

INTERACTION BETWEEN PHYSICAL FITNESS, PSYCHOSOCIAL, AND SPIRITUAL ASPECTS OF CHILDREN IN INDONESIAN PHYSICAL EDUCATION**INTERAÇÃO ENTRE APTIDÃO FÍSICA, ASPECTOS PSICOSSOCIAIS E ESPIRITUAIS DE CRIANÇAS NA EDUCAÇÃO FÍSICA DA INDONÉSIA**Soni Nopembri¹ and Yoshio Sugiyama²¹Universitas Negeri Yogyakarta, Yogyakarta-Daerah Istimewa Yogyakarta, Indonesia.²Kyushu University, Fukuoka-Fukuoka Prefecture, Japan.**RESUMO**

O ser humano pode desenvolver muitos aspectos, incluindo físicos, psicológicos e espirituais por meio da educação física. O desenvolvimento holístico requer evidências de correlação entre aspectos na aula de educação física. O presente estudo examina a correlação entre a aptidão física, aspectos psicossociais e espirituais de crianças em aulas de educação física na escola. Este estudo correlacional realizado em 556 alunos do ensino fundamental. O instrumento para mensurar variáveis sob aspectos psicossociais e espirituais é o questionário. Os dados foram analisados usando Pearson Product Moment e análise estatística correlacional de regressão múltipla no programa SPSS versão 23.0 para Windows. De acordo com os achados, o aumento do aspecto psicossocial leva ao aumento do aspecto espiritual. Enquanto isso, a diminuição do aspecto psicológico leva ao aumento do aspecto espiritual da criança, o que faz o oposto. Portanto, há expectativa de que a educação física e o esporte possam desenvolver o aspecto psicossocial e reduzir o aspecto psicológico negativo (depressão, ansiedade e estresse). As formas e tipos de atividades físicas podem se tornar variáveis impulsionadoras que melhoram os aspectos psicossociais e espirituais, além de ajudar a reduzir os aspectos psicológicos negativos.

Palavras-chave: aptidão física, psicossocial, espiritual, educação física.

ABSTRACT

Humans can develop many aspects including physical, psychological, and spiritual ones through physical education. Holistic development requires evidence of correlation among aspects in physical education lesson. This present study, examines correlation among physical fitness, psychosocial, and spiritual aspects of children in physical education lesson in school. This correlational study done on 556 elementary school students. The instrument to measure variables under psychosocial and spiritual aspects is questionnaire. Data analyzed using Pearson Product Moment and multiple regression correlational statistical analysis in the SPSS program 23.0 version for Windows. According to the findings, increasing in psychosocial aspect leads to increase in spiritual aspect. Meanwhile, decrease in psychological aspect leads to increase in spiritual aspect of a child so does the opposite. Therefore, there are expectations in that physical education and sports can develop the psychosocial aspect and reduce the negative psychological aspect (depression, anxiety, and stress). Forms and types of physical activities can become driving variable that improves psychosocial and spiritual aspects as well as helps to reduce the negative psychological aspects.

Keywords: Physical Fitness, Psychosocial, Spiritual, Physical Education.

Introduction

Physical education and sports function as intervention to develop physical, psychological, social, and spiritual aspects. Physical education and sports are parts of school curriculum discipline discussing physical and psychological health problems among students¹. Health-related physical education approach can improve psychosocial benefits for children in community health program². Therefore, physical activities play significant roles in students' psychological well-being². Sports and play activities can help adolescences in nonverbal access, self-expression, and problem solving³. Sport and play activities provide children with chances to develop problem solving skill, manage emotions and behavior, build healthy relationship, express difficult emotions and painful feelings, desires, fears, anxieties, and fantasies either verbally or nonverbally⁴. Playing activities can also re-enact one's traumatic experiences⁵. Physical education and sports program comprehensively integrates such spiritual concepts as

critical thinking, awareness and tolerance, and the significant roles of body, mind, and soul in maintaining health⁶.

Physical fitness designed in physical education classes so that teachers make it possible to develop and maintain children's health⁷. Improved physical fitness, especially components related to health, such as body composition, flexibility, muscle strength and endurance, and cardiorespiratory endurance are more important for general health than components related to skills/sports⁸. Children's physical fitness can facilitate positive outcomes of improving health-related quality of life⁹. Physical fitness obtained through regular and measurable physical activity to build skeletal health, aerobic fitness, muscle strength and endurance, and adiposity in overweight children¹⁰. Physical activity is associated with various health benefits because the more physical activity, the greater the health benefits¹¹.

Moreover, in various terms, sport or exercise can help develop children's physical, psychosocial, and spiritual strengths to integrate in their social lives of individuals and societies. Sports are important to both the individual and society in economic, cultural, and financial terms¹². In general, sports is a social and cultural product associated with the identity of children to strengthen social relations and develop social capital to establish a healthy society¹³. Similarly, Coakley¹⁴ states that sports is a cultural practice that distinguished by place and time around the world. Sports is reflective of culture and society, deepen social differences, and a vehicle for social conflict¹⁵. Specifically, sport can facilitate personal and social development by promoting positive behavior¹⁶. It can conclude that sports are a social and cultural product that can understand and examine in detail by studying the actions of individuals and societies in the area of physical exercise. Therefore, the benefits of sport and exercise in the form of understanding and application to integrated the physical, social and psychological values and can use as capital in civic life.

Much literature provides empirical reasons concerning the physical, psychological, social, and spiritual benefits of regular physical activities in physical education and sports among children and teenagers². Physical education and sports focus on three major human components (biological, psychological, and social) and aim to create harmonious development of human body, balance between physical-psychology and individual social integration¹. Physical education and sports, in fact, can promote students' level of participation in schools and help them implement their mental, emotional, social, and physical skills to maintain a healthy lifestyle^{12,17}. Physical education and sports have concrete visions of life focusing on personal growth and health-related value development through physical activities^{2,12}. If physical education and sports related to human life aspects, their relations, especially to children growth and development, require further elaboration.

The relationship between physical, skills and other psychological aspects need more investigating in Indonesia physical education setting¹⁸. However, not much research specifically explored the relations of physical education and sports to physical fitness and psychosocial aspects as well as spiritual values among children. Therefore, to be able to define the model of relationships of physical, psychosocial, and spiritual aspects of children in disaster-prone zone to physical education and sports in schools, further elaboration is required. As the benefits of physical education and sports to physical fitness, psychosocial, and spiritual aspects widely explored and acknowledged in many researches, there is an opportunity to conduct empirical analysis on the relationships among above aspects in physical education and sports among children context. Therefore, the authors hypothesize that there is a relationship between the physical fitness, psychological, psychosocial, and spiritual aspects of students in the physical education and sports classes and the model fit of relationship between aspects.

Methods

Design

This study was a correlational study focusing on the assessment of the statistical relationship between two or more variables in a study. Understanding the relationship between variables and its degree becomes significant as it helps researchers develop their researches based on the objectives. Variables in this study include physical fitness, psychosocial, and spiritual aspects.

Participants

The 556 students (247 female and 309 male) from fifteenth elementary schools in Yogyakarta, Indonesia participated in this study. Participants age ranged specifically from 10 to 12 years old ($M = 10.62$; $SD = 0.878$). All participants agree to be involved in the fill out of the questionnaire with permission consent from their parents/guardians. In addition, this study has also received ethical approval from the ethic committee at university's research institutes.

Table 1. Sample Characterization

Characteristics	Number
Total Children	556
Male	309
Female	247
Age (years)	10.62 ± 0.88
Schools	15

Source: authors

Data Collection

The Elementary School Students' Psychosocial Skill questionnaire was adopted to measure the psychosocial skill of elementary school children. Researcher developed this questionnaire by adapting several standardized instruments used in many researches such as Social skills Checklist for Elementary, Problem-Solving Style Questionnaire (PSSQ), coping with Stress Inventory, and Interpersonal Skills Questionnaire. The Elementary School Students' Psychosocial Skill questionnaire included 40 items, which have been proven valid and reliable after passing validity and reliability tests¹⁸.

The spirituality and religiosity scale to measure spiritual skill in this study was adopted from Religiosity and Spirituality Scale for Youth (RaSSY) by Hernandez¹⁹. It consisted of 37-item measure with two factors that include Faith-Based Coping (22 items) representing the use of religious beliefs, knowledge, and prayer to obtain comfort, strength, relief, or guidance as well as Religious Social Support/Activities (15 items) assessing religious social support and participation in other religious activities. The items are rated along a 4-point scale ranging from 0 = "never" to 3 = "always" indicating to what extent respondents participated or agreed with each item. In preparing the instrument, researcher worked together with a professional English translator to translate the English original scale into simple and easy Indonesian version.

Children psychological condition was measured using the Depression, Anxiety, and Stress Scales (DASS 42)²⁰. The questionnaire consisted of 42-item self-report instrument measuring three related scales. Each scale covered 14 items, which consisted of subscales, each with 2 to 5 items with similar contents. Depression symptoms being measured included dysphoria, despair, and devaluation of life, self-humiliation, and lack of interest/participation, anhedonia, and inertia. In the meantime, anxiety symptoms were indicated by autonomous desire, musculoskeletal effect, situational anxiety, and the subjective experience of anxiety. The non-specific chronic stress symptoms indicate one's sensitivity to stress. From scale 0 to 4, respondents decided the extent to which they have experienced such symptoms in past week. DASS 42 has been tested to 745 elementary school students in Yogyakarta. The validity and reliability tests indicated good internal validity of the instrument ($p < 0.01$) and reliability with Cronbach alpha coefficient of 0.904.

To test and measure the level of physical fitness of early adolescence aged 10-12 years old, the Indonesian Physical Fitness Test (IPFT) was adopted. The test is a series of tests that requires test-takers to perform the test items consecutively, continuously, and non-stop by observing their speed in moving from item to item within 3 minutes. It should be understood that all IPFT items are standardized and should be performed consecutively. The test order is as follows: 40-meters sprint, 60-seconds pull hold up, 30-seconds sit up, vertical jump, and 600-meters running. The validity of IPFT was 0.884 for male students; while for female students it was 0.897 and the reliability was 0.911 for male students, while for female students it was 0.942²¹.

Data Analysis

Data analysis in a correlational study fundamentally conducted by correlating measurement results of one variable to those of other variable. In this study, such predictive correlation technique as regression analysis adopted to assess the ability of a predictor to predict the criterion variable. Meanwhile, in predicting two or more predictor variables, the product moment correlation and multiple regression were adopted. Analysis resulted in correlation coefficient or regression coefficient along with its significance level as well as the proportion of variance in the dependent variable explained by the independent variable. All data analysis performed using the Statistic Procedure for Social Science (SPSS) and AMOS 23.0 version software for Windows.

Results

Researcher converted raw score of each variable instrument into standardized forms and conducted a descriptive analysis. Results of the descriptive analysis presented in the following table:

Table 2. Descriptive statistics of all variables

	N	Min	Max	Mean	SD
Physical Fitness		5	23	11.99	3.171
Speed		1	5	2.29	1.035
Arm Shoulder Endurance		0	5	2.31	1.075
Abdominal Endurance		1	5	2.99	1.111
Power	556	1	5	2.43	0.932
Cardiovascular Endurance		0	5	1.78	0.989
Spiritual		15	104	69.82	16.102
Psychological		0	112	38.60	24.425
Psychosocial		0	114	71.04	16.671

Note: *N*=Number of Participants, *Min*=Minimum Score, *Max*=Maximum Score, *SD*=Standard Deviation

Source: authors

Table 3. Coefficient correlation among variables

		Physical Fitness	Spiritual	Psychological	Psychosocial
Physical Fitness	Pearson Correlation	1	0.028	-0.025	-0.008
	Sig. (2-tailed)		0.514	0.552	0.859
Spiritual	Pearson Correlation		1	-0.110**	0.492**
	Sig. (2-tailed)			0.009	0.000
Psychological	Pearson Correlation			1	0.007
	Sig. (2-tailed)				0.877
Psychosocial	Pearson Correlation				1
	Sig. (2-tailed)				

Note: **Sig.< 0.01

Source: Authors

The Pearson correlation analysis results suggest a positive significant relation between spiritual and psychosocial variable ($r = 0.492$, $p < 0.05$) as well as a negative significant relation between spiritual variable and psychological variable ($r = -0.110$, $p < 0.05$). In the meantime, physical fitness has no significant relation with psychological, psychosocial, and spiritual variables. Similarly, psychosocial variable shows no significant relationship with psychological variable. The following Table 4 presents the relationships among variables: Results of regression analysis using the enter method indicate a significant model ($F_{3, 552} = 63.090$, $p = 0.000$. Adjust R square = 0.251) in which spiritual acts as a dependent variable and psychosocial, psychological, and physical fitness aspects are independent variables (predictors). Summarizes the information as follows in the Table 4.

Table 4. Summary of relationship model fits and regression

Model Fit		Adjusted R Square	df	F	Sig.
Dependent	Predictors				
Physical Fitness	Spiritual	-0.004	3552	0.330	0.804
	Psychosocial				
Spiritual	Psychological	0.251		63.090	0.000
	Physical Fitness				
Psychosocial	Psychological	0.242		59.950	0.000
	Physical Fitness				
Psychological	Spiritual	0.012		3.274	0.021
	Psychosocial				

Note: df =degree of freedom

Source: Authors

As the results of regression analysis using the enter method, there are no significant models between components of physical fitness and spiritual, psychosocial, and psychological aspects as both a dependent and predictors variables. Summarizes the information as follows in the Table 5.

Table 5. Summary of Relationship Model Fits and Regression between Components of Physical Fitness and Other Aspects

Physical Fitness and Other Aspects		Adjusted R Square	df	F	Sig.
Model Fit					
Dependent	Predictors				
Speed	Spiritual Psychosocial Psychological	-0.002	3552	0.562	0.641
Arm Shoulder Endurance		-0.005		0.017	0.997
Abdominal Endurance		-0.002		0.637	0.591
Power		0.001		1.245	0.293
Cardiovascular Endurance		0.003		1.569	0.196
Spiritual	Speed	0.000	5552	0.964	0.440
Psychosocial	Arm Shoulder Endurance Abdominal Endurance	0.006		1.647	0.146
Psychological	Power	-0.004		0.525	0.758
	Cardiovascular Endurance				

Note: *df*=degree of freedom

Source: authors

Results also indicate that, as predictors, psychosocial and psychological variables show significant relationships while physical fitness variable shows no significant relationship as predictor. The information presents as follows in the Table 6.

Table 6. Multiple Relations between Dependent and Independent Variables

Dependent Variable	Independent Variable (Predictor)	β (95% CI)	t	Sig.
<i>Physical Fitness</i>	Spiritual	0.038	0.778	0.437
	Psychosocial	-0.026	-0.537	0.592
	Psychological	-0.021	-0.486	0.627
<i>Spiritual</i>	Physical Fitness	0.029	0.778	0.437
	Psychological	-0.113	-3.073	0.002
	Psychosocial	0.492	13.408	0.000
<i>Psychosocial</i>	Physical Fitness	-0.20	-0.537	0.592
	Psychological	0.61	1.664	0.101
	Spiritual	0.499	13.408	0.000
<i>Psychological</i>	Physical Fitness	-0.021	-0.486	0.627
	Spiritual	-0.149	-3.073	0.002
	Psychosocial	0.080	1.644	0.101

Note: CI=Confidence Intervals

Source: Authors

There are no significant relationship between components of physical fitness and spiritual, psychosocial, and psychological aspects as both dependent and predictor variables. The information presents as follows in the Table 7.

Table 7. Multiple Relations between Components of Physical Fitness and Other Aspects

Dependent Variable		Independent Variable (Predictor)	β (95% CI)	t	Sig.
Speed		Spiritual Psychosocial Psychological	-0.005	-0.097	0.923
			-0.048	-1.124	0.261
			-0.025	-0.507	0.612
Arm Shoulder Endurance			0.003	0.058	0.953
			0.009	0.214	0.831
			-0.004	-0.091	0.927
Abdominal Endurance			0.051	1.033	0.302
			-0.003	-0.078	0.937
			0.013	0.266	0.790
Power			0.043	0.882	0.378
			-0.041	-0.970	0.333
			0.035	0.722	0.471
Cardiovascular Endurance			0.027	0.547	0.584
			0.017	0.387	0.699
			-0.101	-2.076	0.038
Spiritual			-0.035	-0.754	0.451
			-0.017	-0.361	0.719
			0.052	1.143	0.254
			0.070	1.484	0.138
			-0.030	-0.678	0.498
Psychosocial		-0.040	-0.866	0.387	
		-0.001	-0.014	0.989	
		0.037	0.826	0.409	
		0.070	1.498	0.135	
		-0.094	-2.143	0.033	
Psychological		-0.046	-1.005	0.315	
		0.029	0.620	0.536	
		0.006	0.135	0.893	
		-0.045	-0.951	0.342	
		0.020	0.459	0.647	

Note: CI=Confidence Intervals

Source: Authors

Discussions

This study found no strong relationship between physical fitness and spiritual, psychological, and psychosocial variables in physical education and sports lesson. This finding disagrees with several other findings stating that sport activities focus on three major human components (biological, psychological, and social) and aim to create harmonious development of human body, balance between physical-psychology and individual social integration¹. Sports

carry social attribute that drives people to gain physical health¹⁷. Regular physical activities is a great source for personal growth and health-related values development². Sports increase body temperature, improve blood circulation in brain as well as physiological reactivity to stress¹⁷. Much sound literature has provided empirical reasons concerning

Much great literature provide empirical reasons and state the benefits of regular physical activities for physical and psychological aspects of children and adolescence². The long-term health benefits of physical education and sports have become the focus of health promotion program among children^{10,11,22,23,24}. Physical fitness is an important variable to measure the benefits of physical education and sports for physical aspect^{7,8,9,24}. Researcher expected that physical activities are closely related to development of spiritual, psychological, and psychosocial aspects.

This study found a positive significant relationship between psychosocial and spiritual aspects in physical education and sports. There are supporting opinions claiming that physical education and sports promote many human aspects nowadays^{25,26}. Many studies found that physical education in schools has impacts on various life skills^{27,28}. As one of disciplines in the curriculum, physical education and sports discuss physical, psychological, and psychosocial health problems^{1,2,3}.

Physical education and sports are closely related to children's psychosocial skill development. Children participating in physical education and sports experience things that help them respond to stress and learn the strategies to cope with it²⁹. Those who actively participate in physical activities are known to have better skills in mastering positive emotions effectively and better problem solving skill³⁰. Another researcher found that children who participate in physical education class demonstrate higher communication skill than those who participate in art class³¹. During physical education and sport activities children consistently communicate using both verbal or nonverbal communication such as codes, signs, pictures, and many more³². Physical education and sport intervention program promotes students' empathy³³. In addition, in physical education and sports, students also improve their problem solving skill that later helps them develop skills and creativity³⁴.

Spirituality has clear indicators and outcomes and becomes important part of the educational curriculum especially for health and well-being gained through deep relationship with others, nature and experiences³⁵. Spirituality is physical education and sports learning dimension integrated into the holistic-oriented curriculum and pedagogy clearly and openly, to integrate motion orientation and culture balance and to improve students' spiritual awareness⁶. In addition, physical education and sports provide many chances to children to experience spirituality through regular physical activities in each lesson³⁵. Furthermore, participation in physical activities, plays, traditional cultures, and music can promote students' spiritual development and help them become more relaxed, creative, and motivated as well as able to interact with each other⁶. Likewise, the implementation of spiritual health concept in physical education as characterized by existence, relationship, life reality and goal, and transfer³⁶. Such practical ways to integrate spiritual values into physical education and sports as explaining various movements in physical activities, describing heroic actions in sports, talking about the benefits of sports, motivating students to act right during physical activities or sports, and discussing issues that touch students' heart and encourage them to do good to others³⁷.

As spirituality is crucial but sensitive aspect of life, it will require some time and judiciousness for children to be able to explore the aspect³⁸. Spirituality refers to strengths, energies, and feelings towards God's blessings with or without religion³⁹. The relationship between spirituality and religion is one's spiritual foundation in that spirituality can grow without any religious foundation^{37,40}. Spirituality is the basic life process, the involvement of joy, disguise, love as well as self-relationship and relationship with nature⁶. It refers to personal experience or reality that is not always related institutionally⁴¹. Spirituality focuses on feelings,

luxury, and reconciliation that helps individuals change their conditions and build their new self-images⁴⁰.

Results of this study point a negative relationship between spiritual and psychological aspects. In other words, spiritual aspect can reduce negative psychological states such as depression, anxiety, and stress. This finding agrees with stating that religious and spiritual values like awareness, attention, calmness, and tolerance are developed during physical education and sports lesson⁶. Similarly, many have reported that physical education and sports indicate huge potential to develop spirituality in daily activities in school and in the community³⁵. Prayers in the beginning and in the end of each physical education and sport class promote peace, commitment, friendship, emotions control, and achievement⁴². Many professional athletes have made prayers part of their habits and rituals^{38,43} to ask and to thank for success for themselves and for the team³⁶.

Several studies have reported the relationship among spiritual, health, and well-being. Hernandez found that spiritual aspect influences health and improve adults' health¹⁵. Spirituality is a significant fundamental dimension of education, health, and well-being known as spiritual health³⁷. The relationship between spirituality and health has been comprehensively reported in much literature⁴⁴. According to Islamic belief, a good Muslim enjoys health and fitness⁴⁵. Similarly, spirituality and sports are also related to various aspects of human life. Sports can promote religious attitude that is based on respect to each other and ability to handle differences³⁶. Parry reported that spiritual aspect such as health and well-being, ethical development, and game spirit is related to many aspects in sports⁴⁶. Besides, sports often demonstrate religious, practical, and ritual values^{36,44}. Additionally, the relationship between sports and spirituality in the program that involved a minority group of religion as presenters of national sport events⁴⁷.

Many studies showed positive relationship among physical activities, spiritual and psychological aspects. Annesi emphasized on the fact that depression among children who participate in physical and sport activities is significantly lower than depression among children in control group⁴⁸. Some studies also revealed significant decrease in depression level in several coaching and training programs^{49,50,51}. Similarly, the research showed significant decrease in depression level among children who participate in swimming, athletic, and football sessions⁵². Physical activities proven to become an effective rehabilitation for anxiety and playing sports regularly helps people reduce stress⁵³. Modified physical activities as part of physical education and sports done in school or after school influence students' skills in solving psychological and somatic problems needed for stress reduction^{52,54}.

The limitation of this study, the author not assessing yet components of sport participation (e.g. frequency, intensity, duration, previous time of engagement, individual versus collective sports). The future investigation need to assess some variables related to sport or physical activity participation of the children. Therefore, the physical fitness and its components maybe mediate the benefits attributed to sports participation responsible by improvements in spiritual, psychological and psychosocial aspects or vice versa. It is because physical fitness strongly affected by maturation during adolescence and improvements on it are not entirely explained by engagement in sports.

Conclusions

The conclusion should be "Psychosocial aspect has a strong positive relation with spiritual aspect while psychological aspect has a strong negative relationship with the spiritual aspect. On the other hand, physical fitness shows no relation with the other aspects." Increase in psychosocial aspect will lead to increase in spiritual aspect; so does the opposite. On the contrary, increase in psychological aspect of a child leads to decrease in his/her spiritual aspect.

Therefore, there is an expectation that physical education and sports can both increase psychosocial aspects and reduce negative psychological aspects (depression, anxiety, and stress). Moderating variable that may contribute to all aspects is physical activities being performed. The forms and types of physical activities can be a driving variable that improves psychosocial and spiritual aspects and reduces the negative psychological aspect.

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