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Association between physical performances with educational stress of female adolescent

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Abstract

Regular participating in physical activity, sports and such allied activities innumerable benefits during adolescents leisure time pursuits should be physically demanding and mentally soothing. There academic pressure places tremendous demand on the adolescents. To cope with such stresses, being physically active and very important. Physically active child demonstrates higher physical, mental and emotional effectiveness are compared to its inactive counterpart. (Jonatan R, *et al.*, (2010). Academic stress is mental distress with respect to some anticipated frustration associated with academic failure or even unawareness to the possibility of such failure. Students have to face many academic demands, for example, school examination, answering questions in the class, showing progress in school subjects. Understanding what the teacher is teaching, competing with other class mates, fulfilling teachers and parents academic expectations. These demands may tax or exceed available resources of the students. As a consequence, they can be under stress, since the demand is related to achievement of an academic goal (Lal, 2014). Adolescence is important stage of life where in an individual's personality get shaped. The child stress to prove itself in the competitive world. Academic achievement is the first priority during this period. The child engages in academic pursuits at the cost of being physically active. A strong positive correlation between academic achievement and physical performance is repeatedly established among almost all population. (Kundu and Tutoo, 2004). This paper is an attempt to explore the influence of physical performance on educational stress. To achieve the purpose of the study necessary data was collected from 635 subjects of high schools in Karnataka during 2016-17. Hand grip strength was used as a proxy for physical performance among school students. Standardized paper pencil tests were used to assess educational stress. Apart from descriptive statistics Pearson product moment correlation coefficient was calculated using SPSS. The findings are discussed in detail. On the basis of the results of the present study it has been concluded that there was significantly negative linear relationship of handgrip strength with educational stress in adolescent girls of Karnataka.

Keywords: Adolescent, physical performance, hand grip strength, academic stress, mental distress

Introduction

Regular participating in physical activity, sports and such allied activities innumerable benefits during adolescents leisure time pursuits should be physically demanding and mentally soothing. There academic pressure places tremendous demand on the adolescents. To cope with such stresses, being physically active and very important. Physically active child demonstrates higher physical, mental and emotional effectiveness are compared to its inactive counterpart. (Jonatan R, *et al.*, (2010) ^[4].

Physical performance is naturally high in those adolescents who are physically active. The child engaged in leisure time pursuits like sports, games, dance and martial arts ect. Tend to exhibit higher levels of physical performance capacities. Hand grip strength is an ideal way to assess physical performance in adolescence. Although there are plenty of tests to determine physical performance. Hand grip strength testing is widely used because of its feasibility and economy. Female adolescents are highly benefited due to physical activity participation are compared to their male counterparts. Social inhibitions and their conventionalities keep them reserved in Indian society.

Academic stress is mental distress with respect to some anticipated frustration associated with academic failure or even unawareness to the possibility of such failure. Students have to face many academic demands, for example, school examination, answering questions in the class, showing progress in school subjects.

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Understanding what the teacher is teaching, competing with other class mates, fulfilling teachers and parents academic expectations. These demands may tax or exceed available resources of the students. As a consequence, they can be under stress, since the demand is related to achievement of an academic goal (Lal, 2014) [1].

An adolescent is burdened with huge amount of educational stress. Peer pressure, teacher pressure and parental pressure all together places terrific demands to achieve in studier during adolescence. Physical activities and sports play active role in clearing the blockage created by academic stress. A child gains reality during such pursuits in the ground. The linkage between educational stress and physical performance is well established in the field of research on adolescents. (Dr. Varun Kumar, Dr. Richa Talwar (2014) [2].

Adolescence is important stage of life where in an individual's personality get shaped. The child stress to prove itself in the competitive world. Academic achievement is the first priority during this period. The child engages in academic pursuits at the cost of being physically active. A strong positive correlation between academic achievement and physical performance is repeatedly established among almost all population. (Kundu and Tutoo, 2004) [3].

Stress has traditionally been conceptualized in three ways; as a stimulus (an event or accumulation of events); as a response (a psychophysiological reaction); or as a transactional process, in which a person and the environment interact to produce an appraisal of threat or loss. Stress is used to describe the subjective experience of pressure, implying an evaluation of the outcome of a process. This is in line with the transactional view of stress as a relationship between environmental events or conditions, and the individual's cognitive appraisals of the degree and type of challenge, threat, harm or loss.

Materials and methods

Selection of subjects

To achieve the purpose of the study necessary data was collected from 365 subjects of high schools girls in Karnataka during 2016-17. The subjects selected from various schools of Bengaluru and Mysuru divisions were studying in 9th standard and their age ranged between 14 to 16 years.

Selection of test items

Assessment of physical performance through handgrip strength

Dominant hand grip strength was used for assessing physical

performance among school students. Grip strength was measured by the help of an analogue hand grip dynamometer. Before taking the measurement, the subjects were requested to sit in a comfortable position. They were asked to squeeze the dynamometer as hard as possible without moving the body. Thus, the final grip strength was measured for both hands and the reading was taken from the dynamometer scale when the pointer no longer moved. Three trials were given to each subject and the best reading was the score of the subjects.

Assessment of Educational Stress

In order to assess the academic stress of adolescents, Educational Stress Scale for Adolescent (ESSA) developed by Sun, *et al.* (2010) comprised of 16 questions using 5-point scale from 1 (strongly disagree) to 5 (strongly agree) with higher scores indicating greater stress.

Procedure

The researcher along with a trained helper collected necessary data related to the present investigation in a class room set up. The researcher personally visited within Bangalore and Mysore educational divisions of Karnataka State. The selected subjects of ninth (9th) standard were requested to assemble in a particular class room for data collection. Objectives of the tests were made clear to the subjects at the outset. The researcher oriented the subjects regarding the procedure of all the tests to be conducted. An informed written consent was received from each subject to ensure their willingness to take part in the study as subjects. Honest responses were sought from the subjects and doubts were timely clarified. Each written test tool took no more than 20 minutes each. The filled in questionnaire was received by the subjects for intended analysis of data. Handgrip strength was assessed individually with three non-consecutive trials each.

Data was analyzed using the SPSS 21.0 statistical package. Firstly, descriptive tests including mean and standard deviation were calculated to determine the nature of the data. In order to test the duly formulated hypotheses Pearson product moment correlation coefficients were assessed and multiple regression analysis were carried out. This helped in eliciting association of physical performance with education stress.

Results & discussion

The descriptive statistics on handgrip strength and education stress of adolescent girls in Karnataka given in table 1.

Table 1: Results on handgrip strength and education stress of adolescent girls.

	Rural	Urban	Kannada Medium	English Medium	Overall
Handgrip strength	21.93±4.27	21.26±4.37	21.60±4.22	21.53±4.54	21.57±4.33
Education Stress	47.65±10.26	48.06±10.58	48.05±9.85	47.55±11.38	47.87±10.43

Table 1 on handgrip strength and educational stress of adolescent girls makes it clear that the results are normally distributed with acceptable homogeneity. Results on

relationship between physical performance and educational stress of adolescent girls are provided in table 2.

Table 2: Summary of Pearson product moment correlation coefficient regarding relationship between handgrip strength and educational stress of adolescent girls.

			Handgrip strength	Educational Stress
Rural	Handgrip strength	Pearson Correlation	1	-.129*
		Sig. (2-tailed)		.026
		N	297	297
Urban	Handgrip strength	Pearson Correlation	1	-.133*
		Sig. (2-tailed)		.014
		N	338	338
Kannada	Handgrip strength	Pearson Correlation	1	-.147**
		Sig. (2-tailed)		.003
		N	403	403
English	Handgrip strength	Pearson Correlation	1	-.112
		Sig. (2-tailed)		.089
		N	232	232
Overall	Handgrip strength	Pearson Correlation	1	-.112
		Sig. (2-tailed)		.089
		N	232	232

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

From table 2 it is evident that there is significant negative linear relationship between handgrip strength and educational stress (-.129*) in rural girls; significant weak negative linear relationship between handgrip strength and educational stress (-.133*) in urban girls; significant negative linear relationship between handgrip strength and educational stress (-.147**) in Kannada medium girls; Not significant linear relationship between handgrip strength and educational stress (-.112) in English medium girls; and significant negative linear relationship between handgrip strength and educational stress (.132)** in overall adolescent girls of Karnataka.

It has been observed that the rural girl demonstrate educational stress as they possess higher grip strength. The girls who engage in physical activities and sports in rural setting for keeping themselves fit can considerably was Negative significant of educational stress. In urban setting a significant weak negative relationship between hand grip strength and educational stress. The results make it clear that the girls who engage in physical activities can reduce academic stress. Interestingly, there was significant negative linear relationship between physical performance and educational stress in urban girls. Kannada medium girls tend to have Physical performance was negative significantly related with educational stress, as we know under privileged and unprivileged girls now a day's attend Kannada medium schools. English medium girls are immensely benefitted by keeping themselves physically fit. Hand grip strength showed there was not significant positive association with educational stress in English medium girls. Overall it was observed that the physical performance measured in terms of hand grip strength has significantly negative relationship with educational stress. This means that the girls are benefitted from physical activities and sports in order to gain reduce of educational stress.

Physical activities, sports and allied activities have greatly benefitted girls. They infect consider it as means to relieve their stress and focus in their studies. There was significant negative linear relationship between physical performance and educational stress in rural girls. Asci (2003) investigated the effects of participation in a physical fitness programme on anxiety and physical self-concept of female university students in Turkey. A ten-week physical fitness programme was effective in reducing trait anxiety and strengthening the physical self-perceptions of female university students.

Conclusions

On the basis of the present study in girls section it was concluded that the physical performance measured through handgrip strength and educational stress was negatively (reduced educational related stress) to rural setup; as well as urban, as well as Kannada Medium and overall adolescent girls. In adolescent girls of Karnataka.

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