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Emotional Maturity, Dispositional Coping, and Coping Effectiveness among Adolescent Athletes

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Abstract

Objectives: Although some scholars have suggested that coping is constrained by emotional maturity, little is known about the relationship between these constructs. In this paper we assessed a model that included emotional maturity, dispositional coping, and coping effectiveness. We predicted that emotional maturity would have a direct effect on coping effectiveness in addition to an indirect effect via task-, distraction-, and disengagement-oriented coping.

Design: Cross-sectional.

Methods: Seven hundred and ninety athletes completed measures of emotional maturity, dispositional coping, and coping effectiveness. The data was analyzed using structural equation modeling, which revealed partial support for our model.

Results: Several of the predicted paths were significant. In particular, there was a significant path between emotional maturity and task-oriented coping, but the paths between emotional maturity and distraction- and disengagement-oriented coping were not significant.

Conclusion: Our findings indicate that how an athlete copes might be limited by his or her level of emotional maturity, which provides further evidence that coping is constrained by maturation among adolescent athletes.

Keywords: Adolescence; Emotional Intelligence; Emotions; Maturation; Optimism

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Adolescents have to contend with a variety of physical, emotional, educational, and social changes, which can be stressful (Boekaerts, 1996). Coping develops throughout the maturation process in adolescence, which results in adolescents progressively having more variety in the strategies they can deploy (Seiffge-Krenke, 1995). Indeed, it is thought that coping is constrained by biological, cognitive, social, and emotional maturation (Compas, Connor-Smith, Saltzman, Harding Thomsen, & Wadsworth, 2001). A person's level of biological maturity influences how a person copes through the development of physiological systems in the body that are related to coping, such as the hypothalamic-pituitary-gonadal axis (HPGA; McCormick & Mathews, 2007). Coping may also be constrained by cognitive maturity, because a person needs sufficient meta-cognitive abilities, which is associated with maturation (Williams & McGillicuddy-De Lisi, 1999), to be able reflect on coping. Finally, coping is thought to be constrained by emotional maturity. Theoretically, a less emotionally mature individual would be unable to regulate his or her emotions and may respond to stressful situations by only venting his or her emotions, because the individual does not have alternative way of responding to stress (Amirkhan & Auyeung, 2007). Little, however, is known about the relationship between coping and emotional maturity among adolescent athletes. In order to address this gap in the literature, we assessed a model that included emotional maturity, dispositional coping, and coping effectiveness among adolescent athletes.

Emotional maturity refers to "the ability of facilitating and guiding emotional tendencies to reach intended goals" (Yusoff, Rahim, Pa, Mey, Ja'afar, & Esa, 2011, p. 294). According to Yusoff et al. (2011), individuals who are emotionally mature are outcome-oriented, have a high desire to achieve goals, take calculated risks, search for information to minimize uncertainty, hope for success rather than fear failure, and view setbacks as

controllable rather than a personal flaw. There is only a limited amount of research concerning emotional maturity among athletic populations. Rathee and Singh Salh (2012) explored emotional maturity among 120 international, national, or state level handball players. The international level athletes scored significantly higher on emotional maturity than the national or state level athletes, although these scholars did not assess how emotional maturity was related to coping.

Coping refers to all conscious cognitive and physical efforts aimed at managing demands that are evaluated as taxing a person's resources, whereas coping effectiveness refers to the successfulness of a coping strategy in managing demands that are appraised as taxing (Lazarus & Folkman, 1984). Therefore, strategies that are successful in eliminating stress could be considered effective; whereas coping that has little impact on reducing stress could be considered ineffective (Lazarus, 1999). However, Skinner, Edge, Altman, and Sherwood (2003) suggested that distinguishing between effective and ineffective coping represents a challenge to researchers. This is because a particular strategy might be effective in one situation but not another, for one person but not another person, or in the short-term but not the long-term (Lazarus). Although Skinner et al. (2003) also suggested that some strategies will be inherently ineffective (e.g., social withdrawal or helplessness) for all people and across all situations. Therefore, understanding more about coping effectiveness is important for the development of interventions to help athletes manage stress more effectively.

Scholars have distinguished between situation and person analyses of coping (Lazarus & Folkman, 1984). Coping can be measured at the situation level, which is referred to as process coping (Lazarus & Folkman), and is concerned with the strategies a person used in a specific situation. Researchers can also investigate coping at the person level and assess how an individual would normally cope, which is known as dispositional coping. Lazarus and

Folkman viewed person analyses of coping as the structure that influences the coping process. According to Fleeson (2004), the debate regarding whether psychological constructs should be measured as a process or trait is over, because both measurements can be accurate. That is, process assessments are more accurate than trait measurements regarding how a person behaves or thinks in a specific situation, because behavior can vary within a situation. However, dispositions are highly accurate in predicting trends over long periods of time and are therefore useful in explaining differences between people. In support of dispositional analyses of coping, Louvet, Gaudreau, Menaut, Genty, and Deneuve (2007) reported that coping remained relatively stable over three competitions within a six month period.

Regardless of whether coping is assessed at the situation or person level, researchers tend to classify coping within dimensions. Gaudreau and Blondin (2004) were among the first coping scholars to classify coping within the three higher-order task-, distraction-, and disengagement-oriented coping dimensions. Task-oriented coping includes attempts to change or master stressful situations and includes strategies such as mental imagery and thought control. The purpose of distraction-oriented coping is to direct the person's attention onto unrelated aspects and includes strategies such as mental distraction and distancing. Finally, the aim of disengagement-oriented coping is to help the person disengage from attempts to attain personal goals. Withdrawal and venting of emotions are examples of coping strategies classified within the disengagement-oriented coping dimension.

It is thought that coping changes throughout a person's lifespan, with many changes occurring during adolescence (Compas et al., 2001). Adolescence spans from 12 to 22 years of age, with three different sub-categories: early adolescence (12-16 years of age), middle adolescence (17-18 years of age), and late adolescence (19-22 years of age; LaFontana & Cillessen, 2010). In the past, researchers have tended to explore how athletes of different ages cope (e.g., Amirkhan & Auyeung, 2007). For example, both Groér, Thomas, and Shoffner

(1992) and Gamble (1994) reported that younger adolescents used more strategies to regulate their emotions than older adolescents, whereas older adolescents used more problem-focused coping strategies. In contrast to these findings, Plancherel, Bolognini, and Halfon (1998) and Williams and McGillicuddy-De Lisi (1999) found that coping strategies employed to regulate emotions increased with the chronological age of the participants. These equivocal findings may be due to the scholars only assessing chronological age and ignoring maturation. Maturation may be more meaningful than chronological age, because people mature at different rates (McCormick & Mathews, 2007). Nevertheless, the findings by Plancherel et al. (1998) and Williams and McGillicuddy-De Lisi suggest that coping may be related to emotional maturity.

In response to Compas et al.'s (2001) assertion that coping is constrained by maturation, two studies have specifically explored the relationship between maturation and coping among athletes. With a sample of 527 athletes, Nicholls, Polman, Morley, and Taylor (2009) explored how athletes of different biological maturity and chronological age coped during competitive events and whether there were any differences in coping effectiveness among athletes of different biological maturity. Biological maturity was categorized into one of four pubertal status groups: beginning-pubertal, midpubertal, advanced-pubertal, and postpubertal. The authors found some subtle differences, with beginning and midpubertal athletes using more distancing than advanced- or postpubertal athletes. Interestingly, distancing belongs to the distraction-oriented dimension of coping, which has been found to be a less effective form of coping (Nicholls, Perry, Jones, Morley, & Carson, 2013).

As a follow up to Nicholls et al. (2009), Nicholls et al. (2013) explored the relationship between cognitive-social maturity and dispositional coping and coping effectiveness. Conscientiousness and peer influence, which represented two of the three subscales of cognitive-social maturity, were associated with task- and distraction-oriented

coping. As such, these authors found further support for Compas et al.'s (2001) claim that coping is related to cognitive and social maturity. In contrast to the findings of Nicholls et al. (2009) and the authors' hypothesis, however, there was not a significant path between task-oriented coping and coping effectiveness. There were negative paths between distraction- and disengagement-oriented coping and coping effectiveness. That is, although task-oriented coping was not associated with the adolescents coping more effectively, distraction- and disengagement-oriented coping was associated with the athletes coping less effectively.

Aims and Hypotheses

The aim of this study was to assess a model that included emotional maturity, dispositional coping, and coping effectiveness among a sample of early and middle adolescent athletes. Our hypotheses are illustrated in Figure 1. We hypothesized that there would be a positive path between emotional maturity and task-oriented coping, but negative paths between emotional maturity and both distraction- and disengagement-oriented coping. Although scholars have not specifically explored the relationship between coping and emotional maturity, researchers have explored the relationship between a somewhat similar construct and coping, known as optimism. Conceptually, a key behavior of emotional maturity is similar to a characteristic associated with optimistic individuals, which is goal striving (Scheier & Carver, 1985). That is, both emotional mature and optimistic people have a strong desire for goal attainment and continue to pursue their goals (Scheier & Carver; Yusoff et al., 2011). Due to the lack of theoretical propositions or empirical data regarding emotional maturity and coping, the hypothesized relationship between these constructs is based on the relationship between optimism and coping. A meta-analysis by Solberg Nes and Segerstrom (2006) revealed that optimistic individuals were more likely to use approach coping strategies, but less avoidance strategies. Approach strategies are similar to task-oriented coping, whereas avoidance coping strategies are akin to distraction- and

disengagement-oriented coping. In regards to other studies that have explored the relationship between maturation and coping, Nicholls et al. (2009) found that the less biologically mature athletes used more distancing, which is classified within the distraction-oriented coping dimension.

We also hypothesized that there would be a positive path between emotional maturity and coping effectiveness. Although Nicholls et al. (2013) did not find significant paths from the cognitive-social maturity dimensions (i.e., conscientiousness, peer influence on behavior, and rule following) to coping effectiveness, Compas et al. (2001) suggested that coping is constrained by maturation. A more emotionally mature athlete's coping would be less constrained, so he or she should therefore be able to cope more effectively, based on empirical data that coping is learned (Tammisen & Holt, 2012). Finally, we hypothesized that there would be a positive path between task-oriented coping and coping effectiveness, but negative paths between both distraction- and disengagement-oriented coping (Nicholls, Polman, Levy, & Borkoles, 2010).

Method

Participants

Seven hundred and ninety athletes (male $n = 546$, female $n = 244$), aged between 12 and 18 years ($M_{age} = 15.34$ $SD = 1.94$) participated in the study. Participants were from team ($n = 626$) and individual sports ($n = 164$). Our sample consisted of 649 Caucasian, 75 Asian, and 31 African-Caribbean, and 35 athletes from other ethnic origins. The athletes in our sample competed at international ($n = 29$), national ($n = 69$), county ($n = 167$), club ($n = 442$), and beginner ($n = 83$) levels.

Measures

Emotional Maturity. We adapted the USM Emotional Quotient Inventory (USMEQ-i; Yusoff et al., 2011) to assess the emotional maturity level of the athletes. The original

questionnaire contains 35 items, but participants only completed the eight items relating to emotional maturity. Participants were asked to “answer questions with regards to how you normally feel during sport.” Questions included “I can express my intentions to others, and can tell people what I want and what I don't want.” We changed only one question, which was reworded from “I'm motivated to learn something because of I want to learn it” to “I'm motivated to learn new skills and techniques in sport because I want to learn them.” All of these questions were answered on a 5-point Likert-type scale, which was anchored at 1 = *not at all like me* and 7 = *totally like me*. Yusoff et al. reported that the emotional maturity section of the USMEQ-i had a Cronbach alpha coefficient of .82 among a sample of 486 medical students. The age range of the participants was not specified.

Coping. The 37-item Dispositional Coping Inventory for Competitive Sport (DCICS; Hurst, Thompson, Visek, Fisher, & Gaudreau, 2011) was used to assess coping. The DCICS (Hurst et al., 2011) measures three higher-order dispositional dimensions (e.g., task-oriented coping, distraction-oriented coping, and disengagement-oriented coping) from 10 different dispositional coping strategies. An example of a task-oriented question was “I try to relax my body.” “I retreat to a place where it is easy to think” was a distraction-oriented question and “I let myself feel hopeless and discouraged” was an example of a disengagement-oriented coping strategy. Athletes rated how they normally cope on a 5-point Likert-type scale, with 1 representing “*Does not correspond to what I do or think*” and 5 representing “*Corresponds very strongly to what I do or think*.” Cronbach alpha coefficients for the 10 dispositional strategies ranged from .60 to .80 among a sample of 596 athletes, who were aged between 18 and 23 years of age (Hurst et al.).

Coping Effectiveness. We used the 7-item Coping Effectiveness Scale (CES; Gottlieb & Rooney, 2004) to assess how effectively the athletes generally coped with the most salient stressor in their sport. The CES (Gottlieb & Rooney) contains items such as

“This stressor upsets me as much now as it ever did. I haven’t really got used to it,” and “The ways I try to cope with this problem are not working too well these days.” The scale utilizes a 4-point Likert-type scale, anchored at 1 representing “*Strongly disagree*” to 4 representing “*Strongly agree*.” The CES had an internal reliability of .69 among a sample of 141 family caregivers, who were aged between 31 and 88 years old (Gottlieb & Rooney).

Procedure

This study was granted ethical approval by a departmental University Ethics Committee. Following ethical approval, an information letter was sent to heads of physical education at schools, governing bodies, along with professional and amateur sports teams. This letter described the study and provided information on the requirements of participants. An information letter and assent form was sent to all participants. Consent forms were also sent to parents/guardians, in the instance of a participant being 15 years of age and under.

Once permission for data collection had been granted, a date was arranged for a research assistant to administer the questionnaires within the school or sports club. The questionnaires were completed in a classroom when data collection took place within a school or in a clubhouse when the data was collected at a sports club. Questionnaires were completed in the presence of a trained research assistant and a teacher or coach in all instances. The trained research assistants and teachers or coaches were present to answer any questions. All participants received a standardized questionnaire pack and completed the questionnaires in the same order. As such, participants completed the SMEQ-I (Yusoff et al., 2011), the DCICS (Hurst et al., 2011), and then the CES (Gottlieb & Rooney, 2004).

Data Analysis

Data from all measures was screened for outliers, normality, and composite reliability, as outlined by Raykov (1997). For the main analysis, we conducted structural equation modeling using the two-step model building approach (Anderson & Gerbing, 1988). All

analyses were conducted in Mplus 7 (Muthén & Muthén, 2012). Firstly, we tested the measurement model. We then examined the hypothesized structural model illustrated in Figure 1. To assess the measurement model and structural models, we employed Hu and Bentler's (1999) recommendations for fit indices of $CFI > .90$, $TLI > .90$, $SRMR < .08$, $RMSEA < .05$ indicating an acceptable model fit, while CFI and $TLI > .95$ represent an excellent fit of the model and data. However, we also acknowledge the recommendations by Marsh, Hau, and Wen (2004) who advocated more liberal criteria for complex models.

Due to the complexity of the model, owing to length of the DCICS, a full latent analysis was not appropriate for the sample size. Bentler and Chou (1987) recommend at least five cases per estimated parameter to test a hypothesized model. Consequently, for the DCICS variables, we used a parceling technique, initially proposed by Bagozzi and Edwards (1988). Parceling involves reducing the number of path coefficients by collapsing items from a scale into multiple composites. To achieve an appropriate number of free parameters for the sample size, we created three random parcels as indicators for the latent variables of task-oriented, distraction-oriented, and disengagement-oriented coping. As the USMEQ-i and CES are much shorter scales, parceling was not required and all retained items were used as indicators of the emotional maturity and coping effectiveness latent variables. The resultant ratio between participants and free parameters was 10.39:1, which was considered appropriate (Bentler & Chou). This represented the measurement model before structural paths were included between latent variables to create the structural model.

After testing model fit, we examined measurement invariance across subsamples for gender and age. To assess mediation, we examined a mediation model to determine any departure in fit compared to the combined effects model. We then examined direct and indirect effects. To interpret indirect effects, we used bootstrapping, as it does not hold assumptions of sampling distribution for indirect effects (Hayes, 2009). Additionally,

bootstrapping generates standard errors and confidence intervals. This enabled us to examine invariance among the sample.

Results

Descriptive Statistics

Correlations are presented in Table 1, whereas means, standard deviations, and composite reliability are presented in Table 2. Less than 0.1% of the data was missing and no outliers were detected from Q-Q plots. All variables demonstrated little deviation from univariate skewness (< 1 , $SE = .087$) and kurtosis (< 1 , $SE = .174$). Emotional maturity and DCICS variables all demonstrated acceptable composite reliability estimates (i.e., $> .70$). Two items from the CES failed to significantly load onto their latent variable and were removed from all further analyses. The two items deleted were Item 6 “I can find more or different ways of trying to cope with this stressor” and Item 7, “I am dealing with this stressor better than I used to do.” These two items are in contrast with the other items in the scale, as they are the only two positively phrased items. The removal of these items is consistent with the approach used by Nicholls et al. (2013), who encountered the same issue. Composite reliability of the revised 5-item CES was high (.80).

Inspection of the correlations in Table 1 revealed that the task-oriented coping strategies mental imagery, effort expenditure, thought control, seeking support, relaxation, and logical analysis correlated positively with emotional maturity. Interestingly, venting correlated positively with emotional maturity, but disengagement correlated negatively with emotional maturity. Examining the factor-correlation matrix in Table 2 revealed that emotional maturity was strongly positively associated with task-oriented coping ($r = .68$, $p < .01$) and weakly associated with coping effectiveness ($r = .14$, $p < .01$). Distraction-oriented and disengagement-oriented coping demonstrated a moderately high correlation ($r = .56$, $p <$

.01) and both were negatively correlated with coping effectiveness ($r_s = -.32$ and $-.26$, $p < .01$).

Structural Equation Modeling

All parcels were checked for normality, which presented no issues with univariate skewness or kurtosis. However, Mardia's coefficient demonstrated departure from multivariate kurtosis (80.0 , $p < .001$). Accordingly, the robust maximum likelihood estimator (MLR) was used in the subsequent analyses. We examined the measurement model in Stage 1 of our analysis, and found a good fit to the data: $\chi^2(199) = 513.1$, $p < .001$, CFI = .948, TLI = .939, SRMR = .039, RMSEA = .045 (90% CI = .040-.049). Factor loadings from the measurement model are presented in Table 3. In Stage 2 of our analysis we tested the structural model, which produced a similarly good fit to the data: $\chi^2(201) = 572.3$, $p < .001$, CFI = .938, TLI = .929, SRMR = .052, RMSEA = .052 (90% CI = .044-.053). Despite the good model fit however, only three structural paths were significant (Figure 2). Indeed, much of the fit of this model was brought about by the measurement model rather than the structural paths, which is indicated by the lack of substantive change in chi-square. Most substantively, emotional maturity was a strong predictor of task-oriented coping ($\beta = .70$, $p < .01$). Contrary to our hypothesis, task-orientation did not predict coping effectiveness. The other significant paths indicated that distraction-oriented coping negatively predicted coping effectiveness ($\beta = -.26$, $p < .01$) and emotional maturity positively predicted coping effectiveness ($\beta = .16$, $p < .05$). The path between disengagement-oriented coping and coping effectiveness was negative, but not statistically significant ($\beta = -.11$, $p < .09$).

Previous research has indicated that there are gender differences in emotional maturity (Rathee & Singh Salh, 2012) and coping (Nicholls et al., 2009). To examine if this had an effect on the hypothesized model, we conducted a multigroup SEM (MGSEM; Muthén & Muthén, 2012) to examine measurement invariance across males and females.

Configural invariance was examined by replicating the model of both groups. Secondly, metric invariance was examined by constraining factors. Thirdly, scalar invariance was examined by constraining factors and item intercepts. Fourthly, residual invariance was examined by constraining factors, item intercepts, and factor means and finally, structural invariance was examined by constraining the structural paths on the model, while maintaining scalar invariance on the measurement model. Model invariance was deemed to be supported if ΔCFI was less than or equal to 0.01 (Cheung & Rensvold, 2002), although Meade, Johnson, and Braddy (2008) suggest a much more stringent ΔCFI (i.e., 0.002). Using the stricter criterion ($\Delta\text{CFI} < .002$), invariance was not supported for the measurement model across genders (Table 4) for scalar or residual invariance, though both met the more liberal criteria ($\Delta\text{CFI} < .01$). We then imposed the structural paths onto the model, which maintained acceptable measurement invariance ($\Delta\text{CFI} \leq 0.002$). To investigate further, an independent samples *t*-test confirmed significant gender effects for emotional maturity ($M_{\text{male}} = 3.78$, $SD = .71$, $M_{\text{female}} = 3.33$, $SD = .89$, $t(387.1) = 6.90$, $p < .01$), task-oriented coping ($M_{\text{male}} = 3.29$, $SD = .60$, $M_{\text{female}} = 3.04$, $SD = .64$, $t(788) = 5.33$, $p < .01$), and coping effectiveness ($M_{\text{male}} = 2.78$, $SD = .62$, $M_{\text{female}} = 2.63$, $SD = .68$, $t(434.6) = 2.90$, $p < .01$). For a further test of invariance, we examined age effects, splitting the sample into early adolescents (11-16 years) and middle adolescents (17-18 years; LaFontana & Cillessen, 2010). On increasingly constrained measurement models, invariance remained within the ΔCFI threshold of ≤ 0.002 , supporting invariance (Table 4). Finally, we imposed the structural paths onto the age model, which met the Cheung and Rensvold (2002) criterion ($\Delta\text{CFI} < 0.01$). Structural invariance did not meet the stricter criterion ($\Delta\text{CFI} < 0.002$), so any differences would be negligible and of little practical value.

To determine the mediating role of coping strategies between emotional maturity and coping effectiveness, we examined direct and indirect effects using the maximum likelihood

estimator and a bootstrap of 5,000 replications for confidence intervals. Indirect effects were deemed to be supported by the absence of zero in 95% confidence intervals. No indirect effects were supported in the model, with the largest effect present for the mediating role of task-oriented coping ($\gamma = .06$, 95% CI = -.02 to .14).

Discussion

The aim of this study was to assess a model that included emotional maturity, dispositional coping, and coping effectiveness. Overall, several of the predicted paths were significant. In particular, there was a significant path between emotional maturity and task-oriented coping, but the paths between emotional maturity and distraction- and disengagement-oriented coping were not significant. Contrary to the hypotheses, the paths between task- and disengagement-oriented coping with coping effectiveness were not significant. In support of our hypotheses, there was a significant negative path between distraction-oriented coping and coping effectiveness. Finally, there was a positive path between emotional maturity and coping effectiveness. These findings provide some support for Compas et al. (2001), who suggested that coping is constrained by emotional maturity.

The significant path between emotional maturity and task-oriented coping might be due a number of factors. The relatively similar construct of optimism is associated with continued striving (Scheier & Carver, 1985) and task-oriented coping represents an individual making further efforts to master a situation. There are however, alternative explanations that might account for relationship between task-oriented coping and emotional maturity. Given that coping has been found to be learned among adolescents (Tamminen & Holt, 2012), the emotionally mature athletes in the present study might have been more aware of the adaptive outcomes associated with this form of coping. Recent research by Doron and Gaudreau (2014), with a sample of elite fencers, revealed that task-oriented coping was associated with these athletes achieving successive point wins. Other research has also found that task-

oriented coping is associated with athletes performing better in golf (Gaudreau, Nicholls, & Levy, 2010) and collegiate volleyball players achieving their goals (Schellenberg, Gaudreau, & Crocker, 2013). As such, the more emotionally mature athletes in our study were tending to use some coping strategies that were associated with superior performance and goal attainment, rather than selecting coping strategies that have been associated with negative outcomes. That is, disengagement-oriented coping has been associated with poorer performances (Gaudreau et al., 2010) and negative goal attainment (Schellenberg et al., 2013). As such, enhanced maturity might have enabled the athletes to select the coping strategies with the most adaptive coping strategies.

Although scholars have found that task-oriented coping is more effective among adult athletes (Nicholls et al., 2010), there was not a significant path between task-oriented coping and coping effectiveness in this present study. This is similar to the finding of Nicholls et al. (2013), who also reported an insignificant path between task-oriented coping and coping effectiveness, but a significant negative path between distraction-oriented coping and coping effectiveness. In the present study, however, the path between disengagement-oriented coping and coping effectiveness was insignificant, implying that disengaging from one's attempts to cope might not always be an ineffective coping strategy. In non sport settings, researchers have found that caregivers who are better at disengaging from unattainable goals blamed themselves less and used fewer substances to regulate their emotions (Wrosch, Amir, & Miller, 2011), suggesting that disengagement can have positive outcomes for unattainable goals, although not attainable goals.

There are a number of possible explanations regarding why there was not a positive path between task-oriented coping and coping effectiveness. It could be that task-oriented strategies are not as effective at reducing stress among adolescent compared to adult athletes, despite having positive outcomes (Doron & Gaudreau, 2014; Schellenberg et al., 2013).

Alternatively, a degree of reflection is required to assess the perceived effectiveness of a coping strategy (Williams & McGillicuddy-De Lisi, 1999). It is only when a person matures that he or she has the ability to reflect on coping. Perhaps some of the more emotionally immature and younger athletes were unable to accurately reflect on the effectiveness of a strategy. The finding might also be due to coping being presented at the dimensional level, rather than the strategy level. That is, task-oriented coping is comprised of six coping strategies (e.g., mental imagery, effort expenditure, thought control, seeking support, relaxation, and logical analysis). It is plausible that there would have been a positive path between some of the task-oriented coping strategies and coping effectiveness, as there were positive correlations between three of task-oriented coping strategies and coping effectiveness. Indeed, scholars have suggested that coping could be measured at the strategy level, because it provides the clearest indication of how people cope (Lazarus, 1999; Skinner et al., 2003). Understanding the effectiveness of individual coping strategies is important to help guide interventions for adolescents.

Despite our large sample size, we would have required the estimation of 216 parameters, meaning 1,080 participants to be able to include the 10 coping strategies within our model to have a ratio of five participants per free parameter. This illustrates the demands of analyzing data with structural equation modeling. Inspection of the correlations at the strategy level revealed that all of the task-oriented coping strategies correlated positively with emotional maturity. However, there was a positive correlation between venting emotions and emotional maturity, but a negative correlation between disengagement and emotional maturity, which are strategies from the disengagement-oriented dimension. The positive correlation between venting emotions and emotional maturity was unexpected, although in sport venting one's emotions such as getting angry may have beneficial outcomes, especially for athletes where power is important. Scholars such as Woodman, Davis, Hardy, Callow,

Glasscock, and Yuill-Proctor (2009) found that anger was associated with enhanced peak muscular performance. Therefore the athletes might have become angry in attempt to master the stressful situation they were in.

The insignificant path between task-oriented coping and coping effectiveness might also be due to the scale we used to assess coping effectiveness, which could potentially be a limitation of the study. There were reliability problems with the CES (Gottlieb & Rooney, 2004) in this study and Nicholls et al. (2013). It should be noted that the CES was not designed to be used with adolescent athletes and nor was the measure of emotional maturity that we employed. In order to examine some constructs, scholars often have to use questionnaires that have not been designed for either a sporting population or a specific age group (i.e., adolescents), because sport specific measures that have been validated with a specific age group are not available. This presents a dilemma to researchers, because developing sport specific questionnaires is very time intensive. If scholars only used sport specific questionnaires for research with athletes, it would mean that researchers would be constrained regarding what they could study, given the limited number of sport psychology questionnaires compared to questionnaires available in the general psychology literature. However, when a non-sport specific questionnaire has been found to have reliability problems with more than one sample, researchers could modify the questionnaire and then test the psychometric properties after such modifications with the population of interest (i.e., adolescents).

Although there was not a significant path between task-oriented coping and coping effectiveness, there was a significant path between emotional maturity and coping effectiveness. This finding indicates that coping is constrained by maturation, as Compas et al. (2001) predicted. Interestingly, there was not a significant path between the three elements of cognitive-social maturity and coping effectiveness in Nicholls et al. (2013). As such,

emotional maturity might be more important than cognitive-social maturity in helping athletes manage stress effectively. From an applied perspective, sport psychologists could support athletes in the development of their emotional maturity. This could involve athletes being given freedom by their coaches to take calculated risks, focus on what they want to achieve rather than what could go wrong, and identify the reasons why they may have failed in the past and what they can control. Training in emotional maturity may be a useful addition to training in coping in managing stress. Research is required to ascertain the effectiveness of these strategies.

It was not a specific aim of our study, but the MGSEM and subsequent tests that we employed uncovered some gender differences. There were no differences, however, among the early and middle adolescents. With regards to gender, males scored higher on emotional maturity, task-oriented coping, and coping effectiveness than females. This provides support for the results of Rathee and Sing Salh (2012) who also found that males were more emotionally mature than females within their sample. However, the males in our sample could have over-estimated their emotional maturity and coping effectiveness due to the self-report nature of the study. Previous research found that males over estimated their mathematical ability (Kurman, 2004) and thus it is possible this might extend to other areas as well. Furthermore, although we found a positive path between emotional maturity and task-oriented coping, a limitation of this study is that we did not assess how changes in maturity influenced coping, which would require repeated measures across the same athletes.

In summary, we found support for our model that included emotional maturity, dispositional coping dimensions, and coping effectiveness. There was a positive path between emotional maturity and task-oriented coping strategy, inferring that the more emotionally mature athletes were able to select coping strategies that have been associated with more adaptive outcomes in previous research. There was also a positive path between emotional

maturity and coping effectiveness, which provides support for Compas et al.'s (2001) assertion that coping is constrained by maturation.

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Table 1

Correlations between the Lower-order Coping Strategies, Emotional Maturity, and Coping Effectiveness

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Mental imagery	-										
2. Effort expenditure	.47**	-									
3. Thought control	.49**	.45**	-								
4. Seeking support	.42**	.26**	.38**	-							
5. Relaxation	.41**	.25**	.42**	.50**	-						
6. Logical Analysis	.64**	.46**	.50**	.52**	.49**	-					
7. Distancing	.03	-.05	.03	.09**	.17**	.09*	-				
8. Mental distraction	.13**	-.08*	.15**	.31**	.32**	.16**	.31**	-			
9. Venting emotions	.21**	.13**	.12**	.10**	.09*	.24**	.15**	.18**	-		
10. Disengagement	-.12**	-.32**	-.22**	.05	.02	-.11**	.34**	.42**	.17**	-	
11. Emotional maturity	.52**	.52**	.40**	.37**	.37**	.54**	-.01	.01	.15**	-.26**	-
12. Coping effectiveness	.07	.19**	.15**	-.03	-.01	.10**	-.25**	-.16**	-.05	-.32**	.17**

Note. *Statistically significant at $p < .05$, ** $p < .01$.

Table 2

Composite Reliability and Factor Correlations

Variable	1	2	3	4	5
1. Emotional maturity	(.88)				
2. Task coping	.68**	(.90)			
3. Distraction coping	-.00	.28**	(.71)		
4. Disengagement coping	-.07	.10*	.56**	(.78)	
5. Coping effectiveness	.14**	.01	-.32**	-.26**	(.80)

Note. *Statistically significant at $p < .05$, ** $p < .01$. Composite reliabilities shown in parentheses. Composite reliability estimates for DCICS variables is based on parcels. Factor correlations were taken from the measurement model.

Table 3

Factor Loadings (FL) from Measurement Model

	Factor	FL
EM1	EM	.63
EM2	EM	.75
EM3	EM	.73
EM4	EM	.69
EM5	EM	.71
EM6	EM	.68
EM7	EM	.73
EM8	EM	.54
Task P1	Task	.88
Task P2	Task	.83
Task P3	Task	.90
Distraction P1	Distraction	.67
Distraction P2	Distraction	.59
Distraction P3	Distraction	.75
Disengagement P1	Disengagement	.74
Disengagement P2	Disengagement	.72
Disengagement P3	Disengagement	.75
CE1	Coping Effectiveness	.73
CE2	Coping Effectiveness	.82
CE3	Coping Effectiveness	.53
CE4	Coping Effectiveness	.62
CE5	Coping Effectiveness	.61

Note. P1, P2, and P3 refer to parcels used in measurement model. All loadings are significant at $p < .001$.

Table 4

Fit indices for Multi-group Measurement and Structural Equation Models

Model	χ^2	df	$\Delta \chi^2$	Δdf	CFI	ΔCFI	TLI	SRMR	RMSEA (90% CI)
<i>Gender</i>									
Configural invariance	809.4	398	-	-	.932	-	.921	.048	.051 (.046, .056)
Metric invariance	832.3	415	13.9	17	.931	.001	.923	.051	.050 (.045, .055)
Scalar invariance	872.4	432	40.1	17	.927	.004	.922	.052	.051 (.046, .056)
Residual invariance	926.4	437	54.0	5	.919	.008	.914	.061	.053 (.048, .058)
Structural invariance	934.7	436	-	-	.917	.002	.912	.063	.054 (.049, .059)
<i>Age</i>									
Configural invariance	740.7	398	-	-	.945	-	.936	.047	.047 (.041, .052)
Metric invariance	760.7	415	20.0	17	.944	.001	.938	.050	.046 (.041, .051)
Scalar invariance	796.1	432	35.4	17	.941	.003	.937	.051	.046 (.041, .051)
Residual invariance	817.9	437	21.8	5	.939	.002	.935	.054	.047 (.042, .052)
Structural invariance	861.7	436	-	-	.932	.007	.927	.063	.050 (.045, .055)

Figure 1. Hypothesized Model.

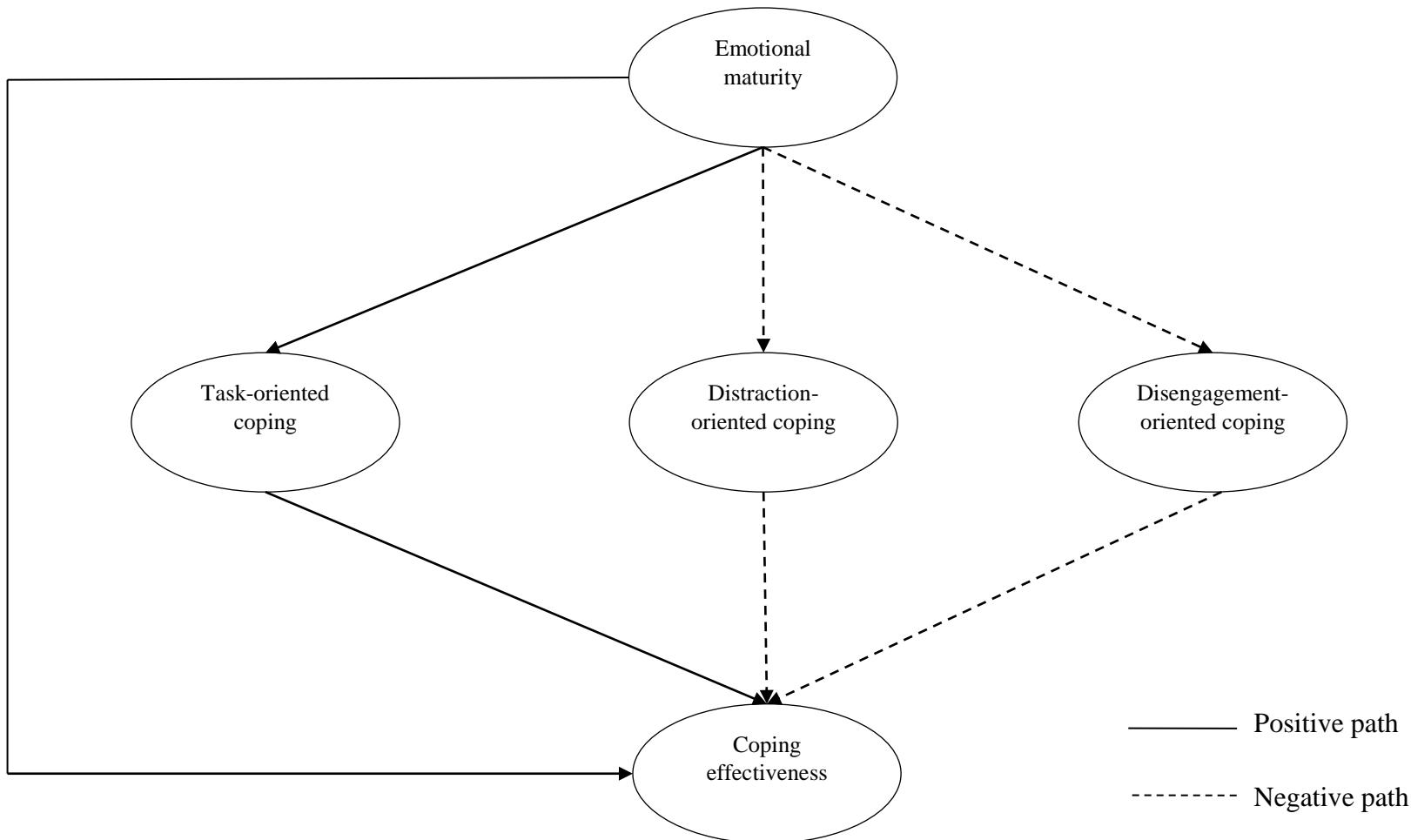
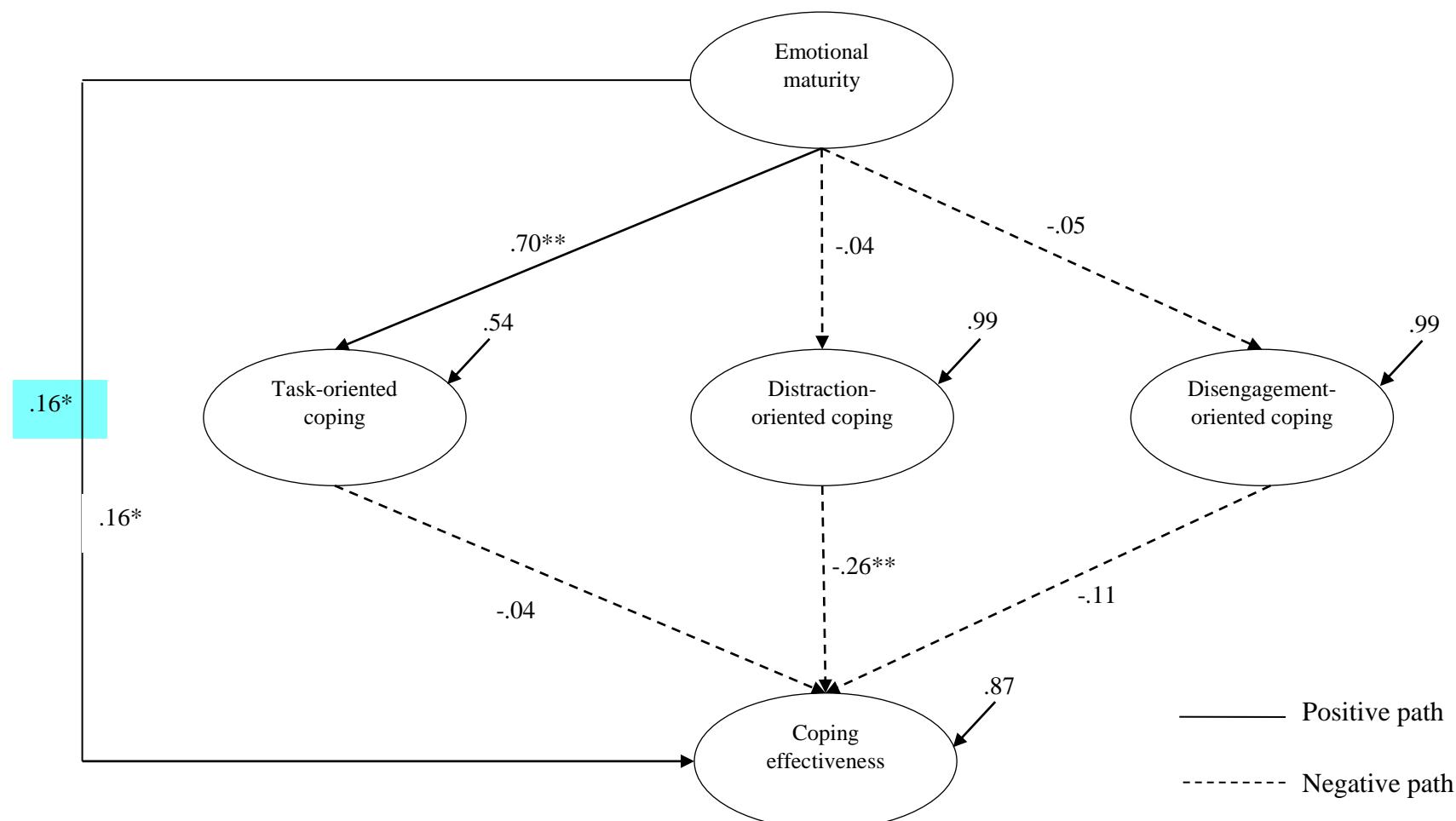


Figure 2. Revised Structural Equation Model for Emotional Maturity, Dispositional Coping, and Coping Effectiveness.



*Path is statistically significant at $p < .05$, ** $p < .01$.