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ISPHE 2020
THE INTERNATIONAL SEMINAR ON PUBLIC HEALTH AND EDUCATION

"Strengthening Disease Prevention through Health Education and Physical Activity for Sustainable and Equitable health Development"

Semarang, July 22, 2020

PUBLIC HEALTH DEPARTMENT
FACULTY OF SPORTS SCIENCE
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Proceedings of the International Seminar on Public Health and Education 2020 (ISPHE 2020)

"Strengthening Disease Prevention through Health Education and Physical Activity for Sustainable and Equitable health Development"

Semarang, July 22, 2020

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PREFACE

The 5th International Seminar on Public Health Education (ISPHE 2020) was held on Semarang, Indonesia on July 22, 2020 by the Public Health Department Faculty of Sports Science Universitas Negeri Semarang. The 328 scientific participants, 163 of whom were students, had many fruitful discussions and exchanges that contributed to the success of the conference. The 14 abstracts including poster session that were presented on the day formed the heart of the conference and provided ample opportunity for discussion. The abstracts were split almost equally between the four main conference areas, i.e.; Interdisciplinary Health and Medicine, Physiology, Kinesiology and Psychology of Wellness, Public Health Policies and Practices, and Health Promotion and Physical Education.

Of the total number of presented abstracts, 14 of these are included in this proceedings volume, the first time that abstracts have been published by Atlantis. Other publication options are 3 respectable scientific journals and one national proceedings. The review procedure was thoroughly done by two blind reviewers have reviewed each paper from the participant. There were 4 plenary lectures covering the different areas of the conference: Prof. Chia-Hua Kuo. Ph.D. (Dean of Research and Development University of Taipei, Taiwan) talked about the latest research on nutrition and food metabolism, Dr. Toru Okuwaki (Japan Institute of Sports Sciences) for sports development in Japan, Dr. Mahenderan Appukutty (Head of Postgraduate Studies UiTM, Malaysia) for nutritional science of early childhood and last are Dr. Sugeng Eko Irianto (WHO Representative of the Republic of Indonesia) and Prof. Dr. dr. Oktia Woro Kasmini Handayani, M.Kes (Universitas Negeri Semarang, Indonesia) on health and nutrition status in Indonesia.

Generous support for the conference was provided by the Indonesian Public Health Association (IAKMI) and some prominent Indonesia universities in health education and sport (Malang State University, Gorontalo State University, and Manado State University). The next ISPHE will take place in the ones after that will be in Malang in 2022 and Gorontalo in 2024. Given the rapidity with which science is advancing in all of the areas covered by ISPHE, we expect that these future ISPHE conferences will be as stimulating as this most recent one was, as indicated by the contributions presented in this proceedings volume.

The Editors
Oktia Woro Kasmini Handayani
Natalia Desy Putriningtyas

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Development of Fitness Evaluation Alternative Models For Elementary School Students

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Abstract. For students, physical fitness is important to support academic achievement. To be able to carry out an effective fitness evaluation there needs to be an effective fitness evaluation instrument. The purpose of developing an alternative model of fitness evaluation without loading on elementary students is to get a formula that can be used to determine the level of fitness of students without physical loading. The purpose of this study is to obtain an alternative model of fitness evaluation with a non-exercise testing method. Data collection was carried out in 2 regions, 4 elementary schools, and of 175 students taken by non-probability sampling. Data collection techniques were carried out through Bleep tests and questionnaires about physical activity, knowledge, attitudes, motivation, and habits. The formula to calculate is: Fitness = 4,272 + 0,103 PAR - 0,134 BMI + 0,331 A - 0,897 G, in which Fitness = Level of physical fitness, PAR = physical activity; BMI = Body Mass Index, A = Age; and G = gender.
Keywords: physical fitness, physical activities, elementary student, urban rural areas

1 Introduction

Physical fitness is very important for everyone to support their daily activities to meet their daily needs, it itcludes school-age children form all levels of education. Fitness can improve the organ body functions, social, emotional, sportmanship, and the spirit of competition. Some studies even state that pshysical fitness has a positive relationship with academic achievement [1]. By having high physical fitness, students are able to do daily activities with a longer time compared to students who have low physical fitness. In Physical Education, Sports, and Health, which is included in the national curriculum from elementary to senior high schools levels, is required to conduct learning on psychomotor aspects with two main objectives to be achieved, namely movement skills and physical fitness. The movement skills are movement that have qualities of effectiveness, efficiency and adaptation; effective quality means being right on target, quality efficiency means being line with the demands of mechanics, and quality of adaptation means being able to adapt to the situation at hand [2]. Meanwhile, achieving a good level of physical fitness is a mandatory goal in physical education, sport, and health. The physical education, sport and health has its role to instill values about physical fitness to students so that they will understand the importance of it.

A study conducted by the Ministry of Education and Culture in 2010 shows that in general that most students in elementary, junior and high school in 17 provinces in 34 regions had low physical fitness level. This is very possible because of the inappropriate implementation program chosen. To make the right program, initial data on fitness level is needed as a starting point for program determination and further evaluation as a step to evaluate the success of students' fitness improvement. In the process of learning, evaluation the outcome is very important, including in including physical fitness. Evaluation measures the initial conditions and the final conditions of the students, so that it can be known the success of the teaching program that is applied.

Test and measurement of the level of physical fitness is vary widely, both in terms of the measured component and measurement techniques. This diversity cannot be separated from the logical thinking about the construct of physical fitness and also practical consideration in implementation. The real condition shows that Physical Education, Sport and Health teachers rarely conduct student fitness evaluations, as stated in the result of a 2006 Ministry of National Physical Quality Development Center study on the implementation of physical education program in 14 provinces and 161 junior high schools. The result of the study stated that in the evaluation aspect, most (53.5%) Physical Education, Sport and Health teacher did not measure student fitness. Why is it so? Because carrying out field test with load or exercise testing generally require complex administration, a lot of time and funding. This one reason of why many Physical Education, Sport, and Health teachers rarely conduct physical fitness evaluations of students.

With this in mind, efforts should be made to develop a fitness evaluation instrument that is easier to do, while still paying attention to the scientific requirements of an instrument. The process of evaluating physical fitness in order to determine the successes and shortcomings of physical fitness improvement program is carried out in two stages, namely 1) determining what will be measured; and 2) choosing a tool or instrument to measure. If an appropriate instrument has not yet been found to measure what is to be measured, the Physical Education, Sport, and Health teachers is required to arrange their own. Arma Abdullah [3] in Learning Evaluation in Sport education, says that some aspects that needed to be considered about evaluation tools are that they must valid, reliable, objectives, have standards implementation instruction, are economical in time, energy and equipment interesting and has a rating norm. Judging from the scope of the dimension to be measured, the physical fitness test instrument must be able to describe the level of physical fitness so that it can be seen how high the level of physical fitness of the student is measured.

It is not easy for the Physical Education, Sport and Helth teacher to develop or create an evaluation tool to measure physical fitness, therefor providing physical fitness test instruments that are practical and easy to use is the right step to help Physical Education, Sport, and Health teachers in conducting physical fitness test for students. The physical fitness test instrument is basically an instrument that measaure a child's physical capacity. Thus, to proven that the instrument really measures physical ability, then the instrument needs to be compared with other tools that also measure physical ability. In this regard, the Center for Policy Research, Balitbang, MOEC seeks to develop alternative models of fitness evaluation for elementary students through non-exercise testing techniques, namely test that cheaper and easier to implement, so that they are expected to be more efficient.

By developing alternative models of fitness evaluation without loading, fitness evaluation can be more easily carried out so that the student's fitness picture can be known and the fitness improvement program can be carried out as needed. Therefore, in general the purpose of this study is to develop an alternative model of fitness evaluation with non-exercise testing method for elementary student by differentiating between male and female students that is done by filling out a questionnaires and a non-exercise testing.

2 Review on physical fitness

2.1 Physical fitness

Physical fitness is defined as the ability of one's body to perform daily work tasks without causing significant fatigue. The higher the degree of physical fitness, the greeter physical abilities and work productivity [4]. Physical fitness is also interpreted as the ability of one's body to perform daily work tasks without causing significant fatigue. The higher the

degree of physical fitness of a person, the greater the physical abilities and work productivity. One way to achieve excellent physical fitness is to do physical training [5].

According to Nieman [6], physical activity is a dynamic state of energy and vitality that enables one to carry out daily tasks, to engage in active leisure-time pursuits, and to meet unforeseen emergencies without undue fatigue. In addition, those who are physicallyfit have a decrease risk of hypokinetic diseases, and are more able to function at the peak of their intellectual capacity, while enjoying a ”joie de vivre.”

The higher the degree of fitness one has the greeter physical abilities and work productivity. One way to achieve excellent fitness is to do physical exercises. Physical exercise can be chosen that can even cause self-satisfaction, and is done well, correctly, measured and organized. Therefore it can be concluded that physical fitness is a physical condition that allows one to carry out routine activities without causing significant fatigue and if necessary can still do additional activities and still be able to enjoy his free time. Thus, someone with a good level of physical fitness can do physical activities, such as studying, working or exercising properly without feeling too tired.

Physical fitness can be groups into two groups, namely physical fitness related to health and related to performance and skills. Fitness related to health are: aerobic endurance, muscle strength, body composition, muscular endurance, and flexibility. While fitness related to performance or skills are coordination, balance, speed, agility, strength, and reaction time. Moreover, AAPHPERD and Johnson, Barry and Jack Nelson [7] divide the component of physical fitness, there are: endurance, muscle strength, muscle explosive power, speed, agility, flexibility, balance, reaction speed, coordination, and body composition.

2.2 Instrument development theory

The steps that must be taken in developing a measurement instrument should be thorough, detailed, and specipic; showing the overall quality and characteristics that must be possessed by the measuring instrument to be developed [8]. Hadi also suggest that there are three main steps that must be taken in compiling the instrument, namely: 1) defining construct, 2) investigating factors, and 3) compiling items or statements question. Saifudin Azwar [9] use the word of cover the whole area to refer not only indicate that test must be comprehensive in its contents but must also include relevant content and not go outside the limits of meauserement objectives. Although the content is comprehenisive, if a tes includes items that are not relevant and are related to the things outside of the measurement objectives, then the validity of the test cannot be said to meet the true validity characteristics.

2.3 Evaluation and test

Evaluation and testing is a term that is often used in measuring and evaluating in the classroom and in the field. Evaluation is also intepreted a process of awarding or making decision on data or information obtained through the measurement process and based on criterion [10]. The test is a tool or procedure that is used to find out or measure something in the atmosphere by means and rules that have been determined. Based on test result, usually obtained about the attributes, properties, or characteristics found in the individual or object in question.

2.4 Measurement of physical fitness

Measurement of physical fitness can be done through an exercise and non-exercise test. Some types of physical fitness measurements in the form non-exercise test include: Fitnessgram test (Institute for Aerobics Research and Endorsed by AAAPERD), Indiana Physical Fitness Test, Navy Standard Physical Fitness Test, Army Physical Fitness Test,

Indonesian Physical Fitness Test, etc. [11], Pulmonary Endurance Test (4,800 meters brisk walking; 2,400 meters running), Bench Fluctuation Test (Harvard), Blake 15-minutes Run, Max VO2 Examination with Astrand Ergocycle, Cardio Endurance Test, Respiratory with Bruce's Treadmill Method, Indonesia Physical Fitness Test (TKJI), ect.

According to the State Ministry of Youth and Sport [12] one way to measure VO2max is by Bleep Test, a type of test with no exercise, and can be done through written test with a quetionnaire

3 Methods and model

This study use the development research approach, with following a set of procedure of in its implementation, such as doing initial study, design preparation, product development of instrument model, model validation, and model revision. A more complete description of the activities is carried out as follows: 1) conducting a literature review to find the scientific basis for instrument development; 2) develop instrument based on the result of the literature review; 3) conducting trials to obtain validity or conformity of the result of the prediction with the factual (bleep test result).

The technical implementation of developing an alternative model of non-exercise testing evaluation is done by: 1) compile fitness prediction instrument; 2) develop regression formula To design regression formula student data is needed, which can be done through: a) fill in fitness prediction instruments, b) measuring height and weight, and c) gender.

The total sample are 175 students, consist of the Jogjakarta sample of 113 student and 62 student of Sragen sampel,

Data were analyzed using a regression formula. The dependant variable is the result of a fitness test with a bleep test of instrument; and the independent variable is the value of physical activity (PAR), body mass index (BMI), age, and gender. The regression formula for estimating physical fitness is as follows: b0 + b1 PAR + b2 BMI + b3 A +b4 G (X1 = value of physical capacity, X2 = BMI = weight/height (kg/m2), X3 = Age, and X4 = Gender).

4 Result and discussion

4.1 Description of data

The results of data collection activities on the development alternative fitness evaluation models for elementary students described as below. Data proccesing is done by the SPSS program to produce statistical calculation that describe the statitical description of each region, the total area and inferential statistics to produce a fitness regression formula (VO2max). The result of data processing are a description of the number of samples, age, height and weight, physical activity, knowledge, attitude, motivation, habits and fitness. The data processing consist of filling out the questionnaires and doing fitness test with bleep test, produce an overview of number of samples, age, physical activity and fitness of the students. The total sample of 175 students consisted of the Yogyakarta city sample of 113 students, and the Sragen district sample of 62 students. The details are as in the following table

Table 1 Gender of Students

Sample	Yogyakarta			Sragen		
	SD Lempu-yangwangi	SD Ungaran	Total	SD Gemolong 1	SD Soko 2	Total
Male	44	15	59	15	15	30
	53,0%	50,0%	52,2%	46.9%	50.0%	48.4%
Female	39	15	54	17	15	32
	47,0%	50,0%	47,8%	53.1%	50.0%	51.6%
Total	83	30	113	32	30	62
	100%	100%	100%	100%	100%	100%

The age of samples ranged from 8-13 years old, with the largest number of samples at the age of 11 years at 37.1%. The youngest sample age of 8 years is only 1.2% and the oldest is 13 years old (2.4%)—Table 2.

Table 2. Age of Students (in years)

Sample	Yogyakarta						Sragen					
	9	10	11	12	13	Total	8	9	10	11	12	Total
Male	1	16	19	16	4	56	2	5	9	11	3	30
	1,8%	28,6%	33,9%	28,6%	7,1%	100%	6,7	16,7%	30,0%	36,7%	10.0%	100%
Female	1	14	19	18	-	52	-	6	12	14	-	32
	1.9	26.9	36.5	34.6	-	100	-	11	21	25	-	100
Total	2	30	38	34	4	108	2	11	21	25	3	62
	1,9%	27,8%	35,2%	31,5%	3,7%	100%	3,2	17,7	33,9	40,3	4,8	100%

The physical activity of the students is described in the form of statement 1 to statement 8, in which each statement has meaning as:

Statement 1: rarely perform physical activity,
Statement 2: sometimes do light physical avtivities,
Statement 3: routine mild physical activities of less than 60 minutes,
Statement 4: light physical activity routine more than 60 minutes,
Statement 5: physical activity is being routinely less than 30 minutes
Statement 6: moderate physical activity between 30 to 60 minutes,
Statement 7: routine heavy physical activity1 to 3 hours
Statement 8: routine heavy physical activity for more than 3 hours.

The result of data processing of student's physical shows varied result. In Yogyakarta, the greates and most even tendency is in statement number 6 with 28 students (25%), students who rarely doing physical activity as much as 6.3% and students who have heavy physical activity are 5 students (4.5%).

Tabel 3 Student Physical Activities in Yogyakarta

	Physical Activity								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Total**
Male	6	12	2	3	5	17	10	4	59
	10,2%	20,3%	3,4%	5,1%	8,5%	28,8%	16,9%	6,8%	100%
Female	1	19	0	1	7	11	13	1	53
	1,9%	35,8%	0,0%	1,9%	13,2%	20,8%	24,5%	1,9%	100%

Total	7	31	2	4	12	28	23	5	112
	6,3%	27,7%	1,8%	3,6%	10,7%	25,0%	20,5%	4,5%	100%

The results of data processing of students' physical activity in Sragen regency showed varied results with the largest and most even tendency in statement number 2 of 30 students (48.4%). Details of the sample physical activity are shown in Table 4 below.

Table 4 Student Physical Activities in Sragen

Sampel	**Physical Activity**				**Total**
	2	**3**	**4**	**6**	
Male	14	10	2	4	30
	46,7%	33,3%	6,7%	13,3%	100%
Female	16	15	1	0	32
	50,0%	46,9%	3,1%	0,0%	100%
Total	30	25	3	4	62
	48,4%	40,3%	4,8%	6,5%	100%

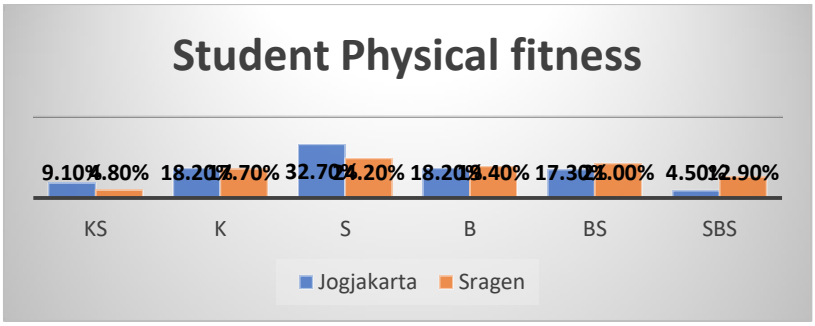
The height and weight of students of the student are measured before students take a fitness test in unit of height (cm) and unit of weight (kg). Then form the height and the weigh is calculated as body mass index (BMI) which describe the body composition. The result of data processing shows that the total average BMI of student is 18.9 and in Sragen is 16.7

Tabel 5. Body Mass Index of Students

Sampel	Yogyakarta				**Sragen**			
	N	**Mean**	**Minimum**	**Maximum**	**N**	**Mean**	**Minimum**	**Maximum**
Laki-laki	59	18.7611	12.44	37.04	30	16.4141	12.76	24.79
Perempuan	54	19.2605	11.55	34.58	32	16.9466	12.82	26.02
Total	113	18.9998	11.55	37.04	62	16.6892	12.76	26.02

The aspects of student fitness scores are done through field test with bleep test, and the result of the test are in the form of fitness levels that are Very Poor (SKS), Very Less (KS), Less (K), Medium (S), Good (B), Very-very (BS) and Very Good (SBS). The result of data processing about student fitness shows that most of the student had a low physical fitness level (SKS, KS, K, S) with the amount of 60%, and those who already had high fitness levels (B, BS, SBS) of 40.0%.

Comparison of physical fitness of elementary school students in Yogyakarta and Sragen shows that more Sragen students have physical fitness levels in the B, BS, and SBS classification compared to Yogyakarta City students, conversely in the KS, K, and S classification of Yogyakarta students more than students Sragen. As in the following graph



4.2 Discussion

Body fitness is very closely related to physical activity, so if a student is doing high physical activity and routine then the level of fitness will be high too. The results of data processing calculations about the fitness of students who were tested with bleep test showed varied results, and the result of filling student questionnaires relating to aspects of physical activity also varied.

But the most important thing is when student fill a low physical activity questionnaire the result of the fitness test are also low, on the contrary if the students fill the physical activity questionnaire is high then the fitness test results should also be high.

Ignorance or misunderstanding of students regarding filling out physical activity questionnaire, can occur when students fill out a physical activity questionnaire results are low, while the results are low, while the results of fitness test are high or vice versa. To avoid fitness evaluation results without biased field tests, the teacher must explain in detail the student questionnaire. The result of calculations in data processing on aspects of physical activity, height and weight, body mass index (BMI), age, gender, and physical fitness as the main aspects that will be used to compile a fitness formula without a loading test showing R 0.573 means the variable physical activity, BMI, and age are very influential on fitness. The calculated fitness formula results as follow:

Fitness = 4.272 + 0.103 PAR – 0.134 BMI + 0.331 A – 0.897 G.

Where:

Fitness = level of physical fitness (1 = very low; 2 = very poor; 3 = poor; 4 = moderate; 5 = good; 6 = very good; 7 = very good);

PAR = physical activity;

MBI = body mass index = body weigh (kg)/body height (m)2;

Age = age, and

G = gender (male = 1, female = 2).

It means that each addition of 1 value physical activity will increase the fitness value by 0.103 and each addition of 1% BMI will reduce the fitness value by 0.134. Every 1 year increase of student age will increase fitness value by 0.331, and gender differences will reduce fitness value by 0.897. It means that increase in physical activity and age variables affect the increase in fitness, while an increase in BMI and gender differences will decrease fitness.

4 Conclusion

This model is not intended to replace the existing fitness test model, but as an alternative model to find out the student's fitness level quickly, effectively, and efficiently. Fitness

evaluation is done by filling out a questionnaires with the purpose to find out a one's fitness level by not doing a physical test, but through several questions regarding daily physical activity. The main requirement in filling out the questionnaire question is to fill honest answer in accordance with daily activities or the actual situation.

This model was prepared by taking into account the basic physical ability standards in elementary students, with the hope that this model will not reduce students' interest in sports, but can add and provide a more dynamic color in knowing students' fitness levels. In addition, this model is expected to be used a reference for a penjaorkes teachers in elementary education units, to determine the level of student fitness and develop it dinamically by integrating active, creative, effective and fun values so as to encourage students' love for sports.

As we all know that exercise is the right way to keep students healthy and fit. The results of evaluations with this model should not be used as an excuse by students not to do sport, but rather to predict fitness levels, so that physical activity or sports can be determine effectively so that students fitness is maintained. The use of this model is expected to provide its own color in the world of sport and fitness assessment of students. In addition, the purpose of this model is to provide a reason for the importance of sport and healthy lifestyle so that students become healthy physically and spiritually.

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Need Assessment Study of BRAM

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Abstract. The purpose of this study was to determine the need for effective instructional media to convey basketball rules of the games. The research method used is descriptive quantitative. The data collection technique was carried out by surveying 63 students who had received basketball rules of the games in class. The results showed that the level of understanding of the sample towards the material was low. There are 61,9% students didn't have good understanding about the rules. This shows that the instructional method by verbal and practice is less effective. So that a more effective learning method or media is needed. Based on the survey, students need learning media that can be accessed at any time, equipped with modules, videos, and assessments. The conclusion of this study is the need to develop learning media for basketball rules of the games based on the FIBA 2018 basketball rules. Equipped with text, images, and video explanations and assessments to determine the level of understanding of students..

Keywords: basketball, rules of the games, instructional media.

1 Introduction

The profile of graduates of the Departmen of Sports Coaching Education is as coaches and teachers who have additional competencies as referees, fitness instructors, masseurs, etc. Students are required to have at least 1 additional competency. The most popular additional competence is the referee. Refereeing material is delivered in practical courses, one of which is in subject Basketball 1. Basketball 1 aims to made students to master fundamental basketball skills and understand basketball game rules. Based on the test results, the average student mastered basic basketball fundamental skills well, but did not understand the rules of the basketball game. The method used in conveying the basketball rules of the game is verbal and practical. The lecturer conveys the rules of the game then shows the movements that can be done and shouldn't be done, as well as the referee's signal for fouls and violations. Then in turn the students served as the referee in the match. However, there are still many mistakes that students make when they act as referees in leading the match.

Based on these problems, the researcher wanted to ascertain the level of students' understanding of the basketball game rules. If the level of student understanding of the rules of the basketball game is good, it means that the learning methods that have been used so far have been effective. However, if the results show that the level of student understanding is not good, then an effective learning method or media in conveying basketball game rules is needed. This study uses a need assessments approach to determine the urgency and format of effective learning media in conveying basketball game rules.

Need assessment is a systematic approach to studying the state of knowledge, abilities, interests, or attitudes of a particular audience or group involving a particular subject. Cooperative extension system professionals use needs assessment to learn about important issues and to learn the problems faced by our society. The purpose is to design an effective educational programs [1].

Needs assessments help identify unmet needs and discover new opportunities to best serve constituents. This is an important part of decision making when it comes to allocating funds to communities and the country.

Researcher need to make a careful planning in needs assessment. 1) There is little evidence that needs assessment alone can improve educational effectiveness and outcomes, so it should be placed in the process of planned learning that is broader, practice-relevant, and reinforces learning in an appropriate context. 2) Formal needs assessments can only identify a small number of needs and may overlook those that are not sought, so the breadth and flexibility of needs assessment methods should be applied. 3) In professional education it is not always sustainable to focus all learning on identified needs - broader professional learning that is not related to special needs also has a fundamental value where practice is unpredictable. 4) Individual and group learning needs differ - group learning needs can produce an average picture of failing to meet the important needs and interests of individual group members - so balance is needed. Each approach has its uses and effects, but each must be used for the right purpose. 5) Identifying individual learning needs, which are often not shared by others, can lead to an unimpressive cost-benefit analysis in terms of individually targeted use of educational resources if used inappropriately. Individual learning needs assessments are best used in the context of learning that occurs individually - such as in the relationship between a GP registrar and a trainer [2].

2 Methods

This research uses descriptive quantitative method. This research approach uses a needs assessment approach which consists of 6 steps: 1) Scope the needs assessment, 2) Determine assessment criteria, 3) Plan for data collection, Collect, analyze and present data, 4) Apply the criteria and prioritize needs, and 5) Identify next steps and report back [3]. The research variable is the level of student understanding of the basketball game rules. The research instrument was a questionnaire consisting of 15 questions about the rules of the basketball game. Data collection was carried out by survey. The study population was students majoring in sports coaching education. The sampling technique was purposive sampling. The samples are students who have taken basketball 1 course and received basketball game rules material. The sample of this research is 63 samples. The data analysis technique used descriptive statistics to find the mean.

3 Results and Discussions

Of the 63 samples, 38 samples do not understand the rules that basketball games are divided into 4 quarters with 10 minutes per quarter. A total of 46 samples did not understand the overtime rule if there was tied at the end of the 4th quarter. A total of 17 samples did not understand the 8 seconds violation rule. A total of 29 samples did not understand the 24 second violation rule. A total of 14 samples did not understand the 3 seconds violation rule. A total of 7 samples do not understand the rules of illegal dribbling: double dribbling violation. A total of 19 samples did not understand the illegal dribble rule: carrying the ball violation A total of 38 samples did not understand the 5 second violation rule. A total of 30 samples did not understand the rules of back court violation. A total of 29 samples did not understand the rules of substitution in basketball. A total of 9 samples do not understand the charging foul rules. A total of 5 samples did not understand the handchecking foul rules. A total of 44

samples did not understand the double foul signal. A total of 22 samples did not understand the reset time signal. A total of 28 samples did not understand the fake foul signal.

The number of assessment questions is 15 points, if all the answers are correct then the highest score is 15 points. To facilitate scoring, multiply the total number of correct scores by 40 divided by 6 so that the final score if all correct answers are 100.

Table 1. Learning Outcomes of Basketball Game Rules

Skor Range	Categories	Frequency	Percentage
81-100	Very good	8	12.7%
61-80	Good	16	25.4%
41-60	Fair	28	44.4%
21-40	Poor	11	17.5%
0-20	Very Poor	0	0

Based on the results of the study, there were 24 samples who had a good and very good understanding of the rules of the basketball game or 38.1% of the total sample. The rest, a number of 39 samples or 61.9% of the samples have sufficient and inadequate understanding of basketball game rules, or in other words, the level of understanding of 61.9% of the sample towards basketball game rules is not good. A more effective learning media is needed in delivering basketball game material.

In addition to questions to explore the level of understanding of the sample towards basketball rules, researchers also asked questions related to learning basketball game rules material to explore the media and learning methods expected by students. So far, the material for basketball game rules is presented in practice on the field. A total of 48 samples gave suggestions that the material was delivered at a specific time in a focused manner. A total of 55 samples have difficulty learning the rules of the FIBA 2018 basketball game in English and hope that they can be translated into Indonesian. [4] The 2018 FIBA basketball game rules book contains explanations in the form of text and images, some 45 samples think it will be easier to learn if the learning media consists of text, pictures and videos.

4 Conclusions

From the results of the study it can be concluded that the level of understanding of the sample towards basketball game rules is not good. It takes learning media that is in accordance with the characteristics of the sample, namely learning media for basketball game rules which contain explanations in the form of text, images, and videos in Indonesian. The results of this study serve as a reference for researchers to develop learning media for basketball game rules which will be named BRAM (Basketball Referee Assessment and Module). In addition to containing basketball game rules, BRAM will also be equipped with an assessment rubric to determine the level of effectiveness of the BRAM itself.

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Giving Combination of Back Massage and Self-talk on Anxiety Level and Breastfeeding Self-efficacy in Postpartum Mother

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Abstract. This study was analyzed the effect of combination back massage and self-talk on increasing breastfeeding self-efficacy and reducing anxiety in postpartum mothers. The method used in this study is a quasi-experimental and pre-post test with control group desaign. This research was conducted in 4 Public health centers in Purwodadi working area, Grobogan Regency, Central Java, which had been randomly allocated. As many as 36 postpartum mothers, there were 18 postpartum mothers who had mild to moderate anxiety that include the inclusion and exclusion criteria. The instrument used was the Breastfeeding Self-Efficacy questionnaire (BSES) used to assess confidence in the breastfeeding process and the Postpartum Specific Anxiety Scale (PSAS). Statistic showed there were decreasing anxiety and increasing breastfeeding confidence in each group with a p value <0.05 but the difference test results indicated decreasing anxiety level and increasing breastfeeding confidence better than the control group with p value 0,000. This studay was concluded that giving combination of back massage and self-talk more effective to reduce anxiety level and to increase breastfeeding self-efficacyin postpartum period. Positive self-talk using happy maternal (happy to be mother) card can be used whenever and whereever when the mother needs suggestionand suport during postpartum period. In the future study are expected to add biomedical indicator and to apply this intervention in the wider group.

Keywords: Anxiety, Breastfeeding Self-efficacy, Back Massage dan Self-talk.

1 Introduction

The postpartum period is known as a transition period of a woman's life to be a mother, to have a changing role, responsibility identity, physics, and social. They are the absolute changes that are experienced by each woman [1,2]. The steroid hormone change is caused by detached placenta. Meanwhile, the oxytocin hormone begins to decrease since the last trimester of pregnancy [3]. The decreasing of steroid and oxytocin hormone influence the mothers' moods. They make mothers easily emotional and sensitive. Moreover, postpartum fatigue increases the mothers' anxieties [4,5,6]. Normal anxiety functions as an individual's self-defense. However, when it exaggerates, it will trigger the brain to produce cortisol hormone [7, 8].

High cortisol hormone content in a mother’s body suppresses oxytocin and prolactin hormone production that disturbs the breast milk production. The disturbed breast milk production makes a mother anxious and feeling unable to breastfeed her infants. This condition decreases a mother's confidence in breastfeeding and caring for her infant. If it is ignored, the anxiety of a mother could make her depressed [9,10]. A mother that suffers from anxiety disorder will experience sleep disturbance. It negatively impacts to the mother's health and inhibits the postpartum recovery process [11,12].

The prevalence of anxiety, according to the previous studies, were 15-40% from various countries [13], 23% occurred in the first week of postpartum delivery, 17% occurred in the fourth week, and 15% occurred in the eighth week [13]. In this research, after conducting the preliminary study, 18/36 postpartum mothers experienced mild and moderate anxiety in postpartum delivery.

2 Method

This research applies a quasi-experimental research design with pre-post-test with control group. The applied sampling technique was randomize allocation to determine the control and experimental groups. Then, they were screened by purposive random sampling to determine the selected sample.

This research was conducted at 4 health centers in Purwodadi and Grobogan municipalities. The applied sample consisted of normal postpartum mothers on the first day. They were primipara and multipara women aged 20 until 30 years old that suffered mild and moderate anxieties measured by the Postpartum Specific Anxiety Scale. The Breastfeeding Self-Efficacy was used to measure the mothers' self-efficacies in breastfeeding while feeling anxious. 18 respondents from 36 maternity mothers became the samples of this research.

In the experimental group, 11 mothers were given combined therapy between the back massage and self-talk. Meanwhile, the control group consisted of 7 mothers. They were only given a back massage. The back massage was given 4 times in 2 weeks with a 15-30 minute duration. It applied effleurage, friction, kneading massage or petrissage massage, and slow stroke back massage techniques. 8x10 Happy Maternal Card consisting of pictures and positive suggestions were consulted and tested in terms of its validities by the experts.

The applied instruments in this research were PSAS and BSES questionnaires.

2.1 PSAS

This research used the PSAS questionnaire. It consisted of 51 question items that reviewed the mothers' anxieties. They were asked to answer with option never until always. The scores were 1 until 4. The sum of the score would be assessed and adjusted based on the anxiety criteria. Score 51-70 anxious, 71-90 mild anxiety, 91-111 moderate anxiety, and ≥112 depressed.

2.2 BSES

The BSES questionnaire measured the mothers' self-efficacies dealing with breastfeeding capabilities. There were 14 question items with 1 until 4 Likert scores. The score was broken down into extremely not efficacious until very efficacious. After filling, the scores were calculated based on the values. Thus, the researcher would be able to find out which point became the doubt of the mothers in their breastfeeding processes. BSES was applied to examine the capabilities and self-efficacies of the mothers while engaging with the breastfeeding process.

3. Results and Discussions

3.1 Result

Table 1 and 2 show the data process result done by SPSS 4.0. There is a significant difference between the experimental and control groups. The anxiety average of each group showed the anxiety decrease and self-efficacy improvement of the breastfeeding capability.

However, in the experimental group, the anxiety decrease, and the mothers' self-efficacies to breastfeed were higher than the control group

Table 1. The Homogeneity Test of Anxiety and Self-Efficacy Breastfeeding.

Variables		Levene test *(p-value)*	Remarks
BSE	Pre	0.000	Not Homogeneous
	Post	0.000	Not Homogeneous
Anxious	Pre	0.861	Homogeneous
	Post	0.220	Homogeneous

The homogeneity test results in Breastfeeding Self-Efficacy (BSE) variable between before and after had a p-value < 0.05. It means the data is not homogeneous. Meanwhile, the anxiety variable between before and after the interventions had p-value 0.05. It means the data is homogeneous.

Table 2. Normality Test

Variables	Groups	*p-value*	Remarks
Pre-Anxiety	Intervention	0.426	Normal
	Control	0.184	Normal
Post-Anxiety	Intervention	0.878	Normal
	Control	0.726	Normal
Pre-BSE	Intervention	0.859	Normal
	Control	0.011	Not Normal
Post-BSE	Intervention	0.133	Normal
	Control	0.150	Normal

The normality test results on the BSES variable showed that the data was not normally distributed with *a p-value* < 0.05. Thus, the applied test was non-parametric. Meanwhile, the SPAS variable showed the data was normally distributed so the applied test was parametric.

Bivariate Analysis

a. The analysis of back massage and self-talk combination influences anxiety levels of Postpartum mothers.

Table 3. The analysis of back massage and self-talk combination influences anxiety levels of Postpartum mothers.

Variables		Groups		*P-value*
		Intervention Mean±SD	Control Mean±SD	
Anxiety	Pre	99.73±4.901	96.57±5.884	
	Post	69.3±3.901	82.71±6.264	
p-value		0.000[a]	0.006 [a]	
Deviation		25.55±3.560	10.00±6.481	0.000[b]

Table 4. The anxiety level percentage during pre and post-intervention of the postpartum mothers.

Variables		Groups	
		Intervention Anxiety Statuses	**Control Anxiety Statuses**
Anxiety	Pre	Mild = 1 Moderate = 10	Moderate = 7
%		Moderate = 90.9% Mild = 0.9%	Moderate = 100%
Anxiety	Post	Not anxious = 7 Mild = 4	Mild = 7
%		Not anxious = 63.6% Mild = 36.4%	Mild 100%

There was a higher average decrease in the experimental group than the control group. The anxiety level experienced by the mothers decreased from 63% to not feeling anxious.

b. The analysis of a back massage and self-talk combination toward breastfeeding self-efficacy of the postpartum mothers.

Table 5. The analysis of back massage and self-talk combinations toward breastfeeding self-efficacy of the postpartum mothers

		Ranks			**Z Scores**	***P-value***
		N	**Mean Rank**	**Sum of Ranks**		
Post_tot - Pre_tot Ex	Negative Ranks	0[a]	.00	.00	-3.305	0.001
	Positive Ranks	14[b]	7.50	105.00		
	Ties	0[c]				
	Total	14				
Post_tot - Pre_tot Control	Negative Ranks	0[a]	.00	.00	-3.019	0.003
	Positive Ranks	11[b]	6.00	66.00		
	Ties	3[c]				
	Total	14				

Table 6. The T-test Results of back massage and self-talk combination influences anxiety levels of Postpartum mothers

	Ranks			**Z score**	***P-value***
	Group	Mean Rank	Sum of Ranks		
Delta_BSE	Control	7.96	111.50	-4.251	0.000
	Experimental	21.04	294.50		

Both groups had their self-efficacies in breastfeeding improved. However, the experimental group's improvement was higher. Then, for the whole question, the score

improvements were different from the control group that had 3 questions with the same pre and post-test scores

3.2 Discussions

The findings showed that the administration of back massage for ± 30 minutes, twice a week in 2 weeks, and the given self-talk after the massage followed up autonomously before sleeping and wake up was more effective to decrease the mothers' anxieties in the postpartum period. These findings were consistent with the previous studies. It was caused by the back massage influence. It could provide a comfortable and relaxing feeling that could increase oxytocin hormone as well as an oxytocin massage that had been proven effective to increase cortisol hormone [14, 15, 16, 17,18].

The effects of the massage administration that are received by the skin are forwarded to autonomic nerves. Thus, it could reduce cortisol, adrenaline, and non-adrenaline hormones. It leads to the capability to regulate the nerve, the forebrain, and the controlling tissue activities. The severed pressures could improve blood circulation and lymphatic drainage [19]. They cause changes in heart pulses and blood pressures that make the body relax and improve the immune system [20].

Self-talk that was combined with the massage could influence the mothers' thoughts. It made them having high self-efficacy to breastfeed. It was in line with the previous studies that the provided suggestions through the cards could be accepted by mothers. Then, they influenced the mothers' mindsets. They would believe they could undergo the postpartum period happily and could breastfeed their infants well [21,22].

4. Conclusions

The combination of back massages and self-talk could be a better alternative to relieve anxiety and improve self-efficacy in breastfeeding than when it is only administered by a back massage. Massaging was proven capable to improve breastmilk production. It also provided a comfortable and tranquil feeling by giving positive suggestions. It could be done by media such as self-talk with the card to empower the clients and improve the mothers' cognition so they would automatically follow the given suggestions. In this research, there were many shortcomings such as insufficient samples due to COVID-19. Thus, there is a need to extend the sample and add biomarkers to find out the influences of back massage and self-talk combination in decreasing anxiety and improving breastfeeding self-efficacy

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Description of Knowledge and Eating Behaviour Diabetic Patients in Semarang City

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Abstract. Diabetes mellitus (DM) is a degenerative disease with metabolic disorders, especially carbohydrate metabolism caused by reduced or absence of the hormone insulin. The purpose of this study was to analyze the description of knowledge and eating patterns of DM patients in Semarang City. This research is a quantitative study using descriptive methods. The population in this study were all DM patients aged 45-65 years in Semarang City (Pegandan, Bandarharjo, and Bulu Lor Health Center) with a sample of 30 respondents obtained by taking a simple random sampling technique. Data were analyzed using univariate analysis. The results of this study indicate that the level of knowledge ~~of~~ on DM patients is less (60%) and the diet is excessive, which were not appropriate with type, schedule, and number (63.3%). The conclusion is that lack of knowledge and excessive eating patterns will lead to an increase in blood glucose levels and also an increased risk of death, especially for cardiovascular complications, besides some acute complications.

Keywords: Knowledge, eating pattern, diabetes mellitus

1. Introduction

Diabetes mellitus (DM) is a degenerative disease that is a health problem nowadays. Diabetes mellitus (DM) is a metabolic disorder, especially carbohydrate metabolism caused by a reduction or absence of insulin hormones from pancreatic beta cells, or due to impaired insulin function, or both [1].

The prevalence of DM in the World in 2015 based on the age of 20-79 years is 415 million people and in 2040 it is estimated that the number will be 642 million [2].

In 2014 there were 96 million adults with DM in the Southeast Asia region, almost 80% of people suffering from DM were in low and middle-income countries [3].

Indonesia is a country ranked 6th in the world and the highest cause of death, due to DM with the highest number of DM, which is 10.3 million and died before 70 years of age [3,4].

Research [5,6] that the factors associated with type II DM events and causes of death are family history, age, education level, income level, obesity, activity physical, smoking, lifestyle (consumption of fast food and consumption of soft drinks), lack of knowledge and low economic status are at risk of developing DM.

A diet with a low amount of calories and a healthy diet can reduce the risk of DM. Low knowledge about DM and lack of physical activity can increase blood sugar levels so that the risk of developing DM [7,8,9,10].

Eating patterns and unhealthy lifestyles by consuming fast food resulted in increasing type II DM sufferers, so that if not treated immediately will cause complications until death [11].

DM cases in Central Java in 2013 to 2016 increased by 13.6%, 14.96%, 15.77% and 22.1%. Data from Semarang City Health Office (DKK) in 2019 Type II DM cases based on age 45 to 65 years, amounting to 17793 cases. The highest DM Type II cases and an increase in 3 Semarang City Health Centers in 2016-2019 are Pegandan Health Center 11-1285 cases, Bandarharjo 16-1428 cases, and Bulu Lor 8-1134 cases. In 2019 the cases of DM Type II in men were 12137 cases and women were 19316 cases [12].

2. Method

This research is a quantitative study using descriptive methods. The population in this study were all DM patients aged 45-65 years in Semarang City, while the total sample of 30 respondents in Semarang City was Pegandan Health Center, Bandarharjo Health Center, and Bulu Lor Health Center. The sampling technique in this study is simple random sampling and uses univariate analysis. Data collection techniques will be carried out by interview, as well as secondary data collection [13,14,15].

3. Result

Univariate data analysis was performed to get a picture of the frequency distribution of respondents. This analysis is used to obtain an overview of each independent variable and the dependent variable.

Table 1. Gender Frequency Distribution

Characteristics	Frequency	Percentage%
Gender		
Male	13	43.3 %
Female	17	56.7 %

Table 1 shows the results of 30 respondents who were interviewed using a questionnaire obtained the results of there were 13 people (43.3%) male sex and as many as 17 people (56.7%) female sex, where the highest prevalence of DM sufferers occurred in a female. The results of this study are in line with research by [16], female sex tends to be more at risk of developing diabetes mellitus because it is associated with large body mass index and menstrual cycle syndrome and during menopause which results in easy accumulation of fat which results in inhibition transport of glucose into cells. Research conducted by [17] states that women have a higher risk of developing diabetes mellitus compared to men and also according to Riskesdas [18] the prevalence of women is greater than men, this is due to several risk factors such as obesity, less activity, and age. This is supported by [19] There is a significant relationship between age and the incidence of Type 2 Diabetes mellitus where people aged ≥45 years have a 9 times risk for developing type II DM compared with those aged less than 45 years.

Table 2. Frequency Distribution of Education Level

Characteristics	Frequency	Percentage%
Pendidikan		
No school	9	30 %
Elementary school	7	23.3 %
Middle School	6	20 %
High school	5	16.7%
College	3	10

Table 2 shows the results of 30 respondents who were interviewed using a questionnaire obtained the results of there were 9 people (30%) not in school, 7 people (23.3%) elementary school, 6 people (20%) junior high school, 5 people (16.7%) high school and 3 people (10 %) College. From the research, the majority did not go to school but apart from that most of the respondents were elementary, junior high, high school, and college. According to the [20] the lower a person's education, the lower the ability to respond to a problem.Someone who does not have or get formal education will be more at risk of developing DM, conversely someone who is highly educated will have good knowledge about DM [21,22].

Table 3. Frequency Distribution of Knowledge Level

Characteristics	Frequency	Percentage%
Knowledge		
Good	5	16.7 %
Enough	7	23.3 %
Less	18	60 %

Table 3 shows the results of the 30 respondents interviewed using the questionnaire obtained the result of there were 5 people (16.7%) a good level of knowledge, 7 people (23.3%) the level of knowledge was sufficient and the level of knowledge was as low as 18 people (60%). Knowledge is the result of knowing, after someone has sensed a certain object in shaping one's actions [13]. Lack of knowledge of respondents about the causes of DM, DM symptoms, early detection, and how to take medication correctly. The results of this study are also in line with the study of Islam et al [23] that the community or patients with type II DM in Bangladesh have limited or less knowledge, will be at risk of developing type II DM. One's knowledge about DM directly influences glucose levels and knowledge related to food intake greatly influences the occurrence of Type II DM [24]. Knowledge about DM is very important because this knowledge will bring sufferers to determine the attitude, try, think, and try not to be affected by the disease or can reduce the condition of the disease. If someone has good knowledge about DM then the attitude they have to regulate their diet or diet is also good and can prevent the occurrence of DM [25].

Table 4. Frequency Distribution of Eating Patterns

Characteristics	Frequency	Percentage%
Eating Patterns		
More	19	63.3%
Less	11	4.7 %

Table 4 shows the results of 30 respondents who were interviewed using a questionnaire obtained the result of there were 19 people (63.3%) overeating patterns and as many as 11 people (36.7%) enough diets. The dietary pattern of excess DM patients of type, amount, and schedule. The results of this study are in line with the research of [26] diet and energy, protein, carbohydrate, and fiber intake greatly affect blood sugar levels of DM Type II

patients. There is a strong relationship between diet and blood sugar levels because if the diet is not good as recommended by the 3J principle (schedule, type, and amount) there will be instability in blood sugar levels [27]. The diet of DM patients must be considered because diet plays an important role for DM sufferers if they cannot manage their diet by setting 3J (schedule, type, and amount) then this will cause the sufferer to increase blood sugar levels [9]. A high-calorie diet, consumption of salty foods can also increase blood sugar levels by 2.16 times the risk of developing DM [28] and diet dengan karbohidrat dan kalori dapat mengurangi risiko DM tipe II [29,30].

4. Conclusion

The conclusion of this study is the lack of knowledge of DM patients will lead to an attitude to act unwilling to know the current conditions and there is no effort to cope before being exposed to the disease other than that the DM patient's diet is not well regulated by 3J (Type, Number, and Schedule) will cause an increase in glucose levels in the blood and also an increased risk of death, especially for cardiovascular complications, besides some acute complications.

It is expected that the public, especially DM sufferers, should be able to add insight by implementing DM management appropriately and correctly according to instructions from health workers obtained during counseling and also adjusting eating patterns properly and correctly as recommended. For further researchers can develop this research so that it can cover in detail.

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The Surveillance of Potential Emerging Zoonotic Disease-Coronavirus in Semarang City

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Abstracts. Some areas in Central Java province are in red zone of Covid-19, including the Semarang city. Some strains of CoV are zoonotic, can infect humans and animals. Alpha-and Bethacoronavirus are patogenic in mammals. The most recent research has found cats, dogs, tiger infected with Covid-19 from humans. This situation should be wary of potential Emerging Zoonotic Disease (EZDs). The purpose of research is to know the potential of EZDs with CoV as a pandemic agent. This research using a descriptive survey method. Research samples are peoples who live near monitored,patients, and confirmed possitive Covid-19 (treated/cured/deceased) that have pets/livestock. The sample was taken with random sampling cluster and using a questionnaire. The distribution of pets:dogs(2%), cats(39%), birds(14%), others (45%). Presence of wild animals/ without owners: dogs(1%), cats(65%), birds(16%), chicken (9%), bats (6%), others (4%). Location of owner's: close to monitored people (10%),treated (8%),deceased (3%), have no pets and remote from Covid-19 (79%). People who have a travel history from the red zone and directly interact with pets without carrying out Covid-19 preventive procedures (12%), routine health screening of pets (15%) and pet vaccination (19%).

Keywords: Pets, Individual Hygiene, Covid-19

1 Introduction

Novel SARS-CoV-2 coronavirus or known as Covid-19 is a ss-RNA virus belonging to the genus Betacoronavirus. Covid-19 was discovered at the end of 2019 in Wuhan City in China, transmission of the virus has become a pandemic and has reached more than 70 countries. Transmission of this case is quite fast, within 24 hours an additional case of 214 patients can occur. Covid-19 transmission that occurred in various countries is the result of natural evolution that occurs in viruses. The results of the analysis of protein genetic material found on the surface of the virus (Receptor-Binding Protein /RBD) can be used by viruses to attach or penetrate to the outer walls of human and animal cells. RBD on the surface protein SARS-CoV-2 is effective for binding to human cell walls, it can be concluded that SARS-CoV-2 has evolved naturally [1],[2],[3].

Covid-19 has infected Indonesia's population and reported as many as 9096 cases, scattered in various regions of the red zone. Some areas in Central Java Province have red zone status, including Semarang City. Central Java, including areas with high Covid-19 cases, have reported 20 regions with red zone status, including the city of Semarang. Based on the corona.jatengprov.go.id page, the number of people in monitoring (ODP) in Central Java has

exceeded 28,826 cases. While the number of Patients Under Supervision (PDP) is 1,307 cases, the number of positive cases of corona virus is 704 cases.

Coronavirus is included in the Coronaviridae family with the Coronavirinae subfamily. Coronavirinae has genus alpha, beta, gamma, and delta coronavirus. Some strains of CoV are zoonotic, can infect humans and animals. Alpha-and Bethacoronavirus are patogenic in mammals. CoV can infect dogs&cats. The most recent research has found cats,dogs,&tiger infected with Covid-19 from humans, but there has been no further research on a cycle of transmission back to humans. This situation should be wary of potential emerging zoonotic disease, which can be pandemic & the importance of knowing the potential animal as a source of transmission/reservoir or possible origin coronavirus. By knowing the source of transmission of the virus, it can be known the mechanism of transmission and the right steps to control or prevent transmission [1],[3],[4].

Prevention of the spread of Covid-19 at this time, can be done by applying Covid-19 prevention rules according to WHO recommendations. Citizens' compliance is important to prevent transmission between humans, as well as Covid-19 transmission from humans to animals, especially pets. Information on the diversity of species and distribution of pets that have the potential to be infected with Covid-19 and other sources of CoV zoonotic strains, as well as the compliance of citizens in implementing Covid-19 prevention related to the management of pets / livestock during the pandemic; can be used as a form of vigilance of potential emerging pathogenic viral zoonotic diseases as a pandemic agent. The purpose of research is to know the potential of Emerging Zoonotic Disease (EZDs) with CoV as a pandemic agent, by obtaining data & information on the spread/variety of animal species as possible Origin CoV, also owner's treatment on pets in the period of Covid-19 pandemic in Semarang City [4],[5].

2 Method

The study of this research is a descriptive study and design of this research is using survey. Researcher taken a samples and using a questionnaire to guide an interviews also to collect data.

The objective this research was to investigate the potential of Emerging Zoonotic Disease (EZDs) with CoV as a pandemic agent, by obtaining data & information on the spread/variety of animal species as possible Origin CoV, also owner's treatment on pets in the period of Covid-19 pandemic in Semarang City. Result of this research will be used as an early vigilance about the species as possible origins Covid-19 and the procedure of owner's treatment in pets according to the Covid prevention procedure, both can minimize the potential EZDs.

The research population is the whole residents living in Semarang City. Research samples are people who live near monitored peoples, patients, & confirmed positive Covid-19 (treated/cured/deceased) that have pets/livestock. The method to take a sample using a cluster random sampling. A 5 cluster citizens from 16 cluster citizens sub-district in Semarang City was taken as a minimal sample. Research variables are spread/variety of animal species as possible Origin CoV and owner's treatment on pets in the period of Covid-19 pandemic.

The spread/variety of animal species as possible Origin CoV and owner's treatment on pets data was analysed using descriptive methods. Collected data was analysed using SPSS programs, a descriptive statistic, Excel and Microsoft Words. Presented using table and grapich.

3 Result and Discussion

Improving the health of people's quality of life through handling zoonotic diseases, namely Covid-19 infections. Zoonotic diseases which are pathogenic and capable of infecting humans and animals, can potentially cause an outbreak or an emerging zoonotic disease that has the potential for a pandemic in the future. For that we need to know the possibility of distribution and types of animal species that can be a source of coronavirus. Given the ability of the corona virus to evolve naturally, it can switch hosts from animals to humans. If human-to-human transmission has occurred, a potential pandemic can occur. This evolutionary cycle needs to be known, although it is difficult to determine the evolutionary path that occurs. Nevertheless, by knowing the possible origins of coronavirus, the mechanism of disease transmission can be identified, so that appropriate prevention can be done. Characteristics of respondents in this study, are as follows, **Table 1**. [1],[3],[6],[7].

Table 1. Respondents characteristic

Characteristic		%
Sex	: Male	10
	Female	90
Age	: < 20 year	5
	20 – 29	44
	30 – 39	23
	> 40	28
Education	: Senior high school	28
	College	72
		30
Profession	: Employment	
	Unemployment	3
	Others	67

Based on the characteristics of the respondents show on **Table 1**. it give a result that did not provide a meaningful difference and affect the results of the study, so differences in the characteristics of respondents could be ignored. In this study, the distribution of animal species maintained by people in the Covid-19 red zone was as follows, **Figure 1**.

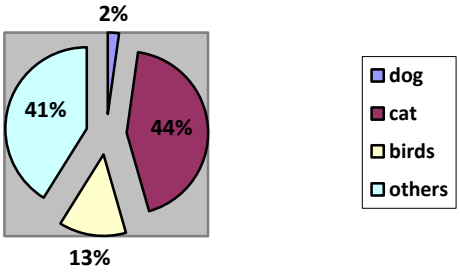

Fig. 1. Variety of animal species

In this study, the distribution of wild species animal/without owner in the Covid-19 red zone was as follows, **Figure 2**. Presence of wild animals/without owners radius of 10 m : dogs (1%), cats (65%),birds (16%), chicken (9%), bats (6%), others(4%). From the results of the study it can be seen, that cats are in the highest number for pets and wild animals / without owners. Cats are animals that can potentially be a host / reservoir for the corona virus. Especially in wild cats, which are very at high risk of contracting or being infected. Because based on existing research, corona virus can survive in the environment in a long time, a matter of hours or even days. Considering covid-19 transmission through droplets [2],[7],[8],[9].

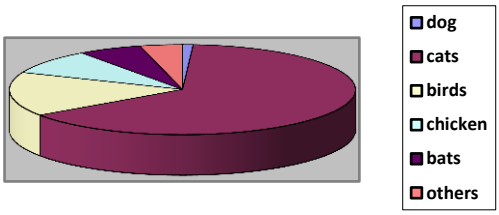

Fig. 2. Presence of wild animals/without owners radius 10m.

Location of owner's residence are close to monitored people with Covid -19 (10%), treated Covid-19(8%), deceased (3), have no pets & remote from people with Covid-19 (79%), shows on **Figure 3**. and **Figure 4**.

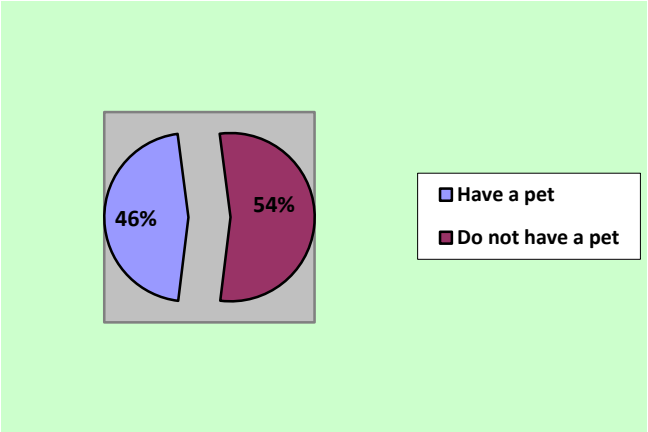

Fig. 3. Pet ownership

In this study found about 10% of pets owned by people who are included in the category of people monitoring covid-19. Although only a small percentage of ownership in the person being monitored. This is still a concern for the possibility that pets may be infected by co-19 from their owners. People who have a travel history from the red zone & directly interact with pets without carrying out Covid-19 preventive procedures (12%), routine health screening of pets (15%), routine pet vaccination(19%). Early vigilance about the species as possible origins Covid-19. in this study it was known that only a few people performed co-19 prevention

procedures when interacting with pets. the owners after traveling from the covid-19 red zone area, did not do personal hygiene before interacting with their pets the procedure of owner's treatment in pets according to the Covid prevention procedure, can minimize the potential EZDs [7],[8,[9]. Pet health check is important. sick pets should be checked by a veterinarian. Based on case reports and the results of existing studies, symptoms of animals infected with Covid from the owner, showing symptoms of respiratory problems as well as several other symptoms such as diarrhea. By conducting a pet health check to the vet, it can be seen the possibility of a pet infected with non-CoV or CoV disease by conducting a rapid test / PCR [5],[9],[10],[11].

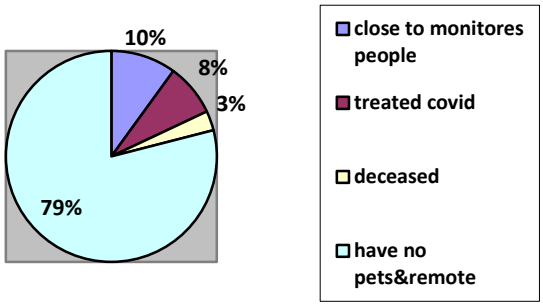

Fig. 4. Locations of pet owner's residence

Based on the result of the study, it is possible for pets to contract covid-19 from the owners, it is very likely to occur. Especially for pet and their owners who live in an area with a red zone categories. The latest research and based on a statement from the WHO that it is possible corona virus can be transmitted by the airborne route. In this study only found 12% of animal owners who directly interacted with pets after traveling from the red zone, this condition remains a high risk of animals being infected with covid-19. Although it is necessary to do a rapid test and real-time polymerase chain reaction (RT-PCR) tests were used to detect SARS-CoV-2 on pets, to ensure the possibility of transmission from the owner to the animal. Especially in this study, it was found that only 15% of animal owners routinely conduct pet health checks and 19% of owners vaccinate pets. This figure shows more than 50% of the pet population has not been vaccinated. This condition results in susceptible pets infected with the disease [10],[12],[13].

In this study also found bats that are around residential areas with the red zone category. Some CoV strains are classified as zoonotic, can infect humans and animals. Pathogenic Alpha- and Bethacoronavirus in mammals. In animals CoV can infect dogs and cats. CoV which infects humans and animals, although different, but the results of the study found bats act as reservoirs of CoV. CoV in a bat is able to mutate and recombine into new strains, capable of transmitting across species. CoV which mutates from the reservoir, if it has infected humans, it is very easy to spread and potential pandemic. Some researchers claim that the reservoir for SARS-CoV-2 is a bat, because it is almost like a coronavirus that infects bats, although there is a possibility of intermediate hosts between bats and humans. In other possible evolutionary paths, it is possible for non-pathogenic viruses to move from animals to

humans. Then in the human body this virus evolves into a pathogenic virus, and then transmission occurs between humans. Rambaut (2020) warns, although it is difficult to know the initial path of evolution of CoV. If the pathogenic SARS-CoV-2 that infects humans is currently sourced from animals, this could increase the likelihood of future outbreaks. Because the type of virus that causes Covid-19 can still circulate in animal populations, and it is very possible to jump / move hosts to humans [14],[15],[16].

4 Conclusions

The conclusion it is known that there are pets that can host coronaviruses and even bats have been found near residential areas in the covid-19 red zone. So that the potential for the emergence of covid-19 disease in animals, needs to watch out for and do prevention, namely by conducting covid-19 prevention procedures correctly

5 Recommendation

Should do covid-19 prevention procedures correctly, especially when returning from traveling in the red zone and when interacting with pets, and wild animals that are around the place of residence.

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The Effect of Walking Exercise on Physical Fitness and Depression Rate of AJB Community in Semarang

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Abstract. Walking exercise in the covid-19 pandemic becomes the people choice who wants to maintain health conditions. Survey and test research design and quantitative descriptive were used in this research. The population was 15 men above 40 years of AJB walking exercise community. The sampling used here was total sampling. The result of this study related to physical fitness showed that 2% or 3 people were in a good category, 6% or 9 people were in a fair category, and 2% or 3 people were in a poor category. The result concerning to depression level described that 8% or 12 people said walking exercise could reduce their stress and anxiety significantly. They felt more confident and happy. Meanwhile, 2% or 3 people still could not reduce their stress and anxiety. It was concluded that walking exercise has an effect on physical fitness around 6% in the medium category. Meanwhile, the 8% data showed that walking exercises affect reducing depression, stress, anxiety and increase the confidence feeling. Those can be achieved if walking exercise is carried out sufficiently, between 3 to 4 times in a week with a duration of 1 hour with 10 minutes for warming up and 5 minutes for recovery.

Keywords: exercise, walking, fitness, physical, depression

1. Introduction

Walking exercise is the communities's choice because it is considered to be able to provide health benefits from the physical, mental and social aspects of the sport persons. Walking exercise is one of the physical activities during the Covid-19 pandemic to maintain physical fitness. In doing that exercise, people should be noticed on the health protocol.

Intelligent thinking is needed to run the health protocol, including in sport, in the pandemic recommended by the government in the real condition. Walking exercise is chosen as the community can do it every day. It is easy, low-price, and rousing exercise. Therefore, this research tries to examine to what extent the effect of walking exercise on the level of physical fitness and depression for the sport persons.

Walking is a simple and relatively safe exercise, especially for the age of 40 years and above. Walking can train the strength of heart muscle and smooth breathing. Furthermore, it can train the leg muscle strength which will help to pump the blood return to the heart. This activity can be presented in recreational sports, such as walking around City Park, walking on the beach, walking in the countryside, or walking individually or in a group [1].

Besides, walking exercise affects physical fitness and psychological conditions related to the level of depression such as stress, lack of confidence, confusion and anxiety.

Soejono [2] revealed that depression is a psychiatric disorder that most often occurs in old age. It occurs due to the interaction of biological, physical, psychological, and social factors. Nevid [3] mentioned that depression is a mood disorder, where there is a change in the

condition of emotional, motivation, function and motor behavior, and the cognitive condition of a person.

Physical fitness in the elderly is related to health, i.e., heart fitness, lung power, blood circulation, muscle strength, and joint flexibility [4].

1.1. The relationship between walking and the level of depression

Literature had shown that there is a strong relationship between physical activity and depression. It is shown that more active individuals have a lower incidence of depression [5], [6]. Besides, some people argued that physical activity has a therapeutic effect on depression [7], [8].

1.2. The relationship between walking and physical fitness and anxiety

Physical activity is recommended for mental health in general as well as for certain mental health conditions. Recent studies conveyed the therapeutic has an advantage in a sport when it is applied as a therapeutic complement in anxiety treatment [9]. Physical activity as a healthy lifestyle tends to improve the quality of life, improve the physical and psychological well-being, and it results in a decrease of depression and anxiety level [10].

The fruitfulness of development, especially in the health sector, has increased life expectancy, so the community expects to keep their physical and psychological condition concerning depression through walking exercise. Walking exercise is chosen due to its ease, cheapness, festivity, affordability, pleasure, and its benefit in fulfilling physical and psychological health. Therefore, it can be said that walking exercise is an effort to keep physical fitness and depression level.

Then, based on the observation, walking exercises be the choice of most people because it is not only the medium of social communication but also as an effort to maintain a healthy balance, especially in the level of physical fitness and depression. From the background of the problem description and also from the theoretical study which said that walking exercise could keep the healthy balance of physical and psychological aspect, the researcher wants to do the research with the title “The Effect of Walking Exercise on Physical Fitness and Depression Rate of AJB Community in Semarang”.

2. Method

The research design used in this research was a survey and test. The quantitative approach was applied here. The population was 15 men above 40 years of AJB walking exercise community. The sample was AJB walking exercise community at 40 years old and above. The sampling technique used was total sampling. The independent variable was walking exercise, while the dependent variable was the physical fitness level and psychological condition related to depression level. The data was collected through the survey of walking 2,4 km test to measure the physical fitness level (good, fair, poor, and very poor category). Moreover, the questionnaire was also used in observation to measure the depression level (high, medium, low category). The data were analyzed by using a descriptive statistic, and then it was analyzed interactively related to depression level data.

3. Result and discussion

The data analysis result described that the physical fitness level of AJB walking exercise community was: 1) 2% or 3 people were in good category. They walked regularly and routinely for 60 minutes 4 or 5 times a week. Their pulse intensity was 70 – 80 per minute. 2) 6% or 9 people were in fair category. They walked in 3 – 4 times a week with a duration of around 60 minutes. Their pulse intensity was 70 – 90 per minute. 3) 2% or 3 people were in the poor category. They did not discipline in doing walking exercise. They walked only 1 – 3 times a week.

The data analysis on depression condition showed that 8 % or 12 people said that walking exercise could reduce their stress and anxiety significantly. They felt more confident and happy. Moreover, 2% or 3 people still could not reduce their stress and anxiety. They did not feel confident and they feel tired. The assumption is that walking exercise was done sufficiently between 2 until 5 times a week for 1 hour (10 minutes warming up/check the pulse, 5 minutes recovery).

The benefit of walking exercise on the health are as including: avoid osteoporosis. It is a bone disease that occurs in people over 40 years old due to low bone mass and bone microarchitecture and a decrease in bone tissue quality, leading to bone fragility. The prevention of bone loss is obtained not only for calcium in milk but also with overall body movements such as walking for at least 30 minutes every day.

Walking exercise makes the blood pressure decrease, which reduces blood-clinging adhesion, causing blood clots that clog arteries. When people walk, the body will move so good cholesterol (HDL), which absorbs bad cholesterol (LDL), increases and will nourish the heart.

A walking exercise will keep the stamina if it is done every day so that it has an impact on body fitness. Walk three times a week is able to improve physical fitness and maintain the respiratory system significantly.

Walking exercise is one type of relaxing exercise that can be done by anyone. It can be done anytime and anywhere. Walking activity can make the respiratory system smoother and healthier. Also, walking every day increases the breath better.

Perform walking regularly helps to boost the metabolism system. It will help to maintain blood pressure stability. For those who have high blood pressure, it is better to start doing walking exercise in the morning.

Dementia is a disease characterized by decreased brain function that mostly attacks older people. Studies and research have shown that this dementia disease can be prevented by doing regular walking exercise. At least, walking exercise can reduce the risk of dementia around 40%.

Walking exercise is a strong foundation for everyone in living a healthy life. For instance, some dairy products advise the public to implement a 10,000-steps every day to improve health and prevent bone disorders and diseases.

Walking exercise strengthens the human immune system. Sweating and a good metabolism system can help the body's immunity so as not to be attacked by various dangerous diseases.

Vitamin D in the body can be obtained from many sources such as food and morning sunlight. Morning sunlight is a valuable source to create vitamin D. Walking outdoors in the morning will automatically provide the body with enough sunlight. It will increase vitamin D in one's body.

Walking around 30 minutes in the morning will make someone sleep better at night. Like exercise in general, walking will greatly help metabolism and provide a comfortable effect during sleep.

4. Conclusion

In line with the result of the research, it could be concluded that walking exercise can affect the level of physical fitness of 6% or 9 people. They were in the fair category. In contrast, 12 people or 8% said that walking exercise could significantly reduce stress and anxiety. They felt more confident and happy. The assumption is that walking exercise was done sufficiently between 2 until 5 times a week for 1 hour (10 minutes warming up/check the pulse, 5 minutes recovery).

Walking exercise if it is done correctly is beneficial for a health condition such as: prevent the osteoporosis, maintain cardiovascular fitness, maintain body fitness, improve the respiratory system, maintain blood pressure stability, prevent dementia, be the foundation of a healthy life, increase the immune system, increase the vitamin D, and make sleep more soundly so as to keep the mind calm and trusting.

It is suggested that AJB walking community in Graha Padma Residence Semarang can maintain walking activities as the physical development efforts that can also impact on psychology related to depression. They are expected to do walking exercise consciously so that physical fitness improves and the depression rate reduces.

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Effect of Areca Catechu Extract on Fatigue Index In Swimmers: Running-Based Anaerobic Sprint Test Protocol

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Abstract. This study aimed to investigate the ability of Areca catechu extract to decrease fatigue in athletes. 32 volunteers athletes from Jakarta State University were enrolled in double-blinded, placebo-controlled, parallel group comparison. The subjects were randomized to oral capsule areca extract (500 mg) for 7 days (group I), while 16 assigned to the control category (Group II) were given one capsule of placebo (500 mg of crystalline cellulose) thrice daily for 7 days. This study also used the running-based anaerobic sprint test (RAST) method to measure the fatigue index of the athletes. Significant reductions were observed in fatigue calculate between pre-test (6,75 ± 2,78) and post-test (4,63 ± 1,83) in the group I (areca extract groups) with p-value 0,000. We demonstrated that oral areca extract 500 mg can reduce the fatigue index in athletes

Keywords: Areca catechu, Fatigue index, RAST test.

1 Introduction

Sports involve physical activity that is done to train a person's body [1]. Sports are used as a supporting activity for humans to maintain health, and for some, it is a means to individual or group achievements [2]. Events that involve competitions between countries such as the Olympics and Asian games are forums for such achievements [3]. In the process of improving an athlete's performance, one's nutritional intake must be optimized [4]. Moreover, athlete's must avoid the possibility of harmful factors. One such factor being a high fatigue index [5].

In exercise physiology, fatigue has been defined as a decrease in performance during sustained effort or as a decrease in muscle force or power despite sustained effort. This decrease represents a body's or system's inability to maintain the desired or required work intensity and is typically felt as a "tired" sensation. Contrary to popular belief, this sensation is not necessarily due to lactate accumulation. The reality is that fatigue is probably multifactorial and attributed to many peripheral factors (within muscles), central factors (within the nervous system), or other factors not directly associated with the exercising muscles (e.g. cardiopulmonary or thermoregulatory system factors, discomfort tolerance, and mental toughness) [6,7,8,9].

Fatigue can become a significant problem that increases an athlete's risk of injury. We interested of incident injury to the quadriceps muscle of Indonesian badminton international athletes at the ASIAN GAMES 2018 event, namely an athlete named Anthony Ginting, who competed against Shi Yuqi from China [10]. At that time, Anthony Ginting experienced a spasm of the right quadriceps muscle. The cause of muscle spasm itself is fatigue that occurs

after strong and extensive muscle contractions, at which point the muscles are no longer able to contract due to the accumulation of lactic acid [11,12]. After understanding the problems experienced by Anthony Ginting, we attempted to identify how to reduce the fatigue index in athletes.

We were interested in comparing with previous research conducted by Suzuka Ataka et al, which explained that the active component of Applephenon extract is procyanidin, which has been shown to have no toxicity [13]; accordingly Applephenon extract can reduce physical fatigue through its antioxidant activity [14]. Based on these problems and interests, this study aimed to identify other extracts that could be used to reduce the fatigue index of athletes. This study chose Areca catechu because it contains alkaloids that can provide dynamic biological activity in humans and animals [15]. The areca nut is processed into an extract (500 mg capsule) for consumption by athletes to reduce their fatigue index. This study also used the running-based anaerobic sprint test (RAST) method to measure the fatigue index of the athletes.

Areca catechu contains alkaloids such as arecaine and arecoline. Alkaloids stimulate the sympathetic nervous system by working directly on α- and β-receptors, cause antipsychotic and antihypertensive activity, act as pre-synaptic alpha-adrenergic inhibitors, have mild anti-diuretic actions, and act as antineoplastic agents. Alkaloids also provide anti-inflammatory, demulcent, ganglion-blocking, anti-plasmodic, insecticidal, and hepatoprotective activities [15]. Meanwhile, the ingestion of excessive amounts of areca nut can produce dizziness. Other substances contained in this fruit include arecaidine, arecolidine, guracine (guacine), guvacoline, and several other elements [16].

Running-based anaerobic sprint test, developed in the UK in 1997 by Draper and Whyte [17,18] at the University of Wolverhampton, the running-based anaerobic sprint test (RAST) is a protocol that measures anaerobic power and capacity [17,19]. The test involves six sprints over a 35-m distance with a 10-sec recovery between sprints. Due to its accuracy and simplicity, the RAST is commonly used by exercise professionals to monitor performance [19]. In this study, the RAST was used to measure the fatigue index in athletes before and after a 7-day course of thrice-daily areca extract therapy [20]. We takes the maximum, minimum, and average power output values to calculate the fatigue index [19.

2 Method

In this study, 32 volunteers athletes from Jakarta State University were enrolled in this double-blinded, randomized, placebo-controlled, parallel group comparison. The participants were recruited using an advertisement in Sport Science Faculty of Jakarta State University. Current smokers, subjects with a history of medical illness, subjects taking long-term medication or supplemental vitamins, and subjects had a blood hemoglobin level 12.0 g/dL were excluded. The participants' health status was also assessed on physical examination and laboratory examinations, including an electrocardiogram, blood chemistry panel (glucose, HbA1C, creatinine, serum urea nitrogen, sodium, potassium, chloride, uric acid, and creatine phosphokinase), lipid profile (total cholesterol and triacylglycerol), complete blood cell count, and urinalysis. A nutrition team (N = 2) and training team (N = 2) also participated. All volunteers provided informed consent to participate in this study. All of the procedures were approved by the ethics committee of the Jakarta State University.

This study using experimental design, the subjects were randomized into two groups to receive the following treatments for 1 week before the experimental day in a double-blinded fashion: 16 assigned to the experimental category (Group I) were given thrice-daily one

capsule areca extract (500 mg) for 7 days, while 16 assigned to the control category (Group II) were given one capsule of placebo (500 mg of crystalline cellulose) thrice daily for 7 days. The doses of areca extract and placebo (500 mg of crystalline cellulose) were based on previous human studies [21,22,23,24,25]. No side effects were observed by the oral administration of areca extract in any subject.

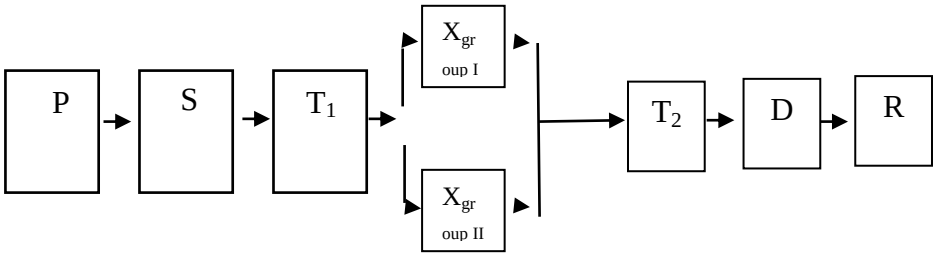

Figure 1. The Research Design

Abbreviations:
P: Population
S: Sample
T1: Pre-test before treatment
X1: Therapy of Areca catechu 500 mg capsule three times daily and a series of activities for 7 days determined by the training and nutrition teams
X2: Therapy of placebo capsule three times daily and a series of activities for 7 days determined by the training and nutrition teams
T2: Post-test after treatment
D: Test data statistics
R: Results

The values are presented as mean SD. Paired t-tests were used to evaluate the significance of differences between the placebo and areca extract groups. Statistical significance was accepted at the $p<0.05$ level. Performed by using the SPSS software, V. 21.0.

3. Result and Discussion

3.1 Result

Demographic and anthropometric data are shown in table 1

Table 1. Demographic and anthropometric characteristics for both groups of experiment group I (areca extract (500 mg)) and the control group II (placebo (500 mg of crystalline cellulose))

Characteristics	Group I (n=16)	Group II (n=16)
Weight (g)	61,0 ± 8,1	56,9 ± 6,4
Height (m)	1,6 ± 0,0	1,6 ± 0,0
BMI	22,6 ± 2,1	11,7 ± 2,0
Gender		
Male	12 (75,0%)	13 (81,3%)
Female	4 (25,0%)	3 (18,7%)

The performance RAST tests before and after treatment shows is summarized in Table 2 and figure 1. Pre-test of group I (6,75 ± 2,78) showed a significant compared pre-test of group II (4,22 ± 0,97) with p-value 0,012. There were no significant differences among the post-test group I (4,63 ± 1,83) compared post-test group II (4,62 ± 1,05) with p-value 0,989. Significant reductions were observed in fatigue calculate between pre-test (6,75 ± 2,78) and post-test (4,63 ± 1,83) in the group I with p-value 0,000. But significant increase were observed in fatigue calculate between pre-test (4,22 ± 0,97) and post-test (4,62 ± 1,05) with p-value 0,019 in the group II. Overall difference of change value pre-test and post-test of fatigue calculate in group I (-2,12 ± 1,62) and group II (0,40 ± 0,61) has showed a significant, with p-value 0,000.

Table 2. Demographic and anthropometric characteristics for both groups of experiment group I (areca extract (500 mg)) and the control group II (placebo (500 mg of crystalline cellulose))

Variable	Group I (n=16)	Group II (n=16)	t-stat	p-value
Pretest	6,75 ± 2,78	4,22 ± 0,97	3,438	0,012[(b)]
Postest	4,63 ± 1,83	4,62 ± 1,05	0,014	0,989[(b)]
t stat	5,236	-2,641		
p-value	0,000[(a)]	0,019[(a)]		
Δ	-2,12 ± 1,62	0,40 ± 0,61	-5,830	0,000[(b)]

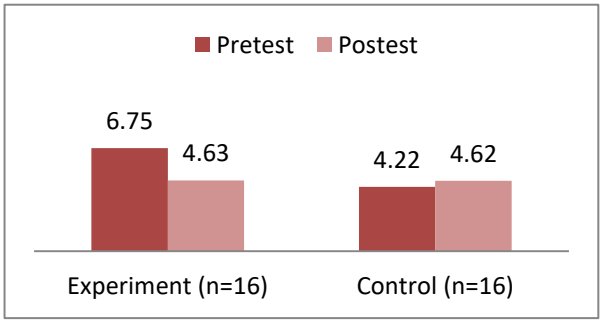

Figure 2. Chart of Effects of areca extract (500 mg) group I and placebo (500 mg of crystalline cellulose) group II on the running-based anaerobic sprint test (RAST) method

3.2 Discusion

In this study, participants received treatment for 7 days without exercising, which could have improved their performance and affected the fatigue levels in the final test (T2) [26]. In

this study, Group I demonstrated significantly reduced fatigue levels after 7-day treatment with Areca catechu. This can be seen from the average decrease in fatigue levels obtained in Group I of 6.75 before treatment and 4.63 after treatment. This result is inversely proportional to what was obtained in the control subjects of Group II, 4.22 before treatment and 4.62 after treatment.

According to the results of the present study, there were significant between pre-test of group I (6,75 ± 2,78) compared pre-test of group II (4,22 ± 0,97) with p-value 0,012. This is might be because ten out of sixteen participants in group II are athletes in the sport endurance category. According previous study, the endurance athletes had significantly higher absolute spirometric and cardiovascular values as compared with the power athletes category (e.g. weightlifters, wrestlers and boxers) [27]. Also, previous studies pointed on the fact that black football boys showed higher jumping and sprinting performance than their white counterparts [28].

We found a decrease in fatigue levels in all Group I participants after the areca extract treatment. Difference of change value of fatigue calculate (-2,12 ± 1,62) and group II (0,40 ± 0,61) has showed a significant, with p-value 0,000. Of course, the decrease in fatigue levels is influenced by the presence of the alkaloids found in the areca extract [15]. This was made clear in the excerpt of the study conducted by Debnath et al, who stated that alkaloids contain a very important compound called arecoline, a colorless compound that is similar to nicotine compounds in tobacco. Arecoline compounds work on the central nervous system and surrounding nerves, increasing the heart rate, increasing glucose use in the brain, and improving memory function in shock patients [29]. In addition, the biological actions of areca alkaloids are closely related to pilocarpine and muscarine, alkaloids promote peristaltic and glandular secretion [30,31,32]. Orchids affect the immune system, leading to the suppression of T-cell activity and decreased cytokine release [33].

These results suggest that the incidence of injuries that had been experienced by Anthony Ginting need not recur. We assessed muscle spasm injury caused by fatigue that occurs after strong and extensive muscle contractions, situations in which muscles are no longer able to contract after lactic acid accumulates, causing muscle spasms [11]. Such spasms can be prevented by consuming areca nut extract (500 mg) before competitions since it can maintain strength and expedite muscle recovery [29,30,31,32,33].

This study reflects the interest of researchers developing areca extract as an alternative to Applephenon [13]. The procyanidin in Applephenon has been shown to have no toxicity that can weaken physical fatigue through its activity as an antioxidant [14]. These characteristics are similar to those related to arecoline in areca extract. Arecoline affects the immune system, leading to T-cell suppression and a decreased release of cytokines, which helps maintain strength and expedite muscle recovery [29,30,31,32,33].

4. Conclusion

We demonstrated that oral areca extract 500 mg can reduce the fatigue index in athletes. Thus, areca extract can be used to avoid long-term fatigue and prevent the unfortunate consequences of accumulated physical fatigue

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Professionalism of The Physical Education Teachers in High School in The City Of Bantul in The Industrial Revolution 4.0

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Abstract. This study aims to improve the professionalism of the physical education teachers in high schools in the city of Bantul in the era of the Industrial Revolution 4.0. This study uses a qualitative approach. This qualitative approach conducted through stages: a preliminary study determining the setting of research consisting of the place and time of research. Retrieval of data is through pre-field and field stages. The data analysis technique used is reading, listening, analyzing, interpreting, clarifying as well as the data obtained to determine the conclusion of the final analysis where the researcher compares the data obtained with the relevant theory then based on the analysis, a conclusion can be drawn. The result of the study are based on the data from the physical education teachers are good enough in professionalism studies. There are some teachers who have not been maximized but with the training the teacher's professionalism can be increased. The conclusion of this study is the professionalism of the physical education teachers must be increased through (1) conducting supervision and discipline (2) provision of adequate facilities (3) conducting meetings (4) upgrading (5) seminars (6) workshop (7) conducting inter-school teacher visit (8) carry out research or experiments. It is expected that with this ready to face the challenges of the industrial revolution 4.0.

Keywords : Professionalism, physical education, industrial revolution 4.0

1. Introduction

Education is a process that will never stop, since a person is born in the world until the end of his life (life long education). Education is a very important element for the survival of a nation. Education has an important role related to the maintenance and improvement of the life of a society, especially bringing the younger generation in fulfilling their obligations and responsibilities in society. Through education new things are discovered, acquired and developed to face the challenges that exist in the times. The success of education is inseparable from the learning process because learning is the core of education. This is because in the teaching and learning process there are interactions between the determining components (teacher, students, methods, media, infrastructure, and curriculum) of educational success. According to Arief Sadiman (2009: 17), teachers and students are part of interrelated teaching and learning activities (KBM). The teacher's relationship with students in the teaching and learning process is a very determining factor.

Based on the law on the national education system, the duty of a teacher is to create a pleasant learning atmosphere by actively involving students in participating in the learning process. The low quality of education can be caused by learning processes that have not been effective. Effective learning such as the use of appropriate learning methods and media and in accordance with the subject being conveyed by a teacher.

Information technology will be useful for teachers in the process of delivering information to students. Information technology is closely related to a computer media that can convey effective learning. Learning through computers is a systematic and planned effort so that it can overcome the weaknesses in the learning process. The advantage of using a computer is that it can overcome the problems of space, time, and distance in the learning process. Utilization of ICT can support the professionalism of physical education teachers facing the era of the industrial revolution 4.0.

The use of computers as learning media can occur through multimedia learning. Multimedia learning provides opportunities for learning not only from one learning source such as teacher or lecturer, but provides opportunities for learning subjects to develop cognitive abilities better. In the cognitive realm students or subjects must always learn repeatedly in order to understand the subject matter and practice answering questions. With the use of computers as media, learning can be done anywhere and anytime. The development of educational technology must be utilized for the maximum achievement of learning goals. Multimedia learning is very suitable in conditions like this, because students become more independent and have the opportunity to repeat the subject matter at any time. One method of repeating this learning material can be said to be students learning independently.

Sports and Health Physical Education subject is one of the subjects that is often done outside the classroom or field. Many teachers find it difficult to give examples of certain basic technical movements in one sport. This condition occurs because many Penjasorkes teachers are old and only a few master one of the basic techniques according to their specialization. With the presence of multimedia learning, this can be overcome by showing photos or video movements as a whole. High school students often ask questions because of their desire to find out more about the lessons delivered by teachers, including Physical Education and Sports teachers. Many students often ask questions about basic techniques or developments in sports equipment. Students are still very dependent on the teacher in getting learning material and receiving information. Media that is often used by teachers is image media. Such conditions occur because of the lack of use of multimedia learning by high school physical education teachers in the city of Bantul. By looking at the facts above, it is necessary to conduct a research on the professionalism of the Physical and Physical Education Teachers in facing the era of the industrial revolution 4.0. The research objectives in this study are: Knowing how to improve the professionalism of high school physical education teachers in the city of Bantul in the era of the industrial revolution 4.0.

2. Method

This research uses a qualitative research approach. This qualitative research was carried out through stages: a preliminary study determining the setting of the research consisting of the place and time of the study.

Sampling This research was carried out in Bantul City High School. In this stage the research has not yet begun collecting data. The activities carried out include only limited field orientation to conduct an introduction to the condition of the object and to prepare the physical and psychological researchers. Researchers conducted initial observations in February 2020 to

see the conditions that exist in the school environment, the conditions in the classroom or ongoing effective learning, and other things. This study is very useful for researchers of the focus and object of research so that when researchers actually go into the field can determine the right way to enter the field in order to determine the right way to the object for the ongoing smooth implementation of research.

2.1 Pre-Field Stage

In this stage, activities are carried out before researchers go into the field, such as preparing research proposals, including the terms of permission to research and conducting preparations for field research. The preparation in question includes, among other things, various equipment used such as stationery, recording devices, design fees, and travel arrangements. In this stage, the researcher makes a schedule for conducting interviews. The schedule for conducting research is obtained from the effective hours of study, from 07.00 to 13.30 WIB.

2.2 Field Stage

At the time of data collection the initial analysis process is needed. This data collection activity is carried out on the object of research, namely the principal, educators, and education staff as well as students.
In reading, listening, analyzing, interpreting, clarifying and interpreting the data obtained to determine the conclusions of the analysis carried out and is the final analysis in which researchers compare the data obtained in the field with the relevant theory then based on the analysis, a conclusion is drawn.

2.3 Preparation Stage

At this stage report is the final stage of conducting research which results in the form of research reports. The data analysis technique used is reading, listening, analyzing, interpreting, clarifying as well as the data obtained to determine the conclusion of the final analysis where the researcher compares the data obtained with the relevant theory then based on the analysis, a conclusion can be drawn.

3. Results and Discussion

Professional according to Webstar (in Munandar 2007: 45) comes from the word profession which means a field of work that someone wants or will pursue. A profession is also defined as a particular position or occupation that requires special knowledge and skills obtained from intensive academic education.

According to (Law number 14 of 2005 concerning teachers and lecturers) a profession is a job or activity carried out by someone and becomes a source of income for life that requires expertise, skills, or skills that meet certain quality standards or norms and require professional education.

Akhmad Sudrajat (2008) said that professionalism refers to the degree of a person's appearance as a professional or the appearance of a job as a profession, some have high, medium, and low professionalism. Professionalism also refers to the attitudes and commitments of professional members to work based on high standards and professional code

of ethics. Thus professionalism is performance quality and at the same time demands professional behavior in carrying out their duties. Consequently teachers as professionals are required to be able to work in the corridor of professionalism. Teachers are professional workers and therefore must uphold professionalism. The general understanding of professionalism shows hard work in a trained manner without any specific requirements. Scientific understanding of professionalism refers to the idea, flow, or opinion that a profession must be carried out by professionals with reference to professionalism.

3.1 Industrial Revolution 4.0

Industrial Revolution 4.0 is the fourth Industrial Revolutionary Era colored by artificial intelligence (artificial intelligence), super computers, genetic engineering, nanotechnology, automatic cars, and innovation. These changes occur in exponential speed which will have an impact on the economy, industry, government, and politics. In this era more and more visible forms of the world that has become a global village.

Industry 4.0 is a term that was first coined in Germany in 2011 which was marked by a digital revolution. This industry is a digitally connected industrial process that includes various types of technology, ranging from 3D printing to robotics which is believed to be able to increase productivity. Before this there have been three industrial revolutions marked by: 1. Invented steam engine and train in 1750-1930; 2. The discovery of electricity, communication equipment, chemistry, and oil in 1870-1900; 3. The invention of computers, the internet and cellphones in the 1960s now.

The industrial revolution has occurred since the 1750s and continues today. Starting from the steam engine that dominated the industry at that time, from trains to turbine engines. And now entering the 4th industrial revolution, everything has changed dramatically. Automation trends, the latest data exchange, cloud computing, the Internet of things (IoT), artificial intelligence or artificial intelligence (AI) and all virtual things that can facilitate our operational activities. Almost all things.

There are four design principles in the Industrial Revolution 4.0. These principles help companies identify and implement scenarios in the Industrial Revolution 4.0

a) Interoperability: The ability of machines, devices, sensors and humans to connect and communicate with each other via the Internet of Things (IoT) or the Internet of People (IoP).
b) IoT will automate this process massively
c) Information transparency: The ability of information systems to create a virtual copy of the physical world by enriching digital factory models with sensor data. This principle requires the collection of raw sensor data in order to produce high-value context information.
d) Technical assistance: First, the ability of the aid system to help people by gathering and visualizing information thoroughly in order to make wise decisions and solve sudden critical problems. Second, the ability of the cyber-physical system to help humans physically by carrying out a series of tasks that are unpleasant, too heavy, or unsafe for humans.
e) Self-decision: The ability of the cyber-physical system to make its own decisions and perform tasks as independently as possible. If exceptions, distractions occur, or there are opposing goals, the task is delegated to the employer.

In Improving Professionalism of Physical Education Teachers in Facing Global Challenges in the Revolutionary Era 4.0. It is an important task of every educational stakeholder, both from the ranks of decision makers and to implementing decision makers. The synergy of all lines must be carried out in a continuous direction, so that the improvement

in the Quality of Professionalism of Teachers in various abilities can be realized and achieved. Seeing the challenges ahead we work hand in hand to improve the improvement of the quality of teacher professionalism. So that in the future make Teachers in Indonesia as teachers who are ready to face the challenges of the Revolutionary Era 4.0. Teachers who have quality qualities and are competitive with other countries.

Mental revolution and character education are two aspects that are equally related and mutually harmonious. Both of these can have a relatively more complete problem-solving effect in shaping the Indonesian human resource who is smart and has good character. Mental revolution and character education start from the moment in class since students get education from the start.

4. Conclusion

The conclusion of this research is the professionalism of the Physical and Physical Education teachers must be improved through (1) Conducting supervision and discipline (2) Providing adequate facilities (3) Conducting meetings (4) Upgrading (5) Seminars (6) Workshops (7) Conducting inter-school teacher visits (8) Carry out research or experiments. It is expected that with this research the Physical and Physical Education Teacher is ready to face the challenges of the Industrial Revolution 4.0.

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Influence of Fatty Acid Consumption (Omega-3) Against Dismenore

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Abstract. Dysmenorrhea is a pain in women when menstruating, it starts when they first experience menstruation and then it will increase in general aged 15-17 years and reach a peak in general aged 20-24 years after that will continue to decline. This is very disturbing daily activities even for many teenage women do not go to school when experiencing menstrual pain, the cause is due to uterine muscle contractions. The uterine muscle contraction is triggered by the hormone prostaglandin, which levels will increase before menstruation begins. This is what causes the appearance of pain and cramps before or during menstruation. The author of the article aims to determine the effect of consumption of fatty acids (omega-3s) on dysmenorrhea.

Keywords : Fatty acid, dysmenorrhea, menstruation, omega-3

1. Introduction

Dysmenorrhea or menstrual pain is a very common complaint felt by young women, generally arising on the first day until the third day of the menstrual cycle. [1]

Pain experienced by women who are menstruating is very disturbing sleep comfort. Several studies have shown that men experience fewer sleep disorders than women, because women more often experience sleep disorders when menstrual pain. [2]

Dysmenorrhea greatly interferes with women's activities, not only having to rest but often having to leave work for hours because of dysmenorrhea that is felt just before or during menstruation. [3]

Omega-3 fatty acids are important elements needed by the body. Among can reduce dysmenorrhea or pain in adolescent women during menstruation. Data shows that omega-3 fatty acids can reduce dysmenorrhea. A research found that omega-3 and omega6 fatty acids can cause prostaglandin production that is less strong so that it can reduce dysmenorrhea or menstrual pain. The combination of Vitamin E and omega-3 can reduce dysmenorrhea or menstrual pain. Vitamin E had no significant relationship with dysmenorrhea. And according to another research suggested that there is a significant relationship between consumption of omega-3 fatty acids and percent of body fat with dysmenorrhea. [4,5,6]

From some studies always combine omega-3 with other aspects of dysmenorrhea. So the authors aim to determine the effect of consumption of fatty acids (omega-3) on dysmenorrhea.

2. Theoretical Framework

Menarche is the first time a woman experiences menstruation. Menarche is the maturity of the reproductive system in women. Women who experience early menarche can be affected by several health complications including gynecological diseases. Women with menarche below 12 years old or early menarche have a 23% higher chance of dysmenorrhea compared with women with menarche at the age of 12-14 years. In his research explained that in girls who experience early menarke experience prolonged exposure to prostaglandins, causing cramps and pain in the stomach. [7]

2.1 Dysmenorrhea

Dysmenorrhea is menstrual pain in the form of lower abdominal cramps with complex symptoms and radiating to the back or legs. [8]

The pain starts when menstruating for the first time then it will increase in general at the age of 15-17 years and reach a peak in general at the age of 20-24 years after that it will continue to decrease. [5]

The main contributor to dysmenorrhea or menstrual pain is due to uterine muscle contractions. The uterine muscle contraction is triggered by the hormone prostaglandin whose levels will increase before menstruation begins. This is what causes the emergence of pain and cramps before or during menstruation. [9]

2.2 Fatty Acids (Omega-3)

One of the most nutrients for the human body is fatty acids. Omega-3 fatty acids can reduce some pain, low consumption of omega-3 fatty acids is a factor in the occurrence of dysmenorrhea. [10]

This was also shown in a study at 2012 which stated that women who consumed omega-3s experienced a decrease in pain intensity during dysmenorrhea. [11]

Fatty acids (omega-3) can reduce prostaglandin production, so that it can reduce dysmenorrhea during menstruation. [5]

3. Method

The writing of this review literature is based on the best collection of international and national journals. The journals were collected through Taylor & Francis online and google scholar databases published from 2012 to 2018. In the initial stages the articles collected amounted to 103 by using the key words "omega-3 and dysmenorrhea" and "omega-3 and dysmenorrhea". After identification of relevant titles only 6 journals. The other 97 journals about omega-3 and dysmenorrhea are related to other aspects.

4. Results and Analysis

Based on the articles that have been collected then analyzed and obtained the results of studies that omega-3 fatty acids affect dysmenorrhea. However, the authors observed that there were some disadvantages to the article observed, such as the age of the sample and the dose of omega-3 given as shown in the following table:

4.1 Age of Sample

In the several study there was a similarity in the age of the sample, 15-17 years. At that age is a phase where dysmenorrhea begins to increase. While the research conducted in 2018 with a sample age of 18-25 years which is the peak phase of dysmenorrhea. [4,5,6,9]

4.2 Omega-3 Fatty Acid Doses

In this table there are different doses of omega-3 but the results still affect dysmenorrhea. Recent research in 2018 by administering fewer doses than previous studies can reduce dysmenorrhea even though it is combined with Vitamin-E. [5] While Vitamin-E according to research in 2012 says that there is no significant relationship between consumption of Vitamin-E with the level of dysmenorrhea pain. [12]

Table 1. Fatty acids to dysmenorre

Hasil Analisis jurnal Asam Lemak Omega-3 terhadap Dismenore

No.	Nama	Tahun	Usia	Jumlah sample	Dosis Omega-3	Hasil
1	Demirturk	2013	15-19	44	1500 mg	asam lemak omega-3 berpengaruh terhadap dismenore
2	Fahimah	2017	15-17	101	1100 mg	Terdapat hubungan antara asam lemak omega-3 dan persen lemak tubuh dengan dismenore
3	Hidayati	2017	14-19	125	1100 mg	asam lemak omega-3 berpengaruh terhadap dismenore
4	Sadeghi	2018	18-25	100	300 mg	asam lemak omega-3 dikombinasikan dengan Vitamin-E berpengaruh terhadap dismenore

Tabel 1.

From the analysis of sample age and omega-3 doses, it appears that the dose of omega-3 given to samples in the dysmenorrhea phase begins to increase more than the dose of omega-3 given at the peak phase of dysmenorrhea. However, of all the articles analyzed there was no explanation of the difference in dosage that should have been given in the dysmenorrhea phase starting to increase nor at the peak phase of dysmenorrhea.

5. Conclusion

Fatty acids (omega-3) can reduce prostaglandin production, so that it can reduce dysmenorrhea during menstruation. The results of the literature review are the effects of omega-3 fatty acids on dysmenorrhea.

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Development of Digital Based Volleyball Service Skill Instrument Models

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Abstract. The aim of this research is to develop a digital-based boal volleyball service skill test instrument. The research method used is research and development. The stages begin with; (1) Research and Information Collection, (2) Planning, (3) Product Development, (4) Initial Field Trials, (5) Major Product Revisions, (6) Main Field Tests, (7) Operational Product Revisions, (8)) Operational Field Trials, (9) Final Product Revision, and (10) Dissemination and Implementation. The research subjects numbered 24 Palyers. Technique used in this research is descriptive quantitative statistics with the effectiveness test using t-test. Data collection uses observation, questionnaire, interview and test. The results of the study were 12 small-scale test subjects getting an average value of 80.2% from the category "Good" to proceed to the large-scale trial phase volleyball players. The data analysis The results of 24 subject large-scale group trials obtained an average value of 86.8% in the category of "Good / decent" which means that the digital-based volleyball service skills test instrument was "feasible" to proceed to the stage of tool implementation. The conclusion from the results of the development of a digital-based volleyball service skill game instrument "Eligible" is used as a tool to measure the technical ability of volleyball players.

Keywords: Instrument Model, Service Skill, Volleyball, Digital.

1 Introduction

Coaching sports in a planned, tiered, and sustainable manner through competition to achieve achievement with the support of science and technology (Science and Technology). Science and technology will continue to grow and be utilized for the world of sports, because current technological advances are very beneficial for improving sports achievements. According to research results [1] Sports video research is a popular topic that has been applied to many prominent sports for a large spectrum of applications. Furthermore according to [1] said Sports video research is a popular topic that has been applied to many prominent sports for a large spectrum of applications.

Meanwhile, according to the results of research Manafifard, Ebadi, and Moghaddam "The purpose of player tracking technology is to find out the extent of the movements made by players, mark players, and find out how players look" [2]. In line with research according to research by Thomas, Rikkegade, B. Moeslundb Peter Carrc, and Hiltond with the results of research that most sports can use sensors or other devices to monitor players while other equipment is not possible [3].

From some of the above theories it can be concluded that science and technology and sports today must go hand in hand, because the development of sports science and technology in developed countries is already very good and the results must also be very good for improving sports achievements. Because, in addition to being supported by good human resources, of course, to carry out the development of sports development programs, it is necessary to have good facilities and infrastructure support, one of which is technology-based training and training infrastructure.

Sports coaching can be done either through sports clubs or at school or formal education. According to Samsudin (2008), for junior high school student swant new skills and develop a mind to learn fair play, good sportsmanship and want to use free time. One game that can be done in stages is a volleyball game. According to how many results of research and expert opinion, According to Cojocaru [4] actions that interact during the course of the game". According to Luminița and Valentina [5] Volleyball is a loving and exciting sport, but its poor promotion leads to a low number of consumers, especially in areas where this sport has no tradition. There are several types of basic techniques in volleyball games: service, passing, smash and block. The basic technique of volleyball according to the results of the study Florin and Bogdan states that "Volleyball is a complex sport where the results in the game depend on cooperation with each player who occupies a position in accordance with the rules of the game [6]. Performance in volleyball games really requires a good psychomotor aspect and is trained on every player. The ability to adapt in a team and physical and psychological abilities influence the outcome of the game ". Rasiola states "in a process of learning sports teams specifically in volleyball, basically using a tutorial that has a theoretical basis in a cognitive approach that covers the development of strength and skills [7]. Based on the results of this research and several theorie, volleyball is done by two opposing teams and tries to generate numbers by turning off the ball in the opponent's area, of course, supported by good physical conditions and good techniques to achieve achievements.

However, based on the results of the field survey, volleyball players at Bina Darma University are still under-performing, namely from 24 volleyball players only 56% of players have good skills. This is caused by several problems among evaluation tools which are still based on manuals, so that coaches are less objective and difficult to evaluate the technical abilities of each player. Evaluation techniques that are still lacking in objective are the upper and lower serve volleyball service.

Previous research on the development of volleyball service test instruments conducted by Palao and Valades with the title Testing Protocol for Monitoring Spike and Serve Speed in Volleyball. The results of the research are two types of test instrument development namely an instrument to see the strength of a smash and an instrument for service. According to the results of the development research that, to evaluate the results of service techniques can be done using radar-based test instruments [8] . According to Tangkudung and Puspitorini the model is an imitation, a simulation of a reality composed of specific elements of a number of phenomena that can be investigated by a person and this is an isomorphs of an image obtained abstractly that is a process mentality making generalizations from real examples (the same as describing the atmosphere of the match) [9]. Widiastuti states that tests are tools or instruments used to obtain information about a person or object. To get good measurement results, you should use a test tool or instrument that refers to the purpose of the test itself [10].

Based on these results there are still weaknesses in terms of components and objectives of the rules of service techniques that make instruments better and in accordance with the rules of volleyball games. Volleyball is not only seen from the speed of the rolling ball because not all techniques are influenced by the speed of the ball. More than all of that actually in the game more often the accuracy of the direction of the ball is more influential in the success of a

game. Because with the accuracy of the service ball, right in doing passing and smashes will certainly make the game more leverage in producing points. Therefore the researcher will develop a technical instrument for digital volleyball game service skills. From the results of this development the components used will be better, digitally based, android application systems, and of course priority to the precision of the ball measured by using a sensor. Of course the volleyball service skills test instrument is expected to be more effective and efficient compared to the instruments in the previous studies.

2 Method

The research approach used in this research and the development of Research and Development (R&D), which are as follows: 1) Research and information gathering, 2) Planning, 3) Developing forms of primary products, 4) Preliminary field trials, 5) Main revisions products, 6) large-scale testing, 7) operational product revisions, 8) operational field testing, 9) final product revisions, and 10) Dissemination and implementation (Borg, W.R. & Gall,2015)

Research subject

The subjects of this study were 24 volleyball players from Bina Darma University with details of 12 male and 12 female players. Purposive sample technique was chosen in the research of

$$\text{Rumus} = \frac{SH}{SK} X\,100\%$$

Data collection techniques in this study (1) observations of where the research subjects were carried out, (2) interviews with trainers. Data collection instruments using a questionnaire and volleyball skills tests. Questionnaire can be a closed / open question / statement. According to Sugiyono the types of questionnaires according to their shape are divided into three. (1) Multiple choice questionnaire, (2) Check list. (3) Rating scale [11]

Data analysis includes all the activities of clarifying, analyzing, using and drawing conclusions from all data collected in action. Whereas quantitative data were obtained by giving a score on a qualitative based on a Likert scale that was converted to a scale value of 4

Percentage is intended to find out the status of something that is presented and presented as a percentage. The formula for calculating eligibility according to Sugiyono is as follows [12].

The results of subsequent data calculations are made in the form of a percentage multiplied by 100% and in the four categories of eligibility by using the Scale as follows. Percentage of Eligibility Category by Arikunto [13].

Table 1. Percentage of Eligibility

Score as a percentage	Eligibility Category
<40%	Not Good / Not Eligible
40%-55%	Poor / Inadequate
56%-75%	Good enough / decent enough
76%-100%	Good / Decent

3 Results and Dsicussions

3.1 Results

A small group trial was conducted on 12 Universitas Bina Darma volleyball players. The test subjects performed all digital-based volleyball skill testing tests.

Table 2. Data on Small Scale Group Trial Result.

No.	Aspect of Rating	Score Calculate	Percentage	Percentage	Categories
1	Aspect of	81	96	84,4	Good / Decent
2	The Excellence Aspect of Innovation	120	144	83,3	Good / Decent
3	Usability Aspect	192	240	80	Good / Decent
4	*Safety Aspects*	120	144	83,3	Good / Decent
5	Aspect of Use	150	192	78,1	Good / Decent
Total Score		**631**	**816**	**82**	**Good / Decent**

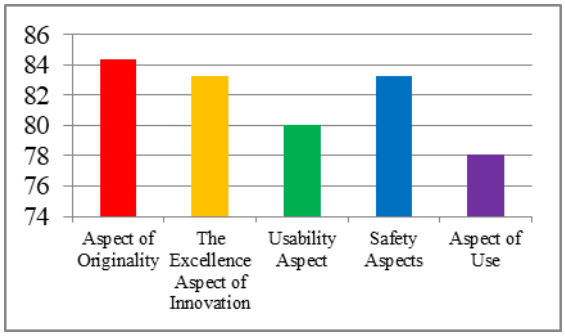

Figure 1. Diagram of Small Scale Trial Results

Based on the results of a small trial in the diagram above hat in the aspect of originality the digital-based volleyball service skill test instrument scores 84.4% in the "Good" category means that the digital-based volleyball service skill test instrument is "feasible. The excellence aspect of digital based volleyball service skills test instrument score 83,3% in the category of "Good" means that the digital based volleyball service skills test instrument is "feasible". The aspect of the use of digital based volleyball service skills test instrument scores 80% in the "Good" category means that the digital based volleyball service skills test instrument is "feasible". The safety aspect of digital based volleyball service skill test instrument scores 83.3% in the "Good" category means that the digital based volleyball service skill test instrument is "feasible". The excellence aspect of digital-based volleyball service skills test instrument scores 78,1% in the category of "Good" means that the digital-based volleyball service skills test instrument is "feasible". So the average value of the results of small-scale trials is 82% in the "Good" category which means that the digital-based volleyball service skills test instrument is "feasible". Large group trials were conducted on 12 male and female volleyball players at Bina Darma University

Table 3. Data from Large Scale Group Trial Result

No.	Aspect of Rating	Score Calculate	Percentage	Percentage	Categories
1	Aspect of Originality	84	96	87,5	Good / Decent
2	The Excellence Aspect of Innovation	125	144	87	Good / Decent
3	Usability Aspect	198	240	82,5	Good / Decent
4	Safety Aspects	123	144	85	Good / Decent
5	Aspect of Use	162	192	84,4	Good / Decent
Total Score		**704**	**816**	**85,3**	**Good / Decent**

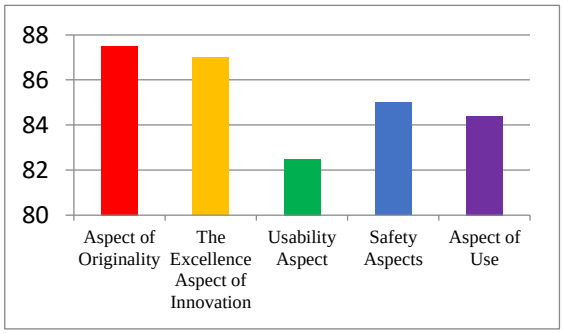

Figure 2. Diagram of Small Large Scale Trial Results

Based on the results of large-scale group trials in the diagram above that in the aspect of originality the digital-based volleyball service skills test instrument scores 87,5% in the "Good" category means that the digital-based volleyball service skills test instrument is "feasible". The excellence aspect of the digital-based volleyball service skills test instrument score 87% in the "Good" category means that the digital-based volleyball service skills test instrument is "feasible". The aspect of the utilization of digital based volleyball service skills test instrument scores 82,5% in the category of "Good" means that the digital based volleyball skills test instrument is "feasible" The safety aspect of the digital based volleyball service skills test instrument scores 85% in the "Good" category "Means that digital volleyball service skill testing instruments are" feasible ". The excellence aspect of digital-based volleyball skills test instrument score 84,4% in the category of "Good" means that the digital-based volleyball service skills test instrument is "feasible". So the average value of the results of large-scale group trials is 85% the category of "Good" which means that the digital-based volleyball skills test instrument is "feasible". Large-scale group trials were conducted on 24 male and female volleyball players at Bina Darma University.

3.2 Discussions

This developmental research aims to provide a new alternative in evaluating the service skills of volleyball game techniques that are more, varied and effective. The product developed is a digital-based volleyball service skills test kit, here researchers utilize digital technology as the main component to make this test kit. The technology used is the latest development both in software and hardware, so as to produce a good and appropriate product used to measure volleyball service skills. Furthermore for volleyball service tests, previous studies conducted by Palao and Valades measured previous studies only looked at how fast the smash shots were carried out by volleyball players, using camera radar as a detector, in contrast to the development carried out in this study [8]. This research makes smas test kits with the aim of being applicable with volleyball games of the same size where players service exactly at the time of the game. Therefore, the test equipment is made in accordance with the area of half the volleyball court where the test equipment is placed then given numbers as a target. Gian Dwi Oktiana's research with the title "Development of android-based learning media in the form of digital pocket books for basic competency accounting subjects makes an overview of the accounting cycle of service companies in class XI MAN 1 Yogyakarta 2014/2015 academic year" Yogyakarta State University. This research develops an Android-based pocket book learning model. Based on several different elements both in terms of physical / component and software aspects, of course the research on the development of volleyball service skills test is a new innovation and of course the original has not been done by other researchers [14].

In addition, this product will be very helpful in carrying out volleyball service skills tests for beginner athletes as well as students and the general public.

This product has utilized digital technology so that very new and more objective data are generated. Obviously with an objective result the coach or teacher will know the actual service skill level of each athlete or student. This digital-based service instrument product clearly has a technological renewal because it uses the Android application so that in operating the tool can immediately see the test results through a smartphone or tablet. In terms of time, of course, this tool is more effective and efficient in implementing volleyball service skills testing.

4 Conclusions

Based on the results of the research and discussion above the conclusions and this research is that there is a significant and effective renewal of the existing tools before. The renewal of them, among others, in terms of components of digital-based service test kits is more complex and sophisticated, equipped with quality sensors so that the accuracy of the data is better. In terms of technology the application is equipped with features that are easily understood by every user and is based on Android so that it can be used on smartphones and tablets to see directly the results of tests for each athlete or volleyball player. In terms of time the use is more effective and efficient as well as instruments can be used by the age group of 17-21 years, so this tool is really useful for technological advances in the field of sports especially boal volleyball.

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Improvement of Laboratory Technician Capability for Prevention of Work Accident Using Hazard Identification Risk Assessment and Risk Control Method

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Abstract. Potential danger or often also referred to as "danger" is a potential source of risk that results in losses both material, environmental and human. Potential hazards in laboratories are often not recognized by those involved in the laboratory due to lack of assessment standards and low levels of socialization or learning about potential hazards, so it is necessary to identify the level of hazards in the Higher Education laboratory. The object of this study are all laboratories at Semarang State University that have potential sources of danger. The research began by conducting a preliminary survey to see the potential hazard conditions carried out. The introduction of hazard identification, risk assessment and risk control is implemented with focus group discussions. From the results of the study, there are differences in the level of knowledge and ability of laboratory technicians in dealing with hazard risks in the laboratory.

Keywords: Laboratory, Hazard, Risk Control

1 Introduction

Universitas Negeri Semarang is now heading for the year of internationalization. One of the internationalization efforts undertaken by UNNES is the strengthening and improvement of laboratory functions in all majors / study programs. Strengthening the function of the laboratory is done by optimizing the function of the laboratory to support the Tri Dharma Perguruan Tinggi activities which are supported by teaching / learning laboratories, research (research) and community service. While passing the laboratory function is carried out by accelerating the distribution of knowledge to the public through programmed scientific activities.

Internationalization of laboratories has ISO 17025 standards while ISO 17025 is determined by the National Accreditation Committee (KAN). In one of the ISO 17025 clauses is the existence of risk management in the laboratory (1). In risk management, related to the discussion of occupational safety and health management needed and minimizing the risk of accidents and potential hazards in the workplace, which can cause damage to the health and safety of workers.

UNNES has laboratories that are spread in each study program. Each laboratory has different activities depending on the type of laboratory and study program where the laboratory is used. But some laboratories have a great source of danger. This is related to

activities using equipment, materials or processes that take place while in the laboratory. Among the laboratories that have a great risk of danger are chemical laboratories, physics laboratories, biology laboratories, mechanical laboratories, electrical laboratories. The laboratory has different functions, uses and types of equipment, and because of that, each laboratory room has different hazard risks. The existence of hazards / potential hazards in each room needs to be identified and analyzed so that the potential hazards do not become a risk that results in accidents / incidents in the laboratory.

One effort to overcome the potential danger that is often done by laboratories is to regulate HIRARC. HIRARC itself stands for Assessment and Control of Hazard Identification Risk. The HIRARC process starts with determination to the hazard and its character, evaluates existing hazards, determines or prioritizes risks and controls risks / challenges for improvement. With the existence of HIRARC in the Laboratory it can be avoided / reduced working time, both during lectures / practicum, research, and during the testing process in the laboratory, so that activities in the laboratory become more comfortable and safer. In addition, the existence of HIRARC will be a value added dedicated to laboratories where laboratories must implement a Health and Safety management system in their activities. This will also be an added value for UNNES as an international standard university with the carrying capacity of a professional laboratory and meets the requirements in accordance with international standards in accordance with ISO 17025.

2 Method

a) This type of research is analytic descriptive which is observing and explaining facts in the field, where the data related to the required documents are obtained from the results of research and interviews which are then compared with existing laws or regulations. The research location and the making of the HIRARC document are in the Laboratory discussion room at UNNES which has moderate to high risk. Each laboratory also has different equipment, this causes different interests and ways of handling in the laboratory.

b) This research planned through 3 stages during one research period, with the following details:

c) Stage 1 is screening of Dangerous Environment in the laboratory at UNNES. The identification starts from the laboratory staff's knowledge of the hazard conditions, the presence of occupational accidents, the level of danger caused and the existence of Standard Operational Prochedures related to hazard handling. Only laboratories that have the dangers of chemical, physical, work climate, radiation,physic, mechanic, biological factors will be intervened to improve laboratory knowledge and preparedness. This is in accordance with the initial goal so that laboratories that have the risk of damage can occur and be ready for accidents that occur in the laboratory.

d) Phase II research is conducted by providing interventions in the form of online focus group discussions. The intervention was carried out by providing material related to hazard risk, hazard risk policy and knowledge on how to create a Health and Safety document using the hazard prevention hierarchy. If the laboratory technicians are not familiar yet with HIRARC, it will be guided to make complementary documents and applications in the field to prepare Standard Operatioal Prochedures, install hazard signs, provide personal protective equipment, and solved them when there are work problems.

3 Results and discussions

From the screening process of the types of hazards and risks that occur in the laboratory, there are 2 types of laboratories in UNNES that have a risk of danger. The types of laboratories are calibration laboratories, test laboratories and educational laboratories. UNNES has a calibration laboratory that is ISO 17025: 2018 certified. This laboratory serves calibration testing of equipment on several parameters.

Other types of laboratories are educational laboratories and test laboratories. These two laboratories are found in several laboratory departments under the faculty. Both laboratories are carried out in the same room, the difference is the laboratory user. In educational laboratories, laboratory users are lecturers, students and technicians. The number of users in this practice can reach 30-40 people in one activity. The level of knowledge and behavior of the students is also still low. So the risk of work accidents in this activity is very high. Different if the laboratory is used at the time of testing. Even though they use the same equipment and the same room as the education laboratory, the laboratory users are only 1 or 2 laboratory technicians. The knowledge and ability of the technician is very good. So the risk of workplace accidents is small.

In the screening of hazard type films in the laboratory, data were obtained that all laboratories have electrical hazards. Electrical equipment in electronic equipment in auxiliary equipment and test equipment. In some laboratories have the electrical hazards needed on some equipment that needs electricity up to 2500 watts. There have not been any accidents resulting in death. Although there has never been a death, but still using the AS / NZS 4360 standard, the electrical hazards are at moderate risk.

Chemical hazards in laboratories that use chemicals. This risk can be used from the use of chemicals or in the storage process. Some chemicals can cause irritation and poisoning. The most common type of work accident is exposed to strong acids and bases. Toxicity has not been reported from the laboratory.

Table 1. AS / NZS Standards 4360: 1990 (2,3)

	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
Likelihood	1	2	3	4	5
A (almost certain)	H	H	E	E	E
B (likely)	M	H	H	E	E
C (moderate)	L	M	H	E	E
D (unlikely)	L	L	M	H	E
E (rare)	L	L	M	H	H

NOTE: The number of categories should reflect the needs of the study.

Legend

E: extreme risk; immediate action required

H: high risk; senior management attention needed

M: moderate risk; management responsibility must be specified

L: low risk; manage by routine procedures

Biological hazards that exist in some laboratories that use material specimens. Material specimens are material derived from a system. Risk of slight harm from being bitten by an experimental animal. And the biggest risk is microbiology exposed to cause pain. In the microbiology laboratory, there are specimens that have a high risk of infectious bacteria that contain salmonella typi, Escherecia coli, Streptococcus sp, Staphylococcus sp. In clinical laboratories that use practices that use specimens from humans, namely urine, blood and blood plasma. The greatest risk of this specimen is a dangerous disease that is owned by the respondent. But from the data it has never been approved of the fatality of practicum activities in biology laboratories.

Mechanical hazards are also reported by laboratory technicians. This danger exists in laboratories that carry out the process of using assistive devices consisting of machines. The risk is squeezed on the press, cut to the metal cutting machine. The biggest risk is in the mechanical engineering laboratory, there are many mechanical equipment that has a large size, weight and has a large power.

The height hazard that exists in many laboratories, this is related to several laboratories that are on the 2nd or 3rd floor of the building. However, in terms of the security available with good materials and the height exceeds 1 meter, it can be questioned that the high hazard in the UNNES laboratory is very small.

Dangers of radiological radiation reporrted in physics laboratories. In the process by the use of X-rays as a testing process.

The most dangerous risk from work accidents in the laboratory is physical hazards. This physical hazard consists of colliding, being accelerated, injured, caused by broken glass of aids, injury due to being stung by heat. Although there are dangers due to these physical hazards, the number in question is greater.

Knowledge of laboratory technicians. Laboratory technicians are laboratory managers as well as people who have the greatest risk of exposure to hazards in the laboratory. At the stage of handling hazards, laboratory personnel must have the knowledge and capability regarding handling work accidents in the laboratory. Although all laboratory technicians are already very skilled in the use of equipment and know the process of use and the risk of hazards contained in the equipment, but not all technicians have the ability to manage risk risks in the laboratory.

As many as 18.2% of the technicians have never received training on occupational safety and health in the laboratory, 90, 9% of technicians just at the stage can identify each hazard risk in materials and equipment in the laboratory, and have never learned the different types of risk management and control methods danger in the laboratory. Of the 5 types of methods presented, only 54, 5% are familiar with the types of risk management methods, namely what if / check list methods. 90.1% of technicians are not familiar with the HIRARC method, Fault Tree Analysis, Moment Tree Analysis, Job Hazard Analysis.

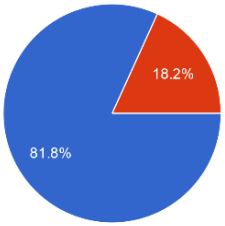

Fig. 1. the number of technicians who have received health and safety Laboratory training

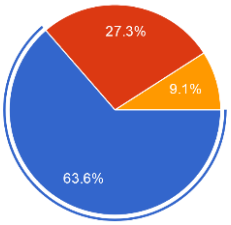

Fig. 2. the number of laboratory technicians who have compiled SOPs for work accident management.

Due to the lack of knowledge of laboratory technicians there is a danger that can occur at any time by laboratory users. This can be seen from 63.6% of laboratory technicians who have not yet developed SOP for handling work accidents / emergency conditions. 9.1% of technicians stated that laboratory management has not been able to prevent accidents, another 9.1% have been able to prevent accidents but have not been maximized. In fact, 90.9% of technicians have never recorded work accidents. Although many incidents are at low risk, recording work accident events is needed to evaluate the work system which is not good.

Of the total accidents that occurred, 90.9% were caused by negligence and 27% by the lack of danger warning instructions, 18.2% were due to the absence of PPE. This can be reduced if the technician has the knowledge and can apply in laboratory management.

Improving the ability of laboratory technicians should always be upgraded. The introduction of the HIRARC method turned out to be very effective in increasing the knowledge and abilities of laboratory technicians in the UNNES. The change in the ability of technicians can be seen from the statistical test obtained by the correlation value. The smallest value of this respondent is 0.20 and the maximum value is 2.00. Skewness and kurtosis values are a measure to see the distribution of work accident prevention. Based on these images, the skewness value is 2,296 and the kurtosis value is 6,735.

Based on the probability value, it is known that the hazard identification with the influence of PPE provision obtained a value of 0.013 <0.05, then there is a significant correlation. The results also explain the identification of hazards with hazard handling SOPs, where the probability value is 0.013 <0.05 meaning that there is a significant correlation. A significant correlation also occurs between hazard identification with the SOP on Accident Management and Health and Safety Management Knowledge, where the probability value of each variable.

Improved capabilities can be seen from technicians who can arrange various kinds of hazards contained in each process. Furthermore, it uses the HIRARC method with a hazard management hierarchy. Technicians also understand how PPE is needed, and what equipment is needed to protect and prevent work injuries in the laboratory. However, if ape accident prevention efforts have been carried out and work accidents continue to occur, technicians can use SOP for handling hazards.

In essence HIRARC teaches how technicians recognize the various types of hazards in the laboratory and control them. But there is a sequence of controls that must be carried out. Namely starting from the elimination stage, substitution, the use of technology, the use of administration or the use of SOPs and the use of personal protective equipment which is the last method in handling hazards.

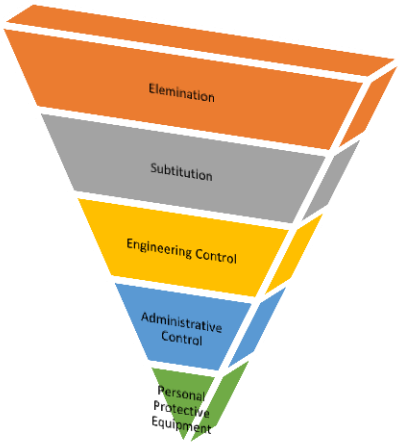

Fig. 3. Hierarch risk control is based on a HIRARC

5 Conclusion

The HIRARC method can be utilized in controlling hazards in the laboratory which can later prevent work accidents in the laboratory and increasing the knowledge of technicians related to Health and safety laboratory can increase the level of safety in the laboratory. The sugestion are periodic training for laboratory personnel on a regular basis, need for regular and periodic supervision of laboratory users related to the implementation of SOPs and the use of PPE in the laboratory, laboratories must provide personal protective equipment, hazard safety signs and always develop SOPs for the use of tools and laboratory hazards if there are changes in activities and equipment and materials in the laboratory.

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Correlation Between Vital Capacity And Cardiovascular Endurance On Professional Soccer Players

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Abstract. The purpose of this study was to determine the correlation between vital capacity and cardiovascular endurance of PON soccer players in Central Java 2020. Good vital capacity and good cardiovascular endurance will greatly support the quality of soccer players. Each player must be of good quality in order to have good mobility in order to finish the game with a predetermined target to improve the outcome of the match. Players are required to have good cardiovascular endurance and are supported by good vital capacity.. The method used was a survey method with a simple correlation technique. With a total sampling technique, a total of 22 people. The data analysis technique used is simple regression. The results of the analysis obtained stated that there was a significant correlation between the vital lung capacity and cardiovascular endurance

Keywords: vital capacity, cardiovascular endurance, soccer..

1 Introduction

Soccer is one of the sports with the most fans compared to other sports, especially in Indonesia, although its achievements are not very encouraging. Every team would want to achieve maximum performance. Such high achievement certainly requires a persistent effort and extensive knowledge from the coaches as well as the players themselves. This can be achieved from a gradual, gradual and continuous training process.

Soccer is played by eleven core players and a number of reserve players in each team, which in each match requires a relatively long time of 2x45 minutes (90 minutes). As revealed by Indonesian soccer team coach Shin Tae-yong, the problem with the national team game is endurance. When in the first round the players played well, but in the second half could not maintain the good play that was demonstrated by the first round. Related to this, good cardiovascular endurance conditions are needed to support the duration of the competition. Cardiovascular endurance is an important component of physical fitness, a person with good cardiovascular endurance capacity can do aerobic activities well so that he is able to carry out a continuous training program and finish the match properly without experiencing excessive fatigue

Seeing the importance of good cardiovascular endurance that every soccer player must possess, it also requires effort that is not easy to maintain this endurance so that players have good quality playing. Increased cardiorespiratory endurance can be seen by measuring VO2max (maximal oxygen uptake), besides that increased cardiovascular endurance can also be seen by measuring the vital lung capacity. Vital capacity is equal to the volume of inspiration reserve plus the tidal volume and expiratory reserve volume. This is the maximum

amount of air a person can expel from the lungs. After first filling the lungs to the maximum and then removing as much as possible (approximately 4600 ml). The same thing was stated by Arie Sutopo and Alma Permana in "The Basic Physical Sciences Practical Guidance Book that: Vital Capacity (VC) is the maximum volume that is exhaled after maximum inspiration. It can be concluded that Vital Capacity is the maximum volume of air that can be accommodated by the lungs, after making maximum inspiration and expiration. The vital capacity of the lungs is also influenced by 3 things, namely, the volume of inspiration reserves, tidal volume, and the volume of expiratory reserves. Sports and exercises can affect a person's lung capacity.

2 Methods

This research was conducted by survey method with correlation technique, which is a relationship analysis technique that bases itself on two variables. Namely the Vital Capacity which is the independent variable, while the variable that is bound is cardiovascular endurance.

Population is the subject of research. The population in this study are all players who are doing intensive training to face the PON of Papua 2020, Central Java soccer, which amounts to 22 people. The sample in this study is to use total sampling, which is overall sampling in the population. The sample in this study were 22 people. Research instruments by conducting several tests and measurements. Measurement of vital lung capacity using a spirometer, measurement of cardiovascular endurance using the Multystage Fitness Test method.

Data collection techniques to fit the plan, it is necessary to develop systematic steps. Data collection techniques used in this study are test and measurement techniques. Data analysis techniques in this study the type of data obtained or collected is quantitative data in the form of pulmonary vital capacity and cardiovascular endurance. The data analysis technique used is simple regression. The data analysis technique used is a statistical technique with the t-test at a significant level a = 0.05. The data analysis technique used is simple regression.

3. Results and Discussions

3.1 Results

Data description is intended to obtain a description of the data distribution which includes the highest value, lowest value, average value, standard deviation, median, variance, frequency distribution, and histogram of each variable X and Y as follows :

Table 1. Description of Research Data

Variable	Vital Capacity	Cardiovascular Endurance
Top marks	45	44,8
Lowest Value	23	27,2
Averaging	32,566	34,1
Standard deviation	36,391	4,50
Median	34,53	37,17
Variance	6,032	20,33

3.2 Variabel Vital Capacity

The results in table 1 show the range of Vital Capacity (X) scores are between 23 to 45, the average value is 32.566, the standard deviation is 36.391, the median is 34.53, and the variance is 6.032. The frequency distribution can be seen in table 2 below:

Table 2. Vital Capacity Data

No	Interval Class	Middle	FA	FR
1	23-26,67	24,835	1	4,54%
2	26,68-30,35	28,515	6	27,27%
3	30,36-34,03	32,195	5	22.72%
4	34,04-37,71	35,875	3	13,64%
5	37,72-41,39	39,555	4	18,18%
6	41,4-45,07	43,235	3	13,64%
	Total		22	100%

Based on the table above compared with the average value of 5 respondents with Relative Frequency = 22.72 and those below the average of 7 respondents at absolute frequency with Relative Frequency = 31.81 while respondents who are above average at frequency absolute as many as 10 respondents with Relative Frequency = 45.46

3.3. Variable Cardiovascular Endurance

The results in table 1 show the range of Cardiovascular Endurance (Y) is between 27.2 to 44.8, the average value is 34.1, the standard deviation is 4.50, the median is 37.17, and the variance is20, 33. The frequency distribution can be seen in table 3 below:

Table 3. Cardiovascular Endurance

No	Interval Class	Middle	FA	FR
1	27,2-30,13	28,66	2	9,10%
2	30,14-33,07	31,60	3	13,64%
3	33,08-36,01	34,54	6	27,27%
4	36,02-38,95	37,48	5	22,72%
5	38,96-41,89	40,42	3	13,64%
6	41,9-44,83	43,36	3	13,64%
	Total		22	100%

Based on table 3 above compared with values below the average, seen as many as 5 respondents with Relative Frequency = 22.74 the average value on frequency number 3 as many as 6 respondents at absolute frequency = 27.27 while respondents who are above average average of 11 respondents at absolute frequency = 50

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Performance of High School Education Teachers In Makassar In The Pandemic Period Of Covid-19

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Abstract. This study aims to improve the performance of high school physical education teachers in the city of Makassar during the Covid-19 Pandemic. This study uses a qualitative approach. This qualitative approach conducted through stages: a preliminary study determining the setting of research consisting of the place and time of research. Retrieval of data is through pre-field and field stages. The data analysis technique used is reading, listening, analyzing, interpreting, clarifying as well as the data obtained to determine the conclusion of the final analysis where the researcher compares the data obtained with the relevant theory then based on the analysis, a conclusion can be drawn. The results of the study are based on existing data, physical education teachers are quite good in terms of professionalism performance. There are some teachers who have not maximized the edge of the training can be increased professionalism of these teachers. The conclusion of this study is the professionalism of the physical education teachers must be increased through (1) conducting supervision and discipline (2) provision of adequate facilities (3) conducting meetings (4) upgrading (5) seminars (6) workshop. It is hoped that with this research physical Education teachers is ready to face challenges in learning during the Covid-19 pandemic.

Keywords: Professionalism, Physical Education, Industrial revolution 4.0

1. Introduction

Secondary education is education that prepares students to continue to a higher level of education and to develop themselves in line with the development of science and technology and the arts, as well as enhance the ability of students as members of the community in establishing reciprocal relations with the surrounding social, cultural and natural environment. To get quality graduates in addition to strengthening the curriculum, infrastructure and facilities that really need to be observed is the education staff (teacher) in order to maximize results with available resources. Therefore it is necessary to further study the factors related to teacher performance in the co-19 pandemic so that quality graduates can be produced and to improve the level of education in Indonesia, the key is on teachers. The teacher is the operational implementer of education who directly interacts with students. If the teacher can carry out his assignments well, it will be able to improve the quality of student learning outcomes. Therefore, to be able to improve the quality of student learning outcomes at every level of educators requires teachers who have high work discipline. The research objectives in this study are: Knowing the performance of high school physical education teachers in Makassar in the co-19 period.

2. Methods

This research uses a qualitative research approach. This qualitative research was carried out through stages: a preliminary study determining the setting of research consisting of the place and time of the study. Sampling of this study was conducted in Makassar City High School.

In this stage the research has not yet begun collecting data. Activities carried out include only limited field orientation to conduct an introduction to the condition of the object and to prepare the physical and psychological researchers. Researchers conducted initial observations in May 2020 to see the conditions that exist in the school environment, the conditions in the classroom or ongoing effective learning, and other things. This study is very useful for researchers of the focus and object of research so that when researchers actually go into the field can determine the right way to enter the field in order to determine the right way to the object for the ongoing smooth implementation of research.

2.1 Pre-Field Stage

In this stage, activities are carried out before researchers go into the field, such as preparing research proposals, including the terms of permission to research and conducting preparations for field research. The preparation in question includes, among other things, various equipment used such as stationery, recording devices, design fees, and travel arrangements. In this stage, the researcher makes a schedule for conducting interviews. The schedule for conducting research is obtained from the effective hours of study, from 07.00 to 13.30 WIB.

2.2 Field Stage

At the time of data collection the initial analysis process is needed. This data collection activity is carried out on the object of research, namely the principal, educators, and education staff as well as students.

2.3 Data Analysis Phase

In reading, listening, analyzing, interpreting, clarifying and interpreting the data obtained to determine the conclusions of the analysis carried out and is the final analysis in which researchers compare the data obtained in the field with the relevant theory then based on the analysis, a conclusion is drawn.

2.4 Preparation Stage

At this stage report is the final stage of conducting research which results in the form of research reports. The data analysis technique used is reading, listening, analyzing, interpreting, clarifying as well as the data obtained to determine the conclusion of the final analysis where the researcher compares the data obtained with the relevant theory then based on the analysis, a conclusion can be drawn.

3. Result and Discussions

Teacher performance is the result of real work in quality and quantity achieved by a teacher in carrying out his duties in accordance with the responsibilities given to him which includes developing learning programs, implementing learning, conducting evaluations, and

evaluating evaluations. Teacher performance is an activity or behavior that stands out by the teacher in the area of the task for which he is responsible.

Teacher performance appraisal is essentially an activity to foster and develop professional teachers conducted by teachers, by teachers and for teachers. A person's performance appraisal is to find out how much they work through a formal and structured system, such as assessing, measuring, and influencing work-related, behavioral, and outcome characteristics including absence. The focus is to find out how productive a person is if he can work the same or more effective in the future, so that teachers, organizations and communities all benefit.

Pandemic is an outbreak of a disease that attacks many people simultaneously in various countries on a global scale. On March 11, 2020, the World Health Organization (WHO) has announced the status of a global pandemic for corona virus disease 2019 or also called corona virus disease 2019 (COVID-19). In health terms, a pandemic means an outbreak of a disease that attacks many victims, simultaneously in various countries. While in the case of COVID-19, the WHO world health agency designated this disease as a pandemic because all citizens of the world are potentially exposed to COVID-19 infection. With the establishment of the global pandemic status, WHO also confirmed that COVID-19 was an international emergency. That is, every hospital and clinic throughout the world are advised to be able to prepare themselves to treat patients with the disease even though no patient has been detected.

The teacher is an asset of a school as an educational institution. The teacher is a central position in the implementation of the learning process. Physical Education Teacher Performance includes; Learning Planning Performance, Learning Implementation Performance, Learning Assessment Performance ,. During the co-19 pandemic, the performance of Physical Education teachers was influenced by 2 factors. Internal factors such as teacher education level, personality and dedication, teaching ability, and discipline. External factors include the home environment, computer equipment, internet access fiber network.

4. Conclusion

The conclusion of this research is that the performance of Physical and Sports Physical Education teachers must be improved through (1) Conducting supervision and discipline (2) Providing adequate facilities (3) Conducting meetings (4) Upgrading (5) Seminars (6) Workshop (7) Conducting inter-school teacher visits (8) Carry out research or experiments. It is expected that with this research the Physical and Physical Education Teacher is ready to face challenges in learning the co-pandemic period of 19.

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Influence of Puncture Pattern Method on Bobutangkis Player Son Lob U18 PB Gatra Semarang in 2020

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Abstract. The background of this study is the findings of a 2019 study which described 66.66% of the quality of the PB Gatra Semarang U15 technique players when it was below good. One such technique is Lop. This study aims to examine the effect of the punch pattern method on lob success This research is a manipulative experimental research in which one group is made into an experimental group and the other group (manipulative group) acts as a control which actually does not exist. The results of the new research reached the initial test given the ongoing research. For this reason, the discussion in this article is filled with literature review from 3 articles of similar research results The output of this research is an article that will be published through an international seminar published in proceedings with ISSN / ISBN and then submitted to an international journal indexed as Scopus / WoS.

Keywords: playing pattern method, lob, male badminton player, under 18

1 Introduction

Badminton is very popular after competing at the 1992 Olympics. The big event as a series to collect scores in order to qualify for the Olympics was followed by badminton players who strive to achieve high achievements. For high achievers, a badminton player reaches it through exercises. According to M. Sajoto [1] that sportsmen must have four basic skills, namely: 1) technical building-up, 2) physical build-up, 3) mental development -up), 4) champion's maturity. The four main completeness can only be obtained by exercises and competitions carried out continuously and continuously. Suharno HP [2], states that physical, technical, tactic, mental and competitive maturity training is the target of overall training, where one aspect cannot be left behind in a continuous training program throughout the year. Technical guidance includes exercises to master basic techniques, stroke techniques, and stroke patterns. Basic techniques include; 1) How to hold a racket, 2) Wrist movements, 3) Leg movements or footwork, 4) Concentration of mind or concentration [3]. Fostering techniques include training; 1) Service punch, 2) Lob or clear punch, 3) Dropshot punch, 4) Smash punch, 5) Drive or horizontal punch, and 6) Service return or service return punch [4]. While fostering patterns include the pattern of attack and defense. Physical development includes: 1) Strength (strength), 2) Endurance (endurance), 3) Muscle power (musculus power), 4) Speed (speed), 5) Flexibility (flexibility), 6) Agility (agility), 7) Coordination (coordination), 8) Balance (balance), 9) Accuracy (accuracy), 10) Reaction (reaction). M. Sajoto [1] Badminton coaching at the primary level is carried out in clubs scattered in various cities in Indonesia. Gatra Semarang is a badminton club in the city of Semarang that has great potential to develop. As one of the badminton clubs in the city of Semarang, of course the

quality competition becomes very tight considering that in the city of Semarang there are many badminton clubs. The results of the 2019 study illustrate the quality of PB Gatra's players in technical matters ie those of very good and good quality are 3 (30.3%) out of 9 (66.6%) research samples, the rest have moderate, poor and very less technical quality. One badminton technique that has good quality is lob, so it is necessary to find the right training method. Coaching a lop can use the punch pattern method which provides the basis for playing badminton

2 METHODS

This research is a type of quantitative research that is research supported by data in the form of numbers. While the research method used is an experimental method using the T-S pattern (treatment by subject) to test the training method. The designed experiment is a manipulative experiment using one group of trial samples. The research design is quasy experimental.

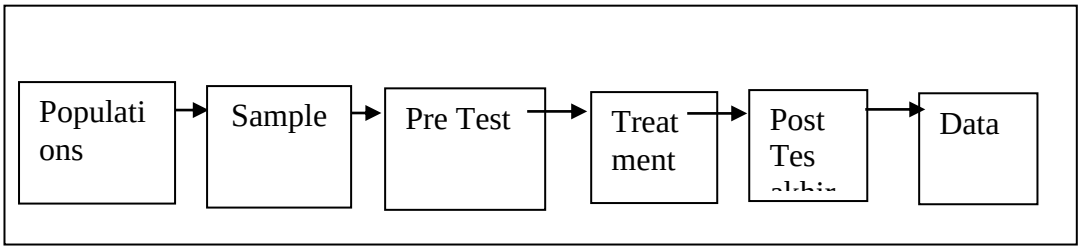

Fig. 1. Research Design Manipulation Experiments

The population of this study was the male badminton players of U18 PB Gatra Semarang in 2019, amounting to 14. The sample of this study was 14 sons under the age of 18 players were taken from the entire population with total sampling technique. Steps for collecting data; 1) Lop initial test, 2). Lop load test, 3). Lop treatment with a punch pattern, 4). Final test lop, 5). Data processing, The instrument used was the standard instrument of PBSI namely the LOP test. The research location is PB Gatra Semarang, namely in the Pino badminton building Jl. Elang Raya, Sendang Mulyo, Semarang City Data analysis uses the help of SPSS to find the magnitude of the effect and find the inhibiting factors. The order of presentation is; 1). Data description, 2). Data prerequisite tests include data normality tests, data homogeneity, and data linearity, 3). Test the effect of lob exercises with a punch pattern that is to test the mean end of the experimental group with the mean of the manipulative group, 4). Data analysis and 5) Finding the most influential novelty (state of the art) pattern, 6). Summing up the results of an experiment, 7). Provide recommendations for research results to the sample and groups related to the study.

RESEARCH RESULTS AND DISCUSSION

Research result In this study the results of the new research were the results of the awa test. While the final test results have not been carried out considering the research is ongoing. The results of the measurement of the GOP Semarang Semarang 2020 players are presented in table 1.

Table 1. PB Gatra Semarang Lop Player Test Results for 2020

Name of Atletes	The Result of Lop Test	
	Pre Tes	Post Tes
Vicko Mahogra	42	
Zidan Oxchel	42	
Mahimsa Sunnyl	34	
Abitama	27	
Al Ghani	36	
Affif	16	
Haikal Ibnusina	34	
Satria Sidan	17	
Farid Maulid	23	
Mean	31	

From table 1 the results of the initial lop test for each athlete PB Gatra Semarang in 2020 with a mean value of 31. While the final test has not been carried out considering that at the time of this article the research was still ongoing. For this reason, the data cannot be analyzed.

The effect of the punch pattern method on Lop can be analyzed when the research is complete, given that the research is ongoing, then the discussion in this study is filled with literature review. The review literature is a step towards the next stage in completing the research process [5]. Literature review is a systematic, explicit and reproducible method for identifying, evaluating and synthesizing research works and thoughts produced by researchers and practitioners [6]. Literature review aims to make an analysis and synthesis of existing knowledge related to the topic to be investigated to find empty spaces (gaps) for research to be conducted [7]. The more detailed objectives are explained by [8], namely (1) providing a background / theoretical basis for the research to be carried out, (2) studying the depth or breadth of existing research related to the topic to be studied and (3) answering questions practical questions with an understanding of what has been produced by previous research.

Writing a review literature has several stages / steps. Polit & Hungler in [9] divided the stages into five, namely (1) defining the scope of the topic to be reviewed, (2) identifying relevant sources, (3) reviewing the literature, (4) writing a review and (5) apply the literature to the study to be conducted.

Based on the description of the literature review, the literature that will be reviewed in this study are listed in the following steps. The synthesis matrix is made by (1) identification of 6-12 articles that are highly relevant to the focus of the study and (2) creating columns to identify several things, such as (a) the research questions asked by the author, (b) the method used, (c) characteristics of the research sample, (d) similarities found and (e) differences of each article not found in other articles. The format of the synthesis matrix is as follows:

Table 2 Sitensis Results of Similar Research articles

Author& Year	Aim	Method	Sample	Finding
Taufiq Nur Rachman,dkk. [10]	To find out the effect of Forehand Overhead Clear Exercise Pattern on the Ability of the Lob Punch Technique	Eksperiment	Students of SMAN 4 Malang	The pattern of forehand overhead clear exercises influences the ability of badminton lob punch techniques
Wisnu Prestian Putra, 2017 [11]	To find out the effect of the Emperor's training program and pairing it against the results of lob hits	Eksperiment	PB athlete Srikandi Bandar Lampung	Both training programs together have a significant effect on increasing lob hit results
Ari Asnaldi, 2019 [12]	Relationship between Massed Practice and Distributed Practice Approaches to Accuracy of Badminton Lob Punch	Eksperiment	PB athletes Andalas Jaya, Padang City	Both Exercise Approaches have a significant effect on Lob's punch

Based on the three articles in table 2, it can be described that both the pattern method has a significant effect, meaning that the forehand overhead clear training pattern influences the ability of the badminton lob stroke technique in the badminton extracurricular participants of SMAN 4 Malang, Both individual and paired methods have a significant effect on increasing the results of PB Srikandi Bandar Lampung athletes' lob lob Massed and distributed approaches all have a significant influence on the outcome of lob hits. This means that the two training approaches have a significant influence on the PB Andalah Jaya Athletes lob in the Padang City. Both using a sample of extracurricular students or using a sample of badminton athletes in PB, all have significant influence. This means that all experiments that are designed and treated properly according to the rules of coaching will all have a positive effect on badminton lop punches

5 CONCLUSIONS

Based on the synthesis of the three articles on the influence of the pattern, individual, paired, massed and distributed methods all have a significant effect on the lob results.

Based on the conclusion, to badminton athletes, school students participating in badminton extracurricular activities are advised, "if you want to improve the results of badminton lop training, extracurricular students / badminton athletes can choose one of the above training methods according to their individual tastes, bearing in mind all positive influences on the results lob training.

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