervertebral disc, causes fluid levels and disc elasticity to decrease. As a result of this aging process, an individual becomes susceptible to suffering from a knee injury, especially an activity that demands a very agile, fast and strong movement.

The results showed that the majority of respondents who suffered from knee pain were sports activities that relied on speed, agility and power. The results showed that the majority of respondents who suffered from knee pain suffered more than those who had fallen ill. The results of the statistical test obtained a significance value of 0.308 which means there is no relationship between the history of the disease. This may be due to deformity, muscle spasm or the appearance of conditions that irritate sensitive parts of the pain resulting in pain.

The results showed that the majority of respondents who suffered knee injuries were respondents who had chronic category injuries. The statistical test results obtained a significance value of 0.451 So this study found evidence that the duration of illness was not related to knee pain in sports injuries.

In this study it was found that the majority of respondents who suffered knee injuries by respondents who were stressed were in the high and medium category. The results of the statistical test obtained a significance value of 0.004 which means that there is a relationship between stress and pain in a knee injury. The higher the stress, the higher the knee pain So stress decreases, the pain of the knee injury decreases too.

Patients with depression and chronic pain show dysfunction of the hypothalamic-pituitary adrenal axis (HPA-axis), where there is an increase in plasma cytokines, expression of disturbed brain-derived neurotrophic factor (BDNF), and opioid signals. The monoaminergic system plays a role through both serotonin and norepinephrine neurotransmitters, in dealing with complaints of pain and depression.

IV. CONCLUSION AND SUGGESTIONS

There is a decrease in stress levels and pain intensity due to sports injuries to the knee in injured patients after being treated with massage. There is a significant relationship between age, gender, duration of illness and stress with the intensity of pain in a knee injury.

Based on this research, it is necessary to conduct further research by analyzing other variables such as administration of

drugs in the treatment and reduction of pain in patients with sports injuries to the knee

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