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# Dispositional Coping, Coping Effectiveness, and Cognitive Social Maturity Among Adolescent Athletes

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## Abstract

It is accepted among scholars that coping changes as people mature during adolescence, but little is known about the relationship between maturity and coping. The purpose of this paper was to assess a model, which included dispositional coping, coping effectiveness, and cognitive social maturity. We predicted that cognitive social maturity would have a direct effect on coping effectiveness, and also an indirect impact via dispositional coping. Two-hundred and forty-five adolescent athletes completed measures of dispositional coping, coping effectiveness, and cognitive social maturity, which has three dimensions: conscientiousness, peer influence on behavior, and rule following. Using structural equation modeling we found support for our model, suggesting that coping is related to cognitive social maturity. This information can be used to influence the content of coping interventions for adolescents of different maturational levels.


*Keywords:* Adolescence, Maturation, Motivational Climate, Structural Equation Modeling

# Dispositional Coping, Coping Effectiveness, and Cognitive Social Maturity among Adolescent Athletes

It has been widely documented in the sport psychology literature that sport can be a stressful experience for adolescent athletes (Tamminen & Holt, 2010). Researchers have found that adolescent athletes experience a vast array of stressors such as pressures to perform (Kristiansen & Roberts, 2010), social evaluation (Reeves, Nicholls, & McKenna, 2009), and failing (Sagar, Lavallee, & Spray, 2007). In addition to these competitive stressors, adolescents are also likely to experience stressors relating to the changes associated with adolescence, including physical, social, emotional, and cognitive changes (Boekaerts, 1996). As such, adolescence has the potential to be a stressful period, so it is important that adolescents cope with the stressors they encounter to reduce psychological distress (Compas, Connor-Smith, Saltzman, Harding Thomsen, & Wadsworth, 2001). However, little is known about how and why coping changes among adolescent athletes (Nicholls & Polman, 2007). Understanding more about coping in adolescence could be used to generate theory guided interventions, with the aim of reducing stress among adolescents.

Coping, according to Lazarus and Folkman (1984), involves constantly changing thoughts and behaviors to manage demands that a person evaluates as taxing his or her resources. Compas et al. (2001) suggested that coping can be categorized into three higher-order dimensions of task-oriented coping (e.g., strategies aimed directly at reducing stress such as mental imagery and logical analysis), distraction-oriented coping (e.g., strategies that direct the attention of an athlete to non-sport related aspects, including distancing), and disengagement-oriented coping (e.g., athletes withdrawing from attempt achieve their personal goals, such as venting of unpleasant emotions). Although Lazarus and Folkman (1984) have viewed coping as a changing process, they originally conceived it at both process or micro and dispositional or macro levels (Hurst, Thompson, Visek, Fisher, & Gaudreau,

2011). As such, dispositional coping relates to the thoughts and behaviors an individual would normally engage in to manage demands that are appraised as being stressful, and represents a macro-level of analysis of coping. Within the sport literature, the vast majority of studies have tended to view coping at the micro-level of analysis (for a review see Nicholls & Polman, 2007). As such, most studies have explored how people coped with specific events (e.g., Amiot, Gaudreau, & Blanchard, 2004) and even how coping changed over time (e.g., Gaudreau, Nicholls, & Levy, 2010).

However, it is important that researchers explore dispositional coping to understand more about this psychological construct (Hurst et al., 2011). Indeed, according to Lazarus and Folkman (1984), dispositional or macro-level coping should be viewed as the structure, which influences the process as "structure and process are both necessary for an understanding of coping" (p. 298). This has been supported in sports studies, which have revealed strong correlations between dispositional and process coping (Anshel & Anderson, 2002; Giacobbi & Weinberg, 2002). Furthermore, Louvet, Gaudreau, Menaut, Genty, and Deneuve (2007) found that, on the whole, athletes did not change how they coped across three competitions held over six months.

Assessing dispositional coping may even allow researchers to explore different questions and assess coping in a broader context (Hurst et al., 2011). For example, assessing coping during a specific episode of sport might not be reflective of how an athlete would normally cope, and might yield a distorted view of coping. Assessing coping at the dispositional level might provide a more accurate representation of how an athlete normally copes. There are two different ways of measuring dispositional coping (Lazarus, 1999). Researchers can measure how an individual copes across a variety of situations and then average the person's score, to illustrate what the person normally does. However, this can be very time intensive, and may not be suitable when exploring how certain populations cope,

such as adolescents due to their busy lives. An alternative approach is to use a dispositional coping inventory.

**Coping and Development during Adolescence**

Early and middle adolescence, the period in which a person is aged between 12 and 18 years old (Weiss & Bredemeier, 1983), is thought to be the period in which coping changes the most (Compas et al., 2001). Coping changes during adolescence because it is thought to be reliant upon a person's level of biological, social, cognitive, and emotional maturity. As such, the maturation of a person contributes to the coping strategies at his or her disposal and also limits the available coping strategies (Compas et al.). Despite these assertions made by Compas et al., little is known about how athletes' coping may change during adolescence. There are, however, two notable exceptions that have attempted to address this issue in the sport literature (Nicholls, Polman, Morley, & Taylor, 2009; Tamminen & Holt, 2012).

Based upon the theoretical assertions of Compas et al. (2001), Nicholls, Polman, Morley, and Taylor (2009) explored whether athletes of different biological development used diverse coping strategies, whilst competing in sport, and whether the effectiveness of such strategies varied across pubertal groups. In total, 527 athletes completed a measure of micro-level coping and biological development. Their results indicated that athletes of different pubertal status, and therefore biological development, reported diverse coping strategies, which corresponded to what they did. For instance, advanced- and post-pubertal athletes reported that distancing corresponded to what they did to cope less than beginning- or middle-pubertal athletes. Additionally, mid-pubertal athletes reported that mental distraction corresponded to what they did to cope more than either advanced- or post-pubertal athletes. Furthermore, strategies such as mental distraction were more effective at reducing stress for post-pubertal athletes. As such, these findings provide support for Compas et al.,

who suggested that coping is related to biological maturity.

Another study that attempted to explain how adolescents learn to cope, and thus develop a coping repertoire, was by Tamminen and Holt (2012). With a sample of 17 athletes, 10 parents, and 7 coaches, Tamminen and Holt found that learning to cope was an experiential process that involved trial and error, reflective practice, and understanding coping outcomes. Furthermore, parents and coaches were thought to help athletes with coping. However, a limitation of this paper is that the authors failed to examine or acknowledge maturational processes, yet indirectly alluded to them in their findings. For instance, a key element of the Tamminen and Holt (2012) paper related to the importance of reflective practice. However, it is entirely plausible that an athlete can only engage in reflection when he or she has established a certain level of cognitive maturity (Williams & McGillicuddy-De Lisi, 1999). Indeed, Williams and McGillicuddy-De Lisi argued that cognitive maturational changes produce an increased awareness of coping that allows people to develop coping and judge how effective it will be. This awareness, associated with cognitive maturity, is crucial for reflective practice regarding coping. As such, it might have been the development of athletes' cognitive maturity levels that influenced their ability to reflect upon coping outcomes and learn new coping skills in the Tamminen and Holt study. However, because Tamminen and Holt did not measure cognitive maturity, it remains unclear whether their findings were associated with cognitive maturity.

At the present time, there is little empirical evidence to explain why coping may change during adolescence, and the impact that maturational processes has upon coping. Although scholars have made some in roads by examining the relationship between coping and biological maturity, the other types of maturation proposed by Compas et al. (2001) have not been explored. That is, little is known about the relationship between coping and cognitive, social, and emotion maturity. Understanding more about the relationship between

maturity and coping is important for the development of theory and coping interventions. This is because maturity levels may influence the type of coping strategies that adolescents are able to use, so understanding more about maturity and coping could provide information regarding what coping strategies psychologists could include in coping interventions and tailor these based upon maturity levels.

As such, the purpose of this paper was to assess a model of dispositional coping, coping effectiveness, and cognitive social maturity. Our hypotheses are illustrated in Figure 1, with an unbroken line inferring a positive relationship and a broken line a negative relationship. We hypothesized that coping would be positively related to the three subscales of cognitive social maturity, based on previous research that has found a relationship between biological maturity and coping (Nicholls et al., 2009) and the notion that reflection is crucial to coping (Tamminen & Holt, 2012; Williams & McGillicuddy-De Lisi, 1999). More specifically, we hypothesized that there would be a positive relationship between conscientiousness and rule following with task-oriented coping, but a negative relationship between peer-influence on behavior and task-oriented coping. This is because task-oriented coping strategies are associated with athletes maximizing efforts to engage in a task. Those who are conscientiousness and follow rules from their coaches and team mates would be more likely to normally cope this way. Conversely, we predicted that task-oriented coping would be negatively associated with peer influence on behavior, as those who are influenced by their peers may be more distracted and use less task-oriented strategies, and indeed make less attempts to cope in general. We predicted that all three dispositional coping dimensions, task-, distraction-, and disengagement-oriented coping strategies would be negatively associated with peer influence on behavior. We also predicted that distraction- and disengagement-oriented coping would be negatively associated with conscientiousness, peer influence on behavior, and rule following. This is because athletes who are less mature would

be more likely to not take responsibility by using more avoidance based strategies associated with these two coping dimensions. This would be consistent with Nicholls et al. (2009), who found that biologically more mature athletes tended to use less of these strategies.

Furthermore, we also predicted that task-oriented coping would be positively associated with coping effectiveness, whereas distraction- and disengagement-oriented coping would be negatively associated with coping effectiveness. Although not reported in the Nicholls et al. (2009) paper, inspection of their mean scores indicated that task-oriented coping strategies were generally more effective across gender and pubertal status.

We also hypothesized that there would be relationship between cognitive social maturity and coping effectiveness. With regards to the specific subscales of cognitive social maturity, we predicted that conscientiousness and rule following would be positively associated with coping effectiveness. This is because athletes high in these forms of maturity would use more task-oriented coping strategies, which is associated with more effective coping (Nicholls, Holt, Polman, & Bloomfield, 2006). Peer influence on behavior was predicted to be negatively associated with coping effectiveness, because athletes who were more strongly influenced by their peers would be too distracted to cope and use fewer coping strategies. Not deploying coping strategies has been associated with more ineffective coping (Nicholls, Holt, & Polman, 2005).

Our structural equation model also examined mediation effects. This is a significant benefit of a structural equation modeling, as it enables multiple mediating variables to be tested (Iacobucci, Saldanha, & Xiaoyan, 2007). The assessment of mediation has often used differing approaches, though the preferred approach in the recent literature is bootstrapping. Hayes (2009) explained that bootstrapping is effective because it does not have the same assumptions of sampling distribution for indirect effects as other methods. We expected significant mediation to take place, with the different types of coping strategies being

mediating variables. In particular, we expected distraction-oriented and disengagement-oriented coping strategies to negatively mediate the relationship between cognitive social maturity and coping effectiveness, given the relationship between strategies from these dimensions and biological maturity (Nicholls et al., 2009).

## Method

### Participants

Two-hundred and forty-five adolescent athletes (male *n* = 139, female *n* = 106), who were aged between 11 and 18 years (*M* age = 15.03, *SD* = 1.93) participated in this study. Participants were recruited from three schools, a professional sport team, and a national governing body. Our sample consisted of 193 Caucasian, 35 Asian, and 17 African-Caribbean athletes, from a variety of different sports. The athletes in our sample competed at international (*n* = 34), national (*n* = 35), county (*n* = 39), club (*n* = 98), and beginner levels (*n* = 39).

### Questionnaires

Dispositional coping was assessed using the Dispositional Coping Inventory for Competitive Sport (DCICS; Hurst et al., 2011). This questionnaire assesses three higher-order dispositional dimensions (e.g., task-oriented coping, distraction-oriented coping, and disengagement-oriented coping) from 10 different dispositional coping strategies, which represent what athletes normally do cope during sport when experiencing stress. An example of task-oriented question was "I visualize that I am in total control of the situation," whereas "I retreat to a place where it is easy to think" is an example of a distraction-oriented question. "I lose all hope of attaining my goal" is an example of a disengagement-oriented coping strategy. Athletes were asked to rate how they normally cope on a 5-point Likert-type scale, with 1 representing *"Does not correspond to what I do or think"* to 5 representing *"Corresponds very strongly to what I do or think."* Hurst et al. did not report Cronbach alpha

coefficients for three higher-order dimensions of the DCICS. Instead, they reported Cronbach alpha coefficients for the 10 dispositional strategies ranging from .6 to .8 from a sample of 596 athletes, who were aged between 18 and 23 years of age.

The coping effectiveness scale (Gottlieb & Rooney, 2004) indicated how effectively the athletes were coping with the stressor that was causing them the most worry in sport. Items in this questionnaire include "The ways I try to cope are not working too well these days," "I question whether I'm handling this problem as well as I could," and "I can find more or different ways to cope with this stressor." The coping effectiveness scale is a 7-item scale, in which participants were asked to report the effectiveness of their coping with stress on a 4-point Likert-type scale, anchored at 1 representing "*Strongly disagree"* to 4 representing "*Strongly agree."* Gottlieb and Rooney reported that the coping effectiveness scale had an internal reliability of .69 from a sample of 141 family caregivers aged between 31 and 88 years of age.

Cognitive social maturity was assessed using the 8-item Cognitive Social Maturity Questionnaire (CSMQ; Levers-Landis, Greenley, Burant, & Borawski, 2006). The CSMQ (Levers-Landis et al., 2006) contains two types of cognitive maturity with three questions (i.e., conscientiousness and rule following) and one with two questions (i.e., peer influence on behavior). Examples of questions include "When I make a mistake, I always admit that I am wrong," "Sometimes I say something just to impress my friends", and "Sometimes I try to get even when someone does something to me that I don't like." Items are scored on a 4-point Likert-type scale anchored at 1 representing "*Strongly disagree"* and 4 representing *"Strongly agree."* Levers-Landis et al. (2006) reported Cronbach alpha coefficients of .59 for conscientiousness, .53 for peer influence, and .42 for rule following from a sample of 1322 adolescents aged between 12 and 18 years of age.

## Procedure

Ethical approval for this study, from a University Ethics Committee, was granted. Information letters were then sent to heads of physical education at schools, a governing body, and professional sports team. The letter contained information about the nature of the study and the requirements of participants. If the teacher or coach granted permission for data to be collected, an information letter, assent form, and consent form were sent for parents/guardians to sign, in the instance of a participant been 15 years of age and under.

Participants completed the questionnaires, in the same order, with a teacher, coach, or trained research assistant present to answer any questions. As such, each participant completed the DCICS (Hurst et al., 2011), the coping effectiveness scale (Gottlieb & Rooney, 2004), and then the CSMQ (Levers-Landis et al., 2006).

## Data Analysis

Data was screened for outliers and normality and composite reliability was calculated on all study variables. Composite reliability was preferred to the commonly used Cronbach's alpha coefficient after Raykov (1997) demonstrated that it is less likely to underestimate scale reliability. To sufficiently test the measurement model, confirmatory factor analyses were conducted on each measurement scale. Though often sighted as cutoff values, Hu and Bentler's (1999) recommendation for assessing model fit (CFI and TLI > .95, RMSEA < .06, SRMR < .08) were used for guidance only, as several researchers (e.g., Hopwood & Donnellan, 2010; Marsh, Hau, & Wen, 2004) have advocated a more subjective interpretation. For the main analysis, we tested the hypothesized structural equation model that examined the effect of cognitive social maturity on coping effectiveness, mediated by task-, distraction-, and disengagement-oriented dispositional coping (Figure 1). Finally, pairwise comparisons were used to determine whether significant effects for sex and skill level were evident.

# Results

## Preliminary Analysis

Preliminary analysis screened for missing values, normality, linearity and outliers, as recommended by Tabachnick and Fidell (2001). There were no missing values or issues regarding skewness (< 2) or kurtosis (< 2). Mardia's coefficient for multivariate kurtosis exceeded expected values for the assumption of multivariate normality (17.6). To account for this, we applied a Bollen-Stine bootstrap to the subsequent analysis. Linear relationships were confirmed via inspection of bivariate scatter plots for each variable and there were no significant outliers that required action.

Composite reliability of eight of the DCICS (Hurst et al., 2011) demonstrated acceptable internal consistency (CR = >.7). Thought control, a sub-dimension of logical analysis was slightly below (CR = .66). While this was considered at the lower end of acceptability, distancing, a sub-dimension of distraction-oriented coping was too low (CR = .56) and was consequently removed from further analysis. Analysis of the CSMQ (Levers-Landis et al., 2006) revealed no reliability problems (CR = >.7) on any subscale. Initial reliability analysis of the coping effectiveness scale suggested weak consistency (CR = .56). Examination of regression weights identified that items six and seven did not positively contribute to the scale. Following the removal of these items, CR reached a lower bound level of acceptability (CR = .66). Descriptive statistics for cognitive social maturity, coping, and coping effectiveness are displayed in Table 1. To confirm the factorial validity of scales, separate CFAs were conducted on each scale. To account for any violations in the assumption of multivariate normality and potential clustering effects from the sampling method, we performed a Bollen-Stine bootstrap (B-S) on 2000 samples, as recommended by Nevitt and Hancock (2001). The DCICS (Hurst et al., 2011) CFA largely supported the factorial validity: $\chi^2(524) = 793.4$, B-S $p = .020$, CFI = .90, TLI = .89, SRMR = .06, RMSEA = .05 (90% CI =

.04-.05). The coping effectiveness scale, with the two items previously deleted presented an acceptable fit: $\chi^2(5) = 13.5$, B-S $p = .099$, CFI = .97, TLI = .93, SRMR = .13, RMSEA = .08 (90% CI = .03-.14). The CSMQ (Levers-Landis et al., 2006) presented a near perfect model fit, but the highly constrained nature of the scale makes interpretation difficult: $\chi^2(17) = 14.7$, B-S $p = .785$, CFI = 1.00, TLI = 1.00, SRMR = .03, RMSEA = .00 (90% CI = .00-.05).

**Main Analyses**

The hypothesized model fitted the data very well: $\chi^2(37) = 55.0$, B-S $p = .182$, CFI = .97, TLI = .95, SRMR = .04, RMSEA = .05 (90% CI = .02-.07). Of particular note are the significant negative predictors of coping effectiveness. Namely, dispositional distraction- and disengagement-oriented coping dimensions both negatively predicted coping effectiveness. The relationship between dispositional task-oriented coping and coping effectiveness was neutral. There were no significant direct effects between cognitive social maturity and coping effectiveness. However, several aspects of maturity did significantly predict coping strategies. Most notably, conscientiousness was a positive predictor of dispositional task-oriented coping ($\gamma = .26$) and a negative predictor of dispositional disengagement-oriented coping ($\gamma = -.23$), while peer influence on behavior negatively predicted dispositional distraction- ($\gamma = -.34$) and disengagement-oriented coping ($\gamma = -.18$). Contrary to expectation, rule following was a significant predictor of dispositional distraction-oriented coping ($\gamma = -.16$). Peer influence on behavior had a significant negative indirect effect on coping effectiveness ($\gamma = .10$; see Table 2). Although this was the only significant indirect effect, there seemed a trend to support coping strategies as a mediator between cognitive social maturity and coping effectiveness. To test whether mediation had taken place, we removed regression paths directly from maturity dimensions to coping effectiveness (Figure 2). As the model fit was not improved ($\Delta CFI < .01$) in the combined effects model, our results support the mediation model. In particular, the mediation model highlights a significant positive

indirect effect from conscientiousness (γ = .08) and peer influence (γ = .12) to coping effectiveness (see Table 3).

Finally, we examined pairwise comparisons to identify significant differences for gender and skill level. In terms of gender effects, the regression weights between conscientiousness and coping effectiveness, along with rule following and distraction-oriented dispositional coping were significantly ($p < .05$) greater for males. The path between dispositional task-oriented d coping and coping effectiveness was significantly greater for females. There were no significant effects for skill level.

## Discussion

The aim of this paper was to explore a model of dispositional coping, coping effectiveness, and cognitive social maturity. Overall, the predicted paths within our model were generally supported. This provides support for Compas et al. (2002), who stated that coping is associated with the maturation that occurs across adolescence.

With regards to dispositional coping and cognitive social maturity dimensions, it appears that conscientiousness is the most important form of cognitive social maturity in relation to coping. Our finding that conscientiousness was positively associated with dispositional task-oriented coping, but negatively with dispositional disengagement-oriented coping provides support for previous research that has explored the relationship between conscientiousness and coping within the context of personality. For example, Kaiseler, Polman, and Nicholls (2011) explored the relationship between micro coping and personality. Overall, task-oriented type coping strategies, such as increasing effort and planning were positively associated with conscientiousness, but negatively with disengagement-oriented type strategies behavioral disengagement. Bartley and Roesch (2011) also found a positive relationship between task-oriented type coping strategies and conscientiousness. Individuals who scored highly in conscientiousness, and were therefore cognitively more mature, have

been found to be more self-determined and persistent (McCrae & John, 1992). This could explain why these athletes use more task-oriented type coping strategies, because these strategies require persistence and effort. The fact that more there was a relationship between task-oriented coping and a form of cognitive social maturity, indicates that the athletes may have reflected upon their coping and the effectiveness of their coping, because existing research indicates that task-oriented coping strategies are generally more effective (Gaudreau et al.., 2010; Nicholls et al., 2006). As such, the more mature athletes may have an increased awareness which has allowed them to judge that dispositional task-oriented coping strategies would be more effective. This also provides support for Williams and McGillicuddy-De Lisi (1999), who stated that maturational changes allow people to assess coping effectiveness more efficiently. Establishing whether athletes can be taught to reflect on their coping, before they are sufficiently mature to do so naturally would represent an interesting line of research.

The other two forms of cognitive social maturity, peer influence on behavior and rule following were not associated with dispositional task-oriented coping. However, peer influence on behavior correlated negatively with both dispositional distraction- and disengagement-oriented coping. Dispositional disengagement-oriented coping also correlated negatively with rule following. As such, some of the athletes in the present study might have reported disengagement-oriented coping styles to avoid thinking about rules they have broken, or indeed things they feel guilty about, such as how friends had negatively influenced their behavior. Indeed, previous research has found a direct link between situational disengagement-oriented coping and guilt from other areas of psychology, such the guilt associated with post-traumatic stress (Held, Owens, Schumm, & Chard, 2011) and being obese (Conradt, Dierk, Schlumberger, Rauh, Heberand, & Rief, 2008). An interesting avenue of research would be to explore the effects of rule breaking among adolescents and psychological well-being.

Unlike dispositional disengagement-oriented coping, dispositional distraction-oriented coping correlated positively with rule following. There may have been a positive association between distraction-oriented coping styles and rule following behaviors, because the athletes may have been trying to forget that they were following rules when perhaps their peers might not have been. Furthermore, following rules and complying with ideal behaviors, such as listening to a coach or following instructions when peers might not be, could be stressful. This is because adolescents are generally concerned with their status within a group and enhancing their status, and following rules may not enhance an adolescent's status among his or her peers (LaFontana & Cillessen, 2010). As such, athletes could have reported distraction-oriented coping styles to reduce emotional responses to stress associated with concerns about their reduced status among peers for following rules. Research could consider the effects of perceived peer group status among athletes in more detail to explore why different coping styles are adopted.

In terms of coping effectiveness, we found that distraction- and disengagement-oriented dispositional coping were negatively associated with how the athletes felt they were handling stress in their life, whereas dispositional task-oriented coping was associated with the female athletes coping more effectively. This finding in itself is not a unique finding, as previous research has suggested that situational forms of distraction- and disengagement-oriented coping are associated with athletes not coping as effectively (Gaudreau et al., 2010; Nicholls, Polman, Levy, & Borkoles, 2010). Interestingly, we found that peer influence on behavior maturity may indirectly reduce coping effectiveness, through the coping strategies employed by an athlete. That is, an athlete's coping may be inhibited by peer distractions, which in turn results in him or her coping less effectively. Alternatively, it is also plausible that athletes may observe their peers coping in a particular manner, such as giving up and distracting themselves from the task at hand, and that these ineffective forms of coping may

be socially reinforced, especially in team environments. Tamminen and Holt (2012) did not identify peers as sources that might influence coping, but this study appears they may play a crucial role. Future research could explore the relationship between peer influence and coping in more detail.

In order to improve coping effectiveness, sport psychologists and coaches could take a two-pronged approach. Athletes, especially female athletes, could be taught to use task-oriented coping strategies, which have been highlighted in previous research (Gaudreau et al., 2010). Secondly, efforts can be made to foster a motivational mastery climate in which athletes are encouraged to focus on themselves and the level of improvement and effort they make (e.g., Theeboom, De Knop, & Weiss, 1995). By doing this, adolescent athletes and especially those who are more immature, may be less concerned and therefore less influenced by their peers. Research could explore the effects of creating a motivational mastery climate upon peer influence on behavior among adolescents. Furthermore, having previously established the link between biological maturity and coping (e.g., Nicholls et al., 2009) and now cognitive social maturity and dispositional coping, it would be interesting to explore the relationship between emotional maturity and coping. Researchers could then examine the extent to which each of these three types of maturity influence coping and the relationships between them.

A limitation of this research relates to the cross-sectional approach that we adopted. It would be useful to track coping at the micro- and macro-level over time in relation to an athlete's cognitive social maturity and assess how this changes. However, this would be very time consuming and expensive. Furthermore, Compas et al. (2001) stated that coping is related to both cognitive and social maturity, whereas we measured cognitive social maturity in the present study, which reflects elements of both cognitive and social maturity. Additionally, we measured coping from a dispositional rather than a situational perspective,

although some support for dispositional coping has been found in the sport literature. For example, Louvet et al. (2007) reported some coping consistency across competitions, as did Nicholls (2007) with a sample of international adolescent golfers. Additional evidence regarding the influence of maturity on whether athletes cope in a consistent manner is warranted and would shed additional light on coping among adolescents.

In the present study that we examined coping among adolescents who were aged between 11 and 18 years of age to assess if there were maturational differences. However, this did not allow us to explore when the changes occurred, so future research could focus on specific age groups within adolescence to identify the transitional periods (Skinner & Zimmer-Gembeck, 2007). Furthermore, little is known about how people evaluate or appraise stress in relation to maturation. Research indicates that appraisal is a key variable that is associated with coping among athletes (Nicholls, Polman, & Levy, 2012), so one could assume that appraisal is also influenced by maturity, but research is required to establish this research.

With regards to future scholarly activity that assesses cognitive social maturation among adolescents, further work could examine the factorial structure of the CSMQ (Levers-Landis et al., 2006), with a large sample, given the low Cronbach alphas reported by Levers-Landis et al. In the present study, we assessed the reliability of the CSMQ via composite reliability and found it was more reliable than Lever-Landis et al., but caution is warranted before using this scale in other research before adequate testing.

In conclusion, this study supports for Compas et al.'s (2001) finding that coping is related to maturity. The way adolescent athletes cope and how effective their coping is, appears related to their level of cognitive social maturity. In order to circumvent the negative effects of peer influence on behavior among adolescents, coaches and psychologists can develop motivational mastery climates and teach task-oriented coping strategies.

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Table 1

*Descriptive Statistics for Cognitive Social Maturity, Dispositional Coping, and Coping Effectiveness*

| Variable | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|
| 1. Task oriented coping | 3.25 | .68 | (.89) | | | | | | |
| 2. Distraction oriented coping | 2.11 | .82 | .04 | (.73) | | | | | |
| 3. Disengagement oriented coping | 2.23 | .67 | .00 | .33** | (.65) | | | | |
| 4. Coping Effectiveness | 2.85 | .57 | .02 | -.28** | -.37** | (.66) | | | |
| 5. Conscientiousness | 3.13 | .54 | .24** | -.06 | -.26** | .14* | (.71) | | |
| 6. Rule Following | 2.66 | .74 | .07 | -.27** | -.23** | .24** | .22** | (.81) | |
| 7. Peer Influence on behavior | 2.25 | .68 | .07 | .11 | -.21** | .05 | .24** | .17** | (.79) |

*Note.* *$p$ <.05, **$p$ <.01. Composite reliability shown in parenthesis.

Table 2

*Direct, Indirect and Total Effects*

| | Direct Effect Estimate | Indirect Effect Estimate | Total Effect Estimate |
|---|---|---|---|
| Conscientiousness → Coping Effectiveness | .04 | .08 | .10 |
| Peer Influence on Behavior → Coping Effectiveness | .14 | .10* | .24* |
| Rule Following → Coping Effectiveness | .01 | .00 | .01 |

*Note.* *$p < .01$

Table 3

*Fit Statistics from Combined Effects and Meditational Structural Equation Models*

| Model | $\chi^2$ | *df* | $\chi^2/df$ | CFI | TLI | SRMR | RMSEA (90% CI) |
|---|---|---|---|---|---|---|---|
| 1. Combined Effects Model | 55.0 | 37 | 1.49 | .97 | .95 | .04 | .05 (.02-.07) |
| 2. Mediation Model | 60.1 | 40 | 1.50 | .97 | .95 | .04 | .05 (.02-.07) |

Figure 1 Hypothesized model

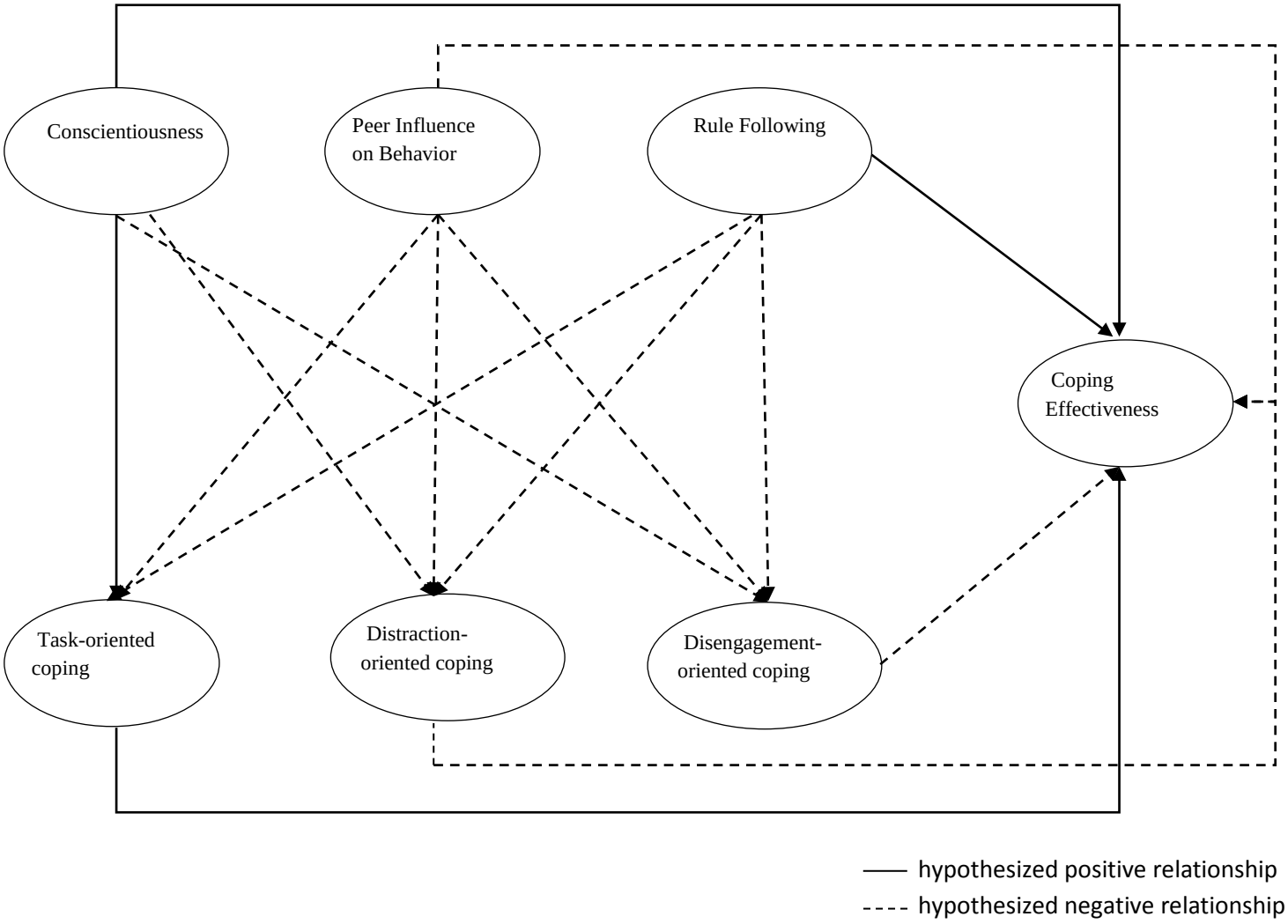

Figure 2 Mediation Model for Cognitive Social Maturity, Coping, and Coping Effectiveness