

Emotional Intelligence, Physical Activity and Coping with Stress in Adolescents¹

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Abstract

Participation in physical activity seems to be connected with better coping with stress and higher level emotional intelligence. The aim of the study is to check if there are any significant correlations between emotional intelligence, physical activity and style focused on the task in coping with stress.

The sample was made by 90 adolescents, aged from 19-21 from Psychology department at University of Szczecin. To check the level of emotional intelligence was used polish version of Emotional Intelligence Questionnaire. To check the level of physical activity was used short form of International Physical Activity Questionnaire. To find out what kind of style is used by adolescents with coping with stress was used Polish version of Coping Inventory for Stressful Situations.

There were significant correlations between physical activity and task oriented coping, avoidance, social diversion, emotional intelligence ($p < 0.05$). Regression analyses showed that task oriented coping and social diversion are predictors of physical activity. Results of one way Anova showed that the task-oriented coping, social diversion, walking, moderate and vigorous intensity physical activity, physical activity (in MET/min), emotional intelligence, identifying emotions and using emotions in practice of the high PA group were significantly higher ($p < 0.05$) than in the low PA group.

Keywords: physical activity, emotional intelligence, coping with stress

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Introduction

In modern countries lack of physical activity can have bad influence for physical and mental health (Erriksen 2001, Gutin et al. 2007, Rexrode et al. 1998, Blaes et a. 2011). Some studies found out that participation in physical activity is connected with better coping with stress and higher level of emotional intelligence which is important in everyday life with contact between people (Gacek, Fraczek, 2005; Bhochhibhoy et al., 2013, Omar Dev et al., 2014).

Purpose of the study is to check if there are any correlations between physical activity and emotional intelligence and coping with stress. Individuals who participate in sport seems to achieve higher results of task orientated coping and avoidant style and also better control, expression and use of emotions in practice. Task orientated coping seems to play more significant role in solving problems and because of that is taken into account in the research. At first we will describe terms used in study.

Salovey and Mayer (1990) who first used the term “emotional intelligence”, postulated that emotional intelligence consists of the following three categories of adaptive abilities: appraisal and expression of emotion, regulation of emotion and utilization of emotions in solving problems. In 1997 Mayer and Salovey formulated a revised model of emotional intelligence which gives more emphasis to the cognitive components of emotional intelligence and conceptualizes emotional intelligence in terms of potential for intellectual and emotional growth. The revised model consists of the following four branches of emotional intelligence: perception, appraisal and expression of emotion; emotional facilitation of thinking; understanding, analyzing and employing emotional knowledge and reflective regulation of emotions to further emotional and intellectual growth. In this study emotional intelligence is defined as the mental ability to perceive emotions, to recognize, use and regulate emotional, personal and social information in adaptive way, and to use this information to guide one's thinking and actions (Mayer, Caruso and Salovey, 1999).

According to WHO physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. There are many different kinds of physical activity. Exercise, sports, dance, leisure activities and others are considered as sub-categories of physical activity. All types of movement (from smallest to the most complex) belongs to term physical activity. It may be leisure activity during free time like swimming or fitness exercises or daily life activities like walking, household, occupational activities or transportation (Teixeira, Silva, Vieira, Palmeira & Sardinha, 2006).

In accordance with Lazarus's (1990) definition, perceived stress was defined as a condition subjectively experienced by respondents who identify an imbalance between demands addressed to them and the resources available to them to encounter these demands. Another words stress is generally defined as a lack of balance between individual's ability to cope with problems and the requirements of the environment. Coping strategies are the strategies which can help cope with stress.

Materials and Methods

The sample was made by 90 adolescents, aged from 19-21 from Psychology department at University of Szczecin. Most of the respondents were female. About 60% of respondents

participate in high level physical activity, 25% in moderate physical activity and only 15% low physical activity.

INTE- Emotional Intelligence Questionnaire adapted in Polish by Anna Ciechanowicz, Aleksandra Jaworowska, Anna Matczak, measures emotional intelligence understood as the ability to recognise, understand and control emotions – one’s own or other people’s – and the ability to use one’s emotions effectively in the management of one’s own activity or the activity of other people. It consists of 33 self-report items which the subject rates on a five-point rating scale.

The short form of IPAQ- International Physical Activity Questionnaire which was created for cross-national monitoring of physical activity and inactivity. The short form of IPAQ help to recognize three specific types of activity such as walking, moderate-intensity activities and vigorous intensity activities. It can divide people to three levels of physical activity: low, moderate and high. The items in the short IPAQ form were structured to provide separate scores on walking, moderate-intensity and vigorous-intensity activity. Computation of the total score for the short form requires summation of the duration (in minutes) and frequency (days) of walking, moderate-intensity and vigorous-intensity activities. Using the Ainsworth et al. Compendium (Med Sci Sports Med, 2000) an average MET score was derived for each type of activity. The following values continue to be used for the analysis of IPAQ data: Walking = 3.3 METs, Moderate PA = 4.0 METs and Vigorous PA = 8.0 METs. Using these values, four continuous scores are defined:

Walking MET-minutes/week = 3.3 * walking minutes * walking days

Moderate MET-minutes/week = 4.0 * moderate-intensity activity minutes * moderate days

Vigorous MET-minutes/week = 8.0 * vigorous-intensity activity minutes * vigorous-intensity days

Total physical activity MET-minutes/week = sum of Walking + Moderate + Vigorous MET-minutes/week scores.

CISS- Coping strategies were measured using the Coping Inventory for Stressful Situations (Endler & Parker, 1999) adapted to Polish conditions by Piotr Szczepaniak, Jan Strelau, Kazimierz Wrzesniewski This is a 48- item measure of coping style composed of three factors such as:

- task- oriented coping – its subscales tap active and offensive coping styles, stressing proactive responses to the stressors (e.g., “I focus on the problem and see how I can solve it”)
- emotion- oriented coping – this scale represents coping styles directed at altering negative emotional responses to stressors, such as negative thinking (e.g., “My efforts will surely fail”), lowered self confidence (e.g., “I cannot handle this problem”) or poor self image (e.g., “I am useless”).
- avoidance – this represents withdrawal behaviors and the redirection of personal resources towards different paths, such as sports, leisure time, etc. (e.g., “I buy something”).

The scales for these three coping strategies range from 1 (seldom used) to 5 (always used). Higher scores represent a higher usage frequency for the specific coping strategy.

Results

There were significant correlations between physical activity and task oriented coping: avoidance, social diversion, emotional intelligence, identifying emotions and using emotions in practice ($p < 0,05$) (see Table 1).

Table 1. Pearson's correlations between physical activity, coping with stress and emotional intelligence

	task oriented coping	avoidance	social diversion	emotional intelligence	identifying emotions	using emotions in practice
physical activity	r=0,232 p=0,28	r=0,234 p=0,27	r=0,364 p=0,000	r=0,247 p=0,019	r=0,228 p=0,31	r=0,293 p=0,005

Basic assumptions were tested for the multiple linear regression analysis. The histogram of the regression standardized scores formed a normal curve therefore the assumptions of linearity and homogeneity of variance for multiple regression were met. Simultaneous multiple regressions were performed with the dependent variable, as total MET-minutes/week (physical activity) and the independent variables emotional intelligence, task-oriented coping and social diverse (Table 2). The R value for regression was significantly different than zero $F(2,87)=9.157$, $p = 0.000$ with R^2 of 0.174 (0.155 adjusted). The adjusted R^2 indicates that 17,4% of the variability in the dependent variable of the total MET-minutes/week was predicted by the independent variables in the regression model such as task oriented coping and social diversion. Both of the predictors were found to be independently significant.

Table 2. Parameter Estimates from the Regressions Model for Total MET-Minutes/Week as Predicted by task-oriented coping and social diversion

	B	Std. Error	Beta	t	Sig.
social diversion	764,62	215,1	0,35	3,56	0
task- oriented coping	443,37	211,71	0,21	2,09	0,039

The univariate F ratios (one-way ANOVA) comparing the three PA groups with regard to emotional intelligence and coping strategies in Table 3. There was significant differences ($p < 0.05$) in the high and low PA groups for the task-oriented coping, social diversion, walking, moderate and vigorous intensity physical activity, total MET-minutes/week, emotional

intelligence, identifying emotions and using emotions in practice. Post hoc tests were also conducted using the Scheffe test to determine which groups were different from one another. The mean of the task-oriented coping, social diversion, walking, moderate and vigorous intensity physical activity (PA), total MET-minutes/week, emotional intelligence, identifying emotions and using emotions in practice of the high PA group were significantly higher ($p < 0.05$) than the low PA group.

Table 3. ANOVA descriptive statistics for coping strategies

coping strategies	group	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
						Lower Bound	Upper Bound		
task oriented coping	high PA	48	6,75	2,338	0,338	6,07	7,43	2	10
	moderate PA	30	5,80	1,846	0,337	5,11	6,49	3	9
	low PA	12	4,67	1,497	0,432	3,72	5,62	2	7
avoidance	high PA	48	6,75	2,102	2,102	4,31	5,53	1	10
	moderate PA	30	5,80	1,871	1,871	3,83	5,23	1	7
	low PA	12	4,67	1,875	1,875	2,14	4,52	1	7
emotional inelligence	high PA	48	5,21	1,762	,254	4,70	5,72	1	8
	moderate PA	30	5,17	2,350	,429	4,29	6,04	1	10
	low PA	12	3,33	2,188	,632	1,94	4,72	1	7
identyfing emotions	high PA	48	5,40	2,029	,293	4,81	5,98	2	10
	moderate PA	30	5,93	2,504	,457	5,00	6,87	2	10
	low PA	12	3,58	1,881	,543	2,39	4,78	1	6
using emotions in practice	high PA	48	5,58	1,843	,266	5,05	6,12	1	9
	moderate PA	30	5,27	2,303	,421	4,41	6,13	1	9
	low PA	12	3,25	2,379	,687	1,74	4,76	1	7

Conclusions

CBOS study in January 2003 in Polish sample (N=1025) showed that about 59% of the respondents in their free time prefer passive rest and don't practice any physical activity. Only about 9% respondents regularly practice some physical activity (CBOS 2003). For about 60% of Polish youth the only physical activity, which they have are physical education classes for 2-3 hours (Maszczak 2002). In research sample physical activity is on satisfactory level. Only 15% of respondents participate in low physical activity. In study sample there were significant correlations between physical activity and task-oriented coping, avoidance, social diversion, emotional intelligence, identifying emotions and using emotions in practice.

Regression analyses showed that predictors of the level of physical activity are task-oriented coping and social diversion. One-way ANOVA showed significant differences between group of students with high level of physical activity and low level of physical activity in:

1. task-oriented coping
2. social diversion

3. emotional intelligence
4. identifying emotions
5. using emotions in practice.

Higher results appeared in students characterised by high level of physical activity.

There is still a lot to know about relation between physical activity and coping with stress strategies or emotional intelligence. Physical activity should be connected with planned and organized behavior. Perhaps people who participate in PA are more likely to plan and organize their activities. These abilities are surely connected with task orientated coping. Generally the individuals participate in different kind of PA. In research sample probably they were engaged in PA which involve other people. It seems to be connected with social diversion and can explain results achieved in the study. Probably people who use task-oriented coping or social diversion during stress situations and have high level of emotional intelligence will participate more in physical activity than others and/or high level of physical activity in life increases the task-oriented coping or social diversion as well as emotional intelligence.

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