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Intentions To Drop-Out Of Youth Soccer: A Test Of The Basic Needs Theory
Among European Youth From Five Countries

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1 Abstract

2 Research pulling from self-determination theory (SDT; Deci & Ryan, 2000) indicates
3 that the quality of the social interactions between athletes and coaches, and athletes' ensuing
4 psychological responses, are critical determinants of intentions to drop out of youth sport.
5 Little is known regarding whether these processes hold across countries. Grounded in SDT,
6 this study tested the invariance of a model predicting youth sport dropout across five
7 European countries.

8 Seven thousand seven hundred sixty nine grassroots players (6641 males, 1020
9 females, (M age = 11.56, SD = 1.40) from youth soccer teams in five countries (England,
10 France, Greece, Norway, and Spain) completed a questionnaire tapping perceptions of coach-
11 provided autonomy support, basic psychological need satisfaction (i.e., autonomy,
12 competence and relatedness), soccer enjoyment, and intentions to drop out of soccer in the
13 next season. Data were analyzed using structural equation modeling.

14 The hypothesized model (autonomy support → basic needs → enjoyment →
15 intentions to drop out of soccer) showed acceptable fit to the data and provided evidence of
16 configural, factor loading and structural path invariance across the five countries.

17 This study supports the applicability of the basic needs theory model as a framework
18 to understand determinants of drop out intentions in sport among European youth across
19 national boundaries. Findings highlight a potential avenue for intervention that could impact
20 children's enjoyment of, and intentions to continue, playing soccer; namely, interventions
21 that specifically target autonomy supportive coaching.

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1 Intentions To Drop-Out In Youth Soccer: A Test Of The Basic Needs Theory Among
2 European Youth Soccer Players From Five Countries.

3 As the dust settled in London following the XXX Olympiad, in England and in many
4 countries around the world, the spotlight fell on sport participation as a potential vehicle to
5 fulfill a legacy dream of enhanced physical activity participation and subsequent
6 improvements in public and economic health. The growth in public and political (EU
7 Commission, 2007) recognition of sport as a context relevant to public health is relatively
8 recent. Yet for three decades research drawing upon theories of motivation has provided a
9 body of evidence that describes the conditions for youth sport participation to be sustained
10 and health conducive (see Duda, 2001; Duda & Balaguer, 2007; Quested & Duda, 2011b;
11 Roberts & Treasure, 2012). This literature indicates that sport engagement per se will not
12 automatically promote physical and psychological well-being and sustained physical activity
13 participation. Rather, this past work has suggested that it is the quality of the social
14 environments created by significant others (such as coaches) that holds implications for
15 athletes' ensuing psychological responses. These psychological processes are assumed to be
16 critical determinants of whether sport engagement is long-term and leads to enhanced
17 physical and mental health.

18 It is well documented that youth are at risk of dropping out of sport during the
19 adolescent years (Petlichkoff, 1996) and this trend is replicated worldwide. The potential for
20 children to disengage in organized sport is understood to be a major predictor of the growing
21 obesity crisis in Europe. On the contrary, being regularly active in childhood and teenage
22 years is recognized to protect against obesity risk factors (Haug et al., 2009). Thus, the
23 application of theoretically based principles of motivation as a means to explain sustained vs.
24 terminated engagement in youth sport remains an important research focus if the Olympic
25 legacy dream is to be fulfilled.

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1 Self-Determination Theory

2 Self-determination theory (SDT; Deci & Ryan, 1985, 2000; Ryan & Deci, 2007) has
3 been instrumental in advancing understanding of the determinants and consequences of
4 adaptive motivation in numerous achievement contexts, including education (Reeve, 2002),
5 business (Gagne & Deci, 2005) and sport (Ntoumanis, 2012). SDT recognizes that motivation
6 is a complex phenomenon that is responsive to environmental influence, both with respect to
7 the motivational capacity an individual may possess for a given task, as well as to the
8 regulation (or reasons) which underpins behavioral investment. According to SDT, when the
9 environment is supportive of athletes' basic needs, they experience a heightened sense of
10 autonomy (Deci & Ryan, 1985) competence (White, 1959) and relatedness (Baumeister &
11 Leary, 1995). As a result, sporting engagement will be more autonomously regulated and
12 ensuing cognitive, behavioral and emotional responses will be conducive to sustained
13 participation and both physical and psychological health.

14 Autonomy refers to the psychological need to feel a sense of volition, choice and
15 decision making and an internal locus of control. Relatedness infers feeling that one is
16 respected, connected and cared for by others in the context. The need for competence
17 describes feeling efficacious and effective with regard to the tasks at hand. The theoretically
18 predicted consequences of basic need satisfaction have been tested in the youth sport context
19 via numerous studies (see Ntoumanis, 2012). The degree of autonomy support provided by
20 coaches has most frequently been the targeted social-environmental variable in SDT-
21 grounded studies. According to the definitions initially proposed by Deci and colleagues
22 (Deci, Egharri, Patrick, & Leone, 1994), and further developed for application in different
23 achievement contexts (Mageau & Vallerand, 2003; Reeve, Bolt, & Cai, 1999) an autonomy
24 supportive coach would promote more self-determined behavioral engagement among
25 athletes through the manner of their inter-personal interactions. For example autonomy

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1 supportive coaches have been described to employ strategies such as providing a rationale for
2 activities, taking the athletes' perspective, acknowledging their feelings, offering choice
3 within limits, facilitating opportunities for decision making, initiative and input, and
4 providing non-controlling feedback.

5 A number of studies have indicated that autonomy-supportive coaching correlates
6 positively with indices of well-being and other adaptive behavioral outcomes in athletic
7 populations (Amorose, 2007). It is a central premise of basic needs theory, a sub-theory
8 within the overall SDT framework, that basic need satisfaction operates as a central
9 mediating mechanism underpinning these relationships (Ryan, 1995; Ryan & Deci, 2000b).
10 Evidence to support the implementation of basic needs theory in the context of youth soccer
11 has been found in studies conducted in various countries. For example, among soccer players
12 in England, subjective vitality was found to be related to the players' perceptions of
13 autonomy-supportive coaching and ensuing basic need satisfaction (Adie, Duda, &
14 Ntoumanis, 2008). Similar findings were revealed in a sample of competitive Spanish
15 athletes. The players' perceptions of autonomy support, self-determined motivation and need
16 satisfaction were positively related to their life satisfaction and self-esteem (Balaguer,
17 Castillo, & Duda, 2008).

18 Longitudinal studies have also supported the importance of maintaining adaptive
19 motivational climates over the soccer season. For example, Adie, Duda and Ntoumanis
20 (2012) revealed that over the course of a season, perceived autonomy support positively
21 predicted both basic need satisfaction and subjective vitality among British academy level
22 soccer players. In a further longitudinal investigation involving over 725 young soccer
23 players from Valencian soccer schools, changes in perceptions of autonomy supportive
24 coaching were associated with increases in basic need satisfaction and subjective vitality
25 (Balaguer et al., 2012). Conversely, perceived changes in controlling coach behaviors were

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1 significantly related to increases in thwarted basic needs (i.e., diminished and actively
2 blocked autonomy, competence and relatedness) and burnout symptoms reported by the
3 young players.

4 In the present study, we examined whether young soccer players' perceptions of
5 autonomy support provided by their coach predicted the players' degree of basic need
6 satisfaction and in turn, soccer enjoyment and intentions to drop out. Sport enjoyment has
7 long been recognized as an affective experience that plays a critical role in sport participation
8 being sustained and adaptive (Scanlan & Simons, 1992). Thus, we considered it important to
9 examine the role enjoyment played in a SDT-based model predicting drop out from youth
10 sport.

11 **The Universality of SDT**

12 A fundamentally central premise of SDT is the assumption that basic psychological
13 need satisfaction is a universal concept (Deci & Ryan, 2002). More specifically, it is
14 assumed that although the determinants of basic need satisfaction may be culturally specific,
15 the importance of supporting basic needs holds across all cultural groups (Deci & Ryan,
16 2000; Deci et al., 2001).

17 Despite the existence of a number of investigations that largely support the
18 predictions of basic needs theory in the sport context (e.g., Adie, Duda, & Ntoumanis, 2012;
19 Balaguer et al., 2012; Ommundsen, Lemyre, Abrahamsen, & Roberts, 2010), to date no
20 studies have tested assumed invariance in the hypothesized relationships between the coach-
21 created climate and athletes' ensuing motivational and emotional and behavioral responses
22 across samples from five countries.

23 In other contexts, research has examined the degree to which composite basic need
24 satisfaction or individual basic needs (and their associations with theoretically-relevant social
25 environmental dimensions and indicators of well- and/or ill-being) are invariant across

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1 different countries. However, this work has largely been conducted with adults (e.g., Chirkov
2 & Ryan, 2001; Deci et al., 2001). Less attention has been paid to testing invariance of SDT-
3 based process models among children and adolescents (see Ferguson, Kasser, & Jahng,
4 2011). Addressing these voids in the literature, this study will test a theory-based process
5 model of social-psychological predictors of intentions to dropout of sport among children and
6 youth from five European countries.

7 **The Present Study**

8 There is growing political and social expectation that community sport can be a
9 vehicle for promoting sustained physical activity among Europeans (Commission, 2011;
10 Union, 2011). Thus, an understanding of the social and psychological factors that may
11 determine the degree to which this potential can be fulfilled is an imperative step. On this
12 basis, and given soccer is recognized to be the most popular physical activity among
13 European youth (Kunz, 2007), this study tested the cross-country invariance of an BNT-based
14 model (autonomy support → basic needs → enjoyment → intentions to drop out of soccer)
15 in the context of grassroots soccer. Based on the predictions of SDT (Baumeister & Leary,
16 1995), we hypothesized that the model would be invariant across the five targeted European
17 countries. Specifically, we tested the model among samples of young soccer players from
18 England, France, Greece, Norway and Spain. In addition to the cultural differences between
19 these countries, there are also variations in the organization of grassroots soccer. For example
20 there may be variability in the number of times the teams train and play per week, as well as
21 differences in the number of players per team at different ages.

22 **Methods**

23 **Participants**

24 Participants were 7769 young athletes (6641 males and 1020 females) with a mean
25 age of 11.56 ($SD = 1.40$, ages ranged from 9 to 15 years) from five countries: France, Greece,

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1 Norway, Spain and England). The athletes practiced soccer with their team for an average of
2 3.97 hours per week ($SD = 1.60$) and had been actively involved in their team for about 3.27
3 seasons ($SD = 2.23$) prior to the data collection. Table 1 provides descriptive information for
4 players from each country individually.

5 **Procedure**

6 Prior to recruitment, the project was approved by the ethics board at each participant
7 University. The lead coaches of the soccer teams were invited to participate in the larger
8 project and the parents of the participants were informed of the details of what participation
9 would involve, both verbally and in writing. This information also highlighted the procedure
10 for withdrawal should the parents have preferred that their child did not participate. The
11 children were also invited to participate, and they received verbal and written information
12 regarding the nature of their voluntary participation in the study. Data collection was
13 completed by prior arrangement with the coach at the beginning or end of a training session,
14 or at another convenient time pre-arranged with the coach. The questionnaire took
15 approximately 25-45 minutes to complete (depending on the age and reading ability of the
16 child) and a trained research assistant was always present to address any questions that the
17 children had and to provide support with questionnaire completion in the case of younger
18 children. Full details of the protocol and procedures are described elsewhere (Duda et al., this
19 volume).

20 **Measures**

21 All written materials were initially drafted in English and then translated into the
22 other national languages by a native speaker. The translation-back translation procedure was
23 based on the recommendations from mainstream and sport psychology literature (Duda &
24 Hayashi, 1998; Harkness, 1999). Where available, previously validated versions of the
25 established scales in each language were used. Minor adaptations to the selected scales were

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1 made to customize for the targeted age range and context (i.e., grassroots soccer). To
2 facilitate the ease with which the questionnaire could be completed by younger children, all
3 scales were measured on a five point scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4
4 = agree, 5 = strongly agree).

5 ***Autonomy support.*** Five items (e.g., “My coach gives players choices and options”)
6 from the Health Care Climate Questionnaire (Williams, Grow, Freedman, Ryan, & Deci,
7 1996, as adapted for sport by Reinboth, Duda & Ntoumanis, 2004) measured the players’
8 perceptions of the degree of autonomy support provided by their coach. Players were asked to
9 think about what it has generally been like on this team during the last 3-4 weeks when
10 responding to the items. The modified scale had previously been validated for use among
11 athletes in England and Spain (e.g., Adie et al, 2012, Álvarez et al, 2009, Balaguer et al.,
12 2012).

13 ***Basic need satisfaction.*** Players were asked to respond to a series of 15 statements in
14 terms of how they relate to their feelings and experiences on their soccer team in the past 3-4
15 weeks. Five statements tapped the players’ basic need for autonomy, (e.g., “I feel free to
16 express my ideas and opinions” (Standage, Duda, & Ntoumanis, 2005). The validity and
17 reliability of the autonomy need satisfaction items have been supported in past research with
18 athletes (Reinboth & Duda, 2006). Five items (e.g., “I felt people valued me”) from the
19 acceptance subscale from the Need for Relatedness Scale (Richer & Vallerand, 1998) was
20 used to tap relatedness need satisfaction. The items were presented as full sentences to
21 facilitate the ease with which the children could read and understand each item. Perceived
22 competence was tapped via items (e.g., “I thought I was quite good at soccer”) from the
23 perceived competence subscale from the Intrinsic Motivation Inventory (McAuley, Duncan,
24 & Tammen, 1989) that assessed the players’ perceived competence. The psychometric
25 properties of the scales tapping basic need satisfaction have previously been demonstrated

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1 among Norwegian, Spanish and England youth sport participants (e.g., Adie et al., 2012;
2 Balaguer et al., 2012; Ommundsen et al., 2010).

3 **Enjoyment.** The enjoyment subscale from the Intrinsic Motivation Inventory
4 (McAuley et al., 1989) was employed to gauge the degree of enjoyment the players felt when
5 participating in soccer on their team during the last 3-4 weeks. Players responded to four
6 items (e.g., I enjoyed the activities in soccer). Studies in Norway (Lemyre, Roberts, &
7 Ommundsen, 2002), Spain (Garcia-Mas et al., 2010), and the England (Vazou, Ntoumanis, &
8 Duda, 2006) have supported the validity and reliability of the scale among similar samples of
9 athletes to those in this study.

10 **Intentions to drop out.** Players were asked to respond to 4 items designed to tap the
11 degree to which they intended to drop out of soccer next season. The items were further
12 developed and contextualized for this study from the items utilised by Sarrazin and
13 colleagues (2002) in their study of attrition in handball (Sarrazin, Vallerand, Guillet, Pelletier,
14 & Cury, 2002). Two items tapped intentions with regard to continue with or drop out of
15 soccer (e.g., “I intend to drop out of soccer at the end of this season”) and two items tapped
16 intentions to play for their team next season (e.g., “I am thinking of leaving my team”). The
17 latent variable for intentions to drop out was obtained after reversing the two inversely
18 worded items.

19 **Data analysis**

20 The hypothesized model was analyzed using structural equation modeling (SEM) with
21 Mplus (Muthén & Muthén, 1998-2012). Due to the categorical nature of the data, the
22 weighted least squares mean and variance adjusted (WLSMV) estimator was used. We also
23 employed the cluster command in Mplus to adjust standard errors and fit indices to account
24 for team membership. The invariance of the hypothesized model across the five countries was
25 tested in a number of steps with additional constraints imposed sequentially: configural

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1 invariance, factor loading invariance, structural paths invariance, and factor variance
2 invariance (there was only one factor variance in the model and that was in the case of
3 autonomy support). We did not test for threshold invariance as we were not interested in
4 latent mean differences across the five countries (Marsh, Nagengast, & Morin, In press).

5 Model fit was evaluated using the chi-square statistic, the Comparative Fit Index
6 (CFI), the Tucker-Lewis Index (TLI), and the Root Mean Square Error of Approximation
7 (RMSEA). CFI and TLI values greater than .95 and RMSEA values lower than .06 are
8 considered as indicators of excellent fit (Hu & Bentler, 1999). CFI and TLI values greater
9 than .90 and RMSEA lower than .08 are considered as indicators of acceptable fit (Marsh,
10 Hau, & Wen, 2004). In order to compare nested models, we compared the change in CFI
11 (Δ CFI) from a less to a more restrictive model. According to Cheung and Rensvold (2002), a
12 Δ CFI smaller than .01 indicates that the more constrained model fits as well as the less
13 constrained model (Cheung & Rensvold, 2002).

14 **Results**

15 The distributional properties of the items used in the process model and their
16 standardized factor loadings, collapsed across the five countries, are shown in Table 2.
17 Several items had a non-normal distribution, thus providing further justification for the
18 treatment of the data as categorical. We excluded the basic needs autonomy item 3 from
19 further analyses taking into account its distributional properties. Specifically, we noted more
20 than 70% ceiling responses in four countries; more than 88% agreed or strongly agreed with
21 this item in all countries. It is plausible that due to the recreational level sample we targeted,
22 participation in soccer was almost always purely voluntary and the need for autonomy was
23 supported or diminished in other ways in this context. If this were the case, the removal of
24 this item was warranted. An SEM analysis specifying a three, first order factor model for the
25 three psychological needs showed suppression effects, and standardized path coefficients

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1 above 1 with regard to the predictive effects of some of these needs on enjoyment, possibly
2 due to the high correlations among the three needs factors. Thus, we decided to model
3 psychological needs using a hierarchical model with a second order basic need satisfaction
4 factor underpinned by the autonomy (second-order factor loading across the whole sample =
5 .626), competence (.850), and relatedness (.925) first-order factors.

6 The hypothesized model showed acceptable to excellent model fit and provided
7 evidence of configural, factor loading and structural path invariance across the five countries;
8 all Δ CFIs were $< .01$. When the variance of autonomy support was also constrained, the
9 change in Δ CFI was marginally acceptable (Δ CFI = .01). The standardized path coefficients,
10 using the whole sample, are shown in Figure 1. Perceptions of autonomy support strongly
11 predicted reported psychological need satisfaction, which in turn predicted enjoyment. The
12 latter was a strong negative predictor of intention to drop out. This model fitted well: χ^2 (df =
13 318) 6366.116; $p < .001$; CFI = .935; TLI = .928; RSMEA = .049, CI 95% = .048 -.051. We
14 computed indirect effects using the delta method as bootstrapped standard errors are not
15 available for complex/multilevel data (Muthén & Muthén, 1998-2012). Substantial indirect
16 effects were found from autonomy support on enjoyment ($\beta = .490$; 95% CI = .473 to .508)
17 and intention to dropout ($\beta = -.327$; 95% CI = -.343 to -.311), and from psychological need
18 satisfaction on intention to dropout ($\beta = -.476$; 95% CI = -.494 to -.458).

19 Discussion

20 The aim of this study was to test the cross-cultural invariance of a BNT-based model
21 of motivation in youth sport (Deci & Ryan, 2000; Ryan & Deci, 2000a) among a large
22 sample of European youth recreational level soccer players. Specifically, we set out to test the
23 applicability and invariance (across countries) of the theory as a means to explain variability
24 in young players' intentions to drop out of soccer in the next season. Therefore, a focus of our

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1 investigation was to determine the degree to which the hypothesized model (autonomy
2 support → basic needs → enjoyment → intentions to drop out of soccer) structure and the
3 strength of the relationships between variables were invariant across five European countries,
4 namely England, France, Greece, Norway and Spain. Overall this study supported our
5 hypothesis with regard to the applicability of the basic needs theory model as a framework to
6 understand determinants of continued participation in sport in different countries/cultural
7 groups. Across all countries, we found autonomy support to predict basic need satisfaction
8 (+) which in turn predicted enjoyment (+) and dropout (-). We also found support for the
9 anticipated indirect effects operating in the model and support for cross-country invariance.

10 Research frequently points to the high dropout rates from sport once adolescents reach
11 their mid-teens (Petlichkoff, 1996). This discontinuation of regular sport participation is often
12 assumed to be a consequence of the emergence of other distractions such as schoolwork,
13 socializing with peers and also physique changes. The findings of this study adds to the case
14 behind growing speculation that the type of motivational climate within community sport
15 may play an important role in bucking the trend for children and young adults to be inactive.
16 While there is evidence that peers and parents have a role to play in young peoples' sport
17 continuation (Ullrich-French & Smith, 2009), the current results point to the potentially
18 crucial role of coaches and the environment they create in determining behavioral intentions
19 with regard to continued sport engagement. Thus, those who are interested in promoting
20 sustained physical activity among youth might look to manipulate and optimize social
21 features of the sport context itself, and progress beyond attributing flagging participation
22 rates to the inevitable changes, challenges and distractions that are experienced throughout
23 adolescence.

24 This study pointed to the important role of sport participation satisfying basic needs
25 and being enjoyable if young people are to be less likely to want to drop out of sport. While

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1 this sounds intuitive, and is perhaps likely to be what many sport coaches aim to achieve
2 when working with children, the findings of this study suggest that many coaches are
3 successful in creating an atmosphere or soccer experience in which players are likely to
4 enjoy, and in turn, sustain participation in soccer. In our sample of nearly 8000 young
5 athletes, the present study creates a compelling case that autonomy supportive coaching
6 which helps facilitate satisfaction of basic needs may be a key determinant of the degree to
7 which players are likely to enjoy their soccer participation and have a strong desire to remain
8 involved. The results indicated that autonomy supportive coaching predicted 47% of the
9 variance in basic need satisfaction (see figure 1). This particular issue requires further
10 exploration in empirical studies that consider a wider range of SDT-relevant social
11 environmental constructs. For example, future studies might also consider the role of
12 controlling coach behaviors (Bartholomew, Ntoumanis, & Thogersen-Ntoumani, 2010).

13 SDT suggests that the three basic needs of autonomy, competence and relatedness are
14 inter-related (Deci & Ryan, 2000), yet each of the three needs is uniquely defined. An
15 important consideration in investigations concerned with the role of the basic needs is how
16 they should be modeled for statistical analysis. Previous studies in sport have adopted
17 different approaches to the structural equation modeling of the basic need variables when
18 analyzing data. In some cases the needs are modeled independently, with the error terms
19 correlated as a means to account for shared sources of error (e.g., Quested & Duda, 2011a).
20 In other studies, a commonly adopted approach has been to create a need composite. This
21 analytical strategy tends to be employed in response to evidence of multicollinearity. In the
22 present study (and as has been reported elsewhere), it was not possible to model the needs
23 independently due to suppression effects. The observed cross-country invariance with regard
24 to this measurement model suggests that the approach adopted adequately represented the
25 data from all five countries. While the decisions made with regard to statistical modeling of

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1 the needs may have been appropriate in this and previous cases, there is a need to identify and
2 move towards a consistent approach that most appropriately captures the underlying
3 theoretical assumptions with regard to the needs as independent and yet inter-related
4 constructs.

5 As seems to be commonplace in the SDT-based sport literature (see Ntoumanis 2012
6 for a review), this study focused only on the environment created by the coach and did not
7 consider the climate created by the players on the team. Research has pointed to the role of
8 the coach-created climate in predicting the climate created by the young players themselves.
9 In their investigation spanning one full season, Joesaar et al (2011) found that the coaches'
10 autonomy supportive behaviors significantly predicted a more task-involving peer-created
11 environment in the team. These two aspects of the overall team involvement (i.e., dimensions
12 of the coach and peer-created climate) significantly predicted the players' intrinsic motivation
13 (Joesaar, Hein, & Hagger, 2012). This finding highlights a potential avenue for further study
14 that may help to explain further variance in the dependent variables of interest in the present
15 investigation; that is, to examine the interaction between coach and peer created climates and
16 collectively examine how these social-environmental features might predict future intentions
17 to participate in soccer.

18 While the findings of this study are informative, we also recognize some limitations.
19 The decision to target grassroots soccer was advantageous due to the activity's worldwide
20 appeal. While representative of the number of boys and girls playing grassroots soccer in the
21 targeted countries, the gender imbalance in our sample (see Table 1) restricted the possibility
22 to also test for gender invariance, or to generalize findings to female samples. The cross-
23 sectional nature of this investigation is also a limiting factor, as future participatory behaviors
24 are only understood with regards to intentions, not actual behaviors. Future research may
25 investigate whether the hypothesized model (autonomy support → basic needs → enjoyment

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1 → intentions to drop out of soccer) are also invariant over time, as well as whether the
2 proposed social-psychological processes also predict actual drop out vs. sustained
3 engagement in sport.

4 This study only considered the autonomy supportive elements of the climate created
5 by the coach as this has been the most studied feature of the coach-created climate in sport
6 from the perspective of SDT. Although perceived autonomy support predicted meaningful
7 level of variance in the basic needs and ensuing outcomes, the motivational climate in sport is
8 recognized to be multidimensional (Quested & Duda, 2011b). Other features of the coaches'
9 behavior may explain further variance in autonomy, competence and relatedness satisfaction
10 and warrant further investigation.

11 This study is also informative with regard to the applicability of and invariance in
12 hypothesized relationships across five European cultures. Whilst these countries have some
13 unique cultural features and the way in which grassroots soccer is structured, their
14 predominantly westernized sporting cultures may not be particularly diverse. Therefore, to
15 more rigorously undertake a cross-cultural test of the tenets of BNT, researchers may look to
16 replicate this study in an investigation involving samples recruited from more diverse cultural
17 contexts.

18 **Conclusion**

19 In sum, this study supports the relevance of the basic needs theory in explaining
20 intentions to drop out of youth sport contexts across 5 European countries. Results support
21 the universality hypothesis within SDT ((Deci & Ryan, 2000) and build upon investigations
22 testing BNT in the case of young athletes from a single country. Our findings highlight the
23 role of motivational processes in optimizing youth sport participation in community sport
24 settings in Europe. They also point to a potential avenue for intervention that could impact
25 children's enjoyment of, and intentions to continue, playing soccer; namely, coach education

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1 interventions that specifically target need supportive coaching. The multi-country trial in the
2 PAPA project (Duda et al., this edition) will be the first large-scale project to rigorously
3 evaluate a coach education program (Empowering Coaching™; see Duda, this edition) that
4 incorporates need supportive coaching as a central feature. Extending the present study, the
5 findings of the PAPA project will be informative with regard to the degree to which
6 intentions to stay involved in soccer might be malleable via the training of coaches to be
7 more need supportive, and the degree to which these hypothesized inter-relationships are
8 consistent across countries. This work will also reveal the degree to which these processes
9 hold over time.

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1 *Table 1.* Demographic Characteristics for Each Country

Country	<i>N</i>	<i>M</i> Age (<i>SD</i>)	Female %	Hours per week with the team	Seasons playing at the team
France	1248	11.40 (1.65)	2.7	4.72 (1.10)	3.33 (2.41)
Greece	1507	11.70 (1.48)	1.5	4.81 (1.67)	3.09 (2.00)
Norway	1397	11.81 (1.19)	41.2	2.47 (1.00)	4.42 (2.20)
Spain	2245	11.49 (1.82)	9.0	4.66 (1.19)	3.17 (2.17)
England	1372	11.41 (1.56)	13.6	2.77 (1.09)	2.43 (1.92)

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Table 2. *Distributional Characteristics and Factor Loadings of Items Included in the Process Model.*

Item								Standardized
	<i>N</i>	% floor	% ceiling	<i>M</i>	<i>SD</i>	Sk	K	Factor loadings
<i>Autonomy support</i>								
AS1 Choices and options	7653	7	25	3.66	1.13	-.74	-.06	.418
AS2 Encourages players to participate because players want to	7641	3	47	4.17	.98	-1.24	1.23	.488
AS3 Answering questions	7654	3	39	4.05	.99	-1.01	.69	.569
AS4 Explaining instructions	7658	2	39	4.06	.96	-.97	.68	.606
AS5 Important to enjoy	7599	3	48	4.15	1.02	-1.23	1.08	.648
<i>Autonomy need satisfaction</i>								
BNA1 Decided which activities	7587	28	18	2.75	1.44	.23	-1.25	.376
BNA2 Had a say on skills to work	7536	12	20	3.27	1.26	-.27	-.84	.650
BNA3 My choice to play soccer	7263	2	70	4.54	.85	-2.17	4.82	Not included
BNA4 Freedom to do my own way	7262	9	20	3.35	1.20	-.31	-.68	.593
BNA5 Had some choice what I did	7536	7	21	3.48	1.15	-.45	-.46	.706

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Item	Standardized							
	<i>N</i>	% floor	% ceiling	<i>M</i>	<i>SD</i>	Sk	K	Factor loadings
<i>Competence need satisfaction</i>								
BNC1 Was quite good at soccer	7576	3	28	3.82	.99	-.64	.11	.692
BNC2 Satisfied with what I did	7562	2	40	4.08	.96	-1.02	.84	.746
BNC3 I was skillful	7543	3	27	3.77	1.00	-.55	-.07	.717
BNC4 Felt quite competent	7510	3	27	3.77	1.01	-.63	.09	.676
BNC5 Felt I performed very well	7548	2	30	3.91	.94	-.71	.29	.789
BNC6 Did quite well	7573	2	35	4.07	.89	-.97	1.04	.763
<i>Relatedness need satisfaction</i>								
BNR1 Felt people supported me	7544	3	39	4.03	1.00	-1.04	.80	.758
BNR2 Felt people understood me	7548	4	29	3.78	1.06	-.69	.05	.740
BNR3 People listened to my opinion	7538	5	24	3.63	1.08	-.53	-.18	.700
BNR4 Felt people valued me	7378	4	28	3.75	1.06	-.64	-.05	.727
<i>Enjoyment</i>								
EN1 Enjoy activities	7478	2	54	4.36	.86	-1.58	2.82	.833

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Item	Standardized							
	<i>N</i>	% floor	% ceiling	<i>M</i>	<i>SD</i>	Sk	K	Factor loadings
EN2 Enjoy found soccer interesting	7472	1	61	4.48	.76	-1.69	3.34	.852
EN3 Enjoy felt time flew	7463	3	54	4.27	.98	-1.44	1.70	.655
EN4 Enjoy had fun	7470	1	72	4.61	.74	-2.31	6.16	.819
<i>Intention to drop out</i>								
ID1 intention drop out end of season	7473	75	4	1.47	.98	2.26	4.46	.770
ID2 intention continue next season*	7461	4	69	4.42	1.04	-1.93	3.02	.806
ID3 intention leave my team	7442	69	4	1.61	1.08	1.79	2.26	.727
ID4 intention to stay with current coach next season*	7429	6	49	4.01	1.20	-1.05	.17	.635

Note. % floor: percentage of players who chose category 1 (minimum), % ceiling: percentage of players who chose category 5 (maximum), Sk: Skewness, K: Kurtosis, *: reverse items. AS = Autonomy Support, BNA = Basic Need Autonomy, BNC = Basic Need Competence, BNR = Basic Need Relatedness, EN = Enjoyment, ID = Intention to Drop Out

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Table 3. *Goodness of Fit Indexes for the Invariance of the Process Model Across the Five Countries.*

Model	χ^2	df	CFI	Δ CFI	TLI	RMSEA
Configural invariance	6041.642	1576	.956	-	.951	.043
Invariant factor loadings	6534.432	1667	.952	.004	.949	.043
Invariant factor loadings and paths	6806.415	1695	.949	-.003	.947	.044
Invariant factor loadings, paths, and Autonomy Support variance	7866.753	1699	.939	.010	.937	.048

Note. df: degrees of freedom, CFI: Comparative Fit Index, TLI: Tucker-Lewis Index, RMSEA: Root Mean Square Error of Approximation. All models were estimated using WLSMV estimator and corrected for team-clustering. All chi-square values are statistically significant with $p < .001$

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1 *Figure 1.* Testing the hypothesized model across the five European countries.

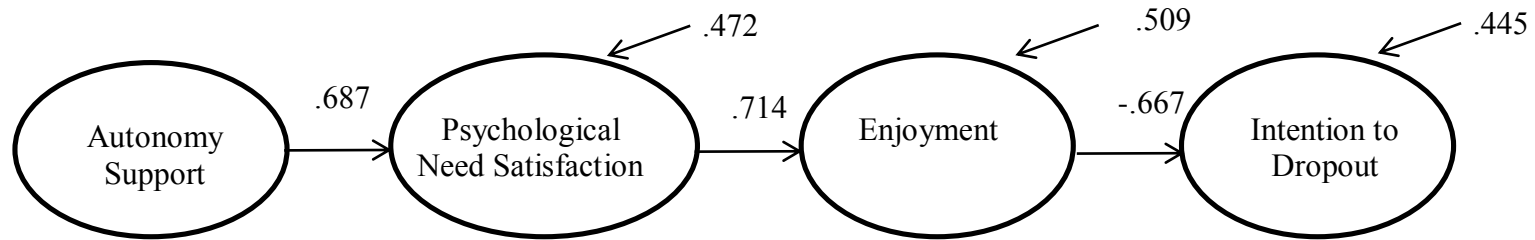
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7 *Note:* Factor loadings have been omitted for presentation simplicity purposes but are presented in Table 2 (second-order factor loadings are

8 reported in the Results). Arrows represent R^2 values.

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