

SATISFACTION OF BASIC PSYCHOLOGICAL NEEDS AND GOAL ORIENTATION IN YOUNG ATHLETES: A TEST OF BASIC PSYCHOLOGICAL NEEDS THEORY

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Abstract:

Basic psychological needs theory (BPNT) is one of six mini-theories of self-determination theory proposing that satisfaction of the needs for autonomy, competence, and relatedness is essential for humans to thrive. The aim of this study was to investigate whether a relationship exists between the satisfaction of basic psychological needs and goal orientation, as well as to examine the contribution of these needs to goal orientation in young athletes. Two hundred and sixty-one males (64.8%) and one hundred and forty-two females (35.2%), as a total of four hundred three athletes (age=13.13±1.80 years; sport experience=2.99±1.85 years) from team (basketball, football, handball, volleyball) and individual sports (taekwondo, tennis, swimming, boxing, wrestling, judo, canoeing, and karate), voluntarily participated in the study and completed the *Basic Psychological Need Scale* and *Task and Ego Orientation in Sports Questionnaire*. The results showed that task orientation was significantly correlated with the three psychological needs, whereas ego orientation was not correlated with any of them. Multiple regression analysis showed that need for competence and need for relatedness significantly contributed to task orientation ($F_{2,390}=33.573$, $p<.001$). The R^2 value indicated that approximately 15% of the variance of task orientation could be accounted for by needs for competence and relatedness. These results suggest that the satisfaction of need for competence and relatedness can enhance athletes' task orientation. These findings are discussed within the context of previous research, and some recommendations for application are proposed.

Key words: *goal orientation, autonomy, competence, relatedness*

Introduction

Human behavior has been examined by many motivational theories to date. Process theories of motivation have investigated dynamic processes that may influence behavior (e.g. Adams, 1965; Heider, 1958; Hull, 1951; Locke, 1968; Porter & Lawler, 1968; Porter, Lawler, & Hackman, 1975; Vroom, 1964), whereas other theories have focused on individual objectives and needs (e.g. Alderfer, 1972; Herzberg, 1966; Maslow, 1954; McClelland, 1967; Murray, 1938). The goal of these efforts was to understand why people behave in a certain way in various contexts and situations. A popular theory that has received attention in recent decades is self-determination theory (SDT; Deci & Ryan 2000; Ryan & Deci 2000). This theory is an organismic-dialectical theory proposing that humans are proactive organisms, and their natural or intrinsic functioning can be facilitated or hindered by specific social contexts (Deci, Eghrari, Patrick, & Leone 1994). Self-determination theory comprises six

mini-theories, one of which is basic psychological needs theory (BPNT).

BPNT explains three basic psychological needs: need for autonomy, need for relatedness, and need for competence. This theory posits that the satisfaction of these psychological needs is essential for humans to thrive, and maladjustments occur in contexts where these needs get thwarted (Vansteenkiste & Ryan, 2013; Chen, et al., 2014). The need for autonomy is a psychological need to feel a sense of freedom and have the opportunity to choose and make decisions. The need for relatedness means a desire to be respected, connected, and cared for by others in a person's life. The need for competence is described as a feeling to be efficacious and effective in various tasks that need to be accomplished (Quested, et al., 2013).

These three psychological needs have been suggested to contribute to proactivity, integration, and well-being of people (Vansteenkiste & Ryan, 2013). Contrary, frustration of the same psycholog-

ical needs can lead individuals to passivity, fragmentation, and ill-being. Self-determination theory posits that humans have a natural tendency for personal growth and need supportive circumstances that will provide opportunities to move along this positive tendency. In contrast, controlling, critical, or rejecting social contexts thwart the satisfaction of needs for autonomy, competence, and relatedness (Vansteenkiste & Ryan, 2013).

Research in sports psychology has examined basic psychological needs with regard to many other variables such as subjective vitality (Adie, Duda, & Ntoumanis, 2008), motivation (Martinet, Guillet-Descas, & Moiret, 2015), athlete engagement (Podlog, et al., 2015), etc. However, to the author's knowledge, no research has been conducted to investigate the contribution of basic psychological needs to goal orientation in athletes. This is surprising because the tenets of SDT indicate that a critical issue in the effects of goal pursuit and attainment concerns the degree to which people are able to satisfy their basic psychological needs as they pursue and attain their valued outcomes (Deci & Ryan, 2000: 227). Goal orientation is an important topic in sports and exercise research and may be related to basic psychological needs. Goal orientation is explained by the achievement goal theory (AGT).

Achievement goal theory distinguishes two types of goal orientation to explain whether individuals engage in an activity to develop their competence or to demonstrate it (Nicholls, 1984). According to Nicholls (1984), two types of goal orientation are ego orientation and task orientation. Task- and ego-goal orientation have been described as orthogonal (Duda, 2001), and individuals can be high or low in either or both. More ego-oriented people tend to experience performance worry (Newton & Duda, 1993), greater anxiety and concern, as well as less commitment to practice (Smith, Balaguer, & Duda, 2006) and lower persistence in cases of failure (Sideridis & Kaplan, 2011). When highly task-oriented athletes accomplish a task, they attribute this accomplishment to improvements in their personal skills and efforts. As a result of their high task orientation, they also tend to strive to improve their performance, to learn and develop (Barić & Horga, 2006). Personal development motivates individuals who are high in task orientation, whereas ego-oriented individuals are more motivated by activities in which they can prove their abilities (Dweck & Leggett, 1988). Individuals who are high in task orientation tend to use self-referenced criteria to evaluate their success and judge competence. They feel accomplishment in cases of mastering a task, learning new skills, and improving their performance. In contrast, individuals who are high in ego orientation tend to use other-referenced criteria to evaluate success. They feel accomplishment when

they outperform others or perform equally well with others by expending less effort (Kavussanu, White, Jowett, & England, 2011). Moreover, the findings of a recent research (Lameiras, Almeida & Garcia-Mas, 2014) revealed a positive correlation between cooperation and task orientation. The authors concluded that directing the players' focus on a task may promote prosocial behavior (Lameiras, et al., 2014).

The goal-orientation concept has been examined by researchers to reveal its correlates. For example, goal orientation has been examined with regard to effort invested, enjoyment, anxiety (van de Pol & Kavussanu, 2012), motivational climate, peer relationships (Smith, et al., 2006), cultural factors (Sari, Ilić, & Ljubojević, 2013), being an expert or novice athlete (Saies, Arribas-Galarrag, Cecchini, Luis-de-Cos, & Otaegi, 2014), sports ethics (Khairi, Assadi, Farahani, & Goodarzi, 2012), motivation (Gómez-López, Granero-Gallegos, Baena-Extremera, & Abrales, 2014) and perceived competence (Barić, Vlašić, & Ceci Erpić, 2014). Environmental factors can affect an individual's goal orientation. For example, Ames (1992) stated that classroom and other learning environments have various instructional demands, situational constraints, and psychological characteristics, all of which can influence cognitive and affective outcomes in students. Thus, relevant educational research showed the importance of determining the structures of the classroom environment that lead students to task orientation (Ames, 1992). However, the effect of environmental factors on goal orientation has not been fully elucidated in the sports and exercise science literature. Basic psychological needs theory may explain the determinants of goal orientation in athletes. More specifically, the satisfaction of basic psychological needs may contribute to athletes' adoption of ego and/or task orientation.

Deci and Ryan (2011) stated that satisfaction of basic psychological needs contributes to behavioral engagement because satisfaction of these needs provides energy and direction, which in turn leads individuals to sustain the same behavior. Therefore, BPNT has provided guidance for researchers in the investigation of various topics in different fields, such as work settings (Baard, Deci, & Ryan, 2004; Hetland, Hetland, Andreassen, Pallesen, & Notelaers, 2011), exercise participation (Vlachopoulos & Neikou, 2007), education (Niemiec & Ryan, 2009; Klassen, Perry, & Frenzel, 2012), health (Gunnell, Mack, Wilson, & Adachi, 2011), and elite sports (Hodge, Lonsdale, & Ng, 2008; Adie, Duda, & Ntoumanis, 2012). Studies that have been performed in the sports context have shown that the satisfaction of basic psychological needs is related to well-being (Milyavskaya & Koestner, 2011; Balaguer, et al., 2012), autonomous motivation (Milyavskaya & Koestner, 2011), lower cor-

tisol responses and anxiety intensity (Quested, et al., 2013), burnout (Hodge, et al., 2008), subjective vitality (Adie, et al., 2008), performance (Sheldon, Zhaoyang, & Williams, 2013) and partly flow and athlete engagement (Hodge, Lonsdale, & Jackson, 2009)

Self-determination theory is being expanded in terms of both breadth and depth. Research that broadens this concept appears to be providing valuable contributions to the literature. Therefore, the purpose of the present study was to investigate the relationship between basic psychological needs and goal orientation in young athletes, which had not yet been examined in the literature. Based on the tenets of BPNT (Deci & Ryan, 2000), it was hypothesized for this research that the satisfaction of basic psychological needs will contribute to task orientation (hypothesis 1), but will not contribute to ego orientation (hypothesis 2).

Methods

Participants

A total of 403 athletes voluntarily participated in the study (261 males or 64.8% and 142 females or 35.2%). The mean age of participants was 13.13 ± 1.80 years, and their sports experience was 2.99 ± 1.85 years. Two hundred eight (51.6%) subjects participated in team sports (basketball, football, handball, volleyball), and one hundred ninety-five subjects (48.4%) participated in individual sports (taekwondo, tennis, swimming, boxing, wrestling, judo, canoeing, and karate).

Measures

Basic Psychological Need Scale. Basic psychological needs were assessed using the Basic Psychological Need Scale, which was adapted from a measure of needs satisfaction at work (Ilardi, Leone, Kasser, & Ryan, 1993). Language adaptation of this scale into Turkish was performed by Kesici, Üre, Bozgeyikli, and Sünbül (2003). The scale consists of three subscales: need for autonomy (seven items), need for competence (six items), and need for relatedness (eight items). The answers to the items range from 1 (not true at all) to 5 (completely true). Basic Psychological Need Scale measures the three psychological needs that are described by SDT. Lower scores obtained from this scale indicate satisfaction of the needs. Kesici et al. (2003) tested concurrent validity by Edwards Personal Preference Schedule and significant correlations were obtained ($r = .36, .39, .58; p < .5$). Item-total correlations and item-remainder correlations were also checked and reported to be between .21 and .56 (Kesici, et al., 2003). The adapted scale has also been used by other researchers in sport setting (e.g. Bayraktar, 2011; Tekin, et al., 2012). Cronbach's alpha values

for the present research were found to be .73 for autonomy, .73 for relatedness, and .61 for competence.

Task and Ego Orientation in Sports Questionnaire. The Task and Ego Orientation in Sports Questionnaire (TEOSQ; Duda & Nicholls, 1992) measures ego- and task-motivational goals. This scale consists of seven items for task orientation and six items for ego orientation. The answers were scored on a 5-point scale. The answers ranged from 1 (strongly disagree) to 5 (strongly agree). The Turkish language adaptation of this scale was performed by Toros (2001, 2004). Toros (2004) reported that the results of factor analysis used in determining construct validity indicated that items were collected under 2 factors. These findings were the same as of the original scale. Dimensions explained 58.41% of the total variance. The results for test-retest reliability showed that the Pearson correlation coefficient between two different measurement times was .65 for ego orientation and .72 for task orientation. Recently, researchers have also used this scale on the Turkish sample and reported its reliability (e.g. Sarı, et al., 2013; Toros & Duvan, 2011). Cronbach's alpha values for the present research were .87 for task orientation and .85 for ego orientation.

Procedures

The data was collected either in sports clubs' premises during day time or after a training session in sports halls. Data collection was performed by the researcher in face-to-face interactions. The participants were informed about the aim of the study. They were also informed that the data, which would be obtained, would be used only for research purposes and that participation was voluntary. The necessary permissions and verbal consents for participation in the study were also obtained. Data collection took approximately 15 minutes.

Data analysis

The data were analysed using descriptive statistics to examine the minimum, maximum, mean, and standard deviation of the demographic characteristics and other variables. Pearson's correlation analysis was conducted to evaluate relationships between goal orientation and basic psychological needs. The contribution of basic psychological needs satisfaction to goal orientation was evaluated by multiple regression analysis (stepwise method). The suitability of the sample size for the regression analysis was also evaluated. An inspection of outliers was performed by calculating z scores. The distribution of the data was checked by evaluating histograms, skewness, and kurtosis to ensure normal distribution of the data. Multicollinearity was checked using Pearson's r , tolerance, and the variance inflation factor (VIF).

Results

Small sample sizes can be a problem in regression analysis because it can prevent generalizability of the findings. That is why the sample size should be sufficient for regression analysis (Hair, Anderson, Tatham, & Black, 1995). Tabachnik and Fidell (2007) postulated that the formula $N > 50 + 8m$ can adequately determine a proper sample size, where m is the number of independent variables. Thus, the number of subjects in the present study had sufficient power for the analysis. Outliers out of the zone of z scores of -3.3 and $+3.3$ (Pallant, 2007) were detected — two cases were outside the stated thresholds and thus excluded from further data analysis. Parametric analysis assumes that the data are normally distributed. Thus, the data distribution was evaluated by histograms, skewness, and kurtosis. When skewness and kurtosis values are between -1 and $+1$, parametric analysis can be conducted

(Huck, 2012; Savaş & Can, 2011). Skewness and kurtosis values are presented in Table 1, showing that a parametric analysis can be performed. Additionally, if independent variables in the regression model are highly correlated, then this indicates multicollinearity, which negatively affects regression analysis. Multicollinearity occurs in cases of high correlations among independent variables, where Pearson's r is higher than $.90$ (Pallant, 2007; Tabachnik & Fidell, 2007). Table 2 presents the results of Pearson correlation analysis, indicating that the correlation coefficient among the independent variables ranged from $.371$ to $.529$ (i.e. values far below $.90$). Multicollinearity can also be evaluated by tolerance and the VIF. Tolerance values which are higher than $.10$ and VIF values which are lower than 10 indicate that multicollinearity is not present. Tolerance and VIF values are presented in Table 3, indicating that multicollinearity was not present in this research.

Table 1. Descriptive statistics for goal orientation and basic psychological needs

	N	Minimum	Maximum	M	SD	Skewness	Kurtosis
TO	393	2.43	5.00	4.23	0.51	-.728	.389
EO	393	1.50	5.00	3.94	0.75	-.878	.575
Autonomy	393	7	26.00	16.57	3.69	-.032	-.240
Competence	393	10	26.00	16.39	2.94	-.081	.047
Relatedness	393	8	27.00	15.68	4.29	.338	-.339

TO=task orientation, EO=ego orientation

Table 2. Correlation between goal orientation and basic psychological needs

	1	2	3	4
1. TO	—			
2. EO	.407**	—		
3. Autonomy	-.184**	.038	—	
4. Competence	-.320**	-.009	.447**	—
5. Relatedness	-.314**	.030	.529**	.371**

TO=task orientation, EO=ego orientation

** $p < .001$

Table 3. Summary of multiple regression analysis for the variables that predicted goal orientation

Variable	Model 1			Model 2			Multicollinearity statistics	
	B	SEB	β	B	SEB	β	Tolerance	VIF
Competence	-.055	.008	-.320**	-.041	.009	-.236**	.863	1.159
Relatedness				-.027	.006	-.227**	.863	1.159
R ²		.10			.15			
R ² Change		.10			.4			
F		44.695**			33.573**			

Dependent variable: task orientation

** $p < .001$

Descriptive statistics reveal that participants in this sample reported the following: a) higher task orientation ($4.23 \pm .51$) than ego orientation ($3.94 \pm .75$); b) need for relatedness was the most satisfied need with the mean value of 15.68 ± 4.29 followed by need for competence (16.39 ± 2.94) and need for autonomy (16.57 ± 3.69).

Pearson's correlation analysis showed that task orientation was significantly correlated with need for autonomy ($r_{393} = -.184$, $p < .05$), need for competence ($r_{393} = -.320$, $p < .05$), and need for relatedness ($r_{393} = -.314$, $p < .05$). Ego orientation was significantly correlated with neither the need for autonomy ($r_{393} = .038$, $p > .05$), need for competence ($r_{393} = -.009$, $p > .05$), nor need for relatedness ($r_{393} = .030$, $p > .05$).

A standard stepwise multiple regression analysis was conducted to evaluate whether basic psychological needs predict task orientation. The linear combination of need for competence and need for relatedness was significantly related to task orientation ($F_{2,390} = 33.573$, $p < .001$). The coefficient of multiple determination was .15, indicating that approximately 15% of the variance of task orientation was accounted for by the combination of the needs for competence and relatedness.

An enter method regression analysis was also conducted to determine how well basic psychological needs predict ego orientation. The combination of the three basic psychological needs was not significantly related to ego orientation ($F_{3,389} = .802$, $p > .05$).

Discussion and conclusions

The aim of the present study was to investigate the relationship between basic psychological needs and goal orientation in young athletes. It was also sought to determine whether basic psychological needs predict goal orientation. The results showed that the basic psychological needs of BPNT (need for autonomy, need for competence, and need for relatedness) were significantly correlated with task orientation, whereas no significant correlation was found for ego orientation. Multiple regression analysis was performed to determine whether basic psychological needs predict goal orientation, showing that the satisfaction of need for competence and relatedness significantly contributed to task orientation. Conversely, none of the basic psychological needs significantly explained ego orientation, which confirmed our initial hypothesis.

The present findings partially support the concepts of BPNT, which explains that the satisfaction of need for autonomy, competence, and relatedness is important for people of all ages to experience growth, integration, and well-being. Nonoptimal outcomes, such as anxiety, grief, and hostility, can occur when these needs are not satisfied (Ryan & Deci, 2000). Supporting BPNT, the needs for competence and relatedness appeared in the present

research to contribute to task orientation in the athletes. We initially hypothesized that task orientation would be related to basic psychological needs. Previous studies indicated that task orientation is positively related to adaptive psychological and behavioral responses in young athletes (Duda & Whitehead, 1998; Roberts, 2001). For example, soccer players who scored high on task orientation and low on ego orientation experienced more enjoyment and value when playing soccer compared with the low task-oriented athletes (Stephens, 1998). In contrast, ego orientation was reported to be more related to negative outcomes (Walling, Duda, & Chi, 1993). Our initial hypothesis was partially confirmed by the contribution of the needs for competence and relatedness to task orientation.

SDT is a macro-theory of motivation, emotion, and development of people. It focuses on factors that facilitate or impede assimilative and growth-oriented processes in people (Niemic & Ryan, 2009). Task orientation is inevitably more beneficial and adaptive than ego orientation (Stephens, 1998; Walling et al., 1993; Smith et al., 2006) and it could be related to or affected by the satisfaction of basic psychological needs.

The need for competence is a desire to feel effective when interacting with the environment (Niemic & Ryan, 2009). The satisfaction of need for competence refers to a more general, affective experience of effectiveness that results from mastering a task (Broeck, Vansteenkiste, Witte, Soenens, & Lens, 2010). Athletes who are in the environment where opportunities to satisfy need for competence are provided can be considered highly task oriented. Competence is a feeling of being effective and able (Sheldon & Elliot, 1999), and performing poorly in a sport can lead athletes to feelings of incompetence (Vallerand, 2004). Thus, satisfaction of athletes' need for competence can lead them to setting self-referenced criteria, attempting to master a task, and developing their abilities instead of feeling incompetent and evaluating themselves according to the performance of other athletes. For example, students who were higher in the satisfaction of need for competence were found to exert more effort in the physical education context (Taylor & Lonsdale, 2010). Additionally, Barić et al. (2014) revealed in a very recent research, which was performed in the physical education context, that pupils who had higher perception of competence used more self-referenced criteria to evaluate their competence; they strived to demonstrate mastery and to seek possibilities to improve their existing abilities, all of which are characteristics of high task goal orientation (Barić, et al., 2014). For athletes, the dissatisfaction of need for competence may result in doubting their own abilities, investing less effort, and being reluctant to learn new skills or reach their potential, which may result in a low task orientation.

According to the present findings, the satisfaction of need for relatedness, which is a desire to be connected to significant others in one's interaction with the environment (Vallerand, 2004), contributed to the athletes' task orientation. A recent study also showed that the satisfaction of need for relatedness contributed to intrinsic motivation to know (Banack, Sabiston, & Bloom, 2011). The intrinsic motivation to know refers to an inherent desire to learn, which is a characteristic of a high task orientation. Relevant findings also showed that the satisfaction of need for relatedness was related to many positive outcomes in sports and exercise contexts (Adie, et al., 2012; Li, Wang, Pyun, & Kee, 2013; Paradis, Cooke, Martin, & Hall, 2014). Thus, the satisfaction of need for relatedness may provide athletes with feelings of security, happiness, and well-being. This in turn may lead them to invest more effort, to try to do their best, to enjoy learning new skills, and master techniques instead of comparing themselves with similarly skilled peers and trying to win but not improve their abilities. The need for relatedness (or quite similar terms) has been discussed in literature for many decades. Maslow placed need for love and belongingness at the centre of his motivation hierarchy (Maslow, 1968), indicating the importance of this crucial need. Furthermore, Chhuon and Wallace (2012) stated that need for belongingness represented a fundamental individual need that was fulfilled via interpersonal structures. The present research may also contribute to the explanation for why the satisfaction of need for relatedness significantly contributed to task orientation in young athletes.

The findings of the present study surprisingly showed that need for autonomy did not predict task orientation in young athletes. Deci and Ryan (2000) stated that autonomy concerned the experience of integration and freedom, and it was an essential aspect of healthy human functioning. Thus, it was considered in the present study that the satisfaction of need for autonomy would result in higher task orientation in athletes. Coaching behavior that contributes to the satisfaction of need for autonomy was shown to enhance motivation in student athletes (Amorose & Anderson-Butcher, 2007). Felton and Jowett (2012) stated autonomy-supportive environments could create a social situation that enabled individuals to work toward achieving goals reflecting their personal aims. Considering the statements of Felton and Jowett (2012), fulfilling the need for autonomy should be related to task orientation, which regards achieving one's personal goals and potential. The satisfaction of autonomy and providing people with freedom to make their own decisions can result in higher confidence in their skills and capabilities (Wang & Netemeyer, 2002), which in turn may enhance their desire to achieve their best performance (i.e. task orientation). However,

the present findings did not confirm this postulation (i.e. autonomy did not predict task orientation). One of the reasons for this contradiction could be related to cultural factors.

According to Hofstede (1980), values and beliefs, which constitute the characteristics of a culture can affect many social issues. This author labeled countries according to their scores on many dimensions, one of which was individualism vs. collectivism (Hofstede, 1980). Toros (2005) stated that Turkey has both collectivist and individualistic characteristics, whereas Hofstede (2001) indicated that Turkey is a collectivist country. Markus and Kitayama (1991) stated that people from different cultures have strikingly different constructs of the self, others, and interdependence of these two. Iyengar and Lepper (1999) performed an interesting study demonstrating that personal choice or the level of need for autonomy may change depending on the culture. Thus, cultural features of the participants' environments in the present study may explain why the satisfaction of need for autonomy did not contribute to task orientation in the athletes.

Athletes' age might be another explanation to the insignificant relationship between autonomy and task orientation. It has been suggested that people have a tendency to seek out autonomy (Deci & Ryan, 2000). Because of autonomy need, over time, people can find more ways to feel a sense of volition in life and they can gain the ability to make more self-appropriate choices. Therefore, age could be related to autonomy (Sheldon, Houser-Marko, & Kasser, 2006). This study's sample consists of young athletes. Thus, the findings of the present study should be interpreted considering the athletes' age. If the same study would have been performed in a group of older athletes, different results regarding autonomy may have been obtained.

It is important to note that the present findings stem from the correlational data. Although the predictive role of basic psychological needs was tested in this study, future research in sport context with an experimental design could provide more explanations to this topic.

Secondly, self-report measures were used in this research. More objective measures in experimental designs can strengthen future research. As a third limitation, the findings of this research represent the characteristics of Turkish young athletes from certain sport branches and this limits the generalizability of the findings. The purpose of this study was to explore the relationships between basic psychological needs and goal orientation, as well as to evaluate the contribution of basic psychological needs satisfaction to goal orientation in young athletes. The findings were partially in line with the tenets of BPNT, explained by SDT. The findings showed that the needs for autonomy, competence, and relatedness were significantly correlated with

task orientation, and the needs for competence and relatedness were the only contributors to task orientation. Ego orientation was not correlated with and not explained by any of the basic psychological needs.

Consistent with the results of this study we may conclude that the environments in which athletes feel competent and skillful enhance their task orientation. Positive feedback, recognizing and emphasizing athletes' strengths, and not letting them fail may fulfill their need for competence, which in turn contributes to task orientation. Making athletes feel cared for and loved by the significant others (e.g. sports coaches, family members, close friends, teammates, and classmates) may also lead them to be more task-oriented. Such need-supportive environments help athletes in having fun while training,

attempting to develop their skills, enjoying learning new techniques and tactics, improving their performance, experiencing less performance anxiety, setting higher goals, and becoming more persistent in sports activities, all of which are characteristics of the high task orientation.

Future research in sports and exercise psychology may investigate basic psychological needs in relation with the other important outcomes such as burnout, performance, sports participation, personality, well-being, etc. Also, the investigation of the relationships in different cultures may reveal cultural differences. Analyzing basic psychological needs with the effects of age, gender and sport type could also enable the researchers to get a deeper insight into the issue.

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