EFFECT OF FLEXIBILITY, FAT THICKNESS AND ANXIETY LEVEL ON BOWLING ABILITY OF CRICKET ATHLETES DKI JAKARTA

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ABSTRACT

The purpose of this study is to find out the direct influence between flexibility, anxiety level, fat thickness on bowling ability in dkijakarta cricket athletes. The research method used in this study is a type of quantitative research. Analysis techniques using path analysis approach. The total population of this study is 40 ATHLETES PCI (Indonesian Cricket Association) Pengprov DKI Jakarta, sampling techniques by means of total sampling. The total sample in this study was 40 athletes who participated in regional and national championships.

Keywords: Flexibility, Fat Thickness, Anxiety Level, Bowling Cricket Ability

I. INTRODUCTION

Development in various segments of the field is being actively carried out by the government and society today that aims to realize the ideals of the Indonesian independence movement. One of these ideals is to realize a just and prosperous society. To realize these ideals, must be supported by potential and qualified human resources as development actors.

Sports is one of the efforts in improving the quality of human resources, so that the government makes sports as a means of national development. This can be seen in article 25 paragraph 4 of Law No. 3 of 2005 concerning the National Sports System that national sports aims to maintain and improve health, fitness, achievement, human quality, instill moral values and noble morals, sportsmanship, discipline, strengthen and foster national unity and unity, strengthen national resilience, as far as lifting, dignity, dignity, and honor of the nation.

Qualified human beings are human beings who have a high level of physical health and freshness, both physical and psychic. Therefore, the growth and development between physical and psychic must be in line. Because a person who has growth and development between physical and psychic in line then the person has a level of thinking and good physical health and freshness, for that one of them is by exercising.

In addition, the need to improve the efforts of sportsmen nurseries, coaching coaches, the provision of sports facilities and infrastructure, the development of a good sports system, so that what has been outlined can be realized. To achieve this goal, concrete steps need to be taken against the pattern of sports coaching in the country. Sports coaching is conducted in an integrated manner, involving various related disciplines such as: anatomy, physiology, psychology, biomechanics, nutrition science and others. By involving various fields of science that are needed, the efforts of the exercises are expected to improve even better achievements.

The needs of physical and psychological elements in each sport vary. This is directly related to the characteristics or needs of the sport itself. In coaching achievements to reach the golden age (golden age) or peak achievements that will be achieved athletes who are a concern for coaches and coaches of sports to be carried out properly.

Sports achievements that develop in Indonesia, one of which is the sport of cricket that is expected to be able to scent the name of the nation and country in international events. Therefore, in improving and achieving better
achievements is certainly not an easy thing, it takes a very high struggle and sacrifice in training and competing on the battlefield. This can certainly be achieved if a cricketer has the knowledge and mastery of good and correct cricket skills.

Cricket is now a dynamic sport and takes years of training, and it takes observant eyes, an open mind and a healthy body in the sport. Therefore, in mastering cricket skills must practice regularly and repeatedly so that it will obtain good automatization movements and make it easier for players to master cricket techniques during training and in matches. Because peak performance in sports coaching requires a process of preparation that is planned gradually, directed, systematic, and sustainable. In addition, batting skills in the sport of cricket are also determined by the facilities and infrastructure available, whether adequate or not. The most basic thing is how the condition of the field is owned, next is the infrastructure needed such as bats, helmets head protectors, training suits, dry bone protectors, cricket balls and other tools. With minimal facilities and infrastructure, it will hinder the training process so that the objectives of the exercise are not achieved optimally.

Biomotor factors also play a very important role in determining the mastery of techniques and tactics such as basic biomotor abilities and physical elements, namely endurance, arm muscle strength, eye-hand coordination, reaction speed, accuracy, aerobic and anaerobic endurance, for example when batting or hitting the ball as far as it is and running towards the milestone back to the base to create a point.

Flexibility is a biomotor ability that is one aspect of ability that is indispensable, in the sport of cricket the power of hitting the ball strongly so that the ball flies far and makes it difficult for the opponent to catch it is a direct movement performed by a cricketer when batting the ball precisely and strongly to get points or scores.

Eye-hand coordination also takes a role in cricket technique skills, eye-hand coordination is the result of merging reactions of eye speed and is followed by precise and strong hand-blow movements so that the ball thrown tightly can be hit well and strong. So eye-hand coordination is a coordinated movement with the speed of reaction between the eyes with the hands so that the right movement of the punches in accordance with the direction of the cricket bat wishes. With good and good eye-hand coordination, it will make it easier for players to do batting / fast batting and get energy that has the strength (strength of arm muscles) that is perfect in performing attacks and speed (speed) is good at the time of batting.

The batting technique skills of cricket athletes in good play are influenced by many factors, one of which is biomotor components such as strength (explosive strength) of arm muscles, speed, endurance, coordination of eye-hand coordination, accuracy (accuracy), as well as kinesthetic perception of an athlete and elements of nutritional health status, fat thickness and psychological levels of anxiety and motivation, as well as the case with cricket athletes DKI Jakarta.

Based on observations made by researchers and interviews with coaches on several jakarta cricket athletes, basic technical skills in playing cricket are relatively low and far from expected. This can be seen by the lack of achievements that have been achieved by the DKI Jakarta cricket team at the National Sports Week or other national championships. This is allegedly because when doing batting players do not hit the right target on the batting, Flexibility when doing less punches or batting, so that the ball does not fly far and easy to catch by opponents who keep on the field, and less perfectly coordinate eye-hand when batting so that the ball is not precisely hit. In addition, the influence of fat thickness also affects in doing bowling skills in the game of sports cricket. According to santososo (2017) in the results of his research the less fat a person, the lighter a person's body in making movements. Therefore, the thickness of fat is very influential in doing batting movements, the less fat thickness of a cricket athlete, the easier it will be to improve bowling skills in this sport of cricket.

Furthermore, the influence of psychiatry or anxiety level is also needed in bowling skills in the game of cricket in a high quality of technique. Aspects of mastery of techniques are very closely related to a person's feelings in controlling the nervous system. The more one can control oneself, the more anxiety level an athlete will have in bowling skills in a game of sports cricket.

II. THEORETICAL STUDIES

Skill bowling skills on the game of cricket. Richard A. Magill (2011) explained that what is meant by skill is the act or execution of a task consisting of a number of motor responses and perceptions obtained through learning. Furthermore Bompa (2009), suggests that: The learning of new skill set has been suggested to be part process, which may not always be broken into discrete partes because the steps are often blended, during the first part of
learning a new skill, the athlete should receive a detailed explanation of the skill and observe the skill being performed.

The point is that in essence the learning of athlete skills can be mastered well if a process is organized and programmed for a long time then the skills possessed by athletes will peak.

According to an article written by (Hastie, Valentini, Rudisill, & Chiviacowsky, 2018) says:

The objective of this study was to examine the relationship between children's ability to verbally recall specific skill cues and their motor skill performance. Results: the logistic regression showed that motor performance was positively and significantly related to verbal recall for running, gallop, hop, leap, jump, slide, catch, throw, and rolling skills.

So the point is that one's skill indicates that motion performance is positively and significantly related to verbal memory for running, running, jumping, sliding, catching, throwing, and rolling skills. It can also be interpreted that motion skills are focusing on the correctness of the motion performed, while the skill of motion is the result of the accuracy of the movement that focuses on the results achieved. It is further explained that skilled people are able to perform movement tasks efficiently and effectively. It is said to be efficient when the implementation of the movement does not expend much energy without wasting energy that should not be expended. While it is said to be effective if the implementation of the movement in accordance with what is desired or in accordance with its purpose.

Harsono (2015) stated that although a person ultimately has one particular skill specialty, at the beginning of learning he should be involved first in various aspects of activities so that he has more solid foundations to support his specialization skills in the future. Therefore we need to encourage young athletes to develop the movement skills and motion skills necessary to successfully cut down the sport they choose.

According to an article written by Miryam Barad (2013) said Flexibility of the human body refers to the range of movement in a joint or series of joints. Quality of life is enhanced by improving and maintaining a good range of motion in the joints. Loss of flexibility can be a predisposing factor for physical issues such as pain syndromes or balance disorders. Many factors are taken into account when establishing the flexibility of a particular human body: joint structure, ligaments, tendons, muscles, skin, tissue injury, fat tissue, body temperature, age and gender, all influence an individual's range of movements.

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Flexibility is the breadth of motion with which power can be raised. The main factors are joint shape, muscle elasticity, and ligaments, the purpose of stretching exercises is to maximize muscle elasticity, such as straightening ability. Flexibility exercises will succeed by stretching the connective tissue of the muscles, the muscle fibers are tied together by several layers of connective tissue. This connective tissue is elastic and its level of elasticity determines the overall muscle range power. Muscles that are rarely stretched tend to shorten and become tight. Because the connecting network gradually loses elasticity.

The process in the human body consists of moving to build and grow, to fulfill that process the human body needs energy. The process of energy income for humans is obtained from the foodstuffs they consume. According to Herisenjaya (2007) If the body lacks fuel or energy, then the fat reserves obtained from excess hydrate charcoal that is burned will produce energy. Fat is one of the main sources of energy and energy, in addition fat and oil are also effective sources of energy compared to carbohydrates and proteins. One gram of fat can produce 9 kcal/gram while carbohydrates and proteins produce only 4 kcal/gram (Winarno, 2004).

According to Ahmad Djaeni (2009) Fat is an organic bond consisting of elements Carbon (C), Hydrogen (H) and Oxygen (O), this fat is divided into two namely visible fat (visible fat) and invisible fat (invisible fat), fat is seen is a fat tissue consisting of fat cells while invisible fat cells are tucked between muscle tissue cells.
The level of anxiety is a person's concern for everything he has and the worry makes him feel unable to achieve various goals in his life. According to Britton W. Brewer (2009) anxiety levels are: "the belief that one has the internal resources, particularly abilities, to achieve success. Self-confidence is rooted in beliefs and expectations, and although there are multiple definitions of self-confidence, they all refer to individuals' beliefs about their abilities and/or their expectations about achieving success based on these abilities. The level of anxiety stemming from anxiety can be inferred that the level of anxiety is an individual's concern about their abilities and or the expectation to achieve success based on ability on oneself.

Whereas according to Saranson in Komarudin (2015) confidence is a feeling that contains the strength, ability and skill to do and produce something based on worry and success. And it can be concluded that confidence contains one's concerns related to strength, self-ability to perform and achieve success and be responsible for what has been set by him.

According to Keith F. Bell (2011) confidence confidence evokes positive emotions, pleasure, enthusiasm, and joy that accompany confidence in performing a performance will motivate athletes to perform actions that are free, strong, fast and flowing. Then the athlete will feel more calm and relaxed when facing any situation.

III. RESEARCH METHODS

This research was conducted at the Cricket Field of the Faculty of Sports Sciences, State University of Jakarta, Rawamangung Street, East Jakarta. The implementation time of the research is divided into two stages, namely: the first stage of proposal submission with in February 2021. The second phase of research data retrieval was conducted in May 2021, the collected data was then carried out data processing, until the withdrawal of conclusions and the completion of the research as a whole. The research method used in this research is quantitative approach, survey method with test and measurement techniques. While the analysis technique uses a path analysis approach that is research that will examine or that will analyze the interrelationship between research variables by measuring the direct influence between endogenous variables (bound variables) is Y with exogenous variables (free) are X1, X2, and X3. This study involved four free variables (exogenous) and one bound variable (endogenous), exogenous variables consisting of: Flexibility, Fat thickness and Anxiety level.

IV. RESULTS AND DISCUSSION

The overall test is indicated by Table Anova\textsuperscript{b} Statistical hypotheses are formulated as follows:

\textbf{Ha:} \( p_{xy1} = p_{xy2} = p_{xy3} = p_{xy4} \neq 0 \)

\textbf{Ho:} \( p_{xy1} = p_{xy2} = p_{xy3} = p_{xy4} = 0 \)

Sentence form hypothesis:

\textbf{Ha:} Arm muscle strength, Eye-Hand Coordination, Fat Thickness and Confidence contract simultaneously against Batting Skills in Cricket.

\textbf{Ho:} Arm muscle strength, Eye-Hand Coordination, Fat Thickness and Confidence have no simultaneous effect on Batting Skills in Cricket.

Signifikans test rules using SPSS Program version 23.0 are indicated by Model Summary\textsuperscript{b} From the table model summary\textsuperscript{b} obtained \( R^{2} = 0.965 \) and in the table anova obtained a value of F of 212,722 with a probability value (sig) = 0.000 because the value of sig < 0.05, then the decision is Ho rejected and Ha accepted. In other words, arm muscle strength, eye-hand coordination, fat thickness and confidence contract simultaneously against batting skills in Cricket. Since Ha is accepted and Ho is rejected, individual variable testing can be performed.

1. Individual testing \([X_1 \text{ against } Y], [X_2 \text{ against } Y], [X_3 \text{ against } Y] \text{ and } [X_4 \text{ against } Y]\) Model-1

\textbf{a. Hypothesis 1: Flexibility(X_1) directly affects bowling skills in Cricket(Y)}

In answering hypothesis 1 is to look at the Model Summary table on testing with Spss version 23. The test results of the influence between variable \( X_1 \) to \( Y \) individually can be seen in the table below:
From the spss test results in the table above can be seen that the result of the influence of variable X on variable Y with R² = 0.818 means the individual influence between X and Y is 0.818 x 100 = 81.80% individual test influence. Furthermore, the testing of significance is individually indicated by the Anova, that the result of the coefficient of path β₁₁ = 0.000. To see the results of the coefficient of significance of the decision can be seen in the following table:

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R Square Change</td>
</tr>
<tr>
<td>1</td>
<td>.905</td>
<td>.818</td>
<td>.813</td>
<td>.818</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Flexibility

b. Dependent Variable: Bowling Cricket Ability

The research hypothesis to be tested is formulated in the form of statistical hypothesis as follows:

Ha: β₁ > 0
Ho: β₁ = 0

Sentence form hypothesis

Ha: Flexibility affects bowling skills in Cricket
Ho: Flexibility has no effect on bowling ability in Cricket.

From the table Coefficients bowling ability above which is tested individually between variable Flexibility against bowling ability in Cricket, obtained sig value 0.000. It turns out to be a sig value. 0.000 is less than the probability value of 0.05 or the value 0.05 > 0.000, then Ha is accepted and Ho is rejected meaning that the path analysis coefficient is significant.

It can be stated that, Flexibility affects the bowling ability in Cricket.

b. Hypothesis 2: Fat thickness (X₂) affects bowling ability in Cricket (Y)

In answering the 2nd hypothesis is to look at the Model Summary table on testing with Spss version 23. The test results of the influence between variable X₂ to Y individually can be seen in the table below:

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Change Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R Square Change</td>
</tr>
<tr>
<td>1</td>
<td>.961</td>
<td>.923</td>
<td>.921</td>
<td>.923</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Fat thickness

b. Dependent Variable: Cricket bowling ability

From the spss test results in the table above can be seen that the result of the influence of variable X₂ on variable Y with R² = 0.923 means the individual influence between X₂ and Y is 0.923 x 100 = 92.30% individual testing influence. Furthermore, the testing of significance is individually indicated by the Coefficients table, that the result of the coefficient of path β₂₁ = 0.000. To see the coefficient results of the significance of the decision can be seen in the following table:
ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>3045,966</td>
<td>1</td>
<td>3045,966</td>
<td>407,073</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>254,408</td>
<td>34</td>
<td>7,483</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3300,374</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Cricket bowling ability  
b. Predictors: (Constant), Fat Thickness

The research hypothesis to be tested is formulated in the form of statistical hypothesis as follows:

Ha: \( p_{x2} > 0 \)

Ho: \( p_{x2} = 0 \)

Sentence form hypothesis:

Ha: Fat thickness affects bowling ability in Cricket.

Ho: Fat thickness has no effect on bowling ability in Cricket.

From the table the influence of fat thickness on the results of bowling ability in Cricket with Coefficients, obtained sig value. 0.000. It turns out to be a sig value. 0.000 is less than the probability value of 0.05 or the value 0.05 > 0.000, then Ha is accepted and Ho is rejected meaning that the path analysis coefficient is significant. So fat thickness affects cricket's bowling ability.

Anxiety Level \((X3)\) affects bowling ability in Cricket \((Y)\)

In answering the fourth hypothesis, namely by looking at the Model Summary table on testing with SSS version 23. The results of testing the effect of individual variables X3 on Y can be seen in the table below:

Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adj. R Square</th>
<th>Std. Error of the Estimate</th>
<th>R Square Change</th>
<th>F Change</th>
<th>df1</th>
<th>df2</th>
<th>Sig. F Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.857a</td>
<td>.734</td>
<td>.726</td>
<td>5.08341</td>
<td>.734</td>
<td>93,718</td>
<td>1</td>
<td>34</td>
<td>.000</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Tingkat kecemasan  
b. Dependent Variable: Kemampuan Bowling Cricket

From the results of the SPSS test in the table above, it can be seen that the results of the influence of the X3 variable on the Y variable with RSquare = 0.734. It means that the individual effect between X3 and Y is 0.734 x 100 = 73.40%, the effect of individual testing. Furthermore, individual significance testing can be seen in the Anova table, that the result of the path coefficient pyx1 = 0.000. To see the coefficient results, the significance of the decision can be seen in the following table:

ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2421,777</td>
<td>1</td>
<td>2421,777</td>
<td>93,718</td>
<td>.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>878,597</td>
<td>34</td>
<td>25,841</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3300,374</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Kemampuan Bowling Cricket  
b. Predictors: (Constant), Tingkat kecemasan

The research hypothesis to be tested is formulated in the form of a statistical hypothesis as follows:

Ha: \( p_{x3} > 0 \)

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From the table of the effect of the level of anxiety on the results of bowling ability in cricket with coefficients, the sig value is obtained. 0.000. It turns out that the sig value. 0.000 is smaller than the probability value of 0.05 or the value of 0.05> 0.000, then Ha is accepted and Ho is rejected, which means that the path analysis coefficient is significant. So the variable level of anxiety also affects the bowling ability variable in cricket. Furthermore, to determine the structure model of the total effect of the entire path and the effect of error (the influence of external variables) on the Model-1 constellation, the provisions of the path analysis use the structural equation formula.

V. CONCLUSION

The conclusions found in answering the problem formulations and hypotheses are proven that flexibility (X1) has a direct effect on bowling ability (Y) in the DKI Jakarta Provincial Pengprov PCI (Indonesian Cricket Association) athletes. It is proven that fat thickness (X2) has a direct effect on bowling ability (Y) for athletes from PCI (Indonesian Cricket Association) Pengprov DKI Jakarta, it is proven that the level of anxiety (X3) has a direct effect on the bowling ability (Y) of the Jakarta Pengprov (Indonesian Cricket Association) PCI athletes

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