PalArch's Journal of Archaeology of Egypt / Egyptology

BIOMOTOR, PSYCHOMOTOR, AND ANTHROPOMETRY AS DETERMINERS OF SPORT TALENT SCOUTING AT SECONDARY SCHOOLS: ANALYSIS OF DOMINANT DETERMINANTS OF SPORTS TALENT AT SECONDARY SCHOOLS IN INDONESIA

Sudirman Burhanuddin[1], *Andi Ihsan*[2], *Asmuddin*[3], *Hasanuddin Jumareng*[4], *Bagus Ariharyo Anugrah*[5]

[1,2]Universitas Negeri Makassar Indonesia

[3,4]Lecturer at FKIP Universitas Haluoleo Kendari

[5]Faculty of Medicine, Airlangga University, Surabaya, Indonesia

E-mail: [1]sudirman.burhanuddin@unm.ac.id , [2]andiiccam@gmail.com

[3]asmuddin@uho.a.id , [4]hasanuddinjumareng@uho.ac.id

[5]bagusariharyo@live.com

Sudirman Burhanuddin, Andi Ihsan, Asmuddin, Hasanuddin Jumareng,Bagus Ariharyo Anugrah. Biomotor, Psychomotor, And Anthropometry As Determiners Of Sport Talent Scouting At Secondary Schools: Analysis Of Dominant Determinants Of Sports Talent At Secondary Schools In Indonesia-- Palarch's Journal Of Archaeology Of Egypt/Egyptology 18(4), 3426-3444. ISSN 1567-214x

Keywords: Biomotor, Psychomotor, Anthropometry, Sports Talent, Sports Talent Scouting

ABSTRACT

This study aims to explore the dominant factors of biomotor, psychomotor, and anthropometry as determinants of the guidance of sport talent at secondary schools in Sidrap regency. This research was carried out in several secondary schools, namely: SMPN 1 Baranti, SMPN 1 Rappang, SMPN 1 Watang Pulu, SMPN 1 Dua Pittue and SMPN 2 Pangkajene Sidenreng in 2017, with 150 male students. This research used correlational design, with confirmatory factor analysis technique, through SPSS 23.00 program on the provision if the measure of sampling adequacy (MSA> 0.5), the instrument is feasible to employ and if (MSA <0.5), the instrument is not feasible to use at significant $\alpha = 0.05$. To confirm the latent variables that determine the guidance of sport talent. The collected data were then verified and tabulated then quantitatively processed by: (a) Multivariate confirmatory factor analysis to reduce to several factors only, and (b) Calculate the

contribution value of each factor in the dominant latent variable transformed in anti-image correlation results and communalities. The study concluded that biomotor, psychomotor, and anthropometry factors determine the guidance of male sport talent consisting of: 1) height 0.752; 2) sitting height of 0.734; 3) body weight of 0.704; 4) arm range of 0.701; 5) tennis ball capture of 0.515; 6) throw basketball equal to 0.672; 7) vertical jump of 0.694; 8) run agility of 0.558; 9) run 40 meters by 0.518; and 10) multiracial runs of 0.593 determine the guidance of sports talent at state secondary schools in Sidrap regency.

Furthermore, the biomotor, psychomotor, and anthropometry factors of guidance of sport talent at secondary schools in Sidrap regency are important because important value intervals get important value or for the important category get a percentage value of 53.33% as a suggestion to pursue the training of Karate-Do, Kung Fu, beautiful jump, martial arts, gymnastics, football, *sepaktakraw*, voleyball, taekwondo, and boxing to achieve good achievement.

INTRODUCTION

Law of the Republic of Indonesia number 3 of 2005 concerning the national sport system, is the legal umbrella for managing the sport system in Indonesia. On the other hand, it is a challenge and it is not easy in implementing the law. This means that all elements involved in it must be ready to face the era of globalization and competition to be the best. To anticipate this intense competition in pursuing technological advances, the Indonesian people are required to work harder, diligently and coherently, working together in synergy in all fields including sports. Sports helps an individual much more than in the physical aspects alone. It builds character, teaches and develops strategic thinking, analytical thinking, leadership skills, goal setting and risk taking, just to name a few (Ghildiyal, 2015).

Basically, sport activities are miniatures of life. This is because in sport activities there are some important aspects that are relating to goals, struggle, cooperation, competition, communication and integration, physical strength and mental endurance, togetherness, responsiveness, retrieval decision, honesty and sportsmanship (*Direktorat Kebudayaan, Pariwisata, Pemuda dan Olahraga*, 2010).

Thus, real sport development does not only identify achievement measures that are identified with a medal, in particular gold or rank achieved in a sport event such as the *Pekan Olahraga Nasional* (PON) or the national sport competition, or international sport event, such as SEA Games, Asian Games, or Olympic Games. Sport as an instrument of development should be positioned and empowered in a broad sense not only for achievement for the national dignity, but also to achieve the national goals, e.g., to promote Indonesian people's welfare equally (*Direktorat Kebudayaan, Pariwisata, Pemuda dan Olahraga,* 2010).

The way a country views sports determines the structure of the sports system in the country. In Indonesia, sport is seen as a means to achieve development goals. Sports building in Indonesia is based on the practice of sport culture which is expected to support the realization of sport achievements (Chryshna, 2020).

Today's sports achievement is the target of development because it is always associated with the dignity and honor of the nation, so that sports achievements are indirectly used as benchmarks for a nation's progress in the field of sports. With patterned coaching, of course, the achievement in a sport can be achieved through a systematic and planned effort. To realize sports achievements at the international level and to improve professional services for the improvement and development of sports in Indonesia, mastery of various sciences and technology as well as those that support and their application in the field of sports is absolutely necessary.

Human-created sports are a form of physical activity that has complex dimensions. The form is directly related to human behavior itself. Therefore, the review becomes broad and deep.

This is because humans have their environment, so the study of sports follows the development of human existence. The thing that needs to be considered is that sport is not only a physical factor, but is a human problem as a whole and a body and soul. Therefore, the planning of achievement sports coaching must be prepared on the basis of comprehensive, specific, and individual theories, it requires cooperation from various sciences involving other scientific experts. This means that all parties must be more enthusiastic and united to build excellence through cooperation, in the territory of the Republic of Indonesia so that we can face various challenges and competition with other nations. For this reason, the main target of national development in facing the dynamics and challenges of globalization is to increase human resources and strengthen national stability and resilience in all fields of development. In line with the spirit and demands for reform in all fields, improvement and development of the value system and value systems of society, nation and state must be carried out comprehensively and gradually, so that the Indonesian people are peaceful, democratic, competitive, advanced and prosperous in the Republic of Indonesia.

These conditions make today's sports activities show tremendous improvement. Countries in the world compete with each other to develop their sports with the intention not only to develop achievements, but more than that as a means of unifying the nation. The Indonesian as a developing country also pays attention to the field of sports. This is in accordance with Law of the Republic of Indonesia number 3 of 2005 concerning the National Sports System (*Sistem Keolahragaan Nasional/SKN*) in Chapter VI article 20, namely: 1) Achievement sports is intended as an effort to increase the ability and potential of athletes in order to increase the dignity of the nation, dan 2) Performance sports are carried out through a gradual and sustainable coaching and development process with the support of science and technology.

Based on the national sports system, it is known the direction that national development covers several aspects of life including the field of sports. Sport is one of the indicators of national development, the progress of sports is a reflection of the progress of the nation itself. It seems that sport and a good education system, providing the opportunity for all and the autonomy needed

to choose our own path at the right time, continue to serve as models for identifying the best talents of all (Gonçalves, et al., 2012).

The success of sports development can be seen through several indicators or benchmarks, including the level of sports participation, public awareness of the benefits of sports, the degree of public health, and sports achievement. All of these indicators are positive indicators that show a positive relationship to the success of sports development. The growth in positive indicator values is an indication of the success of sports development. On the other hand, the decline in the values of these indicators is an indication that sports development has not achieved the expected targets. Of the overall success indicators of sports development, sports achievement is the only sports indicator that can be used directly to see the status or level of achievement and development of sports development and coaching.

In line with this talent scouting cannot be separated from the learning process at school through physical education, sports and health learning. For this reason, based on experience in the field, it can be seen that there are still many coaches and sports coaches/physical education teachers who have not been able to accurately detect a movement skill. Detection accurately not only knows the dominant physical component, but also must know precisely the contribution of these components to the movement skills performed. Many sports coaches and coaches detect an athlete's talent on the basis of experience alone. In addition, there are those who detect these components on the basis of visual observation only. Even though the two methods are combined, namely detection by experience and visual observation, they cannot provide a complete answer. The talent identification (TID) program is an integral part of the selection process for elite level athletes. While many sports organizations make use of the TID program, there appears to be no clear variable that consistently predicts future success (Johnston, et. al., 2017). Talent is a fixed capacity that can be identified early on, the influence of talent beliefs on athlete development, varying degrees of risk for talent selection decisions, apparent bias in athlete selection approaches, inadequacy of current statistical approaches, problems with using performance streams to predict future outcomes, and how short-term priorities and competition between sports for gifted athletes undermine the overall efficiency of the athlete's development system (Baker, et al., 2017).

According to James Tangkudung (2012: 24) the experience of coaches in the past can no longer be used as a benchmark in the present, considering that science is developing dynamically. Visual observations regarding attitudes and behavior are unable to provide quantitative data on components accurately. Errors in detecting will result in errors in providing exercise intensity and the proportion of recovery (recovery). Likewise, the same thing will happen, even though the component detection can be known, but if the amount of the component's contribution is not known precisely the root causes the same error. In fact, to make it easier for a coach or coach to find talented athletes, the method is to make observations about: 1) the state of his body shape or posture, 2) the state of his physical ability, 3) the state of his movement skills, 4) the state of the ability to think and power. motion, 5) the state of his

personality. Therefore, biological or physical factors related to the structure, posture and biomotor ability are genetically determined and constitute one of the determinants of achievement consisting of basic components, namely; Strength, explosive power, endurance, speed, flexibility, agility, balance and coordination, it is still possible to be developed according to the limits of the athlete's ability. Meanwhile, physical factors refer to the ability to move the body. These factors determine the success of a sport, including sports that are both individual and team. To find out these components which form an integral part of the training and learning process from an early age, one of them is through the physical education learning process, sports at school.

Therefore, based on the above assumptions, an answer to the problems previously described is needed, so there must be a deeper study through research. Thus, the researcher wants to conduct a research with the title "Analysis of biomotor, psychomotor and anthropometric factors which are dominant in determining sports talent scouting at SMPN Sidenreng Rappang (Sidrap) Regency, South Sulawesi Indonesia."

Research Objectives

This study aims to investigate the biomotor, psychomotor, and anthropometric factors that are dominant in determining sports talent scouting at secondary schools in Sidenreng Rappang regency, South Sulawesi Indonesia.

LITERATURE REVIEW

Definition of talent scouting

Talent scouting is a way to guide athletes' talents. "Guiding" in the large Indonesian dictionary can mean the process, way, or act of guiding something, the Big Indonesian Dictionary (1990: 643). Meanwhile, according to Guilford as cited in Asmani (2012: 19), talent is related to three main dimensions, namely perceptual, psychomotor, and intellectual. Combining talents as a term can be interpreted as a process, way or action, to guide talent. In the scope of sports talent scouting, the talent that is guided is sports talent. Martindale, et al. (2005) reveal that many programs focus primarily on early identification of talent, often selecting the best young people in the hope that they will become the best adults, while the more important processes of nurturing and developing are, at least in comparison, somewhat neglected. Identification and selection of talents becomes a central problem for sports science at a time when international competition is successful in the field of sport (Gonçalves, et al., 2012: 390).

The importance of talent scouting is that the process of identifying and identifying talent must be an activity that is prioritized by trainers and training specialists in order to develop it, as well as to improve the psychobiological criteria used to find someone who is more gifted at a high-performance sport.

Several principles of incorporating sports talent can be cited as guiding the talent scouting process. The principles of scouting talents need to be described

and understood, so that every step of the talent scouting process can arrive at its goal. Harsono (1988: 8) suggests several principles of integrating talents which include; "(1) carry out a complete analysis of the physical and mental condition of athletes; (2) make a selection based on the main determinants which include: (a) anthropometric characteristics, such as height and its relation to certain physical parameters, (b) several abilities physical aspects such as speed, endurance, coordination, and ability to play; (3) evaluating and selecting based on the following data: (a) children's attitudes towards sports, (b) children's participation in sports activities, (c) excellence and characteristics of sports achievement in the environment. The emphasis of the goal of scouting sports talent in the formulation lies in predicting the athlete's chances on the basis of the sports gifted indicators the athlete has. Early identification of talented individuals is becoming increasingly important in many performance domains (Abbott, et. Al., 2005: 61).

The criteria for evaluating talented athletes that need attention in athlete selection are genetics, biological, psychological, posture and body shape and environmental elements. Mulyono Biyakto Atmojo (2010: 69) The element of athlete's posture or atropometry with the MBI (Body Mass Index) measurement system is very useful for determining the composition of an individual group. In order to achieve as high as possible, besides the training factor, the factor of the trainer with all the planning and training program, the age factor, is also determined by heredity or the talent that a person carries from birth.

This hereditary factor is very dominant because the birth of a talented athlete, of course, comes from superior seeds of high quality. If an athlete is gifted from birth, this talent will develop more quickly if he is given regular and precise exercises. On the other hand, if an athlete does not have talent, even though he is given training, his progress is very slow or does not develop at all. Therefore, the factors of decline will greatly determine the achievement of an athlete.

Based on the description above, it can be concluded that talent scouting is a way to guide the talents of athletes with the aim that athletes who are talented in sports can succeed in undergoing training programs so that they can achieve peak performance with indicators: 1) body posture, 2) ability. physical aerobic, 3) movement skills, 4) heredity, 5) interest in sports, 6) environmental factors.

Biomotor Domain

Biomotor jump is the ability of human movement which is influenced by the condition of internal organ systems. The internal organ systems in question are: the neuromuscular system, respiration, blood circulation, energy systems, bones and joints. According to Sukadiyanto (2010), biomotor components are influenced by energy fitness and muscle fitness. Energy fitness includes aerobic and anaerobic capacity. Meanwhile, muscular fitness includes: strength, endurance, speed, explosive power, flexibility.

Between the physical domain and the psychomotor domain, actually cannot be separated, but can only be distinguished because they always function together. Conceptually they are different from each other. The physical domain relates to physical work capacity or biomotor abilities, while the psychomotor domain deals with body movement capacity and skills. When someone performs body movement, they always need the support of biomotor abilities. Meanwhile, when a person uses his biomotor ability, it requires body movement to realize this movement because the two are closely related.

Basically, biomotor ability is the ability to move in humans which is influenced by human internal organ systems, including: the neuromuscular system, respiration, digestion, blood circulation, energy, bones and joints. The ability to move humans is based on the components of these internal organs. All these biomotor or physical qualities are indispensable to support or facilitate learning movement skills so that good skills will be achieved as well. The higher the quality of the internal organ components, the higher the biomotor ability of an athlete. Good physical quality is a necessity to achieve an efficient motion which will affect good movement skills. Among the several biomotor components that play a role in long jump athletic sports are: power that is more dominant in the leg muscles, speed consisting of moving speed and reaction speed, strength to maintain, eye-leg coordination that often occurs and functions to unify the various components of movement in jumping, especially between the eyes and feet, agility to run fast, muscular endurance and cardiovascular endurance which consists of aerobic and anaerobic endurance. The factors that affect the biomotor will also affect a person's physical condition to be able to compete from the start to the end of the race. If the physical condition of an athlete is in good physical condition, the athlete will perform various movements faster in sports and master the movement techniques that are trained so that it will affect the athlete's performance.

Psychomotor Domain

The psychomotor domain refers to the behavior of movement or body control. Psychomotor activity is oriented to body movements and emphasizes physical responses that are visible or can easily be seen. The term psychomotor domain can also be called the motor domain. This domain includes various kinds of gesture behavior. There are various psychomotor domain classification systems that have been developed by experts which show a variety of approaches and concepts. There are those who use a taxonomic approach, namely an approach in classifying the behavior of motion starting from the simplest to the most complex. While others use a non-taxonomic approach, namely the approach to classifying motion behavior not based on simplicity and complexity but based on the type or kind.

Classification according to Anita J. harrow (1977) is an operational definition of the term psychomotor, which is all human movements that are conscious and observable. He classified the psychomotor domain into 6 levels and each level has sub-levels, namely as follows:

Reflex movements

Fundamental basic movement

Perceptual ability

Physical ability

Movement of skills

Non-discursive communication

The function of the biomotor or psychomotor domain according to Cureton, cited by Toho and Gusril (2004: 51) is to develop the abilities and abilities of each individual that are useful for enhancing work power. By having good psychomotor abilities, of course, individuals will have a foundation in mastering specific movement skills tasks. Psychomotor is related to the skills and use of minimal energy to achieve maximum results. The ability of each athlete must also be accompanied by a good body balance to control the athlete's abilities. Hence the importance of balance in the human body.

Anthropometric Domain

The anthropometric domain refers to the size of the body structure. Anthropometry is the study of measurements of the human body in terms of the dimensions of bone, muscle, and adipose (fat) tissue. The word "anthropometry" comes from the Greek words "*anthropo*" which means human and "*metron*" which means measure. The field of anthropometry includes various measurements of the human body. Weight, height, body posture, stretch length, skinfold thickness, circumference (head, chest, waist, legs, etc.), limb length (arms, legs).

Gallahue and Ozmun (1998: 189) argue that the development of body anthropometric size develops according to the individual development period. The development of the size of these body parts is influenced by developmental factors such as genetics, environment and physical activity. The development of the size of the body and its parts continues during the growing period with varying degrees of development in proportion and speed. The size of the baby grows very rapidly, then decreases proportionally in childhood and then undergoes a growth spurt during adolescence. The difference in growth rate causes variations in the shape and type of a person's body.

Anthropometry involves measuring external body parts. There are two types of anthropometric measurements, namely body dimensions and somatotropy. Somatotropy is the process of measuring and describing the body according to morphology. In general, 3 forms and structures of the human body can be described: (1) endomorph, (2) mesomorph, and (3) ectomorph. Every human body is made up of various levels from the three. The first classification (somatotype) is determined by the number of each component in one phase.

The ideal body shape according to the sport being studied is one of the requirements that can affect the achievement of sports achievement.

Sajoto (1995: 11) states that one aspect of achieving achievement in sports is the aspect of biology which includes body structure and posture, namely: 1) Measuring the height and length of the limbs, 2) Big size, width and weight, and 3) Somatotype (body shape).".

Somatotype or body shape according to Sheldon is divided into three types, namely mesomorp as a characteristic of muscular body shape (athletic), endomorp showing fat or fatty body shape, and ectomorp is a thin body shape, but there is a combined body shape or a combination of the three forms of the body.

Research Hypothesis

Based on the formulation of the problem and literature review, the research hypothesis of this study is that biomotor, psychomotor and anthopometric factors determine the guidance of sports talents at SMPN Sidrap Regency.

RESEARCH METHODOLOGY

Research Methods

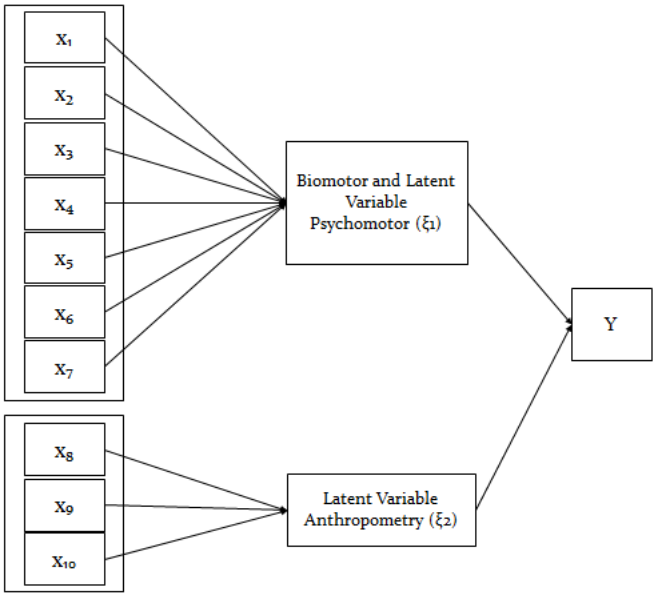
The research method is a way to solve problems or how to develop science using the scientific method. The research method is a very important factor in a study. The method used in this research is descriptive correlational research approach with confirmatory factor analysis design, namely confirming the relationship among indicator variables and latent variables that determine sports talent. The collected data is then verified and tabulated and then processed quantitatively by:

Multivariate statistical factor analysis using SPSS computerized software so that it can be reduced to just a few factors.

Calculate the average contribution value of each factor to the latent variable and the dependent variable.

Describe the value and position of the average score of the dominant variables in the importance-performance matrix transformation. The research design can be seen in the following figure.

The research design can be seen in the following figure.



Picture. 1. Research Design

Place of Research

This research was conducted on the yard of the secondary schools (SMPN) in Sidrap Regency. Furthermore, this research was carried out in several places, namely: SMPN 1 Baranti, SMPN 1 Rappang, SMPN 1 WT. Pulu, SMPN 1 Dua Pittue and SMPN 2 Pangkajene Sidenreng from April to December 2017.

Data Collection Techniques

The data collection technique uses a test of scouting and sports talent development (2013: 10-The test descriptions are as follows:

the height of the measuring instrument used by a stadiometer or measuring tape with an accuracy of up to 0.1 cm.

sitting height measuring instrument used by a stadiometer or measuring tape with an accuracy of up to 0.1 cm, a small bench with a height of 40 cm;

the weight of the measuring instrument used with an accuracy of up to 0.5 kg. span of measuring instrument arm used a) measuring tape (minimum 2 meters with an accuracy of up to 1 cm, and b) ruler.

throw-and-catch tennis ball measuring instruments used a) tennis ball, b) gloves, c) tape measure (3 meters with an accuracy of up to 1 cm.), D) round target with a diameter of 30 cm. alternatively, the walls can be marked with permanent targets at various heights.

throwing basketball measuring instrument used a) basketball size 7, b) tape measure (minimum 15 meters with an accuracy of up to 5 cm.)

jump upright the measuring instrument used a) lime powder, b) wall / board with a height of 150 - 350 cm.

running agility measuring instruments used a) stopwatch, b) measuring tape, c) 2 parallel lines (approximately 1.2 m.), And c) 4 stakes

Sprint 40 meters measuring instrument used a) Stopwatch, b) 10 stakes and c) 40 meters long running track

Multi-class running measuring instruments used a) Radio cassette / CD player, b) Cassette / CD, c) 20 meter running track, d) Stopwatch, e) Benchmark, and f) Form

Data Analysis Techniques

The data collected through the test is still rough data. The data is then analyzed using descriptive statistical tests and inferential analysis using factor analysis.

RESULTS AND DISCUSSION

Research Results

The results of this descriptive frequency analysis are the primary data from the test results and measurement of biomotor, psychomotor and anthropometric factors as independent variables, and talent scouting in sports as the dependent variable. Furthermore, the data is processed and calculated using the KMO and Bartlett's Test method. The description of field data as a whole is presented in the attachment, while below will be presented a summary description of the statistical data from the research results in the following table.

Table 1. Frequency distribution of talent scouting in sports

Category	Value Conversion	Gifted profiles in sports	Frequency	Percentage
Very important	5 (A)	Fencing, baseball, basketball, badminton, hockey, archery, rock climbing, softball, squash, tennis and table tennis.	28	18.67%
Important	4 (B)	Karate-Do, kung fu, diving, pencak silat, gymnastics, football, sepaktakraw, taekwondo, and boxing.	80	53.33%
Quite important	3 (C)	Weightlifting, rowing, judo, canoeing, hurdling, discus throwing, javelin throwing, pole vaulting, hammering, short and long distance running, bicycling, and shot put.	42	28.00%
Not too important	2 (D)	-	0	0.00%
Not important	1 (E)	-	0	0%
Total			**150**	**100%**

Based on table 1 above, biomotor, psychomotor, and anthropometric determinants of talent scouting in sports with a total sample of 150 talent scouting students in sports, the value for the very important category is obtained with a value conversion of 5 as many as 28 samples obtained a percentage value of 18.67% with advice on fencing, baseball, basketball, badminton, football, badminton, hockey, archery, rock climbing, softball, squash, tennis and table tennis, for the important category with a conversion value of 4 as many as 80 samples obtained a percentage value 53.33% as a suggestion to pursue training in sports Karate-Do, Kungfu, beautiful jumping, martial arts self-defense, gymnastics, football, *sepaktakraw*, *taekwondow*, and boxing, for a fairly important category with a conversion value of 3 as many as 42 samples obtained a percentage value of 28 % Weightlifting, Rowing, Judo, Canoeing, hurdling, discus throwing, javelin, pole vault, hammering, long and short distance running, bicycle, and shot put, for the less important category with a value conversion of 2 there is no sample getting a percentage value of 0% and for the insignificant category with a value conversion of 1 not the sample gets a percentage value of 0%. Thus, it can be concluded that the biomotor, psychomotor, and anthropometric determinants of talent guidance in sports are important because the important value interval obtains an important value or for an important category with a value conversion of 4 as many as 80 samples get a percentage value of 53.33% as suggestions for pursuing sports training. Karate-Do, Kungfu, diving, martial arts self-defense, gymnastics, football, *sepaktakraw*, volleyball, taekwondo and boxing. The following is the anthropometric score data for the indicator of the height of the student scouting talent in sports as revealed in the following diagram.

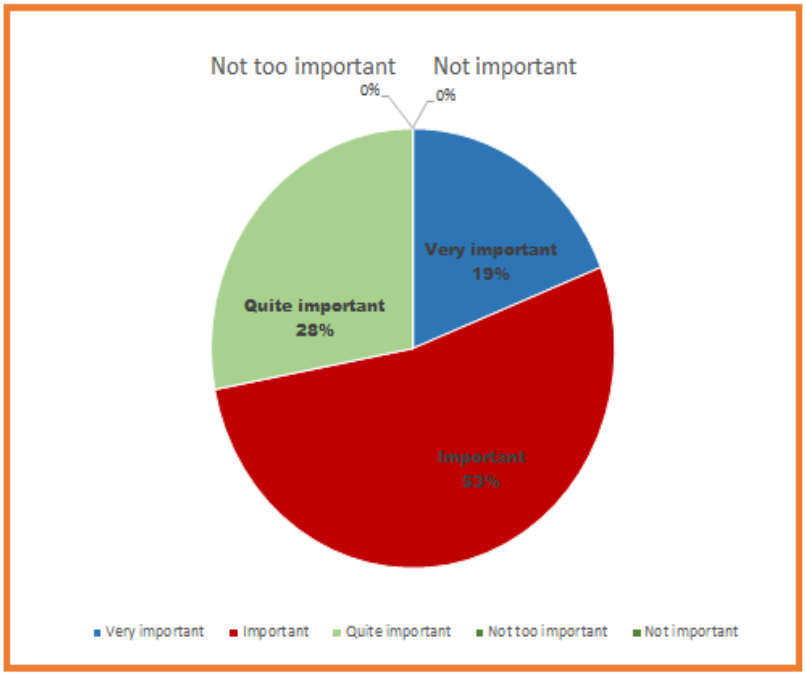


Figure 1. Diagram of biomotor, psychomotor, and anthropometry determinants of talent scouting in sports

Factor analysis in this present study is used to factor together a set of variables that are deemed worthy of analysis. The measurement sub-variables about biomotor, psychomotor, and anthropometry were determined long before the analysis was carried out. The analysis used is Confirmatory Factor Analysis to see the correlation between the sub-variables, of the 10 variables that are the factors associated with biomotor, psychomotor and anthropometric talent scouting students in sports will be tested whether all of them are important variables or only part of them is worthy of analysis and grouped into major factors. However, before analyzing the data using the factor analysis method, it is necessary to test the prerequisite analysis.

The recapitulation of the results of the analysis of biomotor, psychomotor and anthropometric factors of talent scouting students in men's and women's sports, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) and Bartlett's Test of Sphericity numbers on the 10 variables tested for the magnitude of the correlation between the independent variables measured to have a value between 0 to 1, to state a strong relationship the KMO-MSA number must be above 0.5 and the opportunity value (Sig.) must be <0.05. This shows that the set of variables in this study is significant, for more details the results of the factor analysis can be seen in the following table.

Table 2. Recapitulation of Anti-Image Matrices Correlation Results Analysis of biomotor, psychomotor, and anthropometric factors that determine talent scouting in sports

No	Variable	Male
1	Height	0,752
2	Sitting height	0,734
3	Weight	0,704
4	Arm span	0,701
5	Throw and catch a tennis ball	0,515
6	Throw basketball	0,672
7	Jump straight	0,694
8	Run agility	0,558
9	Run 40 meters	0,518
10	Multi stage running	0,593

Based on the Anti Image Matrices tabulation, it turns out that there are no variables that have an MSA value below 0.50, then the results of each component of the biomotor, psychomotor and anthropometric test instruments for talent scouting students in male and female sports can be described as follows:

The results of the factor analysis on the anthropometric test instrument for height indicators obtained the calculation results using SPSS version 23 as presented in the attachment. From the results of the factor analysis, the validity of the anthropometric instrument for the height indicator for men was 0.752 for talent scouting students in sports.

The results of the factor analysis on the anthropometric test instrument for the sitting height indicator obtained the calculation results using SPSS version 23 as presented in the attachment. From the results of the factor analysis, the validity of the anthropometric instrument for the sitting height indicator for male students was 0.734 talent scouting students in sports.

The results of the factor analysis on the anthropometric test instrument for weight indicators obtained the calculation results using SPSS version 23 as presented in the attachment. From the results of the factor analysis, the validity of the anthropometric instrument for weight indicators for men was 0.704 talent scouting students in sports.

The results of the factor analysis on the anthropometric test instrument for the arm span length indicator obtained the calculation results using SPSS version 23 as presented in the attachment. From the results of the factor analysis, the validity of the anthropometric instrument for the indicator of arm span length for male students was 0.701 talent scouting students in sports.

The results of the factor analysis on the biomotor and psychomotor instruments for the tennis ball fishing throw indicator obtained by the calculation results using SPSS version 23 as presented in the attachment. From the results of the factor analysis, the validity of the biomotor and psychomotor instruments for the tennis ball catching indicator for men is 0.515 students in scouting talent in sports.

The results of the factor analysis on the biomotor and psychomotor instruments for basketball throwing indicators obtained the calculation results using SPSS version 23 as presented in the attachment. From the results of the factor analysis, the validity of the biomotor and psychomotor instruments for the basketball throwing indicator for men was 0.672 in the talent scouting students in sports.

The results of the factor analysis on the biomotor and psychomotor instruments for the upright jump indicator obtained the calculation results using SPSS version 23 as presented in the attachment. From the results of the factor analysis, the validity of the biomotor and psychomotor instruments for the upright jumping indicator for male students was 0.694 talent scouting students in sports.

The results of the factor analysis on the biomotor and psychomotor instruments for running agility indicators obtained the calculation results using SPSS version 23 as presented in the attachment. From the results of the factor analysis, the validity of the biomotor and psychomotor instruments for running agility indicators for boys was 0.558 for talent scouting students in sports.

The results of the factor analysis on the biomotor and psychomotor instruments for the 40 meters running indicator obtained the calculation results using SPSS version 23 as presented in the attachment. From the results of the factor analysis, the validity of the biomotor and psychomotor instruments for the 40 meters running indicator for male students was 0.518 talent scouting students in sports.

The results of the factor analysis on the biomotor and psychomotor instruments for the multi-stage running indicator obtained the results of calculations using SPSS version 23 as presented in the attachment. From the results of the factor analysis, the validity of the biomotor and psychomotor instruments for the multi-stage running indicator for men was 0.593 for the student scouting talent in sports.

DISCUSSION

Based on the results of the hypothesis testing on the analysis of anthropometric factors ($\xi 1$) and biomotor and psychomotor ($\xi 2$) determinants of talent scouting in sports above, the value of the factor component ≥ 0.5 is as follows:

Anthropometry for height indicators based on the results of confirmatory factor analysis of the test instruments determining talent guidance in sports contributes or contributes a value of 0.603 or 60.3%, this is reinforced by the results of the Kaiser-Meyer-Olkin confirmatory analysis measure of sampling adequacy (KMO-MSA) and Bartlett's Test of Sphericity of 0.752> 0.5 or the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) value> 0.5;

Anthropometry for the sitting height indicator based on the results of the confirmatory factor analysis of the test instrument to determine talent guidance in sports gives a contribution or value contribution of 0.718 or 71.8%, this is reinforced by the results of the Kaiser-Meyer-Olkin confirmatory analysis measure of sampling adequacy (KMO-MSA) and Bartlett's Test of Sphericity of 0.734 for boys and girls 0.641> 0.5 or the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) value> 0.5;

Anthropometry for weight indicators based on the results of the confirmatory factor analysis of the test instruments for determining talent guidance in sports contributes to a value of 0.630 or 63.0%, this is confirmed by the results of the Kaiser-Meyer-Olkin confirmatory analysis of the Measure of Sampling Adequacy (KMO-MSA) and Bartlett's Test of Sphericity of 0.701> 0.5 or the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) value> 0.5;

Anthropometry for the arm span length indicator based on the results of the confirmatory factor analysis of the test instruments for determining talent guidance in sports gives a contribution or value contribution of 0.506 or 50.6%, this is reinforced by the results of the Kaiser-Meyer-Olkin confirmatory analysis of the Measure of Sampling Adequacy (KMO-MSA) and Bartlett's Test of Sphericity of 0.701> 0.5 or the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) value> 0.5;

Biomotor and psychomotor for the tennis ball throwing indicator based on the results of the confirmatory factor analysis of the test instrument to determine talent scouting in sports give a contribution or value contribution of 0.758 or 75.8%, this is strengthened by the results of the Kaiser-Meyer-Olkin Measure confirmatory analysis. of Sampling Adequacy (KMO-MSA) and Bartlett's Test of Sphericity of 0.5.15> 0.5 or the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) value> 0.5;

Biomotor and psychomotor for the basketball place indicator based on the results of the confirmatory factor analysis of the test instruments determining talent guidance in sports contributed a value of 0.632 or 63.2%, this was confirmed by the results of the Kaiser-Meyer-Olkin Measure of confirmatory analysis. Sampling Adequacy (KMO-MSA) and Bartlett's Test of Sphericity of 0.672> 0.5 or the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) value> 0.5;

Biomotor and psychomotor for upright jumping indicators based on the results of the confirmatory factor analysis of the test instruments determining talent guidance in sports contributed a value of 0.547 or 54.7%, this was reinforced by the results of the Kaiser-Meyer-Olkin Measure of Sampling confirmatory analysis. Adequacy (KMO-MSA) and Bartlett's Test of Sphericity of 0.694> 0.5 or the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) value> 0.5;

Biomotor and psychomotor for running agility indicators based on the results of the confirmatory factor analysis of the test instruments to determine talent

guidance in sports contribute a value of 0.537 or 53.7, this is confirmed by the results of the Kaiser-Meyer-Olkin confirmatory analysis of the Measure of Sampling Adequacy (KMO-MSA) and Bartlett's Test of Sphericity of 0.558> 0.5 or the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) value> 0.5;

Biomotor and psychomotor for the 40 meters running indicator based on the results of the confirmatory factor analysis of the test instruments determining talent guidance in sports contributed a value of 0.513 or by 51.3%, this was confirmed by the results of the Kaiser-Meyer-Olkin Measure of confirmatory analysis. Sampling Adequacy (KMO-MSA) and Bartlett's Test of Sphericity of 0.518> 0.5 or the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) value> 0.5;

Biomotor and psychomotor for multi-stage running indicators based on the results of the confirmatory factor analysis of the test instrument for determining talent in sports gave a contribution or value contribution of 0.682 or 68.2%, this is reinforced by the results of the Kaiser-Meyer-Olkin Measure of confirmatory analysis. Sampling Adequacy (KMO-MSA) and Bartlett's Test of Sphericity of 0.593> 0.5 or the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO-MSA) value> 0.5;

From the data analysis using confirmatory factor analysis, 10 biomotor, psychomotor and anthropometric indicators were obtained in determining students in scouting their talents in important sports for boys and girls. Dominant biomotor, psychomotor and anthropometric factors determine students in scouting talents in important sports for boys and girls, there are 10 indicators consisting of anthropometry, there are 5 indicators consisting of: (1) height, (2) weight, (3) sitting height, (4) body weight and (5) arm span length. Meanwhile, for biomotor and psychomotor, there are 5 indicators consisting of: 1) throwing a tennis ball, 2) throwing a basketball, 3) jumping upright, 4) running agility, running 40 meters and (5) running multi-stage.

After knowing that the dominant biomotor, psychomotor, and anthropometric factors determine students in scouting talent in sports, determining students in scouting talent in male and female sports followed by a correlation analysis of the produck moment, which aims to strengthen the results of the research findings. Basically, these components need to be followed up with a process of providing continuous training and must pay attention to technological developments. So that the findings of this study are useful for male students to achieve more important achievements. The development of sports science which becomes the theoretical basis for the development of sports will certainly provide a valuable contribution to the achievement of the sport itself, especially in determining the scouting of talent in sports.

Anthopometry, as the study of human body measurements related to the dimensions of bone, muscle and adipose (fat) tissue, has now provided a separate insight for sports science. Anthropometric measurement fields which include various measurements including: body weight, height, body posture, stretch length, skinfold thickness, circumference (head, chest, waist, legs,

etc.), limb length (arms, legs) has now been assimilated with sports science and make separate considerations in determining the parameters of sports nurseries.

Anthropometric factor of height is a factor needed in martial arts, especially in determining talent scouting in sports. Several studies have stated that height has a significant contribution to success in achieving achievement, which will determine the quality of a student's competition, while body weight is the only benchmark in a particular sport. Not based on height or leg length, but weight itself, so that with the same weight students who have the important height and leg length will be more important, so these three aspects cannot be ignored and become a part that should be considered in determining sports scouting talent in sports.

Furthermore, biomotor and psychomotor as fundamental elements in all sports activities are an absolute necessity for sports players, especially sports achievements. Relevant biomotor and psychomotor must be possessed by every accomplished sports actor. Flexibility is the basic foundation that must be possessed by students, with flexibility that is important for students to be able to perform perfect technical demonstrations, it is important that the technical trajectory and targets. Endurance needed in sports to determine talent in sports is anaerobic endurance.

CONCLUSIONS AND SUGGESTIONS

Based on the results of the research and data analysis that have been carried out, as well as referring to the discussion in the previous chapter, it is therefore stated that the proposed hypothesis can be accepted. Thus, it can be concluded that the biomotor, psychomotor, and anthropometric factors (latent variable ξ1 and latent variable ξ2) that determine talent guidance can be measured from each of the indicators of this study. The study therefore concludes that biomotor, psychomotor, and anthropometric factors determine the scouting of men's sports talents consisting of 1) height of 0.752; 2) sitting height of 0.734; 3) body weight of 0.704; 4) arm span of 0.701; 5) throw and catch a tennis ball of 0.515; 6) throwing a basketball of 0.672; 7) jump upright by 0.694; 8) running agility of 0.558; 9) running 40 meters equal to 0.518; and 10) multistage running of 0.593 determines the scouting of sports talent at secondary schools (SMPN) in Sidenreng Rappang (Sidrap) regency in athletic sports.

REFERENCES

Abbott, Angela., Button, Chris., Pepping, Gert-Jan., & Collins, Dave. (2005). Unnatural Selection: Talent Identification and Development in Sport. Nonlinear Dynamics, Psychology, and Life Sciences, Vol. 9, No. 1, pp. 61 – 88.

Asmani, Jamal Ma'mur, 2012. Kiat Mengembangkan Bakat Anak di Sekolah. Jogyakarta: Diva Press.

Asisten Deputi Sentra Keolahragaan Deputi bidang Pembudayaan Olahraga. 2013. Petunjuk pelaksanaan tes dan evaluasi perkembangan hasil latihan PPLP/ SKO/ PPLM. Kementrian Pemuda dan Olahraga

Atmojo, Biyakto, Mulyono. 2010. Tes dan Pengukuran Pendidikan Jasmani/Olahraga. Surakarta: LPP UNS dan UNS Press.

Baker, Joseph., Schorer, Jörg., & Wattie, Nick. (2018) Compromising Talent: Issues in Identifying and Selecting Talent in Sport. Quest, 70:1, pp. 48-63, DOI: 10.1080/00336297.2017.1333438.

Chryshna, Mahatma. 2020. Sejarah dan Sistem Keolahragaan Nasional Indonesia. Kompaspedia. https://kompaspedia.kompas.id/baca/paparan-topik/sejarah-dan-sistem-keolahragaan-nasional-indonesia. Accessed on February 4, 2021.

Direktorat Kebudayaan, Pariwisata, Pemuda dan Olahraga. 2010. Background Study dalam Rangka Penyusunan Rencana Pembangunan Jangka Menengah Nasional Tahun 2010 – 2014 Bidang Olahraga. https://www.bappenas.go.id/files/6213/5028/5293/background-study-2008pembangunan-bidang-olahraga-2010-2014__20110202135808__1.pdf. Accessed on February 4, 2021.

Gallahue David L., John C. Ozmun. 1997. Understanding Motor Development Infants, Children, Adolescents, Adults. Fourth Edition Dubuque. Iowa: The McGraw-Hill Companies, Inc.

Ghildiyal R. (2015). Role of sports in the development of an individual and role of psychology in sports. Mens sana monographs, 13(1), 165–170. https://doi.org/10.4103/0973-1229.153335.

Gonçalves, Carlos E.B., Rama, Luís M.L., & Figueiredo, António B. (2012). Talent Identification and Specialization in Sport: An Overview of Some Unanswered Questions. International Journal of Sports Physiology and Performance, 2012, 7, pp. 390-393.

Gudono. 2012. Analisis Data Multivariat. Yogyakarta: BPFE

Harsono. 1988. Coaching dan Aspek – Aspek Psikologis Dalam Coaching. Jakarta: CV Tambak Kusuma.

Johnston, K., Wattie, N., Schorer, J. et al. Talent Identification in Sport: A Systematic Review. Sports Med **48,** pp. 97–109 (2018). https://doi.org/10.1007/s40279-017-0803-2.

Kamus Besar Bahasa Indonesia Edisi Kedua. Jakarta: Balai Pustaka, 2000.

Sukadiyanto. 2010. Pengantar Teori dan Metodologi Melatih Fisik. Yogyakarta. FIK UNY.

Martindale, Russell J.J., Collins, Dave., & Daubney, Jim. (2005). Talent Development: A Guide for Practice and Research Within Sport. Quest 2005, 57, pp 353-375.

Tangkudung, James. 2012. Kepelatihan Olahraga, Pembinaan Prestasi Olahraga, Jakarta: Cerdas Jaya.

Undang-Undang Republik Indonesia Nomor 3 Tahun 2005, Tentang Sistem Keolahragaan Nasional.