The relationship between basic psychological need satisfaction, behavioral regulation, and Participation in CrossFit

Melissa J. Davies  
*University of the Pacific, mdavies@pacific.edu*

Lyndsie Coleman  
*University of Northern Colorado*

Megan Babkes Stellino  
*University of Northern Colorado*

Follow this and additional works at: https://scholarlycommons.pacific.edu/cop-facarticles

Part of the Exercise Science Commons, Sports Sciences Commons, and the Sports Studies Commons

Recommended Citation  
https://scholarlycommons.pacific.edu/cop-facarticles/108
CrossFit can be described as a relatively new fitness training method that is based on a variety of high-intensity weight training, body weight movements, and cardiovascular exercise. Given the recent rise in CrossFit establishments, the purpose of this study was to explore the relationships between basic need satisfaction (autonomy, relatedness, competence), behavioral regulation toward CrossFit, and actual participation behaviors within the framework of Self-Determination Theory. CrossFit participants (N = 206; Mage = 37.6 years), majority Caucasian (76%), females (58%), who reported attending three (n = 91; 44.2%) and five (n = 78; 37.9%) CrossFit sessions per week completed online surveys about need satisfaction and CrossFit self-regulation. Participants who attended CrossFit more frequently had significantly higher levels of basic need satisfaction across all three needs. Differences existed also in behavioral regulation across frequency of attendance and age. Together, the three basic needs explained 38.8% of the variance in autonomous regulation, while explaining 5.7% of the variance in controlled regulation toward CrossFit. This study provided empirical support for previous theoretical connections between basic psychological need satisfaction and self-determined regulation toward exercise. Findings are intended to help inform CrossFit “box” directors and those of other group fitness activities looking for increased participant recruitment and retention.
Physical inactivity is a prominent concern for people of all ages across North America. According to the National Center for Health Statistics (2012), only 35% of the adult population engages in physical activity on a regular basis, while 33% of adults are considered physically inactive. Of those participants who do attempt physical activity routines, there is often a lack of persistence as nearly 50% of participants will drop out within the first 6 months (Marcus & Forsyth, 2003). Similarly, over 70% of the adult population is not sufficiently physically active, through neither frequency nor intensity, to see the physiological, psychological, and social benefits exercise and physical activity may provide (Centers for Disease Control and Prevention, 2011).

The decline in physical activity that occurs in adulthood is directly related to the prevalence of obesity-related disease such as diabetes, hypertension and heart disease (Guh, et al., 2009). Currently, more than one third of adults are considered obese (National Center for Health Statistics, 2012). Though one's adherence to an exercise program is prompted through individual, environmental, and other factors (Biddle & Mutrie, 2007), the motivational context derived through these factors may serve as the central influence on behavior. Previous research has revealed that, while most adults report the ease with which they start a structured group fitness class, about 50% will drop out within the first three to six months (Dishman & Sallis, 1994; Sallis & Hovell, 1990). Exploring the reasons that motivate, or prevent, participation in physical activity is, therefore, a salient topic for sport and physical activity practitioners.

CrossFit can be described as a relatively new physical training method that is based on a variety of high-intensity weight training, gymnastics, body weight movements, and cardiovascular exercise (Glassman, 2010). CrossFit sessions, known as WOD's (workout-of-the-day), encompass all types of physical fitness: endurance, stamina, strength, speed, flexibility, power, coordination, agility, and balance (Sibley, 2012). WODs take place in gyms known as “boxes,” since the locations are typically old warehouses converted to useable gym space. CrossFit is comparable to a group fitness class where effort is individually regulated, members pace themselves, and progress or modify workouts at their own comfort and capability levels. In addition, CrossFit coaches keep daily records of final times, number of repetitions, and weight in pounds used in activities for each client’s future reference in the event that a WOD is repeated. People are noticeably intrigued by this style of physical activity, as CrossFit affiliates have grown from 7 to 3,500 between 2005 and 2012, and currently operate in 61 different countries, with nearly 50 new affiliates added each week (Huntley, 2012).

Few studies have examined the effects of CrossFit training, and no study to date has examined the relationship between the social psychological factors and motivation as they specifically relate to CrossFit participation. Understanding these aspects within the CrossFit...
context is important given that attendance at three CrossFit sessions per week would satisfy the recommended physical activity guidelines for adults (i.e., 20 to 60 minutes of vigorous-intensity exercise three days per week) thereby reducing the physical inactivity nationwide (Centers for Disease Control and Prevention, 2011).

**Self-Determination Theory**

To understand motivation in CrossFit participation, Self-Determination Theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000) is an appropriate and relevant theoretical foundation. CrossFit, as compared to many other fitness environments, is a unique, very physically challenging, group-oriented form of exercise that depends on individual self-regulation. Understanding the motivational processes involved in choosing, putting forth effort, and persisting in this unique context has the potential to meaningfully add to the SDT literature. In particular, the unique aspects of CrossFit have the potential to reveal that competence, autonomy, and relatedness basic psychological needs predict autonomous motivation and behavior outcomes differently than they do in other group fitness, exercise contexts. SDT is a prominent theory within the motivation literature which relies on four mini-theories to explain people's choice, effort, and persistence toward an activity. Motivation, within SDT, can be conceptualized on a continuum of regulation ranging from extrinsic, or externally regulated, through to intrinsic, or internally regulated behavior. In this framework, the psychological underpinnings of behavior can be considered through a range of regulations from controlling to autonomous (Edmunds, Ntoumanis, & Duda, 2006).

When behavior is *extrinsically* motivated, or externally regulated, it is typically selected due to the compliance toward some form of control or pressures within the context or from significant others, such as family, friends, or a doctor (Mullan & Markland, 1997). Along these lines, a slightly less external form of regulation would be an *introjected* regulation, which is reflected when there is not an actual external pressure, but rather a sense of guilt felt from not engaging in a specific behavior, such as exercise (Ryan & Deci, 2000). *Identified* regulation is behavior undertaken for the perceived value or usefulness it offers an individual, though it is not fully integrated to one's being, as would be the case in a person who displayed an *integrated* regulation. *Intrinsic* motivation, the most self-determined or autonomous form of regulation, is very similar to integrated regulation, except that intrinsic regulation includes an element of inherent interest in the activity, beyond the importance or value placed on the behavior (Ryan & Deci, 2000).

Research findings show that across the lifespan, adults report various motivational regulations to maintain a physically active lifestyle (Brunet & Sabiston, 2011). Younger adults are more likely motivated to stay physically active for appearance reasons, whereas
older adults are motivated by a more intrinsic perspective that includes reducing the physical
effects of aging, the overall enjoyment, pleasure and challenge they experience from particip­
pating in exercise and physical activity.

Internal regulation, or intrinsic motivation, is desirable because it has been positively
associated with persistence toward physical activity (see Teixeira, Carraca, Markland, Silva,
& Ryan, 2012). Kirkland, Karlin, Babkes Stellino, and Pulos (2011), for example, found
that exercisers over the age of 55, who were more intrinsically motivated to exercise, also
reported more frequent exercising habits. Age is a salient consideration in exercise motiva­
tion research due to the shifting goals, values, life demands, and health conditions across
the lifespan (Miller & Iris, 2002). Mullan and Markland (1997) studied exercise motivation
within a combined SDT and Transtheoretical Model of Behavior Change (TTM; Proshaska
& DiClemente, 1984) perspective to find that the more autonomous forms of behavioral
regulation were associated with later stages of change, meaning that those who were regular
exercisers, for the most part, did so under a more self-determined, internal regulation to do
so.

Ryan and Deci (2000) explain that humans have an innate tendency to pursue activities
that extend and challenge one’s capabilities. Intrinsic regulation is present when activities
foster this ability to pursue an inherent interest or the opportunity to satisfy a meaningful
challenge (Ryan & Deci, 2000). One of the SDT mini-theories which supports this innate
tendency is Basic Needs Theory (BNT; Deci & Ryan, 1985) which posits that when the three
basic psychological needs (competence, autonomy, and relatedness) are satisfied, a person
will be more intrinsically motivated to pursue an endeavor (Alexandris, Kouthouris, & Gir­
golas, 2007; Patrick & Canevello, 2011). According to BNT, because competence, autonomy
and relatedness are basic needs, people will inherently be motivated to find situations and
activities which satisfy these needs.

Competence refers to an individual’s perceived ability to interact effectively with
one’s environment (Kirkland, Karlin, Babkes Stellino, & Pulos, 2011), or the need to master
personally challenging tasks as opposed to mundane, trivial or meaningless tasks (Rodgers
et al., 2014). White (1959) described competence as the desire to be effective, efficient, and
masterful within an environment. A high perception of competence in any domain may result
in higher levels of persistence of that behavior (Elliot, 2005). Unlike the concept of self-effi­
cacy, or a situation-specific self-confidence and the perception that one can successfully ex­
ecute a chosen behavior (Bandura, 1997), competence addresses the expected consequences
of successful completion of a certain behavior and is associated with optimally challenging
tasks (Rodgers et al., 2014).
Autonomy refers to the choice surrounding the behavior as being derived by the self. The need for autonomy is said to be fulfilled when individuals feel that they have the opportunity to make selections, that their beliefs are valued, and when those individuals are self-controllers (Deci & Ryan, 2000). Meanwhile, external factors, such as pressures from others, guilt, deadlines, competition, and supervision can all negatively impact the need satisfaction of autonomy (Deci & Ryan, 2000). Finally, relatedness refers to a sense of belongingness with significant others (Harter, 1981; Ryan & Deci, 2006). Kipp and Amorose (2008) defined the need for relatedness as “an individual’s desire to have satisfying and consistent involvement with others” (p. 110). Through an understanding of what each of these basic needs looks like in relation to physical activity, researchers can pinpoint conditions and undertakings which are more likely to facilitate intrinsic motivation via basic need satisfaction (Vallerand & Losier, 1999).

Given that the exercise setting of CrossFit requires bouts of intense effort and caters to a wide range of age, size, and abilities, the purpose of this study was to explore the relationships between basic psychological need satisfaction, behavioral regulation toward CrossFit, and actual participation behaviors within a Self-Determination Theory (SDT) framework. Three research questions guided this study: 1) what basic psychological needs significantly predict autonomous and controlled motivation toward CrossFit participation? and 2) are there differences in the basic psychological need predictors and/or forms of behavioral regulation for CrossFit according to participant age and 3) are there differences in the basic psychological need predictors and/or forms of behavioral regulation for CrossFit according to participant gender?

Based on previous studies examining SDT and exercise (e.g., Kirkland, Karlin, Babkes Stellino, & Pulos, 2011), we predicted that CrossFit participants who report higher satisfaction across each of the three basic needs of autonomy, competence and relatedness will be more autonomously motivated to pursue CrossFit. Silva et al. (2010) found that a more autonomous exercise environment positively predicted long-term exercise behavior and weight loss among women, and Moustaka, Vlachopoulos, Kabitsis, & Theodorakis (2012) reported higher attendance rates among an autonomy-supportive exercise class when compared with those attending a class that lacked autonomy support. Therefore, it was also predicted that autonomously motivated participants will demonstrate more positive behaviors toward the activity, specifically a higher frequency of attendance and long-term exercise participation. Furthermore, previous research has found younger participants report more external motivates for exercise participation (Brunet & Sabiston, 2011) and it was predicted younger CrossFit participants to hold more external regulations toward participation than older participations. No significant differences were expected according to gender, since other studies
(e.g., Mullen, Markland, & Ingledew, 1997) have found invariance across gender with respect to motivational regulations in exercise. However, consistent with previous exercise research (e.g., Brunet & Sabiston, 2011), younger CrossFit participants were expected to hold more external regulations toward participation than are the older participants.

Methods

Participants

Participants were recruited through the “boxes” in which they currently engage in CrossFit sessions. CrossFit affiliate gyms are referred to as “boxes” which are typically old warehouses converted to useable gym space. The sample included 206 CrossFit participants from the thirty-eight boxes who agreed to participate in this study. The participants were primarily Caucasian (76%) and Hispanic (12%) females (58%), with a mean age of 34.7 years old, ranging from 18 to 68 years old. Participants were asked what CrossFit membership they currently enroll in, and with what frequency they actually attended (on average, during the past two months), on a weekly basis. The majority of participants \( (n = 152; 93.2\%) \) had an unlimited membership and reported actually attending three \( (n = 91; 44.2\%) \) and five times per week \( (n = 78; 37.9\%) \). Participants, including men and women, had an average Body Mass Index (BMI) of 26.04, which fits in the “overweight” BMI range (Center for Disease Control and Prevention, 2011) according to calculation based on their self-reported height and weight and reported a 15 to 17 on Borg’s Rate of Perceived Exertion (RPE; 1998) \( (n = 197, 59.3\%) \) and 18 to 20 RPE \( (n = 94, 28.3\%) \) during an average CrossFit session. Lastly, this sample reported earning a relatively high approximate annual household income where 41.7\% \( (n = 86) \) earned over $100,001, while 23.8\% \( (n = 49) \) earned $50,001-75,000.

Measures

Behavioral regulation. CrossFit behavioral regulation was measured with the Behavioral Regulations in Exercise Questionnaire-2 (BREQ-2; Markland & Tobin, 2004). The BREQ-2 is a 19-item, self-report measure, that assesses exercise regulations according to the SDT framework. There are five subscales that separately assess intrinsic regulation (e.g., “I enjoy my CrossFit sessions”), three forms of extrinsic regulation (identified, introjected, extrinsic; e.g., “I take part in CrossFit because my friends/family/partner say I should”), and amotivation (e.g., “I don’t see the point in participation in CrossFit”). Each item is rated on a 5-point Likert-type scale where 1 = not true for me and 5 = very true for me. Reliability analyses have revealed internal consistency values from .76 to .90 (Duncan, Hall, Wilson, & Jenny, 2010).
The BREQ-2 in itself does not report an autonomous and controlled level of behavioral regulation, but it is possible to average the means from subscales from the integrated motivation end of the regulation continuum (i.e., intrinsic and identified) into an autonomous regulation subscale, while combining subscales from the other, non-integrated motives end of the continuum (i.e., introjected, extrinsic, and amotivation) into a controlling subscale. This method of categorizing the BREQ-2 into autonomous and controlled subscales was selected in order to explore the relationship between basic need satisfaction, behavioral outcomes the two theoretically opposite forms of behavioral regulation.

**Basic need satisfaction.** Autonomy, competence, and relatedness need satisfaction in CrossFit were measured with the Basic Psychological Needs in Exercise Scale (BPNE; Vlachopoulos & Michailidou, 2006). The BPNE is a 12-item measure with three subscales to represent each of the three basic psychological needs (i.e., relatedness, competence, autonomy) within an exercise context. Items were adapted to reflect CrossFit experience (e.g., “I feel extremely comfortable with the other members at this CrossFit box”) and ask participants to respond on a 5-point Likert-type scale where 1 = *not at all true* and 5 = *definitely true*. This questionnaire has been found to have good internal consistency for all three subscales with Cronbach’s alpha coefficients of .84 (autonomy), .81 (competence), and .92 (relatedness; Vlachopoulos & Michailidou, 2006).

**Demographics.** Several demographic questions were incorporated in the survey including gender, ethnicity, annual household income, height, weight, current CrossFit membership type (e.g., unlimited), and actual weekly CrossFit attendance (e.g., 3x per week). RPE was measured by asking participants to indicate their RPE during an average CrossFit session which indicates perceived exercise intensity on a 15-point scale.

In order to assess group differences, age was asked as an open-ended question where participants provided their actual age. Researchers then recoded the data into a categorical variable using the following age ranges (18–24, 25–34, 35–44, 45–54, and 55 and older) to assess for differences among age groups.

**Procedure**

Following approval from the Institutional Review Board, 62 CrossFit “boxes” were contacted from 16 states in the United States using the online database of CrossFit affiliates (maps.crossfit.com). Thirty-eight “boxes” agreed to send a script including the online survey link to their respective members via email distribution lists, while two “boxes” elected to put the survey link on their Facebook page. Participants read through an informed consent form, which was embedded in the first page of the survey, following which completion of the survey implied consent. The survey link was open for approximately three months in the fall of 2013 and took participants on average between 5 and 15 minutes.
Data Analysis

Data were downloaded into SPSS 21.0 for all analyses. Prior to conducting any analyses, data were screened for missing data. Thirty eight participants started the survey, but exited with either one or two pages remaining in the survey. These participants were dropped from further analyses, using listwise deletion, and the remaining sample \( (N = 206) \) was analyzed. The remaining data were screened to determine that there were no systematic patterns of the remaining missing items, which were, therefore, replaced using a computation of the mean (Tabachnick & Fidell, 2007). Data were then analyzed, first by assessing descriptive statistics, means, standard deviations, and bivariate correlations among all variables. Secondly, three analyses of variance (ANOVAs) were run to compare mean differences in all variables across gender, age, and frequency of attendance. The group sizes in each of these analyses were different, and thus, the use of a harmonic mean was applied in each of the ANOVAs. Lastly, a pair of multiple linear regressions were conducted to determine the predictive ability of basic need satisfaction on the behavioral regulations (i.e., autonomous and controlling) toward CrossFit participation.

Results

Descriptive Statistics

Descriptive statistics, including means, standard deviations, internal reliabilities, and correlations between all variables can be found in Table 1. All of the subscales within this measure were above the acceptable .70 alpha level, except for the three-item scale amotivation, which had a Cronbach’s alpha coefficient of .57 (Nunnally, 1978). For this reason, when operationalizing the subscales into autonomous and controlled variables, amotivation was dropped. In relation to their behavioral regulation, this sample displayed generally high levels of autonomous regulation toward CrossFit, while reporting generally low levels of controlled regulation. Overall, this sample reported high satisfaction in the relatedness and autonomy needs, followed by competence need satisfaction levels. Significant correlations existed between all three of the basic psychological needs in CrossFit. The satisfaction of each of the basic psychological needs was also positively related with autonomous motivation, while negatively related with controlled motivation.

ANOVA Results

In order to compensate for the three ANOVAs conducted, a Bonferonni adjustment was applied to result in a more stringent significance level \( (p < .01) \). The first ANOVA determined that there were no significant differences on any of the variables between males
and females \((p = .05)\). The second ANOVA tested for differences in all variables across age groups. Significant differences were detected in controlled regulation \((p = .004)\). Results from the post-hoc Tukey test revealed that the youngest age group (ages 18 to 24) had significantly higher \((p = .010)\) levels of controlled regulation toward Crossfit participation than older participants (ages 45–64).

A final ANOVA was conducted to determine whether differences existed in each of the variables across participants' frequency of CrossFit attendance. Results revealed that there were several differences across those who attended frequently (three times or more/week) in comparison to those who reported attending zero to two times per week. Participants who attended only zero to two CrossFit sessions per week had significantly lower reported autonomy \((p < .01)\) and competence \((p < .01)\) need satisfaction levels than did participants who attended three to five times per week.

Table 1

*Reliabilities, Simple Correlations, Means and Standard Deviations*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Autonomy</td>
<td>.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Competence</td>
<td>.651**</td>
<td>.79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Relatedness</td>
<td>.488**</td>
<td>.469**</td>
<td>.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Autonomous</td>
<td>.584**</td>
<td>.483**</td>
<td>.454**</td>
<td>.83</td>
<td></td>
</tr>
<tr>
<td>5. Controlled</td>
<td>-.203**</td>
<td>-.223**</td>
<td>-.157*</td>
<td>-.075</td>
<td>.70</td>
</tr>
<tr>
<td>Mean</td>
<td>6.13</td>
<td>5.80</td>
<td>6.18</td>
<td>4.70</td>
<td>1.94</td>
</tr>
<tr>
<td>SD</td>
<td>.894</td>
<td>.877</td>
<td>.890</td>
<td>.435</td>
<td>.648</td>
</tr>
</tbody>
</table>

Note: *Correlation is significant at the .05 level (two-tailed).
**Correlation is significant at the .01 level (two-tailed).
Predictors of Motivation

The first multiple linear regression was conducted to determine the extent to which each of the basic psychological needs (i.e., autonomy, relatedness, competence) predicted autonomous regulation toward CrossFit participation. The basic needs explained 38.8% of the variance in autonomous regulation, where both autonomy and relatedness basic need satisfaction levels were significant and positive predictors of autonomous regulation.

The second multiple linear regression examined the extent to which basic psychological need satisfaction predicted controlled regulation toward CrossFit participation. This model explained much less variance than in the autonomous regulation model. Only 5.7% of the variance in controlled regulation was explained by the basic psychological needs. No single basic need emerged as a significant predictor in this model. Results from both regression analyses can be seen in Table 2.

Table 2

<table>
<thead>
<tr>
<th>Multiple Linear Regressions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Variable</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Autonomy</td>
</tr>
<tr>
<td>Competence</td>
</tr>
<tr>
<td>Relatedness</td>
</tr>
<tr>
<td>$R^2$</td>
</tr>
<tr>
<td>$F$</td>
</tr>
</tbody>
</table>

Note: **p < .01.
Discussion

While ample research exists to support the favorable outcomes derived from internalized, or autonomous, regulations toward exercise participation and persistence, this study sought to add to the literature by specifically examining how psychological variables act as predictors of autonomous, and controlled, regulation within the specific context of CrossFit. Results largely supported previous literature grounded in SDT (Deci & Ryan, 1995; 2000) in sport and exercise settings.

One unique contribution that these findings offer to the literature on psychological predictors of self-regulation was the inclusion of the behavioral outcome of motivation, actual attendance frequency reports, beyond the psychological basis of examining motivated behavior. There were many significant differences in relation to the frequency with which participants attended CrossFit. Notably, participants who attended less often also reported lower levels of each of the psychological predictors including autonomous regulation to participate and all three basic psychological needs of competence, autonomy and relatedness. It is evident that fostering the basic needs of autonomy, competence, and relatedness are important considerations for CrossFit managers and other practitioners seeking to boost autonomous, and avoid controlled, aspects of motivation among participants. Much of the previous basic psychological need research has focused on the provision of autonomy as the source of fostering self-determined, or autonomous internally-regulated, motivation (Wilson & Rodgers, 2002; 2004), but results from this study demonstrate that enabling the basic need satisfaction of relatedness was an important element for autonomous motivation as well. While theoretically relevant, studies have rarely found evidence of relatedness needs satisfaction contributing to autonomous regulation without competence needs also predicting self-regulation. As such, these results suggest that perhaps aspects of the CrossFit context in particular are designed to satisfy different basic needs in the participants and therefore provide the basis for their autonomous, more desired, form of regulation.

These findings, which largely support the theoretical underpinnings of SDT (Deci & Ryan, 1995; 2000), are particularly relevant given the intense physical expenditures required to persist at CrossFit. The fact that participants are motivated to pursue the activity for the inherent interest they have in CrossFit, beyond any external forms of regulation to participate, such as the guilt felt from others or the seeking of rewards, is a noteworthy finding for sport and exercise practitioners to know. Having participants, who are connected with the physical activity and the environment itself, as well as feeling a sense of belonging, aside from any additional pressures, allows practitioners to focus on the CrossFit WODs and the "box" climate, rather than having to focus on external regulators like incentives for weight loss or attendance.
CrossFit “boxes” generally charge members between $85 and $250 for an unlimited membership per month. The majority of this sample (79.2%) reported paying for an unlimited CrossFit membership every month. It is possible that this expenditure on membership could be perceived as a source of pressure for members who would feel like they need to attend sessions to make use of their investment and participants would report a more controlling form of regulation toward the activity. Based on results, however, for a majority of these participants, this does not appear to be the case. It seems likely, in conjunction with SDT contentions, that these participants were motivated through more internal regulations, such as an inherent interest in the activity or the connection between CrossFit and other personal goals, like health and well-being. The only group that did not follow this line of behavioral regulation was the youngest age group, who had significantly higher levels of controlled regulation toward CrossFit than did their eldest counterparts. Brunet and Sabiston (2011) have also found that younger exercisers tend to hold more external regulations toward exercise than do older people. The focus on appearance and weight control, for example, are frequently cited sources of motivation for younger people to exercise, which reflect external, or controlling, behavioral regulators. These younger participants may also see the expenditure as being more relevant, due to their generally lower household incomes.

**Limitations and Future Research**

One limitation in this study is the self-selection bias that results from a cross-sectional design using a convenience sample (James, 2006). It is possible, that participants who chose to answer the survey were more avid participants in CrossFit than those who neglected to fill out the survey, which in turn might have created a bias in the number of autonomously regulated study participants. A second limitation comes in having analyzed the relationships between need satisfaction, behavioral regulation, and attendance without consideration for directionality of these relationships. It is plausible that while the need satisfaction can promote autonomous regulation, which can promote physical attendance, that frequency of attendance may also promote higher need satisfaction due to the increased time spent with others in the Box (relatedness), the practice of skills (competence), and through understanding the protocol (autonomy). Future studies should develop a model to test for the directionality of these relationships in order to better inform physical activity practitioners.

In order to compare the factors that were examined in this study with the way participants from other group fitness exercise activities perceive the psychological predictors and motivation toward their activities, future research should combine several fitness contexts together. This could include high-energy exertion activities that relate with CrossFit (e.g., spin class) or lower exertion activities (e.g., yoga) to explore the comparisons in basic need
This sample of participants was highly autonomously motivated to pursue CrossFit, which is tied to favorable behavioral outcomes; most notably persistence (Hagger & Chatzirantis, 2008). This should be the ultimate concern and goal for sport and exercise practitioners looking to recruit individuals and sustain participation. Given the unique environment that exists within CrossFit “boxes”, from the minimalist structural and equipment design, to the heavy emphasis on the community and relationships between members and coaches, practitioners from other group fitness facilities can benefit from these findings. Specifically, practitioners should strive to promote an environment which is conducive to meeting their members’ basic psychological needs, particularly autonomy and relatedness, in the hopes of retaining autonomously motivated, internally regulated participants who attend the fitness regimes three or more times per week.

References


Copyright of Journal of Sport Behavior is the property of University of South Alabama and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.