



Predictors of Self-Esteem in Physical Education: Self-Determination Perspective

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ARTICLE INFO

Article History:

Received 14.02.2018

Received in revised form
26.02.2018

Accepted 03.03.2018

Available online

01.05.2018

ABSTRACT

This study aimed to explore the relationship between basic psychological needs, motivational regulations, and self-esteem in Turkish high school physical education environment. Nine hundred and fifty seven high school students (505 girls, 452 boys) were applied the questionnaire pack in physical education lessons. Students' general self-esteem, basic psychological needs and motivational regulations toward physical education were assessed. Hierarchical multiple regression analysis results revealed that Turkish high school students' autonomy, competence, and relatedness need satisfaction in physical education positively predicted students' global self-esteem. Physical education teachers were recommended to consider creating need supportive lesson environment for adolescents to enhance their optimal psychological functioning and well-being.

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Keywords:

motivational regulation, basic psychological needs; adolescents; well-being

1. Introduction

Physical education (PE) has a great potential to promote youth physical activity because it comprises all individuals from childhood to adolescence. To support participation in PE and to provide healthy physical activity through PE students' motivational elements should be considered (Hagger et al., 2005).

A widely used contemporary theory to understand students' motivation in PE is Self-Determination Theory (SDT; Deci & Ryan, 1985). Research in PE context adopted this theory to facilitate our understanding of students' motivated behaviours and their cognitive, affective, and behavioural consequences. Although SDT is relevant across cultures, related outcomes are considered to be varied as a function of age and cultural background.

SDT identifies three forms of motivational regulations which are considered as a continuum from higher to lower levels of self-determined motivation. Intrinsic motivation is revealed when a person is motivated to participate in activity for fun or challenge required in the behaviour. In contrast extrinsic motivation is separated into four categories which vary in their relative degree of self-determination. External regulation can be defined as participating in activity because of external pressure, threat or punishment; introjected regulation is participating in activity because of internal pressure, guilt or shame; identified regulation is participating in activity because of believing in its importance and utility, and integrated regulation is participating in activity because of finding it congruent with personal goals and values. Lastly, in the situations people have neither intrinsic nor extrinsic motivation, they have amotivation. Amotivation is the belief that in activity is not important or not provides desired outcomes. In this self-determination continuum intrinsic, integrated, and identified regulations are self-determined, introjected regulation, external regulation, and amotivation are non self-determined form of motivation (Deci & Ryan, 2000).

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<http://dx.doi.org/10.17220/ijpes.2018.02.005>

SDT suggests that motivational regulations can be affected by contextual factors, such as teachers' teaching styles. These factors can influence students' motivation and engagement in learning environment by supporting or thwarting their basic psychological needs, namely need for autonomy, competence and relatedness. Autonomy need refers to a feeling the origin of the behaviours and feeling congruence between an activity and one's values; competence need is to experience sense of effectiveness in producing desired outcomes and relatedness need is feeling connected to significant others or feeling belonging to a social environment (Deci & Ryan, 1985; 2000). Hein and Caune (2014) argued that autonomy need satisfaction and self-determined motivation in PE facilitates the students to feel physically well which causes them to put more effort on physical activities and involve in physical exercise during their free time, which is the main objective of PE.

According to Vallerand (1997)'s hierarchical model various types of motivation had a mediational role between basic psychological needs and cognitive, behavioural, and psychological outputs. Past research has explored the aforementioned sequence in PE context (e.g., Ntoumanis, 2001; 2005; Standage, Duda, & Ntoumanis, 2003). Adaptive outcomes are derived from self-determined types of motivation (i.e., intrinsic motivation and identified regulation), oppositely maladaptive outcomes are resulted from low and non-self-determined types of motivation (i.e., external regulation, and amotivation).

Global self-esteem is one of the important outcomes that effects the quality of education due to its impact on psychological well-being (Deci & Ryan, 1995). Because when a person is not concerned about his self-esteem, the worth of the self is not an issue thus optimal well-being is more likely to be provided (Ryan & Brown, 2003). According to Ryan and Brown (2003) the absence of self-esteem is expected to be a sign of psychological need deficiencies and when these needs are thwarted self-esteem is damaged. In other words, because they are missing a sense of love, people with low self-esteem, don't feel worthy, authenticity, or effectiveness. Existing literature has proved that self-esteem is linked with academic strivings and academic performance (Baumeister, Campbell, Krueger & Vohs, 2003). Indeed, Bowles (1999) argued that self-esteem is a result, not a cause, of success in school. PE context in particular, offers students activities, exercises and tasks to judge their own performance and compare with their counterparts'. Thus, PE entails social comparison which evokes self-esteem through self-evaluation process (O'Rourke, Smith, Smoll, & Cumming, 2012). Researchers have suggested that PE can enhance academic performance by improving self-esteem (Hills, 1998).

There have been contradictory research findings related to changes of self-esteem along with the students' age. Some have manifested that self-esteem declines with age (e.g. McMullin & Cairney, 2004; Orth, Trzesniewski & Robins, 2010), while others have showed that younger people have lower self-esteem (e.g. Brent Donnellan et al., 2012). On the other hand, researches related to gender effect on self-esteem have had similar results. Namely, men have higher self-esteem than women at not only adolescence period (McMullin & Cairney, 2004; Moksnes & Espnes, 2013; Sipos et al, 2015) but also during adulthood in different cultures (Bleidorn, Arslan, Denissen, Rentfrow, Gebauer, Potter & Gosling, 2015).

Although self-esteem and self-determined motivation have been linked in different studies (e.g., Kalaja, Jaakkola, Watt, Liukkonen & Ommundsen, 2009; Kernis, Paradise, Whitaker, Wheatman & Goldman, 2000; Mabekoje & Okubanjo, 2009;), students' self-esteem and their motivation in PE have received little research attention (e.g., Hein & Caune, 2014; Hein & Hagger, 2007; Koka, 2014; Standage & Gillison, 2007). However, manifesting the link between these variables helps us to understand which motivational agents effect students' global self-esteem in PE.

On the other hand, no study has been done to explain the predictors and consequences of motivational regulations in Turkish PE context. High school PE in Turkey is compulsory which is hypothesized to enhance students' amotivation (Ntoumanis, 2005). Therefore, drawing from SDT and past research evidence, this study aimed to explore the relationship between basic psychological needs, motivational regulations, and self-esteem in Turkish high school PE environment.

In line with the past research (Hein & Hagger, 2007) we hypothesized that students' basic psychological needs satisfaction, intrinsic motivation and identified regulation would predict their self-esteem positively, while

extrinsic regulation and amotivation would explain self-esteem negatively. Along with existing literature (McMullin & Cairney, 2004) age and gender were also hypothesized to be the significant predictors of students' self-esteem.

2. Methods

This research has quantitative, cross-sectional design.

2.1. Participants. Nine hundred and fifty seven high school students (505 girls, 452 boys) participated voluntarily to the study. The participants ($M_{Age} = 16.27 \pm 1.13$) were attending eight different public high schools located in the central district of Denizli. Table 1 shows the distribution of participants by gender and grade level.

Table 1. The distribution of participants by gender and grade level

	Grade Level				Total
	1	2	3	4	
Girl	188	107	131	79	505
Boy	149	98	116	89	452
Total	337	205	247	168	957

2.2. Procedure. Prior to data collection permissions from Ministry of Education and Ethics Committee were obtained. The students were requested to anonymously respond to a questionnaire pack before or during their scheduled PE classes by the researchers. The participants were explained that there were no right or wrong answers, emphasizing that they do so as personally and honestly as possible, they could withdraw from the study at anytime without any negative consequences and their answers will not share with their teachers or parents. The questionnaire pack took approximately 20 minutes to complete.

2.3. Measures

2.3.1. Basic psychological need satisfaction. Need Satisfaction Scale was developed by Deci and Ryan (1991) and adapted into Turkish by Bacanlı and Cihangir-Çankaya (2003). Confirmatory factor analysis results of the scale were; $RMSEA = 0.07$, $GFI = 0.86$, $AGFI = 0.82$, $CFI = 0.82$, $NNFI = 0.80$ (Cihangir Çankaya, 2009). The scale consists of 21 items and three subscales, namely autonomy (six items), competence (six items), and relatedness (nine items). It is 7-point Likert scale (1 = not at all true of me; 7 = very true of me). The scale showed adequate validity and reliability for both the total scale and the subscales with Turkish sample (Bacanlı & Cihangir-Çankaya, 2003). Example item for autonomy subscale is "I feel that I have freedom to decide how I live my life"), for competence subscale is "Recently I have learnt new and interesting skills") and relatedness subscale is "I get on well with the people around me".

2.3.2. Motivational regulations. The Situational Motivation Scale was developed by Guay et al. (2000) and adapted into Turkish by Kazak Çetinkalp (2010). Confirmatory factor analysis results of the scale for the Turkish PE environment were; $RMSEA = 0.06$, $\chi^2/df = 2.06$, $GFI = 0.92$, $AGFI = 0.89$, $NFI = 0.94$; $NNFI = 0.96$, $CFI = 0.97$ (Daşdan Ada, Aşçı, Kazak Çetinkalp, & Altıparmak, 2012). Participants of the study responded the 7-point Likert type (1 = not at all true of me; 7 = very true of me) scale under the stem "Why do you participate PE classes?". It has 16 items and four subscales, namely intrinsic motivation (e.g., "Because I feel good when I am in PE class"), identified regulation (e.g., "Because I believe that PE classes are important for me"), extrinsic regulation (e.g., "Because I feel that I have to attend that class") and amotivation (e.g., "I attend this class but I am not sure whether attending is a good thing"). The scale was found to be valid and reliable within Turkish sample (Kazak Çetinkalp, 2010).

2.3.3. Self-esteem. Short form of Rosenberg's Self-Esteem Scale (Rosenberg, 1965) was used to measure global self-esteem or trait self-esteem (Brown, 1998; 3). Self-esteem in this one-dimensional scale does not imply feelings of superiority or perfection, but feelings of self-acceptance, self-respect, and generally positive self-

evaluation. Scale was translated into Turkish by Çuhadaroğlu (1986). Confirmatory factor analysis results of the scale were; *RMSEA* = .07, *GFI* = .94, *AGFI* = .89, *CFI* = .95 (Yılmaz & Bilgiç, 2009). Answers were scored using a four point Likert scale: Strongly disagree=1, disagree=2, Agree=3, and strongly agree=4. Short form of the scale consists of 10 (Five items are positive and five items are negative) items (e.g., “On the whole, I was satisfied with myself”). Positive items are coded from 1 to 4 and negative items are coded reverse (i.e. 4 to 1). Total score for the scale is created by summing the responses, with higher scores indicating greater self-esteem.

2.4. Data Analysis. Initially, the data was screened; univariate and multivariate outliers were detected and removed from the data set. Univariate outliers were detected by using standard z-score (± 3.29) and multivariate outliers were identified through Mahalanobis distance with $p < .001$ (Tabachnick & Fidell, 2007). Descriptive statistics for all variables were computed and Cronbach’s alpha reliability coefficients were calculated to assess the internal reliability of the subscales. Pearson correlation analysis was performed to examine the correlations among all the variables used in the study.

The hierarchical multiple regression analysis was employed to test whether basic psychological needs and different motivational regulations in high school PE lesson could predict students’ self-esteem. Self-esteem was the dependant variable while age and gender were entered in the first step, motivational regulations were entered in the second step and basic psychological needs were entered in the third step of the analysis. The assumptions associated with hierarchical multiple regression analysis (i.e., normality, linearity and homoscedasticity) were examined.

3. Results

3.1. Preliminary Analyses. Means, standard deviations, Skewness, Kurtosis, and Cronbach’s alphas for the variables were calculated which are provided in Table 2.

Table 2. Descriptive characteristics of participants

	M	SD	Range	Skewness	Kurtosis	α
Self-Esteem	1.911	.512	1-4	.355	.089	.86
Autonomy	5.033	1.021	1-7	-.327	-.159	.73
Competence	4.783	1.096	1-7	-.365	.194	.71
Relatedness	5.331	.986	1-7	-.510	-.074	.77
Intrinsic Motivation	4.789	1.586	1-7	-.644	-.370	.83
Identified Regulation	4.674	1.661	1-7	-.451	-.674	.83
Extrinsic Regulation	3.861	1.743	1-7	.166	-.925	.79
Amotivation	2.842	1.614	1-7	.666	-.509	.82

N = 957

Participants’ intrinsic motivation and relatedness need satisfaction in PE were higher than other motivation types and basic needs. The skewness and kurtosis values showed that the data were distributed normally. Cronbach’s alpha coefficients indicated that the scales used in the study demonstrated acceptable internal reliability (i.e., $\alpha \geq 0.70$).

3.2. Correlations among variables. Pearson’s product moment correlation analysis applied the variables of the study. As shown in Table 3, bivariate correlations suggest that extrinsic regulation and amotivation were negatively correlated with all other variables while other motivation types and all three basic needs were positively correlated with each other.

Table 3. Bivariate correlations among study variables

	1	2	3	4	5	6	7
1.Self-Esteem	-						
2.Autonomy	.521*	-					
3.Competence	.691*	.565*	-				
4.Relatedness	.502*	.529*	.591*	-			
5.Intrinsic Motivation	.158*	.116*	.204*	.206*	-		
6.Identified Regulation	.193*	.155*	.232*	.179*	.825*	-	
7.Extrinsic Regulation	-.131*	-.117*	-.172*	-.103*	-.476*	-.499*	-
8.Amotivation	-.247*	-.239*	-.287*	-.242*	-.563*	-.596*	.616*

*p<0.01

3.3. Hierarchical multiple regression analysis. Prior to the analysis linearity, multicollinearity, and homoscedasticity assumptions were checked and all those assumptions were found to fully meet for analysis. Each variable in the data set was normally distributed (Table 2) and the relationships between pairs of variables are linear. The Durbin-Watson value was 1.892 which falls within the acceptable range from 1 to 3 (Field, 2009) meaning that the analysis satisfies the assumption of independence of errors. As multicollinearity indicatives tolerance values were above 0.1 (0.58-0.99) and variance inflation factor (VIF) were greater than 1(1.01- 1.87; Field, 2009).

Table 4. Multiple hierarchical regression analysis for variables predicting self-esteem

Independent Variable	ΔR^2	R^2 Change	β	t
Step 1 F(2, 897) = 14.806, p = .00	.030	.032**		
Age			.146	4.417**
Gender			.093	2.825**
Step 2 F(6, 893) = 16.355, p = .00	.093	.067**		
Age			.156	4.859**
Gender			.058	1.707
Intrinsic Motivation			.044	.781
Identified Regulation			.107	1.803
Extrinsic Regulation			-.044	-1.064
Amotivation			-.241	-5.287**
Step 3 F(9, 890) = 105.227, p = .00	.511	.417**		
Age			.072	3.007**
Gender			.051	1.996*
Intrinsic Motivation			.047	1.102
Identified Regulation			.038	.864
Extrinsic Regulation			-.016	-.519
Amotivation			-.053	-1.554
Autonomy			.151	5.050**
Competence			.528	16.545**
Relatedness			.091	2.941**

*p < .05, **p<.01

Multiple hierarchical regression analysis results revealed that all regressions were significant. Students' age, gender, autonomy, competence, and relatedness need satisfaction in PE positively predicted a significant amount of variance in students' self-esteem ($\beta = .072, .051, .151, .528, .091$ respectively, $p < .05$). Self-esteem was significantly predicted by gender with females having a higher self-esteem ($M=1.94$) than males ($M=1.84$) and age with decreasing by getting older ($M_{Age14}=2.00$ to $M_{Age19}=1.78$).

4. Discussion

This study aimed to analyze whether basic psychological needs and different motivational regulations in high school PE context could predict students' general self-esteem. In accordance with SDT, intrinsic motivation and identified regulation were positively correlated with all three basic psychological needs; oppositely external regulation and amotivation were negatively correlated with them. In line with the previous studies (e.g., Deci & Ryan, 2000; Ntoumanis, 2001; Standage, et al., 2006; Taylor, et al., 2010) self-esteem was positively correlated with intrinsic motivation, identified regulation and all three basic needs, while negatively correlated with extrinsic regulation and amotivation.

Despite the numbers of studies testing the model including satisfaction of basic psychological needs, motivational regulations and different indices of well-being (e.g. Deci, et al., 1981; Levesque, et al., 2004; Ryan & Grolnick, 1986), no studies have tested the same model in Turkish PE environment, consequently current research has contributed to the existing literature. In line with our hypothesis and the past study results, (Deci, et al., 1981; Ryan & Grolnick, 1986) hierarchical multiple regression analysis results proved that the students' age, gender, autonomy, competence, and relatedness need satisfaction in PE positively predicted students' global self-esteem. These findings supported the tenets of SDT in PE context with Turkish adolescent sample. Consistent with our results, Levesque et al. (2004) used composite autonomy index for intrinsic motivation, identified regulation, introjected regulation and extrinsic motivation and found that autonomous motivation and perceived competence were related with life satisfaction and self-esteem as components of well-being.

If an environment offer people choice, feeling of success and quality socialization instead of pressure and control people can satisfy all three needs and eventually higher quality behaviour and greater psychological well-being are obtained (Deci & Ryan, 2000). Mabekoje and Okubanjo (2009)'s study indicated that the combination of the satisfaction of all three needs enhanced adolescents' self-esteem. However in the current study, competence was found to be the strongest predictor ($\beta=.528$) of self-esteem compared with autonomy and relatedness need satisfaction. It was an expectable result because perceived competence has a central importance in PE context (Feltz, 1988). Adolescents show their skills in front of their peers which cause social comparison and if they are not satisfied with their physical capacity, they tend to be less motivated to participate in physical activities (Maiano, et al., 2004). Moreover, students' who have high competence need satisfaction showed more effort in PE and intended to be more physically active (Ntoumanis, 2001). Also the study by Sheldon et al. (1996) emphasized the importance of competence and autonomy needs for well-being. Oppositely Mabekoje and Okubanjo (2009) and Hein and Hagger (2007) stated that satisfaction of autonomy needs contributed most significantly to adolescents' self-esteem.

It was hypothesized that intrinsic motivation and identified regulation would predict adolescents' self-esteem positively, while extrinsic regulation and amotivation would explain self-esteem negatively. Although intrinsic motivation and identified regulation were significantly positively correlated with the self-esteem, opposite with our hypothesis they were found not to contribute significantly to the prediction of students' self-esteem. As Cowan and Taylor (2015) discussed, forestalled internalization of the self-determined motivation may have detrimental effects despite of short term benefits on one's self-esteem. Hidden potential opposite effects in these divergent mechanisms should be considered in future research. Unlike our result, Deci et al. (1981) found a positive significant relationship between student's intrinsic motivation and self-esteem. Similarly, 11-week period "soccer and education program" participants' identified regulation was positively predicted their self-esteem (Cowan & Taylor, 2015). Consistent with our hypothesis amotivation was found to be the significant negative predictor of self-esteem.

Introjected regulation is adopted when a person choose to do an action in order to enhance or maintain self-esteem and the feeling of worth (Ryan & Deci, 2000). The natural connection between self-esteem and introjected regulation due to its nature has been known. However introjected and integrated regulation types of extrinsic motivation were not assessed with Situational Motivation Scale therefore were not included to the present study. Future research should consider using a scale that embraces all the motivational regulations. Second limitation relates to the cross-sectional nature of the research design which prevents causal inferences. Future research may be planned as longitudinal to see the within-person variance in basic psychological needs and different types of motivational regulations in a school year, so that the effects of motivational agents on self-esteem can be analyzed more in depth.

Despite these limitations, the results of the study are interesting and have important practical implications. PE teachers should consider creating psychological need supportive environment in their lessons. Knowing that

the competence need satisfaction was the strongest predictor of self-esteem, PE teachers should organize the structure of the lesson to allow all the students, regardless of their physical skill, to experience the success to increase students' perceived competence during the lessons. Besides it is important to employ self-referenced criteria for the exercises and drills in the lesson in order to emphasize effort and personal improvement. Educational psychologists may consider the study results and guide adolescents to attend PE and other physical activity environments. By encouraging adolescents to participate a well-organized PE actively can foster their self-esteem.

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