COPING IN SPORT: A TEST OF ELLIOT’S HIERARCHICAL MODEL OF APPROACH AND AVOIDANCE MOTIVATION

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Abstract:
Effective coping during athletic competition has been shown to benefit performance. This study was designed to investigate the direct and indirect effects of personality and achievement motivation on athletes’ coping style. Elliot’s Hierarchical Model of Approach and Avoidance Motivation (Elliot, 1999; Elliot & Church, 1997) was used as the framework to assess participants’ (N=258) temperament and achievement goal tendencies. The Coping Function Questionnaire for Sport (Kowalski & Crocker, 2001) assessed coping style (i.e. problem, emotion, and avoidance). Results indicated a positive relationship between approach temperament and problem-focused coping as well as avoidance temperament and avoidance coping. Mediation analysis revealed a small indirect effect between approach temperament, mastery approach goals, and problem-focused coping. In addition, a small indirect effect existed between avoidance temperament, mastery avoidance goals, and avoidance coping. These findings illuminate the relationship between personality and coping, and suggest that Elliot’s hierarchical model can help predict the coping style an athlete will likely adopt during competition.

Key words: personality, temperament, coping in sport, achievement goals, mediation

Introduction
The competitive sport environment presents athletes with a variety of stressful situations (Mel-lalieu, Niel Hanton, & Fletcher, 2009; Anshel & Wells, 2000). The inability to cope with stress has been shown to be a significant factor in the failure of athletes to function fully during performance (Lazarus, 2000). To better understand the coping process contemporary literature has explored the relationship between personality and coping among athletes (Kaiseler, Polman, & Nicholls, 2012; Anshel, Kang, & Miesner, 2010). The association between these variables can be further illuminated by viewing the relationship from a motivational standpoint. Therefore, this study was designed to investigate the direct and indirect effects of personality and achievement motivation on athletes’ coping style via Elliot’s hierarchical model of approach and avoidance motivation (Elliot, 1999; Elliot & Church, 1997).

Coping in sport
Lazarus and Folkman (1984) describe coping as constantly changing cognitive and behavioral efforts to manage stressful situations. It is important to distinguish between the terms “style” and “strategy,” as they can be easily misconstrued. Coping style is a broad term that dictates how an individual typically responds to stressors. On the other hand, coping strategy is a situational construct that reflects how an individual handles particular situations (Anshel, 1996; Anshel & Anderson, 2002). Thus, one’s coping style determines the particular strategy that will be employed when a stressor arises.

Multiple studies have shown that the ability to cope with stress can have a meaningful effect on athletic performance (Gaudreau, Nicholls, & Levy, 2010; Reeves, Nichols, & McKenna, 2011). For example, athletes who report feeling multiple stressors perform significantly worse than those who do not (Anshel, 1990). Coping intervention has been shown to improve the use of coping strategies which, in turn, positively effects performance (Anshel & Anderson, 2002).

Although the literature has conceptualized coping style in a variety of ways, recent research has tended to focus on three central constructs: problem-focused (also labeled as approach- or task-focused), emotion-focused, and avoidance (Allen, Greenlees, & Jones, 2011; Kaiseler, Polman, &
Traditionally, the primary emphasis has been on two in the study of motivation in achievement settings. Avoidance Motivation Hierarchical Model of Approach and Elliot’s Achievement Goals and and avoidance temperament serve as instigators of activity toward such stimuli. Functionally, approach stimuli, as well as an affective and behavioral reactivity toward such stimuli. Avoidance coping, on the other hand, includes behavioral or psychological efforts to disengage from the stressful situation (Nicholls & Polman, 2007).

Approach and avoidance temperament

Personality psychology has conceptualized the basic structural dimensions of personality in several different ways. In sport, the Big Five model of personality (McCrae & Costa, 1999) is widely accepted, and has been employed in a multitude of studies (for examples, see Aidman & Schofield, 2004; Allen, Greenlees, & Jones, 2011). The model is composed of five basic personality dimensions: extraversion, neuroticism, openness, agreeableness, and conscientiousness; with extraversion and neuroticism being two central concepts. The work of Elliot and colleagues posits that extraversion and neuroticism, combined with the central constructs of affective dispositions (Tellegen, 1985) and motivational systems (Gray, 1970) can be combined to create two distinct temperaments which reflect rudimentary facets of psychological functioning. Thus, temperament refers to “core individual differences in emotional, motor, and attentional reactivity and (rudimentary) regulation” (Elliot & Thrash, 2010, p. 867).

Approach temperament represents a neurobiological sensitivity to positive stimuli (Elliot & Thrash, 2002). This sensitivity is accompanied by an affective and behavioral reactivity toward such stimuli. On the contrary, avoidance temperament represents a neurobiological sensitivity to negative stimuli, as well as an affective and behavioral reactivity toward such stimuli. Functionally, approach and avoidance temperament serve as instigators of motivational tendencies.

Elliot’s Achievement Goals and Hierarchical Model of Approach and Avoidance Motivation

Achievement goals represent a central construct in the study of motivation in achievement settings. Traditionally, the primary emphasis has been on two distinct goal types: mastery and performance (Elliot & Church, 1997; Nicholls, 1984). Mastery goals refer to the development of competence through task mastery while performance goals focus on the demonstration of competence relative to others (Elliot & McGregor, 2001). In the 2 x 2 achievement goal framework (Elliot & McGregor, 2001), mastery and performance goals are combined with an individual’s predisposition to either approach success or avoid failure, yielding four distinct achievement goals: mastery approach (MAp), mastery avoidance (MAv), performance approach (PAp), and performance avoidance (PAv).

Specifically, as detailed by Elliot and McGregor (2001), MAp goals are made up of positively valenced intrapersonal strivings. For example, a tennis player abiding by MAp goals would aspire to improve his or her own skill with each match. Similarly, PAp goals are made up of positively valenced strivings taken in a normative context. The tennis player adopting PAp goals would judge success based on how he or she performed in comparison to others on the court; the main goal being to perform better than normative standards. MAv goals involve striving to avoid performing below intrapersonal standards. In this case, the tennis player’s main focus would be not to miss a serve, to hit forehands with the same consistency as in the past, or to avoid playing worse in general. Lastly, PAv goals involve striving to avoid performing poorly in a normative context. This negatively valenced goal could be illustrated by an athlete striving to avoid playing worse than those around him or her.

Achievement goals are central in Elliot’s Hierarchical Model of Approach and Avoidance Motivation as the mediators between a number of possible antecedents and outcomes (Elliot & Church, 1997; Elliot, 1999). Specifically, Elliot (1999) outlined six categories of antecedents (i.e. competence-based, self-based, relationally based, demographics, environmental, and neurophysiological predispositions) that would be mediated to achievement outcomes in achievement motivated contexts. The present paper examined Elliot’s temperaments, which fall in the neurophysiological predisposition antecedent category as the antecedents, and coping with stress as the outcomes. Past research has demonstrated that variables within this category have been mediated or partially mediated by the approach-avoidance achievement goals (Lochbaum, Litchfield, Podlog, & Lutz, 2013; Lochbaum, Stevenson, & Hilario, 2009).

In summary, temperaments and goals play different roles in the motivation process. Temperaments are viewed as actuators of motivational tendencies. Several studies examining the relationship between temperament and goals have revealed strong correlations between approach temperament and both MAp and PAp goals (Elliot & Thrash,
2010; Bjørnebekk & Diseth, 2010). Likewise, strong relationships have been shown to exist between avoidance temperament and MAv and PAv goals. Additionally, Bjørnebekk and Diseth’s (2010) work revealed a significant relationship between avoidance temperament and PAp goals. Each of these studies, however, employed students in an educational setting. The degree to which these associations exist among athletes is uncertain. The purpose of this study was to examine the relationship between temperament and achievement goals among athletes, and to examine the prognostic role they play in the coping process.

Methods

Participants

Participants were 258 (212 males; 46 females) students at a southern United States university. The mean participant age was 20.46 years (SD=1.75). The mean number of years participants reported being involved in sport was 9.74 (SD=5.11). All participants were either enrolled in a personal fitness class or were part of an intramural basketball team.

Instruments

Achievement goals. The Achievement Goals Questionnaire for Sport (Conroy, Elliot, & Hofer, 2003) was used to assess participants’ goals assumed during competition. The 12-item inventory allowed the participants to rate questions on a 7-point Likert-type scale ranging from “Not at all like me” to “Completely like me.” The instrument was designed to measure the four achievement goal orientations using three statements per subscale (MAp: “I want to perform as well as I possibly can;” PAp: “It is important for me to perform well compared to others;” MAv: “Sometimes I’m afraid that I may not perform as well as I’d like;” and PAv: “My goal is to avoid performing worse than everyone else”). A higher score on any of the achievement-goal subscales indicated a stronger orientation toward that particular achievement goal. Cronbach’s alpha coefficients for the subscales were .76, .83, .82, and .83 for the MAp, MAv, PAp, and PAv goals, respectively.

Approach and avoidance temperament. Temperament was measured using Elliot and Thrash (2010) 12-item inventory. Similar to the Achievement Goals Questionnaire for Sport, a 7-point Likert-type scale was used. Items reflected either approach-temperament qualities (“I’m always on the lookout for positive opportunities and experiences”) or avoidance temperament qualities (“I react very strongly to bad experiences”). Cronbach’s alpha coefficients for the subscales were .75 and .76, respectively for the approach and avoidance temperaments.

Coping. The Coping Function Questionnaire (CFQ), an 18-item, 7-point Likert-type inventory, was employed in this study. The CFQ, developed by Kowalski and Crocker (2001), assessed the dimensions of coping with stress based on three functional themes: problem-focused coping, emotion-focused coping, and avoidance coping. Preceding this section of the questionnaire, the participants were instructed to write a particularly stressful situation they had personally encountered during competition and complete the inventory based on their answer. Four examples of stressful situations were presented including: conflict with the other team, making an embarrassing play, horrible call by the referee, or argument with a teammate. These stressors have appeared in several previous studies as commonly experienced in the competitive environment (Anshel & Wells, 2000; Mellalieu et al., 2009). Coping, in this study, was a function of how the individual usually handles the chosen stressor. Coping was not presented as a specific or singular occurrence, rather as a habitual reaction. Respondents were instructed to complete the CFQ based on how they typically responded to their chosen stressor. Cronbach’s alpha coefficients for the subscales were .84, .85, and .88, respectively for problem-focused, emotion-focused, and avoidance-focused coping.

Data collection procedures and analyses

The participants were either enrolled in personal fitness and wellness classes or competed in intramural basketball. Following approval from instructors, surveys were completed at the beginning of personal fitness and wellness classes. Intramural participants were recruited either before or after competing. After being briefed, all of the participants completed the survey in the presence of the lead researcher.

Data analysis initially used Cronbach’s alpha to examine internal consistency of the self-report measures. Second, Pearson correlations were calculated to describe the sample and evaluate the correlations among the variables. As discussed by Baron and Kenny (1986), regression analysis can be used to determine the extent to which a mediating variable accounts for the relation between the predictor and dependent variables. The process can be employed after the following three conditions are met: the independent variable affects the mediator, the independent variable affects the dependent variable, and the mediator affects the dependent variable. The final step is to determine whether the direct relationship between the independent variable and dependent variable (labeled as $c$ in Figure 1) is reduced (labeled as $c’$ in Figure 1) with the inclusion of a mediator. Full mediation is defined when $c$ is reduced to zero (Baron & Kenny, 1986). Thus, to determine whether mediation was present, several
multiple regressions were conducted to examine the proposed theoretical model involving temperament as the independent variable, achievement goals as the mediational variable, and coping style as the dependent variable.

**Results**

**Mediation results**

Table 1 presents correlations among all variables as well as the means and standard deviations for each. On average, the participants were more approach-oriented than avoidance-oriented in their temperaments, higher in the MAp-oriented goal than in the other achievement goals, and more likely to use problem- and emotion-focused coping styles than the avoidance style. Examination of the Pearson correlations revealed the approach temperament to be modestly related to the MAp goal ($r=.53$), with little correlation to the other achievement goals. The avoidance temperament was not strongly correlated to any of the goal orientations. With regard to temperament and coping, the approach temperament was modestly related to problem-focused coping, and avoidance temperament was modestly related to emotion-focused coping.

**Table 1. Pearson correlations amongst all study variables**

<table>
<thead>
<tr>
<th>Variables</th>
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<tbody>
<tr>
<td>1 Approach Temperament</td>
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<tr>
<td>2 Avoidance Temperament</td>
<td>-.15*</td>
<td>1.00</td>
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<tr>
<td>3 Mastery Approach Goal</td>
<td>.53**</td>
<td>-.34**</td>
<td>1.00</td>
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<td>4 Mastery Avoidance Goal</td>
<td>.10</td>
<td>.19**</td>
<td>.10</td>
<td>1.00</td>
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<tr>
<td>5 Performance Approach Goal</td>
<td>.10</td>
<td>.13*</td>
<td>.23**</td>
<td>.07</td>
<td>1.00</td>
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<tr>
<td>6 Performance Avoidance Goal</td>
<td>-.08</td>
<td>.27**</td>
<td>-.23**</td>
<td>.30**</td>
<td>.46**</td>
<td>1.00</td>
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<tr>
<td>7 Problem Focused Coping</td>
<td>.41**</td>
<td>-.14*</td>
<td>.43**</td>
<td>.07</td>
<td>.02</td>
<td>-.08</td>
<td>1.00</td>
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<tr>
<td>8 Emotion Focused Coping</td>
<td>.38**</td>
<td>-.11*</td>
<td>.25**</td>
<td>.10</td>
<td>.08</td>
<td>-.04</td>
<td>.52**</td>
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<tr>
<td>9 Avoidance Focused Coping</td>
<td>-.13*</td>
<td>.32**</td>
<td>-.26**</td>
<td>.22**</td>
<td>.05</td>
<td>.33**</td>
<td>-.16**</td>
<td>-.10</td>
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<td>Mean</td>
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<td>6.18</td>
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<td>4.29</td>
<td>4.88</td>
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<td>Standard deviation</td>
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<td>.78</td>
<td>1.39</td>
<td>1.26</td>
<td>1.53</td>
<td>1.02</td>
<td>.91</td>
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*Note.* Cronbach’s alpha >.70 for all variables; **p<.01; *p<.05.
focused and emotion-focused coping (r=.41 and .38, respectively) while avoidance temperament was mildly related to avoidance coping (r=.32). All subscales had acceptable Cronbach’s alpha values (> .70).

The first step in the regression analysis was to examine the relationship between coping style and both the temperament and achievement goals (Table 2). As expected (Kaiseler, et al., 2012), problem-focused coping had a positive significant relationship with approach temperament (β=.40). Unexpectedly, however, problem-focused coping revealed no relation (either negative or positive) to avoidance temperament. With regard to achievement goals, problem-focused coping was only related to MAP goals (β=.48). Likewise, emotion-focused coping exhibited a significant positive relationship with approach temperament (β=.38) and MAP goals (β=.26); however, no other significant relationships existed. Correlation analysis of avoidance coping revealed a significant positive relationship with avoidance temperament. In addition, a significant positive relationship existed with both MAV and PAV goals, while a negative relationship existed with MAP goals.

Given these relationships, the final model examined the mediating effect that the achievement goals had on the relationship between temperament and coping style. Based on the basic model, the mediating effect of MAP goal was examined for approach temperament and problem-focused coping. As shown in Figure 1, regression analysis revealed partial mediation as the standardized regression coefficient was reduced by .15. The mediating effect of MAP goals was also examined in the relationship between approach temperament and emotion-focused coping. Results demonstrate that mediation does exist, but very little as the change in the standardized regression coefficient was reduced from .38 to .32.

There were significant relationships among avoidant coping and avoidance temperament as well as MAP, MAV, and PAV goals. Thus, mediating effects were examined for all three achievement goals. A heterogeneous sample was used to increase generalizability of results, i.e. to ensure the results were not sport-, gender-, race-, or competition-level specific. Findings revealed an association between temperament distinction and each of the three coping styles. Furthermore, three of the four achievement goal sets were to some extent shown to be a predictor of coping style. However, tests for the mediation revealed little indirect effect.

**Discussion and conclusions**

This study explored the relationships among temperament, achievement motivation, and coping style. Specifically, Elliot (1999) and Elliot and Church’s (1997) hierarchical model of approach and avoidance motivation was employed to illuminate the relationship between personality and coping in sport. A heterogeneous sample was used to increase generalizability of results, i.e. to ensure the results were not sport-, gender-, race-, or competition-level specific. Findings revealed an association between temperament distinction and each of the three coping styles. Furthermore, three of the four achievement goal sets were to some extent shown to be a predictor of coping style. However, tests for the mediation revealed little indirect effect.

With regard to the relationship between temperament and achievement goals, the present study reproduced a portion of the findings presented in Elliot’s hierarchical model (Elliot & Thrash, 2002; Elliot & Thrash 2010). Table 1 presents correlations between temperament and achievement goals. As displayed, approach temperament correlated with MAP goals, but failed to correlate with PAP goals. It is interesting to note that, in the study by Elliot and Thrash (2002), the relationship between approach temperament and PAP goals was shown to be the weakest in comparison to all other temperament-goal relationships. Avoidance temperament related to avoidance goals as predicted.
For the most part, results of this study agree with previous findings on the topic of personality and coping in sport. Generally, researchers have employed the Big Five personality dimensions (Costa & McCrae, 1992) to assess personality. In the literature, two common relationships seem to exist: extraversion predicts problem-focused coping, and neuroticism predicts avoidance coping (Allen, Frings, & Hunter, 2012; Allen, et al., 2011; Elliot, Thrash, & Murayama, 2011; Kaisele, et al., 2012). These relationships hold true in the present study, revealing a healthy relationship between approach temperament and problem-focused coping, as well as avoidance temperament and avoidant coping.

Emotion-focused coping, however, shares a hazy relationship with personality. The coping style has been shown to correlate with conscientiousness alone (Allen, et al., 2011), with both agreeableness and conscientiousness (Kaisele, et al., 2012), with neuroticism and conscientiousness (Brebner, 2001), as well as with none of the Big 5 traits (Allen, et al., 2012). The present study demonstrated a correlation with approach temperament, serving to further cloud understanding of emotion-focused coping. This lack of consistency across the literature raises several issues.

Similar to previous studies, this study asked participants to recall a stressful event encountered during competition and report on how they typically react to the situation. It may be difficult for athletes to accurately report on actual coping techniques they utilize, particularly if emotional control is the chosen response. Perhaps the assumption that athletes can adequately place themselves into a stressful situation and then report on their typical action is too bold. Thus, future research could explore a more accurate avenue for determining coping style among athletes. For example, Oyebeode, Motala, Hardy, and Oliver (2009) employed observational techniques to assess coping responses in patients with Alzheimer’s disease. Although administering similar techniques in a sport environment would present a number of challenges, it would account for the possible inaccuracy of current self-report techniques.

This study had several other limitations beyond the questionable validity of the CFQ in a sport setting. The participants were not necessarily competitive athletes. While the intramural basketball atmosphere is certainly an intense, competitive setting, the participants in the PFW classes did not necessarily have a competitive sport background. Although the mean number of years participating in sport was 9.94, the participants may have not truly been familiar with the experience of stress during competition. This may have inhibited the participants from accurately reporting their coping style. In addition, the use of self-report techniques made it impossible to determine causality and allowed for the possible existence of other confounding variables.

In conclusion, results of this study support current knowledge of personality and its relationship with coping style via Elliot’s hierarchical model. Approach temperament predicted problem- and emotion-focused coping while avoidance temperament predicted avoidance-coping. Though the findings suggested that Elliot’s temperament dimensions aligned for the most with the achievement goals, tests for indirect effect showed little to no mediation. Future research should examine Elliot’s temperaments and achievement goals have more support with other important sport setting outcomes such as performance.

References


Istraživanja su pokazala da učinkovito suočavanje sa stresom tijekom sportskog natjecanja pridonosi sportskoj uspješnosti. Cilj je ovog istraživanja bio istražiti izravne i neizravne učinke osobina ličnosti i motivacije za postignućem na sportašev stil suočavanja sa stresom. Eliotov hijerarhijski model motivacije približavanja i izbjegavanja (Eliot & Thrash, 1997; 2010) rabio se kao okvir za utvrđivanje temperamenta sudionika (N=258) te njihove usmjerenosti prema ciljevima. Stil suočavanja (tj. usmjerenost na problem, emocije i izbjegavanje) bio je utvrđen pomoću upitnika Coping Function Questionnaire for Sport (Kowalski & Crocker, 2001). Rezultati su ukazali na pozitivnu korelaciju između sklonosti usmjeravanju na problem i stila suočavanja u stresnoj situaciji koje karakterizira fokusiranost na problem, kao i između sklonosti izbjegavanju i stila suočavanja sa stresom koji karakterizira izbjegavanje problema. Medijacijska analiza je ukazala i na nisku indirektnu povezanost između temperamenta sklonog približavanju, usmjerenosti na usavršavanje vještina i stila suočavanja usmjerenog na rješavanje problema. Dodatno, niska indirektna povezanost postoji između temperamenta sklonog izbjegavanju, niske usmjerenosti na usavršavanje vještina i izbjegavanja suočavanja s problemima. Rezultati rasvjetljavaju odnose između osobnosti i sposobnosti suočavanja u stresnoj situaciji te sugeriraju da Eliotov hijerarhijski model može pomoći u predviđanju stila suočavanja koji će sportaš vjerovatno primijeniti tijekom natjecanja.

**Ključne riječi:** osobine ličnosti, temperament, suočavanje s problemima, ciljevi postignuća, posredovanje