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Effects of the Big Five personality dimensions on appraisal coping, and coping effectiveness in sport

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1 Running Head: PERSONALITY AND COPING

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5 Effects of the Big Five Personality Dimensions on Appraisal, Coping and Coping Effectiveness in

6 Sport

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Abstract

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2 This study investigated the influence of The Big Five personality dimensions (Neuroticism,
3 Extraversion, Agreeableness, Conscientiousness, and Openness to Experience) on the appraisal
4 (intensity, control) of a self-selected stressor, coping, and perceived coping effectiveness.
5 Participants were 482 athletes (male $n = 305$; female $n = 177$) who played a variety of sports.
6 Results indicate that The Big Five dimensions influenced coping selection, coping effectiveness,
7 stress intensity, and perceived control of the stressors, but not the type of self-selected stressor. In
8 particular, Neuroticism predicted higher stressor intensity and Agreeableness lower stressor
9 intensity. Neuroticism predicted lower perceived stressor control and Conscientiousness higher
10 perceived stressor control. Higher levels of Neuroticism were directly and indirectly associated with
11 more emotion and avoidance coping strategies and less problem-focused coping strategies. The
12 other four personality dimensions were also associated with the selection of coping strategies which
13 were perceived to be effective. This study provided support for the notion that the Big Five
14 personality dimensions directly influence appraisal, coping, and coping effectiveness among the
15 sample. Coping was also influenced indirectly by personality through the appraisal process. The
16 Neuroticism dimension was found to be associated with the selection of less adaptive coping
17 strategies and lower levels of reported coping effectiveness. The other four personality dimensions
18 were associated with more adaptive coping strategies which were rated as effective.

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20 Keywords: Personality, The Big Five, Coping, Coping Effectiveness, Competitive Sport.

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1 Indirect and Direct Effects of the Big Five Personality Dimensions on Appraisal, Coping and
2 Coping Effectiveness in Sport

3 The Big Five personality dimensions have been shown to capture much of the variance in
4 personality trait ratings independent of culture and language and provide a common framework in
5 which the different and diverse systems of personality can be investigated. They represent
6 personality at the broadest level of abstraction in which each dimension provides a number of more
7 distinct personality characteristics (Carver & Scheier, 2008). The labels provided for the five
8 personality dimensions are easily misunderstood (John & Srivastava, 1999), so a brief description
9 of each dimension is provided. Neuroticism contrasts emotional constancy and even-temperedness
10 with negative affectivity and includes traits like experiencing negative emotional states, generation
11 of irrational ideas, and being impulsive and self-conscious. Extraversion implies an energetic
12 approach towards the social and material world and is characterized by the tendency to experience
13 positive emotions, be outgoing, cheerful, active, and self-assured. Agreeableness contrasts a pro-
14 social and communal orientation towards others with antagonism and is associated with being
15 unselfish, compliant, trusting, modest, and helpful. Conscientiousness depicts socially prescribed
16 impulse control and assists task and goal directed behaviours. This includes characteristics like
17 purposeful in cognition and behaviour, organized, follows rules and norms, delays gratification,
18 strong-minded, and self-disciplined. Finally, Openness to Experience refers to extensiveness,
19 inventiveness, and complexity of an individual's mental and experiential life. This includes traits
20 such as being creative, inquisitive, having unconventional values, and having a flexible way of
21 thinking (John & Srivastava, 1999).

22 Personality has been considered a contextual factor that could influence each aspect of the
23 stress-coping process. The Big Five personality dimensions could affect coping selection in: (a) an
24 indirect way by influencing the type, frequency and intensity of the stressors experienced or coping
25 effectiveness or, (b) in a direct way by restricting or assisting the use of specific coping strategies
26 (Bolger & Zuckerman, 1995; DeLongis & Holtzman, 2005). Surprisingly, little is known about the

1 influence of personality on appraisal, coping, and coping effectiveness with stressors in sport.
2 Indeed, a recent meta-analysis on this topic by Connor-Smith and Flachsbart (2007) did not contain
3 any sport related studies. However, this is an important issue because an inability to cope with stress
4 has been associated with decrements in performance, diminished satisfaction, increased probability
5 of physical injury, burnout, and sport withdrawal (see Nicholls & Polman, 2007a for a review).

6 Coping has been defined as “constantly changing cognitive and behavioral efforts to manage
7 specific external and/or internal demands that are appraised as taxing or exceeding the resources of
8 the person” (Lazarus & Folkman, 1984, p.141). Coping strategies can be categorized into three
9 higher order dimensions (Nicholls & Polman, 2007a). Problem-focused coping describes strategies
10 used to minimize distress by reducing or eliminating the stressor. Emotion-focused coping involves
11 strategies used to regulate emotional arousal and distress whereas avoidance coping includes
12 behavioural and psychological efforts to disengage from a stressful event.

13 Two types of cognitive appraisal are associated with the coping process – primary and
14 secondary appraisal. Primary appraisal is the individual judgment of the demands of a stressful
15 event in relation to a person’s goals and values and is associated with the intensity of stress
16 experienced. Secondary appraisal involves the evaluation of coping responses that may be required
17 to manage the demands of the event and reflects the extent to which one perceives to have potential
18 control as well as the belief one can successfully perform the behaviors necessary to deal with the
19 situation (Lazarus & Folkman, 1984). Both primary and secondary appraisals have been found to be
20 important predictors of coping (Aldwin, 2007). For example, higher levels of stress (Tamres
21 Janicki, & Helgeson, 2002) and lower levels of perceived control (Zakowski, Hall, Klein, & Baum,
22 2001) have been associated with the use of more emotion-focused coping strategies. In addition,
23 differences in appraisal have been found between the genders. Females have a tendency to appraise
24 specific stressors as more severely than males (Tamres et al., 2002).

25 The differential exposure hypothesis (Suls & Martin, 2005) suggests that personality can
26 influence the type of situation which is perceived as stressful as well as the probability of such

1 encounters. This might result in different athletes experiencing different types of stressors and
2 encountering the same stressor more often depending on their personality. The differential exposure
3 to stressors is suggested to be a function of negative expectations or mood states which are the
4 result of oversensitivity to signals of punishment (Suls & Martin, 2005). Individuals, in this respect,
5 might attend to different cues or interpret the same cues differently. For example, an individual high
6 in Neuroticism is more likely to attend selectively to potential threatening events and interpret
7 ambiguous events as more threatening (Semmer, 2006). Indirect evidence from the sport
8 psychology literature suggests that some traits (e.g., achievement motivation and anxiety) could
9 result in different exposure to stressors (Polman, Clough, & Levy, 2010). For example, an athlete
10 high in state anxiety is more likely to make errors which in turn might result in more criticism from
11 team-mates or coaches thereby increasing the probability of encountering more stressful events.
12 Findings from other areas of psychology suggest that students with higher levels of Neuroticism
13 experience higher frequency of daily negative events (Bolger & Zuckerman, 1995) and report more
14 interpersonal stressors (Gunthert, Cohen, & Armelli, 1999), whereas Extraverts report more positive
15 daily events (Zautra, Affleck, Tennen, Reich, & Davis, 2005). Higher levels of Agreeableness have
16 been associated with fewer everyday social conflicts (Asendorph & Wilpers, 1998).

17 Personality also influences whether an individual will appraise a specific event as more or less
18 harmful (i.e., damage that has already occurred) or threatening (i.e., anticipation of harms and losses
19 that may occur), and an under or over-estimation of their personal resources to cope (Suls & Martin,
20 2005). Research has found that individuals high in Neuroticism, and in particular trait anxiety,
21 appraise events as more harmful or threatening (Eysenck, 1988). Gunthert et al. (1999) found that
22 college students high in Neuroticism intensified the degree of threat perceived by undesirable daily
23 events via primary appraisal, and underestimate their personal resources to cope with the event
24 during secondary appraisal. Conversely, scoring highly on Extraversion has been associated with
25 positive appraisal of coping resources (Semmer, 2006). To date there appear to be no studies which

1 have investigated whether personality influences challenge (potential for future gain) or benefit
2 (potential gain or growth inherent in an encounter) appraisals.

3 Evidence from other psychology domains (e.g., relationships, health, and daily stressors)
4 suggests that personality is related to coping (Carver, Scheier, & Weintraub, 1989). Higher levels of
5 Neuroticism have been associated with greater reliance on emotion-focused coping strategies and
6 less problem-focused coping strategies when dealing with daily stressors (Bolger & Zuckerman,
7 1995). Extraversion has been associated with active coping and positive reappraisal when
8 encountering daily stressors, but less emotion-focused coping (e.g., self-blame and wishful
9 thinking) and avoidance coping among psychology students (Watson & Hubbard, 1996). O'Brien
10 and DeLongis (1996) found that undergraduate students higher on Agreeableness were likely to cope
11 with self-reported daily stressors that engaged or protected their social relationship, such as seeking
12 support and avoiding confrontation. Hooker, Frazier, and Monahan (1994) on the other hand, found
13 that spouse caregivers of patients with dementia high in agreeableness were less likely to use
14 emotion-focused coping strategies such as self-blame and wishful thinking or the avoidance coping
15 strategy disengagement. Conscientiousness has been associated with more planning and rational
16 decision making, but less use of avoidance or emotion-focused coping such as self-blame,
17 distraction, or disengagement when dealing with everyday stressors (O'Brien & DeLongis, 1996).
18 Associations between Openness and coping have been found to be equivocal. For example, Hooker
19 et al. (1994) did not find a significant association between Openness and coping in caregivers
20 whereas Watson and Hubbard (1996) found that a higher level of Openness was associated with
21 increased problem-focussed coping to deal with daily stressors in students.

22 Personality traits may also indirectly influence how individuals rate the effectiveness of how
23 they cope. In particular, certain personality dimensions are associated with coping strategies that are
24 optimal for their personality, but maladaptive for others. Alternatively, coping choice can moderate
25 the effectiveness of coping (Bolger & Zuckerman, 1995). Research in the health domain suggests
26 that individuals high in Neuroticism are less likely to change their coping strategy in response to the

1 needs of the situation (O'Brien & DeLongis, 1996), use strategies which tend to be ineffective to
2 the particular situation with which they are coping (Bolger & Zuckerman, 1995; DeLongis &
3 Holtzman, 2005), and use more coping strategies overall to deal with daily stressors (Suls & Martin,
4 2005). The latter would indicate that neurotics have difficulty in finding the appropriate coping
5 strategy for particular stressful events. Extraversion, on the other hand, has been associated with
6 flexible coping and adapting coping responses based on the situation (Lee-Baggley, Preece, &
7 DeLongis, 2005). Most research in the area of coping effectiveness suggests that using more
8 problem-focused, rather than emotion-focused coping strategies is associated with more beneficial
9 outcomes (Aldwin, 2007). Problem-focused coping assists in transforming the situation or solving
10 the problem, thereby facilitating goal attainment (Gaudreau & Blondin, 2002). In addition, active
11 problem solving requires engagement and ownership of solutions, which in turn helps the person to
12 cope better with similar problems in the future. Emotion-focused coping might help the performer
13 to lower stress reactivity, but does not solve the problem whereas avoidance coping suggests that
14 the person chooses not to deal with the problem and postpones problem solving to a later date
15 (Polman, Borkoles, & Nicholls, 2010).

16 Nicholls and Polman (2007a) and Kaiseler and Polman (2010) recently identified a number of
17 limitations of the sport and exercise stress and coping literature. For example, the situational aspects
18 of stressors such intensity and controllability are often not considered. Both perceptions of stress
19 intensity and control have been found to influence the selection of coping strategies (see Hoar,
20 Kowalski, Gaudreau, & Crocker, 2006). The present study therefore included assessment of these
21 variables.

22 No studies have explored the relationship between The Big Five, stressor type, appraisal,
23 coping, and coping effectiveness in sport. Theoretically, it is important to establish whether findings
24 from other life spheres can be extrapolated to the realm of sport. In addition, from a practical
25 perspective it is essential to be able to reduce the possible adverse effects of personality on stress
26 and coping in sport. For example, information is required to establish whether one should intervene

1 to help reduce the exposure to stressful events, help to choose effective coping strategies, or
2 increase the effectiveness of the selected coping strategies. Because of the absence of studies on
3 personality and coping in sport this study was part exploratory in nature. Based on findings from
4 other areas of psychology we formulated a number of a priori predictions. (1) Higher levels of
5 Neuroticism were predicted to be associated with higher levels of perceived stressor intensity and
6 lower levels of perceived stressor control. (2) Different personality dimensions would predict
7 selection of different coping strategies directly or indirectly through the appraisal process. Table 1
8 provides an overview of the expected direct relations between personality and coping strategy. No
9 predictions were made for possible indirect effects. (3) Higher levels of Neuroticism were predicted
10 to be associated with lower perceived coping effectiveness. With regards to the other four
11 personality dimensions it was predicted that coping strategies that were reported more frequently
12 would also be rated as being more effective. No predictions were made with regard to stressor type.

13 Method

14 *Participants*

15 Participants were 482 athletes (male $n = 305$; female $n = 177$) aged between 16 to 45 years (M
16 age = 20.44 years, $SD = 3.98$), with experience in their sport from 1 to 35 years ($M = 9.63$, $SD =$
17 4.69). The sample consisted of sports performers competing at international ($n = 15$), national ($n =$
18 60), county ($n = 220$), and club/university ($n = 175$) levels. There were 12 missing entries. All of
19 the participants were actively involved in competitive sport and had participated competitively
20 within the last 14 days. The study was approved by a University's Research Ethics Committee and
21 participants provided informed consent prior to participating.

22 *Instruments*

23 *The Big Five*

24 The 44-item Big Five Inventory (BFI; John, Donahue, & Kentle, 1991) measures The Big
25 Five dimensions Conscientiousness (C), Agreeableness (A), Neuroticism (N), Openness (O), and
26 Extraversion (E). A five-point rating scale was used ranging from 1 = *disagree strongly* to 5 =

1 *agree strongly*. The BFI has been shown to have good psychometric properties with good
2 reliability, retest reliability, factor structure and convergent and discriminant validity (John &
3 Srivastava, 1999). The reliability for the five factors in the present study was satisfactory
4 (Cronbach's alpha: .71 (O), .77 (A), .79 (N), .81 (C), and .82 (E)). For this study we linearly
5 transformed the raw metric data into a percentage of maximum possible (POMP). This means that
6 the scores from the BFI were between 0 and 100 (Cohen, Cohen, Aiken, & West, 1999).

7 *Stressor type, primary and secondary appraisal*

8 After completing the BFI participants reported the most intense sport stressor they had
9 experienced in the previous 14 days. Participants then indicated how they appraised the stressor in
10 terms of stress intensity and perceived control. Stress intensity was assessed using the 'stress
11 thermometer' (Kowalski & Crocker, 2001). The 'stress thermometer' consists of a one-item visual
12 analogue scale anchored by '*not at all stressful*' and '*extremely stressful*'. Participants were asked
13 to rate the stress intensity of the self-reported stressor by dissection of this 10 cm bipolar line. The
14 'stress thermometer' has already demonstrated normal distribution properties and adequate
15 variability for male and female athletes (Kowalski & Crocker, 2001).

16 A one-item horizontal visual analogue scale was used to assess control over the stressful
17 event. The use of a visual analogue scale was preferred in the present study because of the similarity
18 with the assessment of stress intensity. Participants were asked to rate how much control they
19 perceived to have over the self-reported stressor by the dissection of a 10 cm bipolar line anchored
20 by two statements '*no control at all*' versus '*full control*'.

21 *Coping and coping effectiveness*

22 Coping was assessed at the strategy level by using the modified COPE (MCOPE; Crocker &
23 Graham, 1995). The MCOPE asks participants to indicate how much they use a particular coping
24 strategy during a stressful event and has 12 coping strategies each consisting of four items. Five of
25 the coping strategies can be classified as problem-focused coping (active coping, seeking social
26 support for instrumental reasons, planning, suppression of competing activities, and increasing

1 effort), five as emotion-focused coping (seeking social support for emotional reasons, humour,
2 venting of emotion, self-blame, and wishful thinking) and two as avoidance coping strategies
3 (denial and behavioural disengagement). Each item is scored on a five-point scale starting with to
4 use 'not at all/ very little' (1) to use 'very much' (5). There is extensive evidence supporting the
5 reliability of the MCOPE scales (e.g., Crocker & Isaak, 1997). A five-point Likert-type scale was
6 added to the MCOPE to measure the perceived coping effectiveness of each strategy used. The 5-
7 point scale was anchored at 1 = *extremely ineffective* and 5 = *extremely effective* (Nicholls &
8 Polman, 2007b). The Cronbach's alphas for coping were low for 3 subscales (denial .60;
9 suppression of competing activities. 68, wishful thinking .66) and acceptable for the other scales (>
10 .70). Similarly, alphas for coping effectiveness were low for 3 subscales (suppression of competing
11 activities .57, self-blame .64, active coping .64) with the other scales being acceptable (> .70).
12 Although some of the scales of the MCOPE did not reach acceptable levels of internal consistency
13 we decided to include these in our statistical analysis because estimates of internal consistency have
14 limited applicability when assessing psychometric properties of measures of coping (Billings &
15 Moos, 1981). Hence, one coping strategy might be adequate to relieve stress and as such would not
16 require additional responses from either the same category or other categories of coping.

17 *Procedure*

18 Participants were recruited from sport clubs in the North of England during their competitive
19 season. Following approval from the clubs and coaches, trained researchers visited clubs on training
20 days. After reading the participant information sheet and providing consent, participants completed
21 the questionnaire pack in the presence of the researcher.

22 *Data Analysis*

23 In accordance with Gunthert et al., (1999) seven stressor categories were created for statistical
24 analysis: (a) injury, (b) error (technical/tactical), (c) outcome (not achieving performance goals), (d)
25 performance (technique and fitness), (e) psychological (anxiety and confidence), (f) external factors
26 (officials, opponent, and environmental), (g) significant others (coach or team mates). This method

1 was used to reduce the potential number of stressors reported and because previous research has
2 shown that individual description of stressors can be grouped into similar stress categories
3 (Nicholls, Polman, Levy, Taylor, & Cobley, 2007).

4 After screening for outliers and normality, Cronbach's alphas and descriptive statistics for all
5 study variables were obtained. Following this, correlations between the variables were calculated.
6 To investigate whether the Big Five personality dimensions were associated with self-reported
7 stressor type, ratings of stress intensity and perceived control three linear regressions were
8 conducted. Stressor type, stress intensity, and perceived control were the dependent variables and
9 the five personality dimensions the predictor variables.

10 The association between coping, coping effectiveness and the Big Five were investigated
11 using correlational analysis and hierarchical regression analysis. The 12 coping strategies of the
12 MCOPE were the dependent variables. At Step 1 gender, stress intensity, perceived control, and
13 stressor type were entered, whilst at Step 2 the five personality dimensions were entered. Since the
14 main aim of the present study was to assess whether the Big Five predicted the selection of coping
15 strategies and self-ratings of coping effectiveness, we were interested in the additional variance
16 (ΔR^2) these dimensions added above and beyond the variance explained by gender, stress intensity,
17 perceived control, and stressor type.

18 Moderated multiple regression analyses were conducted to investigate whether personality
19 moderated the relationship between either stress intensity or control and coping. Prior to analysis
20 the continuous variables were centered by subtracting the sample mean of the variable. At Step 1
21 the centered variables stress intensity or perceived control was entered. In addition, the relevant
22 centered personality dimensions were also entered. At the second step the interaction between either
23 stress intensity or perceived control and the personality variables were entered. The F test,
24 representing the stepwise change in variance explained as a result of the addition of the product
25 term, is an indicator of the significance of the moderator effects. Interaction effects were explored
26 by plotting predicted values for the outcome variables (coping strategy) at average, low (-1 SD from

1 the mean) and high (+1 SD from the mean) level of either stress intensity or perceived control
2 (Aiken & West, 1991).

3 Results

4 Table 2 and 3 provide the means and standard deviations for stressor appraisal, coping
5 strategies, coping effectiveness, and the POMP scores for the five personality dimensions. The Big
6 Five dimensions did not predict the selection of stressor type ($R^2 = .01$; $p = .79$). Regression
7 analysis for stress intensity ($R^2 = .06$, $p < .001$) and perceived control ($R^2 = .04$; $p < .001$) were
8 significant. Higher levels of Neuroticism were associated with increased levels of stress intensity (β
9 $= .26$; $p < .001$) and lower levels of perceived control ($\beta = -.21$; $p < .001$). Higher levels of
10 Agreeableness were associated with lower levels of stress intensity ($\beta = -.10$; $p < .05$) and higher
11 levels of Conscientiousness predicted higher levels of perceived control ($\beta = .09$; $p < .05$).

12 The correlational analysis provided support for 45 of the 60 a priori predictions between the
13 five personality dimensions and coping strategies (see Table 1 and 4). Of these, 32 supported a
14 priori positive or negative associations between the big five dimensions and coping strategies
15 whereas in 13 instances it supported prediction of no relationship or the notion that no prediction
16 could be made between the big five dimensions and coping. In addition, most correlations were in
17 the predicted direction except for the relationship between Extraversion and active coping and
18 denial. Conscientiousness and seeking emotional social support and Neuroticism and active coping
19 were also not in the predicted direction. However, in a number of instances correlations were in the
20 predicted direction but did not reach significance. In particular, the correlations between
21 Extraversion and active coping, denial and behavioural disengagement, Agreeableness and planning
22 and denial, Conscientiousness and suppression of competing activities, Neuroticism and seeking
23 emotional social support, self-blame, and denial and Openness and active coping, increasing effort
24 and wishful thinking were in the direction as predicted but did not reach statistical significance.
25 Low non-significant correlations were obtained for all instances where no relationship was expected
26 or no explicit prediction could be made.

1 Table 5 provides the results of the stepwise linear regression. Higher Neuroticism was
2 associated with less use of the problem-focused coping strategies planning, suppression of
3 competing activities, and increasing effort, but increased use of the emotion-focused coping
4 strategies venting emotions and wishful thinking, in addition to the avoidance coping strategy
5 behavioural disengagement. Unexpectedly, higher levels of Neuroticism also predicted the use of
6 more active coping. Higher levels of Extraversion were associated with increased use of the
7 problem-focused coping strategies seeking of informational social support and increasing effort and
8 the emotion-focused coping strategy seeking emotional social support. Agreeableness was
9 associated with increased use of the problem-focused coping strategy active coping, and decreased
10 use of planning and less use of the emotion-focused coping strategies venting emotions and self-
11 blame. Higher levels of Conscientiousness were associated with more use of the problem-focused
12 coping strategies planning and suppression of competing activities, but less active coping.
13 Conscientiousness was associated with less use of the emotion-focused coping strategies humour
14 and wishful thinking but increased use of seeking emotional social support. Finally, higher levels of
15 Openness predicted increased planning, and wishful thinking.

16 As expected, participants high in Neuroticism rated the problem-focused coping strategies
17 active coping, planning, and increasing effort as less effective however contrary to predictions the
18 emotion-focused coping strategy wishful thinking was rated as more effective. Increased levels of
19 Extraversion were associated with reporting increasing effort as more effective. Participants higher
20 in Agreeableness rated seeking informational social support and behavioural disengagement as
21 more effective. Both increased levels of Openness and Conscientiousness were associated with
22 higher coping effectiveness scores for planning whereas higher levels of Conscientiousness was
23 associated with lower coping effectiveness scores for behavioural disengagement and wishful
24 thinking.

25 Moderation analysis for stress intensity and coping only provided significant interactions for
26 behavioural disengagement and venting emotions (see Table 6). Figure 1 and 2 suggest that

1 individuals high in Neuroticism use more behavioural disengagement and venting emotions at
2 higher levels of stress whereas individuals low on Neuroticism had a tendency to use less of these
3 coping strategies at high levels of stress.

4 Discussion

5 The purpose of this study was to examine the relationship between The Big Five personality
6 dimensions and appraisal, stressor type, coping, and coping effectiveness of a self-selected stressor
7 in sport. Findings revealed an association between Neuroticism, Agreeableness, Conscientiousness,
8 and stress appraisal. Furthermore, all five personality dimensions were to some extent shown to be a
9 predictor of coping and coping effectiveness.

10 Similar to Bolger and Zuckerman's (1995) study on emotional reactions to everyday stressful
11 events, our regression and correlational analyses showed that athletes high in Neuroticism also
12 appraised the self-selected stressors more intensely. This finding could be due to neurotics
13 appraising similar events differently from non-neurotics or because of differential sensitivity to
14 stressors. The former suggests that higher levels of Neuroticism exaggerate the threat posed by the
15 stressful events through primary appraisal (Zautra et al., 2005), whereas the latter suggests that
16 individuals high in Neuroticism are more sensitive to negative stimuli either through biological or
17 learnt differences. In their daily stress and coping study Gunthert et al. (1999) found evidence to
18 suggest that those high in Neuroticism respond with more negative affect in stressful encounters
19 which is over and above the negative appraisal of stressful events. Future research, therefore, could
20 take into consideration baseline mood or affective states and establish whether these moderate the
21 relationship between Neuroticism and stressor appraisal.

22 Although Agreeableness has been associated with increased stress reactivity to interpersonal
23 conflicts (Suls, Martin, & David, 1998) the results of the regression and correlational analyses
24 showed that higher levels of Agreeableness were associated with lower levels of stressor intensity in
25 a sport setting. Individuals high in Agreeableness are more likely to be trustful, cooperative, and
26 compliant. These individuals might therefore perceive the typical acute sport stressors as causing

1 less distress. In support of this idea, only a few athletes reported interpersonal conflict as an acute
2 stressor within the present study. The finding that Agreeableness was associated with lower stress
3 intensity could suggest that personality might influence primary appraisal differentially depending
4 on the domain examined however further research would be required to investigate this issue.

5 As predicted, the regression and correlational analysis showed that neuroticism was
6 associated with lower levels of perceived control thereby supporting previous research. Individuals
7 high in Neuroticism have been found to use maladaptive coping strategies and a negative self-
8 evaluative bias which make them more likely to appraise stressful events as less controllable
9 (O'Brien & DeLongis, 1996). Both, the regression and correlational analyses showed that
10 Conscientiousness was associated with higher perceptions of control. Individuals high in this
11 dimension are said to be purposeful and strong minded. These traits could explain why these
12 athletes perceived stressors as being more controllable. In general, higher levels of perceived
13 control are useful because they are more likely to result in the use of adaptive problem-focused
14 coping strategies and allow the individual to believe that efforts aimed at managing the stressor are
15 not in vain (Zakowski, Hall, Klein, & Baum, 2001). This was partly supported by the correlational
16 analysis which indicated that individuals high in Conscientiousness used more planning, increasing
17 effort, and seeking instrumental social support. However, higher levels of Conscientiousness were
18 also associated with less use of active coping and increased use of seeking emotional social support.

19 Our results extend the current literature on neuroticism and suggest that other dimensions of
20 the Big Five can also influence the appraisal process but that this might be dependent on the
21 specific life domain in which this is investigated. We did not find that the Big Five predicted type of
22 stressor. It is possible that individuals with certain personality characteristics experience stressors
23 more frequently (Bolger & Zuckerman, 1995) but further research is required to establish whether
24 this is also the case in the sport domain.

25 Most of our a priori predictions with regards to the Big Five and coping were supported by
26 the correlational analysis. Contrary to predictions, both the regression and correlational analysis

1 showed that Neuroticism was positively associated with active coping, but this was rated as a less
2 effective coping strategy. Neurotics have been found to use more problem-focused coping but the
3 strategies they employ have either been ineffective to the particular situation which they are coping
4 with or they have difficulty in finding the right strategy (DeLongis & Holtzman, 2005; Suls &
5 Martin, 2005). Our results provide support for the notion that Neuroticism is associated with the
6 selection of less adaptive coping strategies with higher levels on this dimension being associated
7 with less use of problem-focused coping strategies (planning; suppression of competing activities;
8 increasing effort) but more use of the emotion-focused (venting emotions; wishful thinking) and
9 avoidance (behavioural disengagement) coping strategies. Neuroticism also indirectly influenced
10 coping. In particular, individuals high in Neuroticism when experiencing high levels of stress were
11 more likely to use the coping strategies behavioural disengagement and venting emotions. This
12 moderating effect of Neuroticism in the relationship between stress intensity and coping behaviour
13 has some important practical implications. In particular, individuals high in neuroticism should be
14 taught how to appraise stressors and coping strategies to deal with high levels of stress that they are
15 likely to experience.

16 The regression analysis indicated that Neuroticism was also associated with lower coping
17 effectiveness scores for planning, active coping, and increasing effort but a higher coping
18 effectiveness score for the coping strategy wishful thinking supporting previous findings. Athletes
19 high in Neuroticism appear to use ineffective coping strategies with poorer outcomes (Vollrath &
20 Torgersen, 2000). Together with the increased levels of distress and lower levels of perceived
21 control, athletes high in Neuroticism would be a potential concern for coaches. This personality
22 type appears to be less than optimal for dealing with stressors and could therefore have a negative
23 influence on athletic performance or might be a precursor of drop-out from competitive sport.
24 However, longitudinal prospective studies would be required to investigate this.

25 The regression analysis showed that athletes scoring high in Extraversion used more
26 increasing effort, seeking instrumental and emotional social support (Amirkham, Risinger, &

1 Swickert, 1995; Hooker et al., 1994). Contrary to predictions, both the regression and correlational
2 analyses showed that Extraversion was not associated with active coping, although this was
3 significantly correlated with coping effectiveness. A number of the stressor categories in the present
4 study make it difficult for athletes to use active coping. A wrong call by the referee or injury is
5 probably best dealt with by using emotion or avoidance coping strategies. As such the sport domain
6 might not allow individuals high in Extraversion the opportunity to actively approach a number of
7 stressful events. We found partial support for the notion that extraverts are active and effective
8 copers (Lee-Baggley, Preece, & DeLongis, 2005). However, not all coping strategies were rated as
9 effective. There appear to be sport specific constraints that influence the selection of coping
10 strategies and their effectiveness which might be different from other life domains.

11 As predicted, the correlational analyses showed that Agreeableness was positively associated
12 with instrumental (which was also perceived to be an effective coping strategy) and emotional
13 social support and negatively with wishful thinking. The regression analysis showed that
14 Agreeableness also predicted increased use of active coping, but less use of planning, venting
15 emotions, and self-blame. These findings are consistent with previous research. Individuals high in
16 Agreeableness are more likely to cope in ways that engage or protect social relationships such as
17 seeking support and appear less likely to employ emotion-focused strategies such as self-blame
18 (Lee-Baggley et al., 2005; O'Brien & DeLongis, 1996), or disengagement (Watson & Hubbard,
19 1996). These coping strategies appear to be effective in the sport context. For example, previous
20 research has shown that active coping and getting advice were effective strategies used by elite
21 rugby union athletes (Nicholls & Polman, 2007b).

22 The regression results suggested that higher levels of Conscientiousness predicted the
23 increased use of the problem-focused coping strategies planning and suppression competing
24 activities, and less use of the emotion-focused coping strategies humour and wishful thinking.
25 Conscientiousness was also as predicted associated with less active coping however contrary to
26 predictions it was associated with more seeking emotional social support. With regard to coping

1 effectiveness, Conscientiousness was negatively associated with wishful thinking and behavioural
2 disengagement and positively associated with planning. The present and past findings on students
3 reporting daily stressors (O'Brien & DeLongis, 1996) and spouse caregivers of patients with
4 dementia (Hooker et al., 1994) provide support for the notion that individuals high on
5 Conscientiousness are careful planners, and rational decision-makers when they encounter a stressor
6 and are less likely to engage in avoidant, emotion-focused coping such as self blame.

7 The present study only found a few associations between Openness and coping. The
8 regression analysis showed a positive association with planning and wishful thinking. In addition,
9 planning was perceived to be an effective coping strategy. Results support previous findings on
10 couples dealing with interpersonal stress (Lee-Bagglely et al., 2005) or students reporting daily
11 stressors (O'Brien & DeLongis, 1996) for this personality dimension. Those higher in Openness are
12 said to be adaptive and flexible copers. These characteristics might explain why there were few
13 associations between Openness, coping and coping effectiveness (Lee-Bagglely et al., 2005).

14 The results of the regression and correlational analysis provide support for our third prediction
15 that coping strategies which were reported more frequently by the four personality dimensions
16 Extraversion, Agreeableness, Conscientiousness, and Openness were also rated as more effective.
17 In addition, these strategies were almost exclusive from the problem-focused coping domain. This
18 provides some support for the notion that problem-focused coping strategies are perceived to be
19 more adaptive than emotion-focused or avoidance coping strategies (Aldwin, 2007).

20 This study is the first to investigate the role of the Big Five in relation to appraisal, coping and
21 coping effectiveness in sport and as such provides an original contribution to the literature. Also, as
22 suggested by Nicholls and Polman, (2007a) and Kaiseler and Polman (2010) we addressed some
23 limitations of past literature in stress and coping in sport by having participants reporting a self-
24 selected stressor, and controlling for the appraisal of this stressor in terms of stress intensity and
25 perceived control. Additionally, we investigated the effects of personality on both coping, and
26 coping effectiveness. Limitations of the present study are associated with its cross-sectional design

1 which does not allow inferences of causality to be made. Data obtained were retrospective, self-
2 reported and were only collected from competitive athletes limiting generalizability. Finally, we
3 only assessed how individuals coped with one specific stressful event and did not control for
4 possible baseline differences in stress reactivity.

5 In conclusion, this study supports the notion that in sport the Big Five personality dimensions
6 directly influence appraisal, coping, and coping effectiveness. Coping was also influenced indirectly
7 by personality through the appraisal process. In particular the Neuroticism dimension was found to
8 be associated with selection of less adaptive coping strategies and lower levels of reported coping
9 effectiveness. The other four dimensions used more adaptive coping strategies which were rated as
10 effective. Although it is difficult to invoke changes in personality dimensions it would be much
11 more practical to modify aspects of appraisal, reactivity and coping. These aspects of the stress-
12 coping process are changed more easily and success has been seen in stress management training
13 and hostility interventions (Semmer, 2006).

14

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1 Table 1: Expected relations between the five personality traits Extraversion (E), Agreeableness (A),
 2 Conscientiousness (C), Neuroticism (N), Openness (O), and use of coping strategies.

3

Coping strategies	E	A	C	N	O
<i>Problem-focused coping strategies</i>					
Active coping	+	?	-	-	+
Seeking instrumental social support	+	+	+	-	+
Planning	+	+	+	-	+
Suppress competing activities	+	0	+	-	0
Increasing effort	+	0	+	-	+
<i>Emotion-focused coping strategies</i>					
Seeking emotional social support	+	+	-	+	?
Humour	0	?	-	0	+
Venting emotions	0	-	-	+	0
Self-blame	0	-	-	+	?
Wishful thinking	-	-	-	+	+
<i>Avoidance coping strategies</i>					
Denial	-	-	-	+	0
Behavioural disengagement	-	-	-	+	0

4 Note. + = a positive correlation expected; - = a negative correlation expected; 0 = no
 5 relationship is expected; ? = it is not possible to make a clear prediction.

1 Table 2, 3: Mean and standard deviations for stressor appraisal, the Big Five personality
 2 dimensions, coping strategies and coping effectiveness.

3

	Mean and SD	
Stress intensity	6.24 (2.33)	
Perceived control	5.54 (2.72)	
Extraversion	66.73 (16.60)	
Agreeableness	69.83 (11.55)	
Conscientiousness	55.46 (13.60)	
Neuroticism	42.72 (18.37)	
Openness	57.90 (12.93)	
Coping strategies	Extent of use	Perceived effectiveness
<i>Problem-focused coping strategies</i>		
Active coping	3.20 (.52)	3.03 (.55)
Seeking instrumental social support	2.83 (.98)	2.76 (.67)
Planning	3.22 (.83)	2.92 (.59)
Suppress competing activities	3.07 (.85)	2.81 (.56)
Increasing effort	4.01 (.79)	3.28 (.57)
<i>Emotion-focused coping strategies</i>		
Seeking emotional social support	2.67 (1.00)	2.65 (.74)
Humour	2.35 (1.10)	2.31 (.83)
Venting emotions	2.31 (.99)	2.30 (.76)
Self-blame	2.84 (.96)	2.50 (.65)
Wishful thinking	2.85 (.93)	2.32 (.66)
<i>Avoidance coping strategies</i>		
Denial	2.14 (.78)	2.19 (.74)
Behavioural disengagement	1.72 (.80)	2.16 (.92)

1 Table 4: Correlations between the five personality dimensions Extraversion (E), Agreeableness (A),
 2 Conscientiousness (C), Neuroticism (N), Openness (O) and coping (CO), coping effectiveness
 3 (CE), stressor intensity and stressor control.

4

		E	A	C	N	O
<i>Problem-focused coping strategies</i>						
Active coping	CO	-.06	-.06	-.36**	.32**	.03
	CE	.14**	.05	.08	-.18**	.06
Seeking instrumental social support	CO	.19**	.10*	.13**	-.10*	.11*
	CE	.08	.16**	.10*	-.08	.10*
Planning	CO	.18**	.04	.16**	-.19**	.17**
	CE	.12*	.12*	.18**	-.21**	.14**
Suppress competing activities	CO	.12**	-.04	.09	-.12**	.07
	CE	.09*	-.01	.05	-.10*	.03
Increasing effort	CO	.20**	.06	.10*	-.23**	.08
	CE	.18**	.07	.05	-.23**	.01
<i>Emotion-focused coping strategies</i>						
Seeking emotional social support	CO	.15**	.10*	.14**	.01	.06
	CE	.08	.14**	.10*	.00	.06
Humour	CO	.09	-.04	-.16**	-.03	.10*
	CE	.00	.03	-.06	-.04	.04
Venting emotions	CO	-.04	-.24**	-.13**	.20**	.02
	CE	.04	-.01	.00	-.03	-.01
Self-blame	CO	.01	-.16**	-.09*	.08	.03
	CE	.04	-.05	.08	-.09	.05
Wishful thinking	CO	-.02	-.13**	-.16**	.17**	.09
	CE	.05	-.03	-.10*	.05	.03
<i>Avoidance coping strategies</i>						
Denial	CO	.03	-.05	-.13**	.02	.06
	CE	-.08	.02	-.08	.01	.02
Behavioural disengagement	CO	-.03	-.10*	-.10*	.23**	.00
	CE	-.10*	.05	-.08	.07	.01
Stressor intensity		.00	-.16**	-.08	.22**	-.03
Stressor control		.07	.04	.10*	-.21**	-.03

5 * $P < .05$; ** $P < .01$

6

1 Table 5: Results of the regression analysis for coping and coping effectiveness whilst controlling for
 2 gender, stress intensity, perceived control and stressor type at step 1 (E = Extraversion; A =
 3 Agreeableness; C = Conscientiousness; N = Neuroticism; O = Openness).

4

Coping strategy	Coping		Coping Effectiveness	
	ΔR^2	Significant predictors	ΔR^2	Significant predictors
<i>Problem-focused coping strategies</i>				
Active coping	.21**	A, Beta = .11; C, Beta = -.39; N, Beta = .27	.04**	N, Beta = -.17
Seeking informational social support	.05**	E, Beta = .12	.03*	A, Beta = .11
Planning	.09**	A, Beta = -.12; C, Beta = .12; O, Beta = .16; N, Beta = -.22	.07**	C, Beta = .11; O, Beta = .13; N, Beta = -.19
Suppression competing activities	.03*	C, Beta = .10; N, Beta = -.12	.01	
Increasing effort	.07**	E, Beta = .13; N, Beta = -.21	.07**	E, Beta = .13; N, Beta = -.20
<i>Emotion-focused coping strategies</i>				
Seeking emotional social support	.03**	E, Beta = .11; C, Beta = .10	.04	
Humour	.04*	C, Beta = -.17	.00	
Venting emotions	.07**	A, Beta = -.17; N, Beta = .19	.00	
Self-blame	.03*	A, Beta = -.11	.01 ^{ns}	
Wishful thinking	.06**	C, Beta = -.13; N, Beta = .16; O, Beta = .11	.03*	C, Beta = -.12; N, Beta = .13
<i>Avoidance coping strategies</i>				
Denial	.02		.02	
Behavioural disengagement	.05**	N, Beta = .23	.04*	A, Beta = .12; C, Beta = -.12

5 * $P < .05$; ** $P < .01$

6

1 Table 6: Results of the moderated multiple regression analysis.

2

Step and variable	B	Beta	R ²	ΔR ²
Dependent variable: Behavioural disengagement				
Step 1: Stress intensity	.03	.10	.06**	
Neuroticism	.01	.21**		
Step 2: Stress intensity * Neuroticism	.002	.13**		.02**
Dependent variable: Venting emotions				
Step 1: Stress intensity	.09	.21**	.07**	
Neuroticism	.01	.16**		
Step 2: Stress intensity * Neuroticism	.004	.16**		.03**

3

4

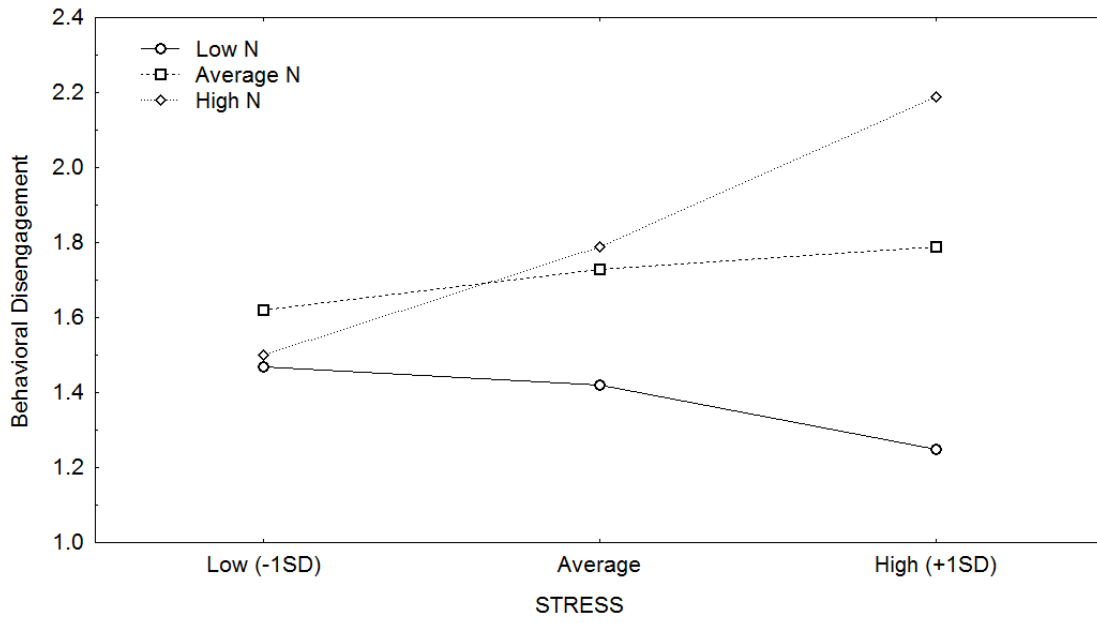
Figure Captions

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Figure 1: Result of the interaction effect for the moderation effect of neuroticism (N) on the relationship between stress intensity and the behavioural disengagement coping strategy.

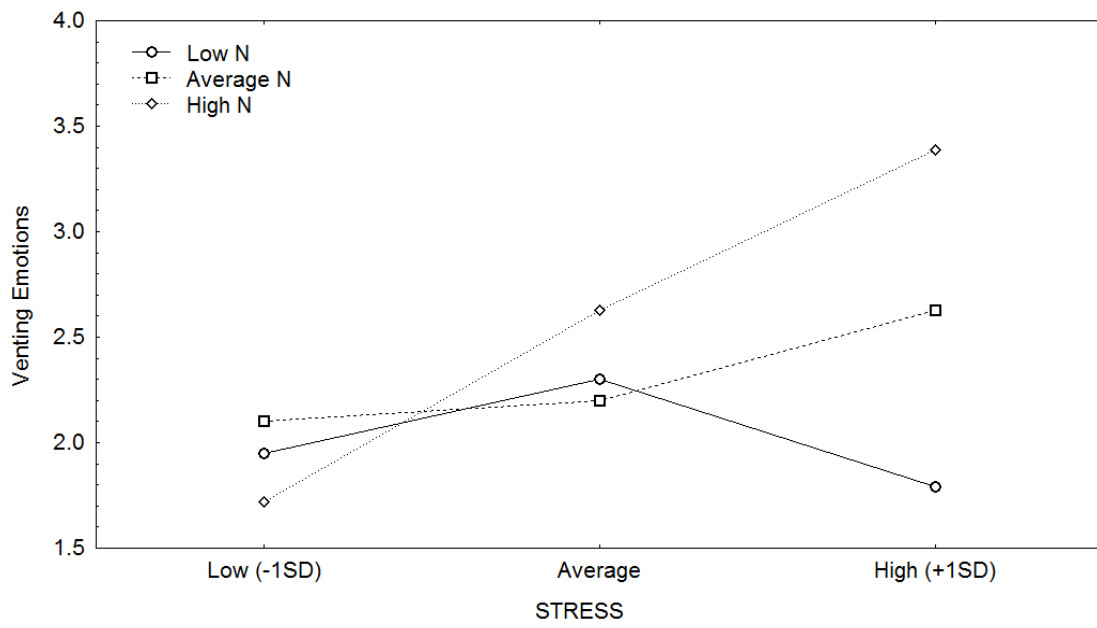
Figure 2: Result of the interaction effect for the moderation effect of neuroticism (N) on the relationship between stress intensity and the venting emotions coping strategy.

1



2

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