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Sydney 2000: The Interplay Between Emotions, Coping, and the Performance of Olympic-Level Athletes

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Drawing upon the Cognitive-Motivational-Relational Theory of Emotion (Lazarus, 1991, 1999, 2000) and Hanin's (1993, 2000) conceptualization of emotions, the purpose of this study was threefold. First, the reported content, frequency, and intensity of emotions experienced by 61 athletes in relation to a stressful event when competing in the 2000 Olympic Games were determined. Second, the relationships between emotional responses and reported coping strategies and perceived coping effectiveness were examined. Finally, the degree to which emotions and perceived coping effectiveness predicted subjective and objective performance during the Olympics was ascertained. In general, the athletes experienced a high frequency of optimizing emotions. Optimizing emotions were related to coping effectiveness, which emerged as a positive predictor of objective competitive results. Coping effectiveness also positively predicted subjective performance while reported dysfunctional emotions emerged as a negative predictor.

Sport performance at any level can involve a high degree of fluctuations in emotions, both negative and positive. Emotions are assumed to play a role in performance variability and be relevant to the quality of the sport experience. Indeed, within the sport literature, there has been a renewed interest in both the antecedents and consequences of emotional responses (Cerin, Szabo, Hunt, & Willams, 2000; Vallerand & Blanchard, 2000).

An emotion may be defined as a reaction to a stimulus event either actual or imagined (Deci, 1980). Lazarus (1991) argues that cognitive activity is crucial to the differentiation of an emotion from nonemotion. In his view, we can refer to a response as an emotion if cognitive appraisal is a causal factor with regard to this reaction. If it is not, the response is considered something else. Emotions can be conceived as both an antecedent and as a consequence of cognitive processes.

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That is, according to Lazarus (2000), "Although emotion is always a response to meaning, it can also influence subsequent thoughts and emotions" (p. 48).

Surprisingly, there is limited information in the sport psychology literature about what type of emotions are felt by athletes during important competitions, how intense are such emotional experiences, and which type of emotions seem to occur at the same time. Specifically, one purpose was to examine the nature of the emotions experienced by Olympic level athletes during a stressful situation while competing in the 2000 Olympic Games**.** It is assumed that people express more intense emotions in events that are important to them due to what Locke and Latham (1990) term a person's *goal hierarchy*. The Olympic Games are viewed as the most prestigious event in which any athlete can compete. Thus, this setting should be a very suitable and meaningful context to study the meaning and content of emotions in elite competitive sport.

Central to understanding the reported content of emotions is the distinction between what are considered positive toned and negative toned emotions (Lazarus, 2000). According to Hanin (2000), emotions can be categorized as positive and negative based on the hedonic tone (i.e., pleasant or unpleasant) as well as the functional impact (i.e., optimizing or dysfunctional) of the emotion. Therefore, an additional consideration in Hanin's approach is that any emotion (whether positive toned or negative toned) can have both an optimizing and a dysfunctional effect with respect to an athlete's performance. That is, while some emotions are deemed beneficial for one athlete, they may prove debilitating for another. In the current work, when the athletes reported the intensity of the emotions experienced, they also indicated whether the emotion(s) in question was coupled with a perceived enhancement or debilitation of performance.

Coping and Emotions

An important aspect with respect to the study of emotions is the relationship between emotions and coping. More than ten years ago, Lazarus (1991) suggested that coping plays a central role in emotional processes and that this occurs mainly in two ways: first, by changing a perceived stressor through problem-focused coping, and second, by changing the way the stressor is attended to by employing emotion-focused strategies. In his later work, Lazarus (1999) goes even further and argues that stress, emotions, and coping belong together as one conceptual unit and that separating them was only justified for the convenience of data analyses. Other researchers have argued as well that stress and individual reactions to it are best considered as a process that unfolds over time (e.g., Cerin et al., 2000).

Investigations within the sport context have mainly looked at predictors and performance implications of precompetitive anxiety and coping responses. In general, this literature has not examined these processes in conjunction or considered both negative and positive emotions (Cerin et al., 2000; Lazarus, 2000). Although measured retrospectively, we wanted the participants in our study to report the type of positive and negative emotions they experienced while they were performing and faced with a stressful situation as well as their coping responses during the same experience. In this way, we tried to capture at least part of this dynamic process.

Another point salient to an examination of the correspondence between emotions and coping responses is whether the latter prove to be beneficial or ineffective.

Although there has been a tendency in the literature to label problem-focused strategies as adaptive and emotion-focused strategies as maladaptive (Carver, Scheier, & Weintraub, 1989), this is not always the case when we look at coping with acute stress in competitive sport settings (Kim & Duda, 2001; Pensgaard & Duda, 2002). For example, an emotion-focused strategy such as venting may be an effective and adaptive strategy in specific situations on the sport field, while in most other social settings, this response would be considered maladaptive. Moreover, such a coping response might be deemed beneficial at the moment, but the implications of utilizing such a coping strategy might prove costly. Thus, whether or not a coping strategy is deemed adaptive or maladaptive must always be considered in relation to the context and in terms of its perceived effectiveness (both short-term and long-term).

In the current study, we examined reported coping strategies and perceived short-term coping effectiveness in relation to emotions experienced when competing in the Olympic Games. We did not expect to find any systematic associations between reported strategy use and specific emotions since these variables were measured with respect to a specific event (in this case, the most stressful moment(s) during competition at the Olympic Games). Folkman and Lazarus (1988), for example, found that both problem-focused and emotion-focused strategies were associated with improvement in emotional state (i.e., the experience of more positive emotions) when studying two community-residing samples that experienced stressful circumstances. Thus, when we study coping strategies and emotions in one particular setting (e.g., during competition when faced with a stressful situation), use of the same coping strategy (e.g., acceptance) may be followed by different types of emotions (e.g., relief, anger, or determination).

The nature of the emotions witnessed subsequent to coping is assumed to be dependent upon whether the coping response was deemed effective or not (Lazarus, 1991). Therefore, we also examined the relationship between perceived coping effectiveness and emotions. Coping effectiveness is, according to Lazarus (1999), dependent upon individual differences in appraisal, the type of threat, the stage of the stressful encounter, and the outcome modality (e.g., subjective well-being or performance outcomes). Use of the same strategies may, therefore, lead to differential levels of perceived effectiveness, which subsequently should lead to different emotions. With respect, then, to the interdependence between emotions and coping in a competitive sport setting in the current work, a positive link between reported coping effectiveness and optimizing emotions was expected. Further, we hypothesized that dysfunctional emotions would be significantly and negatively related to ratings of coping effectiveness.

Predictors of Performance

The last objective of this study was to examine the relationship of coping effectiveness and emotions to subjective and objective performance. Within competitive sport, performance is always an important behavioral outcome variable. However, there is a dearth of information concerning the correspondence between perceived coping effectiveness and performance (Hardy, Jones, & Gould, 1996). Folkman (1992) has argued that it is important to determine how coping influences stress-related outcomes, and Ursin (1988) has suggested that it is a person's positive response outcome expectancy more than specific coping strategies per se

that is the main predictor of a positive outcome. We have argued above that a positive link between optimizing emotions and perceived coping effectiveness should emerge in the current study. It seems logical then to also assume that athletes who feel that they cope effectively with competitive stressors also are more likely to perform better than athletes who cope less well. Thus, we expected that reported coping effectiveness would be a positive predictor of both objective and subjective competitive results.

In sum, the first objective of the present study was to obtain more knowledge regarding the nature of emotional responses experienced by athletes when faced with a stressful situation in high-level competitive sport. In particular, we examined what kind (with respect to hedonic tone and functional impact) of emotions are realized by elite athletes when competing in an important event, the co-occurrence of different emotions, and the intensity of emotions. A second objective was to investigate the correspondence between coping responses and emotions. We expected no significant relationship between coping strategy use and specific emotions, but we did predict that perceived coping effectiveness would be positively related to optimizing emotions and negatively related to dysfunctional emotions. The last objective was to investigate the relationship of coping effectiveness and emotions to objective and subjective performance. It was predicted that high perceived coping effectiveness would be positively related to both subjective and objective competitive performance outcomes and that athletes who experienced optimizing emotions during their competition would perform better both objectively (i.e., placing) and subjectively (satisfaction with results) while dysfunctional emotions would be negative predictors of subjective and objective performance.

Method

Participants

One hundred and ten athletes participating in the Sydney 2000 Olympic Games from two Nordic countries were invited to take part in this study. Sixty-seven athletes completed the questionnaire. Six questionnaires were excluded due to incomplete answers, leaving the final total of 61 participants (response rate = 55.5%). The final sample included 44 Norwegian and 17 Danish athletes (36 females and 25 males). Mean age for the participants was 27.6 ± 5.03 years. Twenty-four medal winners were represented in the final group of study participants.

Measurements

Stress and Coping Measures. The participants were asked to describe the most stressful experience they encountered while competing in the Olympic Games 2000. The participants were then asked to indicate on a 0-10 scale (0 indicating *not stressful* and 10 indicating *the most stressful experience I have had in life so far*) the level of stress experienced. This way of measuring level of the stress experience was utilized in order to provide some relative information regarding how this group of Olympic athletes classified the reported stressful occurrence compared to other stressful events in their lives. When completing this measure, if the athletes competed in more than one event, they were asked to choose the most important competition.

Coping Strategies. The COPE inventory (Carver et al., 1989) was used to assess reported use of coping strategies. The COPE contains 14 scales comprised of four items each. Responses are scored on a 4-point Likert-type scale (1 = *did not do this at all*, 4 = *did this a lot*) and a mean score is calculated for each subscale. Five scales target problem-focused coping strategies (active coping, planning, suppression of competing activities, restraint coping, seeking instrumental support), six scales tap emotion-focused coping (seeking emotional social support, positive reinterpretation and growth, acceptance, denial, turning to religion, humor), and three scales measure behavior-focused coping (focus on and venting of emotions, behavioral disengagement, mental disengagement). The turning to religion scale in the original battery was not used in this study due to its possible provocative nature.[1]

The athletes were asked to describe the most stressful situation they had experienced while competing in the Olympic Games and then, based on what they described, indicate the strategies used to deal with the stressful situation. This corresponds to the situation specific coping version of COPE. The original scales have exhibited acceptable psychometric properties in previous work (Carver et al., 1989; Eklund, Grove, & Heard, 1998) and are recommended for use within a sport context (Gould, Eklund, & Jackson, 1993). The COPE has also been translated and validated in the case of Norwegian elite athlete samples in earlier investigations (e.g., Pensgaard & Ursin, 1998). The Norwegian and Danish written language are very similar, thus only minor modifications (i.e., specific words were changed when necessary) to the instrument were made by a Danish professor.

Coping Effectiveness. The athletes were asked to indicate on a 0-100 scale (0 indicating *not effective* and 100 indicating being *completely (i.e., 100%) effective*) how effectively they felt they had coped with the stressful situation when competing in the Olympics.

Emotions. Based on the recommendations outlined by Hanin (2000), we wanted to capture both intensity and direction (i.e., dysfunctional and optimizing aspects) of the different emotions experienced by the athletes when competing in this particular competition in the Olympic Games. The athletes were asked to think about the same competition and the same stressful situation as was their focus when indicating the coping strategies used. Thirteen different emotions, 8 positive toned (i.e., enthusiastic, certain, ready, happy, safe, determined, relaxed, optimistic outlook) and 5 negative toned (i.e., anger, afraid, tired, anxious, pessimistic outlook) emotions were listed (plus an open-ended emotion category). The list of emotions was based on the most frequently rated emotions reported by athletes in previous studies (Hanin, 1997; Gould, et al., 1999). The athletes were first asked to indicate the intensity of the emotion experienced on a Borg-like intensity scale (Hanin, 2000). This scale is divided into the following categories: 0 = *nothing*, 0.5 = *very, very little*, 1 = *very little*, 2 = *little*, 3 = *moderate*, 5 = *much*, 7 = *very much*, 10 *very, very much*, and 11 = *maximum*. Then the athletes were asked to indicate whether the emotion in question had an optimizing (indicated by writing a [+] in front of that particular emotion) or dysfunctional (indicated by writing a [–] in front of that particular emotion) effect on the performance. Frequency of emotions was measured by counting how many optimizing versus dysfunctional emotions the participants reported.

Performance Measures. The official placing in the 2000 Olympic Games was used as the objective criterion of athletic performance. In order to measure the

athletes' subjective performance, the participants were asked to rate on a 0-100 scale (0 = *unsatisfied*, 100 = *very satisfied*) how satisfied they were with their performance when competing in the 2000 Olympic Games.

Procedure

The participants responded to a multi-sectioned questionnaire mailed to the athletes, together with a recommendation letter from the respective country's Olympic Committee and informed consent form, immediately after the closing of the Games. This questionnaire was part of a larger pre-post study involving Scandinavian athletes participating in the 2000 Summer Olympic Games. Only the section involving emotions and coping efforts will be reported in this paper. It was made clear that participation in this research was voluntary, that the study participants could withdraw at anytime without penalty, and that all answers were anonymous.

One reminder was sent to those athletes who had not responded within two weeks, and we did not accept questionnaires that arrived later than one month after the closing of the Games. Although this strategy might have contributed to a suppression of the response rate, it was deemed more important to avoid too much time between the close of the competition and the completion of the questionnaires by the respondents.

Data Analyses

Descriptive statistics were computed for all variables (i.e., coping strategies, coping effectiveness, and emotions), and zero-order correlations between the variables were calculated. Aggregate scores for positive optimizing, negative optimizing, positive dysfunctional, and negative dysfunctional emotions were computed. Composite scores were then computed for optimizing emotions (positive and negative) and dysfunctional emotions (positive and negative). Composite scores for problem-focused strategies (i.e., active coping, planning, seeking instrumental support) and emotional-focused strategies (i.e., positive reinterpretation and growth, seeking emotional social support, venting, denial, acceptance, and humor) were computed (Carver et al., 1989). Hierarchical regression analyses were conducted to determine the predictors (i.e., perceived coping effectiveness and emotions) of objective and subjective performance.

Results

Descriptive Statistics. Means, standard deviations, and min-max values for all variables assessed are shown in Table 1. Cronbach alpha values were satisfactory for nine of the subscales of COPE (i.e., alphas > .60). Although the more common criterion for an acceptable alpha is .70 (Nunnally, 1978), Hair, Anderson, Tatham, and Black (1998) argue that when there are a limited number of items in the subscale in question, lower alphas should also be considered accepted. Thus, nine subscales were retained while four subscales with reliability coefficients less than .60 were eliminated from subsequent analyses (namely, mental disengagement, behavioral disengagement, suppression of competing activities, and restraint coping).

The most frequently used coping strategy was *acceptance*, followed by *positive redefinition and growth* and *active coping*. The least used strategy was *denial*. A rather high degree of coping effectiveness was reported. The current sample

Table 1 Descriptive Statistics for the COPE Subscales, Strength of Stress Experience, Coping Effectiveness, and Objective and Subjective Result

Variable	*M*	*SD*	Min-max	α
COPE				
Active coping	9.9	2.8	4-16	.69
Planning	9.8	3.2	4-16	.78
Redefinition & growth	10.0	2.7	4-16	.61
Mental disengagement	6.3	1.8	4-12	.27
Behavioural disengagement	5.1	1.7	4-10	.42
Social instrumental	8.3	3.1	4-16	.74
Social emotional	9.4	3.7	4-16	.84
Venting of emotions	8.0	3.2	4-16	.77
Denial	5.8	2.2	4-13	.69
Acceptance	10.5	3.4	4-16	.74
Suppression of competitive activities	7.9	2.5	4-16	.58
Restraint coping	7.4	2.0	4-12	.22
Humour	7.1	2.4	4-14	.61
Strength of stress experience	6.6	2.3	2-10	
Coping effectiveness	77.8	23.8	0-100	
Objective result	9.2	10.7	1-45	
Subjective result	56.1	41.1	0-100	

consisted of athletes who, on average, performed within the top 10 in their respective competitions. Concerning the subjective satisfaction with performance results, the athletes reported moderate satisfaction, but there was considerable variance.

Stress Experience. The different stress experiences reported were categorized independently by the two investigators into 4 different categories, namely (a) performance-related (e.g., did not perform up to the level I expected, felt I underperformed; $N = 23$); (b) psycho-social stress (e.g., negative thoughts, expectations; $N = 17$); (c) external (e.g., judges, competitors; $N = 12$); and (d) injury (e.g., felt I was not fully recovered, my leg was aching; $N = 5$). A medium level of overall stress experienced (compared to the most stressful life experience) was revealed by this sample of athletes but there was considerable variability.

Frequency and Intensity of Emotions. When examining the observed frequencies for the various emotions, there was an indication that when athletes perceive optimizing emotions, they tend to experience a range of these emotions during the competition. More than 50% of the athletes who reported optimizing emotions when performing experienced between 8-10 different emotions. The picture is rather different when the focus is on dysfunctional emotions. More than one-quarter of the athletes experienced no dysfunctional emotions whatsoever during their

performance, and just over 10% experienced more than 5 debilitative emotions while performing. There was a significant negative relationship between reports of dysfunctional and optimizing emotions (r = -.32, p < .03).

The participants experienced intense emotions during the Olympic Games competitions, and overall, the optimizing emotions were stronger than the dysfunctional emotions (Table 2 and 3) even when faced with a stressful situation.

Table 2 Optimizing Emotions Experienced During the Olympic Competition

Emotion	*N*	*M Intensity*	*SD*
Enthusiastic (P+)[1]	55	7.8	2.7
Ready (P+)	56	7.0	2.7
Optimistic (P+)	55	6.3	2.7
Safe (P+)	51	6.3	3.0
Sure (P+)	53	6.2	2.9
Determined (P+)	55	6.0	2.8
Happy (P+)	54	5.8	3.8
Relaxed (P+)	47	4.8	2.8
Anxious (N+)[2]	42	4.0	2.4
Angry (N+)	40	2.2	2.8
Tired (N+)	21	2.0	2.5
Scared (N+)	32	1.0	2.0
Pessimistic (N+)	24	0.5	1.4

[1](P+) = emotion descriptions perceived as positive and optimal (enhancing) performance
[2](N+) = emotion descriptions perceived as negative but optimal (enhancing) performance

Table 3 Dysfunctional Emotions Experienced During the Olympic Competition

Emotion	*N*	*M Intensity*	*SD*
Tired (N–)[3]	36	3.9	2.9
Pessimistic (N–)	33	2.3	2.5
Scared (N–)	25	3.2	3.2
Angry (N–)	18	4.5	3.7
Anxious (N–)	15	3.2	3.1
Relaxed (P–)[4]	10	3.3	2.8

[3](N–) = emotion descriptions perceived as negative and dysfunctional (impairing) performance
[4](P–) emotion descriptions perceived as positive but dysfunctional (impairing) performance

Table 4 Correlations Between Coping Effectiveness and Optimizing and Dysfunctional Emotions Experienced During the Olympic Competition

Variable	1	2	3	4	5	6
1. Coping effectiveness	1.00					
2. Positive optimizing (P+)	.31*	1.00				
3. Positive dysfunctional (P–)	.07	.51	1.00			
4. Negative optimizing (N+)	–.28*	–.17	–.75*	1.00		
5. Negative dysfunctional (N–)	.05	–.32*	.23	–.08	1.00	
6. Stress intensity	–.31*	–.10	–.16	.37**	.28	

Note. The sample size in the different emotion variables varies; Positive optimizing n = 55; Positive dysfunctional n = 12; Negative optimizing n = 53; Negative dysfunctional n = 44.

Emotions and Coping. There were no significant correlations between coping strategy use (i.e., the emotions-focused strategies nor the problem-focused strategies) and reported optimizing or dysfunctional emotions. However, coping effectiveness was significantly and positively related to positive optimizing emotions and significantly and negatively associated with negative optimizing emotions (Table 4).

Predictors of Performance. In order to determine the unique contribution of emotions (optimizing and dysfunctional) and coping effectiveness to both objective and subjective performance, two hierarchical regression analyses were conducted. Regarding emotions, composite scores were constructed for the two sets of variables in accordance with Hanin's (2000) recommendations and based on whether the participants had rated the emotion as enhancing or debilitating in terms of their performance. The first was labeled *optimizing emotions* (i.e., angry, enthusiastic, sure, ready, happy, safe, determined, relaxed, anxious, and optimistic outlook), and the second was labeled *dysfunctional emotions* (i.e., angry, scared, sure, happy, safe, determined, relaxed, tired, anxious, and pessimistic).

In the first analysis, objective performance (i.e., placing) served as the criterion variable, and coping effectiveness and the composite scores of optimizing and dysfunctional emotions were the predictor variables. In the second, subjective satisfaction with performance was the dependent variable. High coping effectiveness was the only significant predictor of objective result, $F(1, 41) = 4.069$, $p = .05$, $\beta = -.30$. However, when subjective performance was the dependent variable, dysfunctional emotions also emerged as a significant negative predictor, $F(1, 43) = 8.269$, $p = .006$, $\beta = -.39$, R^2 Change = .13, while coping effectiveness, $F = (1, 43) = 10.356$, $p = .003$, $\beta = .41$, R^2 Change = .17 emerged as a significant positive predictor. The amount of explained variance in objective and subjective results as a function of the athletes' perceived efficacy of their coping efforts and the intensity of their optimizing and dysfunctional emotions was 17% and 35%, respectively.

Discussion

The findings from this study lend support to Hanin's position (Hanin, 2000) and revealed that several negative toned emotions were described as being optimal for performance, while only one positive toned emotion was viewed as being debilitating, that is, feeling relaxed. Six emotions "overlapped" and were deemed by different athletes to play both an optimizing and dysfunctional role (i.e., tired, pessimistic, scared, angry, anxious, and relaxed). These results are also in line with the work of Gould and colleagues (1999). All in all, the findings suggest that when measuring emotions, it is vital that we determine whether each emotion is perceived as facilitating or debilitating for the athletes' performance. It would not be accurate, it seems, to assume that negative emotional responses are always problematic and positive emotions advantageous with respective to performance.

Frequency and Intensity of Emotions

It is interesting to note that the athletes in this study reported a rather high frequency of positive optimizing emotions in spite of experiencing a stressful situation. In the Gould et al. (1999) study, the participants on average cited three emotional feeling states, while the average in this study was eight for optimizing emotions and two for dysfunctional emotions. The reason for this discrepancy may be that the athletes in the current investigation were asked to report the emotions they experienced during a specific competition and at a very intense moment of that competition (i.e., a negative stressful situation) at the Olympic Games right after they had finished competing, while athletes in the Gould et al. research were requested to recall any competition during the last year and then indicate the emotions felt. It is also possible that the difference in level of the athletes participating in the Gould and colleagues' investigation and our research influenced the findings. It may be that emotions experienced when competing at the highest level are both stronger and more diverse in nature due to the importance of the outcome and/or the experience of the competitors. With respect to this latter possibility, more elite athletes may be more attuned to their emotional states than less accomplished competitors.

Lazarus (1991) claims that negative emotions are usually stronger than positive emotions. This was not the case in our study, and Lazarus' position is also not in line with Hanin's (2000) results. One possible explanation for this inconsistency may be that, although sport does play an important role in the daily activities of elite athletes, the competitive athletic experience could be considered a long way from more serious and salient events that take place in people's lives. The relatively moderate level of strength of the stressful experience reported by the athletes (during the Olympic Games) in this study is consistent with this premise. Another explanation could be that the athletes in the current research may have suppressed the intensity of the negative emotions. Findings by Thomas and Diener (1990) suggest that individuals seem to have problems with accurately retrieving both the frequency and intensity of negative emotions when reported retrospectively. They found that overall, when stemming from a recall of past events, self-report of the frequency of emotions seems to be more reliable than intensity ratings. Such potential biases regarding the reporting of positive and negative emotions should be investigated further in the competitive sport context.

In the current findings, it was interesting to note that anger was reported to be the most intense negative and dysfunctional emotion by eighteen athletes. Anger is often regarded as a particular salient and complex emotion (Isberg, 2000), and it often occurs when one's ego-identity is threatened (Lazarus, 1991). However, the meaning and expression of anger are influenced by cultural and social factors. Averill (1983) argues that anger can be destructive as well as constructive in that in some cases, it can help uphold social norms. Within sport, a certain level of anger is regarded as a positive element for performance (Hoffman, Bar-Eli, & Tenenbaum, 1999; Isberg, 2000). More that 50% of the athletes in this study reported that anger was an optimizing emotion for them while competing in the Olympic Games, but it is important to note that the intensity of the anger was rather low. It should be noted too that the more common negative emotion (anxiety) had an average optimal intensity level that was minimal. So, in the case of high-level athletes, the present findings suggest that anger (and anxiety) might be beneficial if tempered. Perhaps it is the case that such negative emotions serve as a "charger" when activation levels are less than optimal.

There was a significant negative correlation between optimizing and dysfunctional emotions. Diener and Emmons (1984) claim that positive and negative emotions are orthogonal; however, this is probably dependent upon when emotions are measured (Lazarus, 1991). Before an event, both types of emotions could be present, while during performance, it will very much depend upon the duration of the contest, and it is less likely that both types of emotions will be experienced at the same time. After an event, it is also more likely that one type of emotion will be evident, although an athlete may, of course, experience mixed emotions such as feeling both tired (due to the physical exertion) but also happy. If we follow Lazarus'(1999) reasoning, insight is needed into the cognitions of the athlete in order to understand why different types of emotions may be present at the same time, or within short periods of time, and why sometimes positive and negative emotions occur independently while they are coupled at other times.

Emotions and Coping

As expected and consonant with the findings of Folkman and Lazarus (1988), coping strategies were not significantly related to any particular emotion during the recalled stressful Olympic competition, but perceived coping effectiveness was associated with reported emotional responses. Regardless of what kind of strategies the athlete uses in order to cope with the task at hand, it is the perceived effectiveness of the effort that seems to be most important when emotionally reacting to acute stressors (Ursin, 1988). On a long-term basis, however, we would expect interdependence between coping strategies and emotions. For example, Folkman and Moskowitz (2000) have identified three kinds of coping related to the occurrence and maintenance of positive affect among AIDS caregivers, namely positive reappraisal, problem-focused coping, and the infusion of ordinary events with positive meaning. An interesting direction for future sports-related research would be to examine the interplay over time between both positive and negative emotions, coping strategy use, and the quality of the athletes' sport experience.

In the present study, perceived coping effectiveness was significantly and positively related to the experience of positive, optimizing emotions. Interestingly, though, coping effectiveness was negatively related to negative, optimizing emotions. Thus, athletes who reported performance facilitating negative emotions such

as feeling angry, scared, or pessimistic, also reported lower levels of coping effectiveness. Overall, these results suggest that the athletes were not simply rating their coping efforts as effective if the subsequent performance was positive or vice versa.

The positive link between coping effectiveness and positive optimizing emotions is logical and in accord with our expectations. It makes sense that effective coping with a stressor would be coupled with more constructive and perhaps pleasant emotions that are not problematic in terms of the task at hand. Lazarus (1999) argues that emotions can be both antecedents and consequences of cognitions. While our study only suggests a correlational relationship between cognitions regarding coping efficacy and positive optimizing emotional responses, it would be interesting for future work to investigate whether there is a causal connection and ascertain which variable is the "cause" versus the "effect" in the sport context.

A more surprising finding was that coping effectiveness was inversely related with negative optimizing emotions. In attempting to explicate this result, it is interesting to note that negative optimizing emotions were the only category of emotions that were significantly correlated with the rated intensity of the stress experience. It could be that the athletes used these emotions to compensate for the lack of coping effectiveness in order to not just give up when the "going got rough." This raises an important question as to what *meaning* the different emotions have for the athlete. It is known that athletes can perceive both positive-toned and negative-toned emotions as facilitating for performance (Hanin, 2000), but we do not know *why* they perceive the emotions in question to be facilitating. Furthermore, we also need more insight into what athletes mean when they say that they cope effectively.

Predictors of Performance

Lazarus (1991) claims that positive emotions should lead to positive outcomes. However, as Hanin (1997, 2000) and Jones (1995) among others repeatedly have discovered, this is not always the case within competitive sport. Neither the experience of optimizing nor dysfunctional emotions was related to objective results in the current study. One reason why neither type of emotions corresponded to competitive performance may be methodological; that is, in the current study, we asked the participants to indicate what emotions they had experienced *while* they were competing. Emotions experienced during a competition are likely to differ from the ones experienced both prior to and after the event itself (Lazarus, 1991). A potential moderating variable of ensuing emotional responses is perceived level of goal attainment throughout a competitive event. Type of sport and duration of competition possibly also come into play. For example, during a soccer match, a player can have several negative, dysfunctional emotions, but the team may still win the game and then she experiences positive emotions.

Our results suggest the importance of being attuned to when emotions are reported in work among athletes. Indeed, an intriguing direction for subsequent investigation would be to examine the dynamic of the emotions athletes experience prior to, during, and after an important competition with respect to coping efforts and their perceived efficacy and ensuing subjective and objective competitive outcomes.

In the current results, the single predictor of objective results was perceived coping effectiveness. When subjective satisfaction with results was examined, coping effectiveness emerged as a significant predictor, while dysfunctional

emotions were negatively related. The fact that coping effectiveness predicted positive objective results supports the argument put forward by Ursin (1988) and Lazarus (1999). They have suggested that coping can be judged to be successful, in the short term, regardless of which strategies have been employed. What we need to investigate further is the long-term effect of employing certain coping strategies. To do this, we need to monitor coping responses over a period of time in order to get a clear picture of what strategies athletes use both in the sport context and everyday life settings. This way of obtaining insight into how athletes cope seems to be necessary because Schwartz, Neale, Marco, Shiffman, and Stone (1999) found only weak support for the claim that an examination of coping dispositional tendencies (i.e., individual differences in the tendency to use the same type of strategies when faced with stressful situations overall) is predictive of how a person actually copes in particular contexts.

Limitations and Applied Implications

The retrospective design of this study and the moderate response rate prevent the forwarding of strong conclusions. It is a challenge to collect data when athletes compete at this level, and, therefore, it is understandable while sample sizes will often be low when conducting research among elite athletes at important competitions (Pensgaard & Roberts, 2000). However, that should not restrict us from continuing to do research among members of this population and perhaps employing different methodological approaches in order to capture more in-depth information from elite-level athletes.

From an applied perspective, the present results suggest that it is important for both coaches and sport psychology consultants to consider that athletes experience different positive and negative emotions in relation to performance. These emotions can be deemed facilitating or dysfunctional and vary in their strength. Such a realization has implications for the interventions most suitably employed with elite competitors. For example, teaching relaxation techniques is often included when working with high-level athletes (Hardy, Jones, & Gould, 1996). It therefore becomes vital to determine whether, for each particular athlete, such techniques would be appropriately employed in the competitive setting. There is also a need to be aware of the intensity of the emotions experienced when considering individual differences in the emotion-performance relationship. For example, drawing from the present results, it appears that a low to moderate dose of anger may have an optimizing effect for some athletes, while a more intense feeling of anger may be debilitating for others.

Further, the current findings imply that perceived coping effectiveness is a particularly important factor influencing objective and subjective competitive results among high-level performers. Consequently, it seems prudent for athletes to learn how to execute their cope with difficult moments in an effectual manner. To foster coping effectiveness, training sessions should, on a regular basis, simulate real competitions so that the athlete learns how to deal with possible distracters and handle stressors efficaciously in a “real-life” sport setting.

In general, this study points to the need to consider the complex interrelationships between emotions, coping responses, and performance in our applied work with elite athletes. Perhaps more detailed and systematic case studies of athletes during important competitive events will help further unravel some of this complexity.

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Author Note

[1]The COPE inventory was also used in a study involving Norwegian Olympic athletes competing in the 1994 Winter Olympic Games (Pensgaard & Ursin, 1998). The turning to religion scale was omitted in that study because comments were made during the translation process that the question concerning belief in God could be provocative for some of the athletes. Since the targeted group were from the same culture, we decided to omit this subscale in the current study based on the same reasons.

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