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Effects of Health-Related Fitness Model Implementation in Physical Education on Active Lifestyle of Vocational High School Students

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Abstract

This study aimed to determine the effect of implementing a health-related fitness model on vocational high school students' physical and physical activity improvements. The method used in this study was the experimental method with a randomized control group pre-test post-test design. The sampling method used a random cluster sampling technique by selecting two classes. One class was assigned as the experimental group, while another class was assigned as the control group. Each class consisted of 33 students aged 16-17 years. The instruments used in this study were the physical fitness test instrument and the student physical activity test instrument. The data analysis employed SPSS 20 application. The result showed a relationship between student understanding of health-related fitness, student physical fitness, and their active lifestyle. This study provides information that understanding health-related fitness has a significant influence on physical fitness and active lifestyle. The implications of this study emphasize that a good understanding of health-related fitness can have a significant impact on oneself, friends, relatives, family, and society.

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INTRODUCTION

Good physical fitness is needed by all people, from children to the elderly, regardless of social and intellectual status (Colin & Chris, 2002; Pavlova et al. l, 2014). Optimal physical fitness is the principal capital to carry out daily activities well. Physical health-related fitness should also be carried out with predetermined standards, such as doing regular exercise activities three times a week to improve physical fitness (Ross et al. 1987) and schools' physical education programs to increase awareness of adopting an active lifestyle. However, to develop these lifelong active individuals, it is important for students to understand the fitness concept and how physical activity contributes to health (Lazar and Kulinna 2002).

However, based on current data from the Ministry of National Education in 2002, almost a third of children in Indonesia have the problem of being overweight or obese (Brusseau et al. 2014). Children with a low fitness level are more likely to become overweight or obese over time than those with a high fitness level (Parker and Curtner-Smith 2005). In a study conducted by Ewrin and Castelli, healthy physical fitness was the only significant contributor to primary school student participation in physical activity out of several factors tested. However, nowadays, children are about 15% less fit than their parents when they were younger. Lifestyle choices will provide a quality of life that allows them to do things and avoid obesity (Prusak et al., 2016). Another study states that physical fitness has a positive relationship with the ability to concentrate on the subjects in highland areas (Nuryadi et al., 2018)

The school environment also plays a vital role in providing opportunities for children to engage in physical activity (Jarani et al., 2015). However, the data of (Diknas 1995, 2004; SDI 2005-2007) show that the physical fitness status of Indonesian students and society is still low and tends to decline. Furthermore, it raises the question of the obstacles in learning Physical Education that does not encourage the student fitness improvement or how to make Physical Education learning that can have implications on the school-age children to adulthood towards the habituation of an active and healthy lifestyle. Therefore, the Health-Related Fitness (HRF) model can be an alternative learning model to be integrated into Physical Education to provide knowledge and habituation to practice physical activity for children at school. This Health-Related Fitness model has a goal consisting of 5 stages that align with student development and growth.

According to Rainey L Don dan Murray Tinker D (1997) in the Foundations of Personal Fitness book, HRF is a type of physical fitness emphasizing physical activity and exercise that will improve or help maintain functional health. The five components of HRF are cardiovascular fitness, flexibility, muscle strength, muscle endurance, and body composition. This health-related fitness model is expected to enable students to develop skills, physical fitness, knowledge, attitudes, and behaviors, leading to an active and healthy lifestyle. This learning model believes that the success of Physical Education begins with the student's enjoyment in doing various physical activities. Therefore, various factors, such as skills, physical fitness, attitudes, knowledge, and daily behavior, must always be self-trust oriented to establish a healthy, active lifestyle.

The characteristics of the HRF model emphasize knowledge, attitudes, and behavior, as well as an ongoing program of activities, regular testing, and individual assessment. This research aimed to provide an overview of the implementation of the Health-Related Fitness model to promote fitness education adjusted to the curriculum in Indonesia. The findings of the previous study highlight that the Health-Related Fitness model provided health-related improvements for students (Brusseau et al., 2014). Based on the descriptions, the researchers intended to research the relationship between Health-Related Fitness models and physical fitness and active lifestyles of vocational students.

METHODS

The method used in this research was an experimental study with a one-group pretest-posttest design.

Participants

Vocational High School students are 16-17 years, a transitional phase from adolescence to adulthood. The population of this study was Class XI students at Public Vocational High School 1 Buahdua, Sumedang. The sampling technique used random cluster sampling so that there were 33 people as samples.

Instrument

The instrument used in this study was TKJI (Indonesian Physical Fitness Test), taken from Heliso n's theory in Metzler's (2000) book about Physical Fitness. Meanwhile, this study employed the International Physical Activity Questionnaire (IPAQ) to examine the active lifestyle. The adaptation of the IPAQ process and the research methods used in the development of IPAQ instruments are available at www.ipaq.ki.se and Booth, M.L. (2000). Assessment of Physical Activity: An International Perspective. Research Quarterly for Exercise and Sport, 71 (2): s114-20. Other scientific publications and presentations on IPAQ use are summarized on the website.

Procedure

1. Preparation Stage

a. Initial observations, including activities,
b. Direct observation of the learning process,
c. Determination of the research subject and subject matter to be developed in the learning model,
d. Review of the literature related to the learning model used and analysis of the concepts contained in the subject to be delivered, and
e. Determining the indicators applied to assess the results of the learning model.

2. Implementation Phase

Explanation about health-related program activities was given to students in advance. A complete explanation of the learning program is attached in the appendix. Knowledge In Action (KIA) of each lesson contained four activities organized in a sequential rotation, removed the oldest activity, and followed each lesson.

Data Analysis

The data analysis process was carried out using SPSS Statistical Product and Service Solution (SPSS) for Windows version 20.

RESULT

Based on the Shapiro-Wilk normality test for TKJI data, the value of Sig. The pre-test was 0.197, and the Post-test was 0.005. Because the post-test data were counted <0.05, the TKJI data were assumed not normally distributed. Therefore, to process the TKJI data, the non-parametric test was used, namely the Wilcoxon test. Meanwhile, for IPAQ data, Sig. A pre-test was 0.012, and a Post-test was 0.085. Therefore, both of the data were > 0.05. Therefore, it concluded that the IPAQ data were normally distributed. Since the normality test on the TKJI data showed that the data were not normally distributed, the homogeneity test was not considered. Therefore, the next statistical test was the Wilcoxon test. For the IPAQ data, the value based on the mean on the homogeneity test was 0.194 > 0.05. Therefore, it concluded that the variance of the IPAQ data was homogeneous.

Table 1. First Output of Wilcoxon Test: Ranks

		N	Mean Rank	Sum of Ranks
Post-test TKJI Experiment Class – Pre-test TJKI Experiment Class	Negative Ranks	0[a]	0,00	0,00
	Positive Ranks	33[b]	17	561
	Ties	0[c]		
	Total	33		

a. Post-test TKJI Experiment Class < Pre-test TKJI Experiment Class
b. Post-test TKJI Experiment Class > Pre-test TKJI Experiment Class
c. Post-test TKJI Experiment Class = Pre-test TKJI Experiment Class

Table 2. Second Output of Wilcoxon Test: Statistical Test

	Post-test TKJI Experiment Class– Pre-test TKJI Experiment Class
Z	-5.092[a]
Asymp. Sig. (2-tailed)	.000

Based on Table 1, three things were found: negative ranks or the difference (negative) between the understanding test results for the pre-test and post-test was 0 for the value of N, Mean rank, and Sum of ranks. These 0 values indicated no decrease from the pre-test value to the post-test value. Positive ranks or the difference (positive) between the understanding test results for the pre-test and post-test found that there were 33 positive data (N), meaning that 33 students experienced an increase in understanding seen from the pre-test score to the post-test score. The mean rank or the average increase was 17.00. Meanwhile, the number of positive ranks or Sum of ranks was 561.00. Ties are the similarity of pre-test and post-test values. The ties value was 0; thus, there was no equal value between pre-test and post-test values.

In the Wilcoxon test, the determination of the hy-

pothesis test is examined in the second output, the statistical test. Based on Table 4, the Asymp value Sig. (2-tailed) is 0.000. Because the value is 0.000 <0.05, Ha is accepted. It means a difference between the results of the physical fitness test (TKJI) of the pre-test and post-test data. It concludes that "there is an effect of using the Health-Related Fitness Model on the physical fitness of XI Class students of Public Vocational High School Buahdua, Sumedang."

DISCUSSION

The Health-Related Fitness (HRF) model is one of the programs in the Physical Education learning process aimed at improving physical fitness as an instrument to support daily life. Based on the results of data analysis, active lifestyle and physical fitness have a unidirectional relationship; if the understanding of the HRF model increases, the active lifestyle will also increase; if the understanding of the HRF model increases, physical fitness will also increase; and if the active lifestyle increases, the physical fitness will also increase (Filgueira et al. l., 2021). These two aspects are closely related and influence each other. Therefore, a quality Physical Education program must be able to prepare individuals for lifelong physical activity and healthy behavior. In line with the objectives, Physical Education encourages physically literate individuals who have the knowledge, skills, and beliefs to enjoy healthy physical activity throughout their lives. (SHAPE America, 2015).

The fitness paradigm in Physical Education has now changed along with the increasingly advanced times (Emma et al. l., 2015). The current Physical Education learning process is not dominated by motions, where the education outcomes or values that must be achieved, especially in Physical Education, have been growing, which include physical health, physical skills, affective, social, cognitive, creativity, and Lifestyle/ Leisure (Bailey, 2018). It shows that Physical Education contains various aspects, such as physical health, physical skills, sportsmanship attitude, respect, tolerance, being kind when facing defeat, and respecting opponents when winning. It can add insight into how important it is to maintain physical fitness and health for the long term; thus, it provides knowledge affecting the awareness and active, healthy lifestyle in everyday life. From all aspects of Physical Education, an active lifestyle will become a necessity and lifestyle in the present and the future. Exercise and fitness have an important role in health (Jackson 2006). Through quality Physical Education programs, it is possible to develop competence in various physical and sports skills (Houston and Kulinna 2014). In addition, good physical fitness will allow a person to have a good body mass index. Body mass index is believed to positively correlate with physical fitness in adolescents (Simbolon & Firdausi, 2019). Therefore, physical activity becomes an essential requirement for humans to have a healthy and ideal body condition (Ramania et al., 2020). The Health-Related Fitness (HRF) model in the Physical Education setting is a tool to realize the education goals so that generations are habituated with active and productive lifestyles. Physical fitness can be improved in the school environment. School is an ideal and strategic place to instill an active lifestyle and develop awareness to maintain fitness (Gustiana & Puspita, 2020).

CONCLUSION

The Health-Related Fitness Model's influence on physical fitness and active lifestyle can be seen from the differences in the pre-test and post-test scores of the student TKJI and IPAQ tests. The results showed a significant effect based on the tests carried out. Therefore, there is a significant influence of the understanding on applying an active lifestyle and the increased level of physical fitness.

CONFLICT OF INTEREST

The authors declared no conflict of interest.

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