

Behavioral Regulations: What is Physical Education Role in Students' Physically Active Lifestyle?

Vali Khalkhali¹

¹Malayer Branch Islamic Azad University Faculty of Humanities Department of Psychology, Malayer, Iran

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ABSTRACT

Physical education can play a vital role in students' psychomotor, cognitive and emotional development, which can influence young people to adopt physically active adult lifestyles that can in turn improve public health. Lifelong participation in fitness activities might not be achieved unless physical education teachers create an appropriate environment that motivates students to engage in physical education. The purpose of this study was to examine the relationship of behavioral regulation to student intention for physical activity outside of university. The authors argue autonomy-supportive versus controlling situations could positively predict the intention of students to be physically active outside of university. The subjects were 320 Iranian male students who participated in 16 regular physical education classes. All subjects completed perceived locus of causality scale and intention to be physically active questionnaires. The results of regression analysis showed that more self-determined forms of behavioral regulation foster more autonomous forms of intention. These results were not found for amotivation. The results further indicated that students' intentions for physical activity outside of university increase with more self-determined forms of behavioral regulation. With respect to intention for physical activity after university, these results highlight the importance of taking into account the fostering of more self-determined forms of behavioral regulation.

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Keywords:

behavioral regulations, physical education, regular physical activity, self-determination theory

Introduction

Physical education can play a vital role in students' psychomotor, cognitive and emotional development (Council of Physical Education for Children, 2001). All Persian students have to pass two courses at Physical Education (PE) at university. One of the most important aims of PE at university is to promote regular physical activity participation among students. Development of lifelong participation in fitness activities was an aim of various curriculums (Melograno, 1996). Although there is strong evidence that regular physical activity has important health benefits, such as cardiovascular fitness, psychological health, skeletal health and body composition (Biddle, Sallis, & Cavill, 1998; Watts, Jones, Davis, & Green, 2005), but low levels of physical activity in the youth population are of great concern, and have been linked to numerous consequences, such as increased risk of childhood obesity and Type II diabetes (Department of Health, 2004). Thus, it is imperative that adolescents and students be encouraged to adopt a physically active lifestyle.

A logical context to promote physically active lifestyles in students is the PE class. Positive experiences in PE can influence young people to adopt physically active adult lifestyles which can improve public health (Goudas, Dermitzaki, & Bagiatas, 2001; Ntoumanis, 2005; Shephard & Trudeau, 2000). Of particular

¹ Corresponding author's address: Department of Psychology Malayer Branch Islamic Azad University (65718/711) – Malayer / Iran
Telephone: +98 851 222 80 93
Fax: +98 851 222 82 36
e-mail: v.khalkhali@iau-malayer.ac.ir

importance is how motivating PE classes are for the students, and how much PE teachers are able to increase the young people participation in physical activities. Lifelong participation in fitness activities could not be achieved, unless physical education teacher create the appropriate environment which promote students' motives for engagement in the physical education (Ntoumanis, 2001). Although teachers do not control students' out-of-university circumstances, they can nevertheless provide classroom contexts that foster situational engagement, nurture interest, and promote the development of internal motivational resources (Hidi & Harackiewicz, 2000). When teachers support their students' interests (rather than control their behavior), students are more likely to find value in their physically active lifestyle (Lim & wang, 2009). Once nurtured and developed in the classroom, motivation can therefore function as a student-owned internal resource that contributes significantly to the decision to be physically active out of university.

A motivational theory that has been successfully applied in sport is self-determination theory (Thogersen-Ntoumani & Ntoumanis, 2006). Self-determination theory (Deci & Ryan, 2000) can be used as a framework to examine students' reasons and motives for participating in the physical education as well as the factors that are associated with them. Nonetheless, research adopting the SDT approach to understanding motivation in PE is scarce (e.g., Hagger, Chatzisarantis, Culverhouse, & Biddle, 2003; lim & Wang, 2009).

SDT (Deci & Ryan, 2000), theorizes that a continuum of different types of motivation exists, depending on the level of self-determination that an individual possesses. In self-determination theory (Deci & Ryan, 2000), individuals are intrinsically motivated when they engage in an activity for the inherent satisfaction that they derive from the activity. They are extrinsically motivated when they engage in an activity for rewards attained or punishments avoided through the activity. However, within extrinsic motivation there is a continuum. External regulation is when the behavior is controlled by external conditionalities (e.g., "I participate in PE because I am forced to"). Introjected regulation is when the external conditionalities have been internalized to some extent, (e.g., "I participate in PE because I would feel guilty otherwise"). Identified regulation is when the outcomes of the behavior are consciously valued by the individual (e.g., "I participate in PE because I value the health benefits"). Integrated regulation is when the outcomes of the behavior are fully congruent with the individuals' other values (e.g., "I participate in PE because it is part of who I am"). External and introjected regulations are relatively controlled forms of regulation, whereas identified, integrated, and intrinsic regulation are relatively autonomous forms of regulation. Finally, amotivation refers to a lack of either intrinsic or extrinsic motivation to partake in an activity. An amotivated individual perceives no worth while reasons for pursuing an activity and hence is completely lacking in self-determination.

According to the SDT (Deci & Ryan, 2002), the transformation of external regulation into self-determined forms of regulation, as well as the stability of self-determined (intrinsic) motivation depends on three aspects (Black & Deci, 2000): The satisfaction of the basic, innate psychological needs for support of autonomy, support of competence, and social support. Autonomy refers to being the source of one's own behavior and achieving congruence between the activity and one's integrated sense of self. Competence refers to the need to have an effect on the environment and to achieve desired outcomes, and relatedness is the desire to feel connected to valued others (Ryan & Deci, 2002). The more these needs are satisfied, the greater the level of one's self-determination.

According to Ryan & Deci (2000), people are more likely to be intrinsically motivated, that is, to do an activity simply for the enjoyment they derive from it, when they have a sense of volition and a feeling that the activity is concordant with one's integrated sense of self (autonomy/choice), when they can identify a link between their behavior and desired outcomes (competence) and when their behaviors are modeled or valued by significant others to whom these individuals feel related, such as a manager, a parent, a teacher or teammates (relatedness). activities which appear at first sight uninteresting (the person is therefore not intrinsically motivated) can be internalized into the autonomous self and finally even integrated, if the support of autonomy, competence and social relatedness is successful. Yet, the significance of the three basic needs for the explanation of action and experience can vary depending on the situation and the cultural context (Deci & Ryan, 2000). Intrapersonal and interpersonal contexts that support the satisfaction of these needs will promote a person's enjoyment of activities and the autonomous self-regulation of behaviors. According to this theory, Social contexts differ in the way communicate with peoples. Within SDT (Ryan &

Deci, 2000), these contexts are described as being controlling versus autonomy-supportive. The degree to which needs to autonomy, competence, and relatedness are satisfied by PE teachers influences on students' behavioral regulations that show the perceived loci of causality of individuals' behavioral goals and reflect qualitatively different reasons for the behavior chosen. Controlling environments produce an external locus of causality, thereby frustrating people's basic need for self-determination or autonomy, that is, their tendency to engage in a willing and volitional manner in an activity (Chatzisarantis et al. 2003). Assessing each behavioral regulation separately may provide further insight into how adolescents differ in their motivational profiles (Wang & Biddle, 2001; Wang, Chatzisarantis, Spray, & Biddle, 2002).

According to the theory of planned behavior (Ajzen, 1991), people's overt statement of intention is the strongest predictor of behavior. Hagger et al. (2003) proposed that intention summarized a person's general affective and cognitive orientation towards the behavior (attitude), the perceived pressure placed on them by significant others to participate in the target behavior (subjective norm), and their competence-related evaluation of their faculties and capacities towards the behavior (perceived behavioral control). As such, more self-determined forms of behavioral regulations (which effect more positive consequences or adaptive outcomes) are more likely to enhance stronger intentions from a person.

A large number of studies have yielded that the self-determined types of motivation (intrinsic motivation and identified regulation) were associated with positive outcomes in academic settings, such as higher concentration in the class (Standage, Duda, & Ntoumanis, 2003) and effort (Ntoumanis, 2001), the intentions for high school attendance (Hardre & Reeve, 2003). The same patterns of results have been found in sport and physical education settings. More specifically, the self-determined types of motivation were associated with higher levels of effort, enjoyment, cooperative learning, intentions for future participation in physical activity and lower levels of amotivation and boredom. On the other hand, the non self-determined types of motivation were associated with lower levels of effort, enjoyment and pleasure and higher levels of boredom (Hagger, Chatzisarantis, Culverhouse & Biddle, 2003; Ntoumanis, 2001, 2005; Standage, Duda & Ntoumanis, 2003). More autonomous regulation has been found to positively predict sustained participation (e.g. Daley & Duda, 2006; Fortier, Sweet, O'Sullivan, & Williams, 2007; Hagger & Chatzisarantis, 2009).

These results show that the students' self-determination for participating in physical education is associated with positive outcomes. So the examination of Iranian university students' self-determination in physical education and its impact on their intention for physical activity out of university it is of great interest. Until now no study has examined Iranian students' differences in behavioral regulations for intentions to be physically active in their leisure time. As mentioned by Lim & Wang (2009) in view of findings by Vallerand et al. (1992) and Pelletier et al. (1995), intention is not expected to be predicted by introjected regulation. Nonetheless authors saved it because they wanted to look its effect in Iranian sample. The purpose of this study was to examine the relationships between students' psychological needs satisfaction, behavioral regulations and their intentions to be physically active outside of university.

Method

Participants

The initial student sample contained 489 Iranian male students. Students who did not complete the entire questionnaire were excluded from the analyses. Hence, all analyses were based on a final sample of 320 PE students (age: $M = 19.81$, $SD = 1.42$, range = 18–23 years).

Measures

Firstly, all measures were translated into Persian and Cronbach's alpha coefficients were calculated to assess their internal reliability. All responses were indicated on a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7), except the one item of questionnaire assessing students' intention to be physically active outside of university was rated on a continuous open scale.

Behavioral regulations. Students' behavioral regulation for PE was assessed using Goudas, and his colleagues' Perceived Locus of Causality scale (PLOC; Goudas, Biddle, & Fox, 1994). The students in the

present study responded to 17 terms (four items for external regulation and introjected regulation and three items for identified regulation, intrinsic motivation and amotivation) measured on scales ranging from 1 (strongly disagree) to 7 (strongly agree). Each item followed the stem "I take part in PE." Examples of the questions are "because PE is fun" (intrinsic motivation), "because I want to learn sport skills" (identified regulation), "because I would feel bad about myself if I did not" (introjected regulation), "because I will get into trouble if I do not" (external regulation), and "but I do not see why we should have PE" (amotivation). The PLOC scale has been used in various studies in PE and has been shown to have clear factor structure and high internal reliabilities In the present study the Cronbach's alpha coefficients were $\alpha = .86$ (external regulation), $\alpha = .74$ (introjected regulation), $\alpha = .73$ (identified regulation), $\alpha = .89$ (intrinsic motivation), and $\alpha = .84$ (amotivation).

Intention to be physically active outside of school. Students' intentions to be physically active in their leisure time (outside of school) over a period of 2 weeks was assessed with three items drawn from Hagger et al. (2003). Two items were rated on a seven-point scale. For example, "During my leisure time over the next 2 weeks, I intend to do active sports and/or vigorous physical activities for at least 30 minutes, 3 days per week.", "During my leisure time over the next 2 weeks, I plan to do active sports and/or vigorous physical activities for at least 30 minutes, 3 days per week." – The former anchored by 1 (unlikely) to 7 (very likely) while the latter anchored by 1 (definitely not) to 7 (definitely). One item was rated on a continuous open scale (e.g., "during my leisure time over the next 2 weeks, I plan to do active sports and/or vigorous physical activities for at least 30 minutes, ____ days per week.").

Procedure

The questionnaires were administrated in the fall semester. Permission for the study was obtained by the physical education teachers and students. Authors administered the questionnaire during students' regular class periods and in their regular classrooms. The administrators used standardized instructions, and explained that the purpose of the study was "to understand students' perspectives on physical activity." Subjects were assured about the confidentiality of their answers. Questionnaires were administrated with the absence of physical education teacher. Only, participants who were volunteer completed questionnaires.

Data Analysis

The data collected were analyzed in two parts. Firstly, descriptive statistics were computed. In addition, analysis of regression was computed followed by descriptive statistics.

Results

Table 1 presents the correlations matrix among the five behavioral regulations and intention.

Table 1. Correlation between intrinsic, identified, introjected, external regulations, amotivation and intention

	1	2	3	4	5	6
intrinsic regulation (1)	1	0.654**	0.633**	0.598**	0.237**	0/180**
identified regulation (2)		1	0.501**	0.702**	0.148**	0.377**
introjected regulation (3)			1	0.565**	0.258**	0.212**
external motivation (4)				1	0.133**	0.248**
Amotivation (5)					1	0.054
Intention (6)						1

**P< .001

As Table 1 shows, the positive correlation was observed between intrinsic and identified regulations and Intention to be physically active, and negative correlation between introjected and external motivation and Intention. A positive correlation, but not significant, was observed between amotivation and Intention.

For verification of multiple correlation between predictor (independent) variables and dependent variables, a statistical multiple regression methods has been used in survey.

Correlations among the four motivational regulations (Table 1) were consisted with the self-determination theory, that is, the motivational regulations which are nearby in the self-determination continuum had higher correlation in comparison with the others. This pattern of correlations confirmed the existence of the self-determination continuum, which means that the self-determination index could be used in the present study (Ryan & Connell, 1989).

Table 2. Square value of coefficient of multiple correlation for predictor variables

R	R ²	Adjusted R ²	Standard Error of the Estimate
0.595	0.354	0.349	3.87

As can be seen in above table, behavioral regulations were accounting for an additional 0.349 of e variance of intention to physical activity.

Table 3. Sum of square analysis and results

Source	SS	MS	df	F	Sig
Regression	396.48	79.29	5	34.47	0.000
Resident	722.4	2.3	314		

The F value was significant, $F(5, 314) = 34.475$, $p < 0.000$. It shows predictor (independent) variables can predict variance of dependent variable significantly.

Table 4. Coefficients of Regression Equations based on behavioral regulations and intention to physical activity

Variables	Un-standardized		Standardized		t	Sig
	Coefficient		Coefficient			
	β	SE β	β			
intrinsic regulation	0.214	0.054	0.378		4.52	0.000
identified regulation	0.403	0.072	0.516		6.074	0.000
introjected regulation	-0.312	0.036	-0.216		-5.18	0.000
external regulation	-0.243	0.082	-0.364		-4.78	0.000
Amotivation	0.075	0.026	0.112		0.062	0.22
Constant	14.35	0.57	-		21.76	0.000

Table-4 shows identified regulation is strongest predictor of intention. In the second, introjected and external regulation have negative and significant relationships with intention. Intrinsic regulation is a fourth predictor of intention.

Discussion

SDT posits that the teacher behavioral regulations (i.e., internal vs. external) could explain variance in motivation and performance. In this study, we tested the hypothesis that internal behavioral regulations would have positive relationship with intention to be physically active out of university and external

behavioral regulations would have negative relationship with intention. Results supported the hypothesis. The varying types of behavioral regulation and the degree to which this motivation predicts the students' intentions to be physically active outside of university. Self-regulated motivation can help predict physical activity intention positively, whereas external regulations did negatively. These findings are consistent with previous research (Hagger et al., 2003; Standage, Duda, & Ntoumanis, 2003; Lim and Wang, 2009; Ntoumanis, 2001). However, amotivation was shown no significant relationship with intention.

On the basis of SDT, we reasoned that more self-determined forms of behavioral regulations would predict physical activity intention positively by reducing an external perceived locus of causality for engaging in activity. In contrast, when students feel less self-determined in PE, that is, pressured to participate in PE (external regulation) or feel that PE is a waste of their time (amotivation), they are more likely to adopt controlling intentions which are less likely to be translated into actual behavior.

In PE, many students engage in the activities because they are told to do so by the teacher, that is, their behaviors are mostly externally regulated. As such, the onus is on the teachers to adopt appropriate motivational strategies that may enhance more self-determined forms of behavioral regulations in PE. Deci and Ryan (2000) recommended that to facilitate autonomous regulation, the PE teacher may provide students with the required information regarding a skill or tactic and then allowing the students choice in the way they wish to execute the task, or the scope that they like to adopt regarding the tactics and game plan. Other practical suggestions also include establishing peer learning groups in which students play different roles (such as demonstrating or refereeing) in the lesson, for example (Lim & Wang, 2009).

Contrary to the predictions of the SDT (Deci & Ryan, 2000), relation was insignificant and positive between amotivation and students' intention to be physically active outside university. This finding also emerged in Lim and Wang (2009) research. According to Lim and Wang (2009) Students may lack motivation in PE because they feel controlled by the teacher and/or classmates. Nonetheless, they may have high intentions to be active outside school despite lacking motivation in PE due to the influence of peers, coaches or parents who support them in their choice of activities and/or affirm their abilities.

Conclusions

The findings suggest that how students start to regulate their activity participation is a strong predictor of their intention to be physically active outside of university. This findings are particularly important considering the significant role of PE in promoting a physically active lifestyle and how this can in turn improve public health (Sallis & McKenzie, 1991).

An unexpected finding has been found; amotivation had an insignificant positive relation with students' intentions to be physically active outside university. As mentioned above, this finding also emerged in Lim and Wang (2009) research. On Lim and Wang (2009) this prediction highlights that the relevance of the current PE curriculum need to be reexamined and that despite lacking motivation in PE, students may still be active outside school, participating in physical activities chosen based on their efficacy and affective appraisals by significant others.

From an applied perspective, since more self-determined forms of behavioral regulations predict intention positively, self-determined forms of behavioral regulations should be encouraged to promote intention to be physically active outside of university. More self-determined forms of behavioral regulations may be developed by providing the students with opportunities for choice (e.g., offer a wide variety of relevant activities, with rationales for doing them), provide increased opportunities for student input (e.g., allowing students to play different roles in the lesson, and making decisions with regard to how they want to carry out the activities), and empathize and acknowledge the students' concerns. Use of appropriate expression of choice and support, promote class structures that are autonomy-supportive and curriculum that are interesting and relevant to the students.

Limitations and Future Research

The current study is not without its limitations. First, as female and male physical education class is separated in Iran, female students wasn't included in study. Second, we used a single measure of intention to be physical activity. Hence, future research might examine whether the present findings among male adolescents could be generalized across female students. Third, the cross-sectional nature of research design which only allowed for a slice-in-time study. Fourth, In the SDT (Deci & Ryan, 2000), the behavioral regulations are influenced by innate psychological needs. Hence, future research might examine relationship between innate psychological needs, behavioral regulations and intention.

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