

The Mediating Role of Self-Determination in the Relationship Between Goal Orientations and Physical Self-Worth in Greek Exercisers

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This paper examines correlates of physical self-worth (PSW) in exercisers through employing 2 theoretical constructs popular in motivational psychology. Self-determination theory (SDT) and achievement goal orientation theory were adopted, and a cross-sectional survey was employed. Greek exercisers ($N = 350$, mean age = 30.8 years), participating in 1 of 4 different exercise activities were studied. Theoretical predictions established a model that was tested through path analysis. The self-determination continuum was hypothesized to mediate the relation between goal orientations and PSW. Task orientation predicted PSW through intrinsic motivation and identified regulation and, to a lesser extent, through introjected regulation. Ego orientation was related mainly to extrinsic regulation, and it predicted PSW only through the internally regulated variables of intrinsic and identified regulation. The model was found to fit the data well. Results showed that 17.2% of PSW was explained by the 2 motivational constructs.

Key Words: motivation, exercise, physical self-worth

Key Points:

- It is important to understand how and why people are motivated towards exercise.
- The physical self-worth of Greek exercisers was predicted by intrinsic (self-determined) forms of motivation.
- Future research should address how people can be helped to adopt more self-determined forms of motivation.

Although the links between physical activity and health have been well documented, many people are either sedentary or less active than they should be to accrue health benefits (3). On the other hand, even when the psychological and physiological benefits of exercise are presented through community-wide interventions and people start to engage in various physical activities, adherence is typically quite low (4, 5). This clearly supports the need to promote physical activity.

Human motivation theories can have a central role in the advancement of knowledge on how health behaviors are initiated and sustained. The social-cognitive perspective has become a popular approach in the study of human motivation, and such theories have repeatedly been proposed to influence exercise and physical activity behaviors.

Achievement Goal Theory

One of the most popular motivation theories in physical activity research is achievement goal perspectives (orientations) theory. Goal perspectives theory was based originally on research in academic settings. Nicholls (2) theorized that individuals interpret competence, ability and success in at least two different ways. The first type of individual is task-oriented and seeks personal improvement and task mastery. The other is ego goal oriented and seeks to prove oneself by outperforming others. Task orientation is related to one's own perceived mastery and is therefore self-referenced. Ego orientation is related to social comparison and is therefore interpersonal or externally referenced in nature. Research has shown that task orientation is generally related to high levels of motivation, either singly or when combined with a high ego orientation (6).

The behavior motivated by a task orientation is an end in itself and could be conceptualized as intrinsically motivating and satisfying. On the other hand, behavior motivated by an ego orientation, through trying to achieve superiority over others, may lead to an outcome having a more external locus of causality (2). With this intrinsic-extrinsic differentiation of behavior in mind, physical activity researchers have started to investigate Deci and Ryan's (1) self-determination theory in an effort to explain differences between task and ego-oriented people.

Self-Determination Theory

Self-determination theory was formed on the premise that human behavior is based on the gratification of the three basic psychological needs for competence, autonomy and relatedness. Within this organismic theory of motivation each action or behavior is determined by the degree of intrinsic and extrinsic motivation it emanates. Intrinsically motivated actions are defined as self-determined whereas extrinsic motivated behaviors vary in their degree of self-determination, having either a relatively internal or external locus of causality. This perceived locus of causality (PLOC) continuum represents the degree to which the regulation of a non-intrinsically motivated behavior has been internalized (1, 7). As a natural aspect of organismic integration, three types of internalized regulated behaviors are formed. These are introjected regulation, where actions are associated with avoiding guilt and anxiety, identified regulation, where understanding the importance of an activity for oneself makes it less pressuring and more self-determined, and integrated regulation, where behaviors are more integrated and coexist harmoniously with the regulatory processes of the self. The self-determination continuum is completed with the addition of external regulation at one end, where the behaviors are performed for external incentives or pressures, and intrinsic regulation at the other, where behavior is performed because of its inherent interest.

Biddle et al. (8) investigated the prediction of physical activity intentions using goal orientations and self-determination theories in school physical education. They found that perceived autonomy mediated the effects of goal orientations on intentions. Task orientation predicted intentions through intrinsic motivation and identification, and ego orientation through perceived competence and the four types of behavioral regulation of self-determination theory.

Whitehead and Corbin (9) state: "Contexts that unconditionally support mastery and minimise external regulation and ego involvement are likely to lead to the development of a healthy sense

of self and to encourage the most desirable types of motivation” (p. 183). In the same way, when self-improvement is fostered in a certain environment, the task at hand becomes more controllable. Individuals feel more competent and more autonomous in relation to the given task, and they are more likely to feel psychological growth.

As Ryan (10) argues: “Any intentional behavior can be classified in terms of the degree to which it is self-regulated versus regulated by forces outside the self” (p. 405). In this way, the active and constructive nature of the internalization process of an activity is related either to a “true” or a “contingent” self formation. Ryan and colleagues have conducted several studies exploring the effects of external versus internal regulation of behavior on the self. When people’s feelings of worth depend upon specific outcomes, such as in an ego orientation, people are believed to have introjected certain values and regulations. Their level of self-esteem depends on whether they satisfy these externally imposed regulations and, hence, they rely on a contingent form of self-esteem. “True” self-esteem, on the other hand, involves the acceptance and personal valuing of an acquired regulation that mirrors an internal locus of causality.

The social significance of the body has become increasingly important, and the study of the physical self has gained in prominence in recent years (11). The relationship between physical self-worth and global self-esteem has been estimated at approximately $r = 0.6$, which one could argue is quite large given the number of non-physical attributes that contribute to the formation of self-esteem. In this way, examining the influential factors of physical self-worth is important in analyzing one of the most significant attributes of self-esteem formation.

Physical self-perception instruments have been shown to be capable of describing, characterizing, and mapping groups and individuals. Measures of the physical self have been shown to be related to certain life adjustments people make (12), as well as to exercise participation (13), and to one of the general components of global self-esteem.

The link between self-esteem and certain motivational constructs is important if we are to understand the climate that fosters participation in health-enhancing physical activity and exercise. According to Sonstroem and Morgan (14), behavior is maintained in areas where people are likely to experience positive feelings of competence and self-esteem enhancement. Nevertheless, as people constantly evaluate their actions according to certain expectations and desires, it is quite likely that they will participate in an activity because of a discrepancy between what they perceive themselves to be like and what they want to be. Thus, the decision to initiate and maintain a behavior, such as exercise, could be based on either positive or negative feelings of the self. Nevertheless, many studies have supported a positive relationship between participation in exercise and physical self-worth (13).

According to Ryan (10), an intrinsically motivated behavior is a spontaneous, fully self-regulated behavior, and actions of this type are experienced as autonomous. In addition, such expressions of the self are accompanied by an internal locus of causality. Physical exercise is not always an intrinsically motivating behavior, although in some cases it is inherently satisfying. In cases where exercise is performed for health, or other reasons external to the self, exercise habits need to be internalized if this health-promoting response is to have some longevity.

Environmental cues will likely be important in the internalization process in exercise. Controlling environmental cues that represent an internally controlling state will lead to guilt and anxiety and represent an introjected type of internalization. On the other hand, if autonomous cues are applied, exercise behavior can become more accepted and personally valued and thus reflect an identified regulation of behavior (15).

These findings and theorizing can help explain the advantages of linking the theoretical constructs of self-determination, goal orientations, and physical self-worth. What motivates people can have an effect on their behavior, their feelings about themselves, as well as their focus of reference. With these notions in mind, we sought to investigate how such motivational orientations affected physical self-worth in regular exercisers. Specifically, the hypothesis was that a task orientation will be more strongly related to constructs at the internal end of the perceived locus of causality continuum, while an ego orientation will be more strongly related to the external end of the continuum. In addition, the intrinsically regulated domains of PLOC will mediate the effects of task orientation on physical self-worth. Finally, the extrinsically regulated domains of PLOC and ego orientation will not be associated with physical self-worth.

Method

Participants

The sample comprised 350 exercisers (age mean = 30.8, $SD = 9.17$), living in Athens, Greece. They were engaged in one of four types of recreational exercise activities: running ($n = 102$), gym-based fitness exercise ($n = 82$), mini soccer ($n = 107$), and basketball ($n = 59$).

Measures

Task & Ego Orientation in Exercise Questionnaire (TEOEQ). All 13 items of the Task and Ego Orientation in Sport Questionnaire (TEOSQ; 16) were modified to reflect the meaning of the exercise context (e.g., "I am the only one who can do the exercises well and/or can lift more weights"). To test the possibility for the existence of other meanings of achievement that may exist in the exercise context, an additional item was included on appearance and reflecting the theoretical meaning of "ego orientation" ("I have the best appearance of all the other exercisers"). Exercisers were asked to respond in terms of "when they are feeling most successful in the activity they choose," and they rated their responses on 5-point Likert scales. Each of the two factors reflecting task and ego orientation consisted of 7 items. Although the TEOSQ questionnaire has been used in many published studies, the exercise format (TEOEQ) was tested for the first time after pilot work.

Physical Self-Description Questionnaire (PSDQ). The physical self-worth (PSW) subscale of the PSDQ (17) was assessed. Participants were asked to respond to the 5 items on 6-point Likert scales anchored by *absolutely wrong* (1) and *absolutely right* (6) in describing themselves.

Sport Motivation Scale (SMS). Based on the SMS scale developed by Pelletier et al. (18), an Exercise Motivation Scale was formulated. Six variables were included (*external regulation*, *introjected regulation*, *identified regulation*, *intrinsic motivation to know*, *intrinsic motivation to accomplish*, *intrinsic motivation to experience stimulation*), each including 4 items. The three

intrinsic motivation subscales were combined to form one intrinsic motivation subscale. Amotivation was not included due to its likely lack of salience for an active exercise population. Individuals were asked, "Why do you participate in this exercise program?" and they made their responses on 7-point Likert scales anchored by *not relevant* (1) and *totally relevant* (7). At the time of data collection, the scales by Li (19) and Mullan et al. (20) were not available.

Procedure

At the beginning of their exercise activity, participants were asked to complete the questionnaires. Normal informed consent procedures were followed and conformed to those endorsed by the British Psychological Society.

Results

All the variables showed acceptable internal consistency, with Cronbach alphas ranging from .88 to .66 (see Table 1). Means and standard deviations are also shown in Table 1 and suggested that participants were self-determined in their motivational orientation, were task oriented, and had high physical self-worth.

Table 1 Descriptive Statistics and Alphas

Variable	<i>N</i>	Mean	<i>SD</i>	Alpha
EXTRINSIC	305	3.4902	1.4788	.79
INTROJECTED	306	5.2328	1.2074	.76
IDENTIFIED	306	5.2168	1.1243	.71
INTRINSIC	307	4.9980	1.2546	.84
PSW	329	4.5234	1.0040	.88
TASK	336	4.1047	0.7254	.79
EGO	336	2.1860	0.9969	.87

Table 2 Correlation Matrix

Variable	1	2	3	4	5	6
EXTRINSIC						
INTROJECTED	.307**					
IDENTIFIED	.209**	.478**				
INTRINSIC	.325**	.498**	.628**			
PSW	.107	.298**	.344**	.397**		
TASK	.144*	.328**	.524**	.542**	.214**	
EGO	.481**	.114*	.107	.153**	.048	-.033

* $p < .05$ level (2-tailed); ** $p < .01$ level (2-tailed).

A full correlation matrix is presented in Table 2. The variables of the self-determination continuum were correlated with each other. The correlation tended to be higher between the variables adjacent to each other in the continuum (e.g., identified regulation and intrinsic motivation) and weaker among the more distant variables of the continuum. However, the correlation between intrinsic motivation and external regulation was positive. Ryan and Connell (21) suggested that the PLOC will display a simplex-like correlational structure, with intrinsic motivation and external regulation being negatively associated. Recent research has shown sport participants to hold both types of behavioral regulation (22). This may be a function of the samples studied, with active and motivated individuals drawing on several forms of motivation.

Task orientation was unrelated to ego orientation, consistent with previous research and theory (6, 16). Further, task orientation was significantly correlated with all the variables of self-regulation continuum but was most highly associated with identified regulation and the intrinsic motivation. On the other hand, ego orientation was correlated with extrinsic regulation.

Path Analysis

The structural relationships between goal orientations, behavioral regulations, and physical self-worth were analyzed using EQS. The hypothesized model (Figure 1) was confirmed by the final model (Figure 2). The fit was good ($AQ^2 = 9.302$ [3DF], Bentler-Bonett Fit Index = .983, CFI = .988, LISREL GFI = .991, SRMR = .037). According to the model, the variables of the self-regulation continuum mediate the effect of ego orientation on PSW. Similarly, the variables of self-regulation continuum (except external regulation), mediate the relationship between task orientation and PSW. Both goal orientations predicted PSW indirectly through intrinsic and

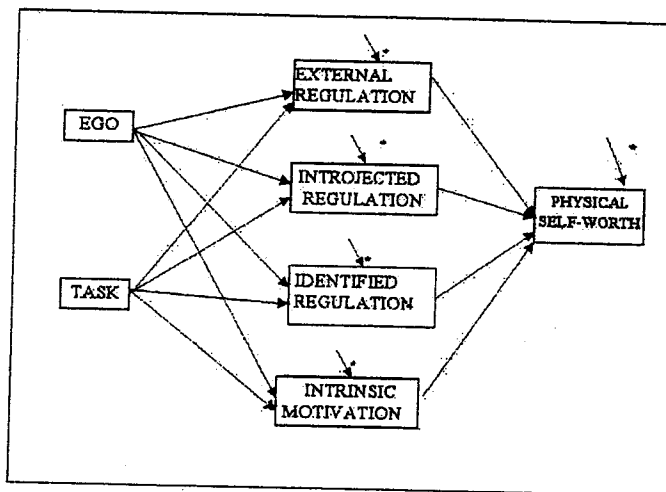


Figure 1 — Hypothesized model among the examined variables.

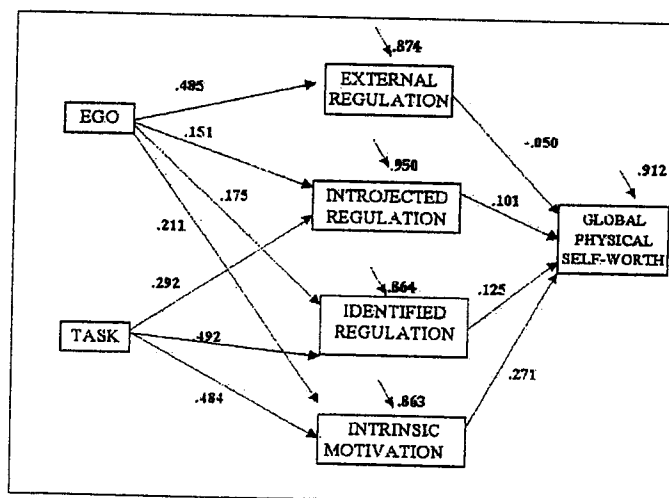


Figure 2 — Final model among the examined variables.

identified regulations and, to a lesser degree, through introjected regulation. Thus, only the more self-determined forms of regulation were directly associated with physical self-worth. The model predicted 17.2% of the variance in PSW.

Discussion

This study investigated two currently popular motivational theories in exercise psychology—goal orientations and self-determination theories—in predicting physical self-worth. The hypotheses of this study were confirmed, as the relationship between goal orientations and physical self-worth was mediated by the self-regulation continuum variables. More precisely, all domains of perceived locus of causality were related to task and ego orientations (except task orientation with extrinsic motivation), and these domains acted as mediators of the relationship between goal orientation and physical self-worth. In accordance with SDT, the intrinsic and identified forms of regulation most strongly influenced feelings of (physical) self-worth. This relationship weakened as the behavior became more extrinsically regulated. This confirms the motivational significance of a self-determination theory perspective for the study of physical activity motivation (23, 24).

Even though only 17.2% of the variance of physical self-worth was predicted, it could be argued that this is acceptable given that physical self-worth is a rather global construct and that the extracted model was based only on motivational variables in the exercise context. Personal attributes (i.e., perceived competence, perceived importance, etc.) could possibly add to the explained variance. Further, according to both the examined theories, perceived environmental cues can have strong effects on self-esteem formation.

According to Deci and Flaste (25), self-worth based on certain outcomes progressively leads to the adoption of a contingent self that develops based on external criteria. Unless one becomes more autonomous, such as through the use of internal criteria of success, becoming self-motivated and reaching a true sense of self-worth will be difficult. The results of this study support the proposals of Ryan and colleagues (7, 10) that to influence the formation of a true physical self-worth, we need to support an internal regulation of behavior and a behavior based on self-referenced criteria of success. This is in line with the findings of Kavussanu and Harnish (26), where only high task orientation was related to children's increased sense of self-esteem. However, what our data suggest is that the relationship between task orientation and self-esteem is not a direct one but one mediated by a self-determined motivational orientation.

Results clearly call for a replication and extension of this cross-sectional study. Cultural biases may be in evidence, and further tests of the theoretical predictions are required. For example, experimental manipulations of environmental cues, based on self-determination theory, might add significantly to our understanding of physical self-perceptions and motivation in the important field of health-enhancing physical activity.

References

1. Deci EL, Ryan RM. 1985. *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.
2. Nicholls JG. 1989. *The competitive ethos and democratic education*. Cambridge, MA: Harvard University Press.

3. Bouchard C, Shephard RJ, Stephens T, editors. 1994. *Physical activity, fitness and health: international proceedings and consensus statement*. Champaign, IL: Human Kinetics.
4. Biddle SJH, Mutrie N. 2001. *Psychology of physical activity: Determinants, well-being and interventions*. London: Routledge.
5. King AC, Blair SN, Bild DE, Dishman RK, Dubbert PM, Marcus BH, Oldridge NB, Paffenbarger RS, Powell KE, Yeager KK. 1992. Determinants of physical activity and interventions in adults. *Med Sci Sports Exerc* 24(6, Supplement):S221-S236.
6. Duda JL, Hall H. 2001. Achievement goal theory in sport: recent extensions and future directions. In: Singer RN, Hausenblas HA, Janelle CM, editors. *Handbook of sport psychology*. New York: Wiley. p. 417-43.
7. Ryan RM, Deci EL. 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am Psychol* 55:68-78.
8. Biddle S, Soos I, Chatzisarantis N. 1999. Predicting physical activity intentions using goal perspectives and self-determination theory approaches. *Eur Psychol* 4:83-89.
9. Whitehead JR, Corbin CB. 1997. Self-esteem in children and youth: the role of sport and physical education. In: Fox KR, editor. *The physical self: from motivation to well-being*. Champaign, IL: Human Kinetics. p. 175-203.
10. Ryan RM. 1995. Psychological needs and the facilitation of integrative processes. *J Pers* 63:397-427.
11. Fox KR, editor. 1997. *The physical self: from motivation to well-being*. Champaign, IL: Human Kinetics.
12. Sonstroem RJ. 1997. The physical self-system: a mediator of exercise and self-esteem. In: Fox KR, editor. *The physical self: from motivation to well-being*. Champaign, IL: Human Kinetics. p. 3-26.
13. Fox KR. The effects of exercise on self-perceptions and self-esteem. In: Biddle SJH, Fox KR, Boutcher SH, editors. 2000. *Physical activity and psychological well-being*. London: Routledge. p. 88-117.
14. Sonstroem RJ, Morgan WP. 1989. Exercise and self-esteem: rationale and model. *Med Sci Sports Exerc* 21:329-37.
15. Ryan RM, Deci EL. 2000. Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology* 25:54-67.
16. Duda JL, Whitehead J. 1998. Measurement of goal perspectives in the physical domain. In: Duda JL, editor. *Advances in sport and exercise psychology measurement*. Morgantown, WV: Fitness Information Technology. p. 21-48.
17. Marsh HW, Richards GE, Johnson S, Roche L, Tremayne P. 1994. Physical Self-Description Questionnaire: psychometric properties and the multitrait-multimethod analysis of relations to existing instruments. *J Sport Exerc Psychol* 16:270-305.
18. Pelletier LG, Fortier MS, Vallerand RJ, Tuson KM, Briere NM, Blais MR. 1995. Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sport Motivation Scale (SMS). *J Sport Exerc Psychol* 17:35-53.
19. Li F. 1999. The Exercise Motivation Scale: its multifaceted structure and construct validity. *J Appl Sport Psychol* 11:97-115.
20. Mullan E, Markland D, Ingledew D. 1997. A graded conceptualisation of self-determination in the regulation of exercise behaviour: development of a measure using confirmatory factor analytic procedures. *Personality and Individual Differences* 23:745-52.
21. Ryan R, Connell J. 1989. Perceived locus of causality and internalization: examining reasons for acting in two domains. *J Pers Soc Psychol* 57:749-61.
22. Vlachopoulos SP, Karageorghis CI, Terry PC. Motivation profiles in sport: a self-determination perspective. *Res Q Exerc Sport*. In press.
23. Chatzisarantis N, Biddle SJH, Meek GA. 1997. A self-determination theory approach to the study of intentions

and the intention-behaviour relationship in children's physical activity. *British Journal of Health Psychology* 2:343-60.

24. Chatzisarantis N, Biddle SJH. 1998. Functional significance of psychological variables that are included in the Theory of Planned Behaviour: a self-determination theory approach to the study of attitudes, subjective norms, perceptions of control, and intentions. *Eur J Soc Psychol* 28:303-22.

25. Deci EL, Flaste R. 1995. *Why we do what we do: understanding self-motivation*. New York: Penguin.

26. Kavussanu M, Harnisch DL. 2000. Self-esteem in children: do goal orientations matter? *Br J Educ Psychol* 70:229-42.

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