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### To improve or to compete

*Implicit theories of ability and parental behavior as determinants of achievement goals in sport*

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# Chapter 4

## Parental Behavior and Adolescent's Achievement Goals in Sport

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This chapter is based on:

Weltevreden, G. M., Van Hooft, E. A.J., & Van Vianen, A. E. M. (2018). Parental behavior and adolescent's achievement goals in sport. *Psychology of Sport and Exercise, 39*, 122-131.

## Abstract

*Objectives:* The purpose of this study was to examine the role of parents in adolescent athletes' achievement goals. Our first aim was to examine if parental behaviors (autonomy support, responsiveness, behavioral control, and psychological control) are related to adolescents' achievement goals in sport. Our second aim was to find out if these relations are mediated by parent-initiated motivational climate.

*Design:* Cross-sectional correlational design.

*Method:* Soccer and field-hockey players ( $N = 140$ ; 49% girls;  $M_{age} = 15.50$ ;  $SD = 2.05$ ) completed questionnaires assessing parental behavior, parent-initiated motivational climate, coach-initiated motivational climate, implicit theories of ability, and achievement goals.

*Results:* Whereas parent-initiated motivational climate was a predictor of achievement goals, coach-initiated motivational climate was not. Mediation analyses showed that autonomy support and responsiveness were positively related to mastery-approach and mastery-avoidance goals through parent-initiated mastery climate. Behavioral control was not related to achievement goals through parent-initiated performance climate, but it was related to mastery-approach, mastery-avoidance and performance-avoidance goals through parent-initiated mastery climate. Psychological control was related to performance-approach and performance-avoidance goals through parent-initiated performance climate, but also to mastery-approach and mastery-avoidance goals.

*Conclusions:* Parental behavior is related to achievement goals through parent-initiated motivational climate. Thus, parents (rather than coaches) seem to have an important role in shaping adolescents' achievement goals.

## Introduction

Achievement goals are a determinant of important outcomes in terms of motivation, learning, well-being, and performance (Huang, 2011; Payne, Youngcourt, & Beaubien, 2007; Rawsthorne & Elliot, 1999; Van Yperen et al., 2014). Achievement goals concern the aim of behavior intended to develop or assess one's competence (Elliot & McGregor, 2001), and can be distinguished into performance and mastery goals. Performance goals concern the comparison of one's skill level with that of others. Mastery goals concern personal growth and development. Both performance and mastery goals can be further divided into two components reflecting an individual's approach or avoidance motivational orientation (Elliot & McGregor, 2001). Individuals with an approach orientation aim to either outperform others (performance-approach) or to improve their performance (mastery-approach), whereas individuals with an avoidance orientation aim to avoid performing worse than others (performance-avoidance) or to lose their competencies (mastery-avoidance).

In sport, mastery-approach goals and performance-approach goals are related to improved performance (Lochbaum & Gottardy, 2015; Van Yperen et al., 2014). However, performance-approach goals, as well as performance-avoidance goals and mastery-avoidance goals are also related to performance-impairing phenomena, such as anxiety, cheating, and self-handicapping (Conroy & Elliot, 2004; Elliot et al., 2006; Ring & Kavussanu, 2018a, 2018b). In contrast, mastery-approach goals are related to performance-enhancing constructs such as enjoyment and intrinsic motivation (Fox et al., 1994; Wang, Liu, Lochbaum, & Stevenson, 2009). In addition to these relationships with performance and motivation, achievement goals are associated with rate of learning in sport, athletic injuries, and psychological well-being among athletes (Adie et al., 2008; Shen et al., 2007; Steffen et al., 2009). Because of these relations with both positive and negative psychological factors, it is highly relevant to know why people pursue one type of goal or the other.

Studies show that the type of goals people pursue in sport is partly driven by internal factors, such as implicit theories of ability (Spray et al., 2006), and partly by external causes such as motivational climate, that is, a climate reflecting particular motivational goals as exerted by key social agents (White, 2007).

When studying the role of motivational climate in adolescents' achievement goals in sport, researchers have mostly focused on coaches. However, studies have shown that children's achievement goals are also related to their perceptions of their parents' achievement goals (e.g., Bergin & Habusta,

2004; Duda & Hom, 1993; Givvin, 2001). Furthermore, recent work has shown that the relation between coach-initiated motivational climate and children's achievement goals is mediated by the goals parents hold for their children (Schwebel, Smith, & Smoll, 2016). These findings suggest that parents may play an important role in the context of achievement motivation among adolescents. The present study extends this work by investigating to what extent the behaviors of parents, and the motivational climate these behaviors may create, relate to their adolescent children's achievement goals (i.e., mastery-approach, mastery-avoidance, performance-approach, and performance avoidance goals).

Specifically, the first aim of this study is to investigate the relation of parental behavior with the achievement goals of their adolescent children in sport. Second, we examine if this relation is mediated by parent-initiated motivational climate, which is the psychological environment parents create by the way they act in achievement situations and respond to the achievement behavior of their children. Hence, we test a model in which parental behavior relates to adolescents' achievement goals through the setting of a parent-initiated motivational climate (see Figure 4.1). As coaches have been found important for adolescents' achievement goals (Smith, Smoll, & Cumming, 2009), we control for coach-initiated motivational climate. Because adolescents' implicit theories of ability likely impact their achievement goals (Spray et al., 2006; Vella et al., 2016), we also control for this internal variable.

The first contribution of our study is that we connect the literature on parental behavior to the literature on achievement goals (Elliot & McGregor, 2001; Elliot & Reis, 2003; Elliot & Thrash, 2004). Although parents are considered to be important in sport settings, quantitative studies of parental behavior and children's psychological responses in sport are scarce. Our study seeks to fill this void by relating parental behavior to adolescents' achievement goals. Secondly, this study extends our knowledge of the origins of achievement goals by simultaneously testing the contribution of implicit theories, parent-initiated and coach-initiated motivational climate, and parental behavior to the four types of goals.

### **Parental Behavior and Adolescents' Achievement Goals**

Parents transmit their background, values, norms and aspirations to their children, as evidenced by significant associations between the goals and attitudes of parents and their children (e.g., Grusec & Danyliuk, 2014; Jeynes, 2007). An important way in which parents socialize their children is through their parental behavior (Maccoby, 2007). Parental behavior reflects the values parents hold, the goals and aspirations they have for their children, and ideas about how these

could be attained (e.g., Darling & Steinberg, 1993; Spera, 2005). Literatures on parenting and achievement goals in school settings suggest that parental behaviors and children's achievement goals are associated (e.g., Duchesne & Ratelle, 2010; Gurland & Grolnick, 2005).

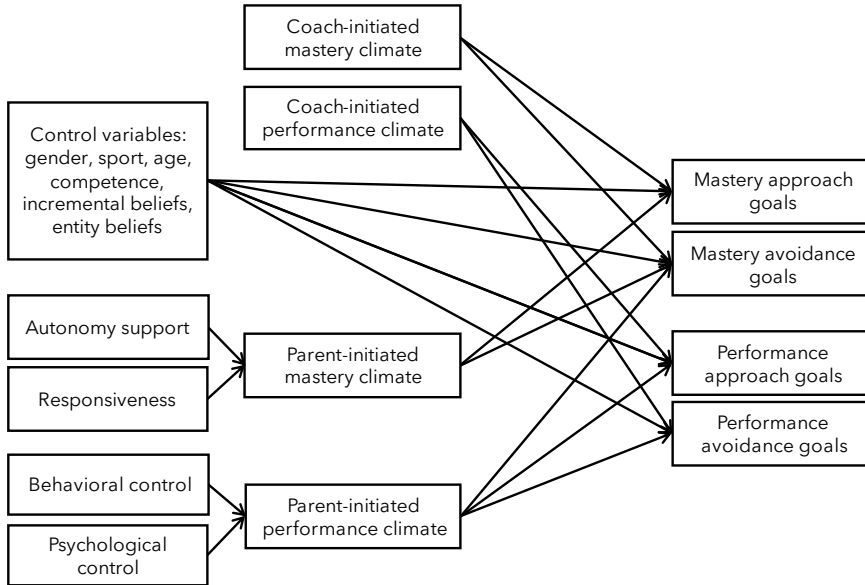


Figure 4.1. The hypothesized model. For clarity reasons, direct relations between parental behaviors and achievement goals are omitted in this figure.

Recent research on parenting distinguishes four different types of parental behaviors (e.g., Soenens, Vansteenkiste, Luyckx, & Goossens, 2006; Soenens et al., 2007): autonomy support, responsiveness, behavioral control, and psychological control. *Autonomy support* is behavior intended to provide children with choice where possible, minimize the use of control and authority and help them act in line with their own preferences (Soenens et al., 2007), which closely relates to the ideas of growth and self-actualization that are central to mastery goals. *Responsiveness* is behavior expressing empathy, and attention of parents for the emotional well-being of their children (Soenens et al., 2006). In sport, responsive parents will probably focus on how their children experience games and training sessions and give attention to how they evaluate themselves afterwards. When children internalize this attention, they will focus on their own feelings and development, which will lead to self-referenced goals. Based on the above, we expect that parents' autonomy support and responsiveness will positively relate to adolescents' mastery-approach, and mastery-avoidance goals.

To our knowledge, the relation between parental behavior and adolescents' achievement goals has not been studied in sport. However, in school settings authoritativeness relates to high-school students' mastery orientation (Gonzalez, Holbein, & Quilter, 2002) and parental involvement positively relates to mastery goals in adolescent children (Duchesne & Ratelle, 2010).

*Behavioral control* refers to parental efforts to regulate their children's behavior, communicate clear rules, provide structure, and help their children understand what is expected of them (Soenens et al., 2006). Because behavioral control partly focuses on complying with societal standards (Soenens & Vansteenkiste, 2010) which in sport often means to win or to compare with others, we expect it to be related to performance-approach, and performance-avoidance goals in adolescent children.

*Psychological control* is parental behavior intended to control how children think, act, and feel through the use of manipulative and pressurizing techniques such as love withdrawal and guilt induction (Soenens et al., 2006). Parents who use psychological control tend to be more ego-involved and prone to shame, to have a more contingent sense of self-worth, and to be maladaptively perfectionistic (Soenens & Vansteenkiste, 2010). These parents will be more likely to judge themselves and their children by the comparison with others (i.e., performance goals), because it provides a feeling of objectivity. Furthermore, their fear of failure makes them afraid of performing poorly (compared to others, but also compared to what they know they can do), leading to avoidance goals (e.g., Conroy & Elliot, 2004). For example, a longitudinal study among schoolchildren showed that parental control was related to anxiety in children which in turn was related to performance-approach and -avoidance goals (Duchesne & Ratelle, 2010). Therefore, combining these rationales, we expect parental psychological control to be positively related to performance-approach, performance-avoidance, and mastery-avoidance goals. We expect the relation with performance-avoidance goals to be the strongest, because the use of negative reinforcement and punishment is known to be related to avoidant behavior and fear of failure (Elliot & Thrash, 2004).

### **Parent-initiated Motivational Climate and Adolescents' Achievement Goals**

Environments affect people's motivation and motivational orientation (e.g., Bronfenbrenner & Morris, 1998). People form perceptions about their environments, which have been referred to as psychological climate. Psychological climate is a broad construct encompassing, among others, motivational climate, which is the motivational influence exerted by the social context in which an achievement task is defined (Ames, 1992; Seifriz, Duda, & Chi,

1992). In other words, a motivational climate is the outcome of the total of communication and behavior of influential others in achievement situations (e.g., Dragoni, 2005). The defining feature of a climate is that it continues to exist even when characteristic behaviors of these influential others are absent or temporarily inconsistent with the climate.

In the context of achievement motivation, scholars distinguish between mastery and performance climates (Ames, 1992; White, 2007). A mastery climate is characterized by an emphasis on learning, personal improvement, effort, and cooperation, which triggers mastery goals. A performance climate is characterized by an emphasis on competition, comparison of performance, rewards for outperforming others, and punishment for mistakes, which promotes performance goals (Cervelló, Santos Rosa, Calvo, Jiménez, & Iglesias, 2007; Ebbeck & Becker, 1994). Research in sport settings has supported the relation between mastery motivational climate and mastery goals, and between performance motivational climate and performance goals in correlational studies of coaches and athletes (Cervelló et al., 2007) and of parents and their children (Ebbeck, & Becker, 1994; White, Kavussanu & Guest, 1998). Intervention studies in physical education showed that a mastery climate led to more mastery-oriented pupils (Christodoulidis, Papaioannou, & Digelidis, 2001; Morgan & Carpenter, 2002). An experimental study in which motivational climates were manipulated, showed that a mastery climate led to the perception of a mastery-oriented motivational climate, more intrinsic interest, higher subjective vitality, and a better objective performance among participants competing in a cycling ergometer competition (Reinboth & Duda, 2016).

To date, research in sport has primarily focused on the motivational climate as initiated by coaches (O'Rourke et al., 2014) but adolescents in sport also experience a motivational climate initiated by their parents (White, 1996, 1998, 2007). We propose that parent-initiated mastery climate will promote adolescents' mastery goals, and that parent-initiated performance climate will promote adolescents' performance goals. Moreover, because parents have an important and omnipresent role in the lives of their children and many opportunities to convey their views on achievement, we expect the relations between parent-initiated climates and adolescents' goals to remain when controlling for coach-initiated climates. This effect has already been demonstrated for self-esteem, anxiety, and motivation in a study of swimmers (O'Rourke et al., 2014).

### **Parent-initiated Motivational Climate as a Mediator**

We propose that parents create a motivational climate at least partly through their parental behaviors (i.e., autonomy support, responsiveness,



behavioral control, and psychological control). Parents who support the autonomy of their children and who are responsive, will emphasize volition and enjoyment in sport and focus on their children's internal state, their development, and their well-being, which will relate to a mastery climate. In contrast, parents who exert behavioral, or psychological control over their adolescent children, emphasize the importance of external expectations and standards for behavior and arouse a fear of failure, which will likely relate to a performance climate. To sum up, we propose that parental behavior will relate to adolescents' achievement goals through the parent-initiated motivational climate. Specifically:

*Hypothesis 1:* Parent-initiated mastery climate mediates the relation of autonomy support with (a) mastery-approach goals and (b) mastery-avoidance goals.

*Hypothesis 2:* Parent-initiated mastery climate mediates the relation of responsiveness with (a) mastery-approach goals and (b) mastery-avoidance goals.

*Hypothesis 3:* Parent-initiated performance climate mediates the relation of behavioral control with (a) performance-approach goals and (b) performance-avoidance goals.

*Hypothesis 4:* Parent-initiated performance climate mediates the relation of psychological control with (a) performance-approach goals, (b) performance-avoidance goals and (c) mastery-avoidance goals.

## **Method**

### **Procedure and Participants**

We approached soccer, and field hockey clubs through email. When a team agreed to participate, the coach received an information letter that (s)he forwarded to parents. The letter explained the focus of the study and the passive informed consent procedure. No parents withheld their child from the study. A paper-and-pencil survey was administered during a training session. Athletes first signed an informed consent statement and then filled out the survey. To thank them, participants received a booklet with sport-psychological advice.

In total, 159 athletes completed the survey. Fifteen were removed because they responded with a 3 (*neutral*;  $n = 14$ ) or 2 (*not serious*;  $n = 1$ ) to the question "How serious were you in answering the questions in this survey?" (1 = *not at all*, 5 = *very serious*), and four were excluded because of a missing value on this question. The remaining athletes answered either 4 (*serious*,  $n = 101$ ) or 5 (*very serious*,  $n = 39$ ) to this question. The final sample consisted of 140 athletes

(72 boys, 68 girls;  $M_{\text{age}} = 15.50$ ;  $SD = 2.05$ ; age range 12-22 years; 83 soccer players from 8 teams, 57 field hockey players from 7 teams). Most participants lived with both their parents (71%), or with one parent if parents were divorced (21%), some lived with relatives or were adopted (6.5%), and two participants lived on their own (1.5%). Most participants reported their father as the parent most involved in their sport (64%).

## Measures

The survey included questions on demographics (gender, age, team, gender of most involved parent), and measures of parental behavior, parent-initiated motivational climate, and achievement goals. We included a mother- and a father version of parent scales, and instructed participants only to fill out the items about their most involved parent. We assessed participants' implicit theories of ability and coach-initiated motivational climate as control variables and measured perceived competence in sport, level of parent involvement, and seriousness of responses with single items.

**Parental behavior.** We used the Parenting Questionnaire (PQ; Soenens, et al., 2006) which is a validated Dutch questionnaire composed of 38 items in four subscales, based on translations of widely used scales on parental behavior (e.g., Youth Self Report; Barber, 1996). *Responsiveness* was measured with seven items (e.g., "My mother/father can make me feel better when I am upset.";  $\alpha = .80$ ). *Psychological control* was measured with eight items (e.g., "My mother/father is less friendly with me if I don't see things her/his way.";  $\alpha = .80$ ). *Autonomy support* was measured with seven items (e.g., "My mother/father allows me to make my own plans for the things I do.";  $\alpha = .71$ ). *Behavioral control* was measured with 16 items (e.g., "My mother/father has clear expectations of how I should behave in and outside the home.";  $\alpha = .80$ ). Answers on all subscales were provided using a five-point Likert scale from 1 (*not at all*) to 5 (*completely*). A CFA estimating a four-factor model showed a significantly better fit to the data,  $\chi^2(659) = 1079.06$ ,  $RMSEA = .06$ ,  $CFI = .89$ ,  $NNFI = .89$ , than a one-factor model combining all parental items,  $\chi^2(665) = 1743.97$ ,  $RMSEA = .15$ ,  $CFI = .73$ ,  $NNFI = .71$ ,  $\Delta\chi^2(6) = 664.91$ ,  $p < .001$ .

**Parent-initiated motivational climate.** We used a slightly adapted version of the Motivational Climate Scale for Youth Sports (MCSYS; Smith, Cumming, & Smoll, 2008) to assess parent-initiated motivational climate. Specifically, 'the coach' was replaced by 'my mother' in the mother-version and 'my father' in the father version, except for item 10 ("Players are taken out of games if they make a mistake.") which was rephrased into "My mother/father is

dissatisfied with me if I make mistakes". Because this was an adaptation, we pilot-tested the scale with ten high school students playing soccer or field hockey (eight boys and two girls;  $M_{age} = 14.50$ ,  $SD = 0.53$ ). We asked them to respond to the items, mark any they found difficult to understand, and write down what made them unclear. In the final phase we discussed the remarks and rephrased three items based on the outcomes.

The final version consisted of a subscale for parent-initiated performance climate (6 items; e.g., "Winning games is the most important thing for my mother/father.";  $\alpha = .77$ ) and one for parent-initiated mastery climate (6 items; e.g., "My mother/father encourages me to learn new skills.";  $\alpha = .66$ ). Answers were provided on a five-point Likert scale from 1 (*not at all true*) to 5 (*completely true*). A CFA estimating a two-factor model showed an acceptable fit,  $\chi^2(52) = 77.78$ ,  $RMSEA = .05$ ,  $CFI = .94$ ,  $NNFI = .93$ , and fit the data significantly better than a one-factor model with all parent-initiated motivational climate items,  $\chi^2(54) = 182.27$ ;  $RMSEA = .15$ ,  $CFI = .70$ ,  $NNFI = .64$ ,  $\Delta\chi^2(2) = 104.49$ ,  $p < .001$ .

**Achievement goals.** We measured achievement goals with the revised version of the Achievement Goal Questionnaire (AGQ-R; Elliot & Murayama, 2008), adapted for sport. It is composed of four subscales of three items each: performance-approach goals (e.g., "My aim is to perform well relative to other athletes.";  $\alpha = .77$ ), performance-avoidance goals (e.g., "My goal in my sport is to avoid performing poorly compared to others." ;  $\alpha = .75$ ) mastery-approach goals (e.g., "My goal is to learn as much as possible in my sport." ;  $\alpha = .68$ ), mastery-avoidance goals (e.g., "My aim is to avoid learning less in my sport than I possibly could." ;  $\alpha = .73$ ). Answers were provided on a five-point Likert scale from 1 (*completely disagree*) to 5 (*completely agree*). A CFA estimating a four-factor model showed an acceptable fit,  $\chi^2(48) = 94.02$ ,  $RMSEA = .09$ ;  $CFI = .95$ ;  $NNFI = .93$ . Comparing the four-factor model with a one-factor model combining all achievement goal items, revealed that a one-factor model was less fit to the data,  $\chi^2(54) = 225.52$ ,  $RMSEA = .16$ ,  $CFI = .82$ ,  $NNFI = .78$ ,  $\Delta\chi^2(4) = 131.49$ ,  $p < .001$ , than the four-factor model.

## **Control Variables**

**Implicit theories of ability** were measured with the Dutch version of the Conceptions of the Nature of Athletic Ability Questionnaire-2 (Biddle et al., 2003; Chapter 2). It is composed of 21 items in four subscales: incremental-learning (5 items; e.g., "You have to train hard and keep learning to become good at a sport.";  $\alpha = .77$ ), incremental-improvement (5 items; e.g., "How good you are at sports will always improve if you work at it." ;  $\alpha = .71$ ), entity-stable (6 items; e.g.,

“Even if you try, you cannot transcend your personal limit in a sport.” ;  $\alpha = .72$ ), and entity-gift (5 items; e.g., “To become good at a sport you need to have talent.” ;  $\alpha = .80$ ). Answers were provided on a five-point Likert scale from 1 (*completely disagree*) to 5 (*completely agree*). We combined the learning and improvement scales into a scale for incremental beliefs ( $\alpha = .84$ ), and the stable and gift scales into a scale for entity beliefs ( $\alpha = .84$ ; cf. Wang et al., 2009).

**Coach-initiated motivational climate** was measured with the Motivational Climate Scale for Youth Sports (MCSYS; Smith et al., 2008). It is composed of 6 items for performance climate (e.g., “Winning games is the most important thing for the coach.”;  $\alpha = .61$ ) and 6 items for mastery climate (e.g., “The coach encourages us to learn new skills.”;  $\alpha = .66$ ). Answers were given on a five-point Likert scale from 1 (*not at all*) to 5 (*completely*).

**Additional controls.** Perceived competence for sport was measured with one item: “I am good at soccer/field hockey” (1 = *not at all true*, 5 = *completely true*). Parent involvement was measured with one item: “How involved is the parent that you reported as being most involved in your sport?” (1 = *not involved*, 5 = *very much involved*). Lastly, we asked participants: “How seriously did you fill out the questionnaires?” (1 = *not seriously at all*, 5 = *very seriously*). This question was preceded by an introduction, stating that non-serious answering happens sometimes and that their response would not have any consequences.

### Data analysis

Because individual athletes in our study were nested in teams, we calculated intraclass correlation coefficients (ICC) and design effects (Kish, 1965) for the four achievement goals, to assess if there was between-team variance that would warrant multilevel analysis. We found an intraclass correlation coefficient above the cutoff score of .10 (Lee, 2000) for performance-approach goals,  $ICC = .32$ ,  $F(14, 124) = 5.19$ ,  $p < .001$ ,  $\eta^2 = .37$ , design effect = 3.66. The intraclass correlation coefficients and design effects indicated that dependency is less problematic for performance-avoidance goals,  $ICC = .07$ ,  $F(14, 124) = 1.82$ ,  $p = .04$ ,  $\eta^2 = .17$ , design effect = 1.58, mastery-approach goals,  $ICC = .01$ ,  $F(14, 124) = 1.14$ ,  $p = .34$ ,  $\eta^2 = .11$ , design effect = 1.08 and mastery-avoidance goals,  $ICC = .02$ ,  $F(14, 124) = 1.48$ ,  $p = .13$ ,  $\eta^2 = .14$ , design effect = 1.16. Because the design effects were smaller than 2 for these three achievement goals, the clustering is unlikely to pose a threat (Lai & Kwok, 2015). Because multilevel analyses demand higher sample sizes than single-level analyses and require a sufficient number of clusters, and because all our hypotheses concern relationships at the individual level, we tested a single-level mediation model in Mplus 7.31 (Muthén & Muthén,

2017) and compared the results to those from a separate multilevel model with the same predictors but only performance approach goals as the outcome variable. An important advantage of testing a single-level model is that it allows the use of bootstrapping, which is a more reliable and powerful approach to testing mediation effects than the normal theory approach (Hayes, 2013). In the multilevel model for performance-approach goals, the slopes were modelled as fixed and gender and sport were specified on the between level<sup>3</sup>. As seriousness of responding did not relate to any of the outcome variables we did not enter this variable in the analyses. Because we aimed to test the hypothesized relations rather than the full model, we focused on the relations in the model that represent our hypotheses and not on the fit of the model as a whole.

## Results

Table 4.1 presents descriptives of the study variables and their correlations. Table 4.2 presents the results of the single-level path analyses, and the separate multilevel analysis of performance-approach goals. Table 4.3 presents the results of the single-level mediation analyses, and the separate multilevel mediation analysis for performance-approach goals. Figure 4.2 presents an overview of all significant relations between parental behavior, parent-initiated motivational climates and achievement goals.

Because bootstrapping is only available in single-level mediation analysis in Mplus (Muthén & Muthén, 2017), we report the results of significance tests and regular confidence intervals for the multilevel analysis of performance-approach goals.

In line with Hypothesis 1, Table 4.2 shows a significant positive relation between autonomy support and parent-initiated mastery climate ( $\beta = .20, p = .048$ ), and between parent-initiated mastery climate and mastery-approach goals ( $\beta = .29, p = .001$ ). Table 4.3 shows a significant positive indirect effect of autonomy support via parent-initiated mastery climate to mastery-approach goals (standardized indirect effect =  $.06$ , 95% bias-corrected bootstrap confidence interval is 0.00 to 0.15; Hypothesis 1a supported). In line with our hypothesis, Table 4.2 also shows a significant positive relation between parent-initiated mastery climate and mastery-avoidance goals ( $\beta = .26, p = .006$ ).

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<sup>3</sup> We investigated the effect of including the interaction of adolescent gender and gender of the most involved parent in the model. This interaction was a significant predictor of mastery-approach goals only ( $\beta = -.16, p = .04$ ; girl and mother coded as -1, boy and father coded as 1), but including it did not affect any of the relations between parental behavior and achievement goals and did not affect any of the mediations of these relations by the parent-initiated motivational climate either.

Table 4.3 shows a significant positive indirect effect of autonomy support via parent-initiated mastery climate to mastery-avoidance goals (standardized indirect effect = .05, 95% CI [.00, .25]; Hypothesis 1b supported).

In line with Hypothesis 2, we found a significant positive relation between responsiveness and parent-initiated mastery climate ( $\beta = .31, p < .001$ ). Table 4.3 shows a significant positive indirect effect of responsiveness via parent-initiated mastery climate to mastery-approach goals (standardized indirect effect = .09, 95% CI [.02, .17]; Hypothesis 2a supported). Table 4.3 also shows a significant positive indirect effect of responsiveness via parent-initiated mastery climate to mastery-avoidance goals (standardized indirect effect = .08, 95% CI [.02, .30]; Hypothesis 2b supported).

Regarding Hypothesis 3, contrary to our expectations, Table 4.2 does not show a significant relation between behavioral control and parent-initiated performance climate ( $\beta = .09, p = .25$ ). However, it does show a significant positive relation between parent-initiated performance climate and performance-approach goals (single level:  $\beta = .42, p < .001$ ; multilevel:  $\beta = .40, p < .001$ ). Table 4.3 shows that there is no significant indirect effect of behavioral control via parent-initiated performance climate to performance-approach goals, as indicated by the 95% bias-corrected bootstrap confidence interval which includes zero (-.03 to .19; Hypothesis 3a not supported; single-level standardized indirect effect = .04; multilevel standardized indirect effect = .02,  $p = .57$ ). In line with Hypothesis 3b, we found a significant positive relation between parent-initiated performance climate and performance-avoidance goals (Table 4.2:  $\beta = .19, p = .03$ ), but Table 4.3 shows that there is no significant indirect effect of behavioral control via parent-initiated performance climate to performance-avoidance goals, as indicated by a bias-corrected bootstrap confidence interval that includes zero (-.01 to .14; Hypothesis 3b not supported; standardized indirect effect = .02).

In line with Hypothesis 4, Table 4.2 shows a significant positive relation between psychological control and parent-initiated performance climate ( $\beta = .43, p < .001$ ), and between parent-initiated performance climate and performance-approach goals (single-level:  $\beta = .42, p < .001$ ; multilevel:  $\beta = .40, p < .001$ ). Table 4.3 shows a significant positive indirect effect of psychological control via parent-initiated performance climate to performance-approach goals (95% CI [.11, .36]; Hypothesis 4a supported; single-level standardized indirect effect = .18; multilevel standardized indirect effect = .15). In line with our hypothesis, Table 4.2 also shows a significant relation between parent-initiated performance climate

Table 4.1

Means, standard deviations, internal consistencies (Cronbach's alphas) and correlations between study variables

	M	SD	1	2	3	4	5	6	7	8
1. Age	15.50	2.05	(-)							
2. Gender <sup>a</sup>	0.51	0.50	-.08	(-)						
3. Sport <sup>b</sup>	0.41	0.49	-.08	.02	(-)					
4. Parent involv	4.04	0.93	-.16*	-.07	-.10	(-)				
5. Competence	4.19	0.64	.10	.23**	-.18*	-.13	(-)			
6. Incremental	4.42	0.43	.11	-.10	-.10	-.03	.11	(.84)		
7. Entity	2.86	0.67	.29**	.23**	-.13	-.10	.06	-.01	(.84)	
8. Coach MC	4.03	0.49	.16*	.14*	-.41**	.00	.18*	.18*	.11	(.66)
9. Coach PC	2.25	0.61	.15*	.19*	-.15*	-.11	.19*	.15*	.15*	.14*
10. Parent MC	4.14	0.50	-.11	.01	.03	.21**	.02	.20*	-.09	.35**
11. Parent PC	2.37	0.75	.16*	.14*	-.35**	.04	.08	.06	.32**	.29**
12. Behav control	3.42	0.50	.08	.03	-.14	-.01	.05	.09	-.04	.16*
13. Psych control	1.92	0.65	.12	.10	-.30**	-.11	.00	-.08	.24**	.09
14. Responsiven	4.21	0.63	-.07	-.19*	.06	.20*	.07	.16*	-.05	.13
15. Auton supp	4.10	0.53	-.06	-.02	.17*	.15*	.01	.12	-.12	.02
16. Mast approach	4.18	0.53	-.08	.14	-.15*	.03	.21**	.37**	.02	.33**
17. Mast avoid	3.39	0.90	.06	.06	-.06	.02	.16*	.16*	.16*	.00
18. Perf approach	3.70	0.78	.28**	.31**	-.29**	-.07	.22**	.18*	.42**	.26**
19. Perf avoid	3.29	0.93	-.07	.08	-.31**	.02	.07	.16*	.21**	.12

Note. N = 138-140. Numbers on the diagonal are Cronbach's alphas. Parent involv = parental involvement; Incremental = incremental beliefs; Entity = entity beliefs; Coach MC = coach-initiated mastery climate; Coach PC = coach-initiated performance climate; Parent MC = parent-initiated mastery climate; Parent PC = parent-initiated performance climate; Behav control = behavioral control; Psych control = psychological control; Responsiven = responsiveness; Auton supp = autonomy support; Mast approach = mastery-approach goals; Mast avoid = mastery-avoidance goals; Perf approach = performance-approach goals; Perf avoid = Performance-avoidance goals.

<sup>a</sup>Categories include 0 = female; 1 = male. <sup>b</sup>Categories include 0 = soccer; 1 = field hockey.

\* $p < .05$ , one-tailed \*\* $p < .01$ , one-tailed.

Table 4.1 (Continued)

Means, standard deviations, internal consistencies (Cronbach's alphas) and correlations between study variables

	9	10	11	12	13	14	15	16	17	18	19
1. Age											
2. Gender <sup>a</sup>											
3. Sport <sup>b</sup>											
4. Parent involv											
5. Competence											
6. Incremental											
7. Entity											
8. Coach MC											
9. Coach PC	(.61)										
10. Parent MC	-.16*	(.66)									
11. Parent PC	.34**	-.08	(.77)								
12. Behav control	.19*	.22**	.17*	(.80)							
13. Psych control	.34**	-.20**	.47**	.19*	(.80)						
14. Responsiven	-.10	.43**	-.07	.18*	-.28**	(.88)					
15. Auton supp	-.21**	.35**	-.30**	-.04	-.59**	.47**	(.71)				
16. Mast approach	.09	.37**	.30**	.13	.12	.20**	.02	(.68)			
17. Mast avoid	.04	.12	.27**	.07	.22**	-.12	-.05	.45**	(.73)		
18. Perf approach	.28**	-.05	.56**	.22**	.26**	-.15*	-.21**	.36**	.35**	(.77)	
19. Perf avoid	.10	.10	.37**	.14*	.36**	-.09	-.30**	.28**	.46**	.51**	(.75)



Table 4.2

Path analyses of the relationship between parental behavior, parent-initiated motivational climate, and achievement goals

	Parent-initiated mastery climate <sup>a</sup>	Parent-initiated performance climate <sup>a</sup>	Mastery- approach goals <sup>a</sup>	Mastery- avoidance goals <sup>a</sup>	Performance- approach goals (individual level) <sup>a</sup>	Performance- approach goals (group level) <sup>b</sup>	Performance- avoidance goals <sup>a</sup>
Gender			.09	-.07	.20**	.42	.02
Sport			.01	.08	-.10	-.62**	-.16†
Age			-.12	-.04	.14*	.08	-.18*
Competence			.15*	.24**	.09	.06	.06
Incremental beliefs			.32**	.17*	.15*	.25**	.19*
Entity beliefs			-.08	.09	.22**	.19*	.15†
Autonomy support	.20*	-.07	-.04	.15	-.08	-.06	-.23*
Responsiveness	.31**	.06	.09	-.27**	-.13	-.12	-.05
Behavioral control	.18*	.09	-.06	.03	.16*	.15	.04
Psychological control	-.02	.43**	.14	.24*	-.14	-.10**	.14
Coach mastery climate			.09	-.15	-.02	.05	-.08
Coach performance climate			-.07	-.13	-.01	-.03	-.08
Parent mastery climate			.29**	.26**	.01	.01	.24*
Parent performance climate			.28**	.25**	.42**	.40**	.19*

Note.  $N = 136$ . Standardized path coefficients are displayed. ML estimation was used in the single-level analyses, MLR estimation was used in the multilevel analysis.

<sup>a</sup>Values from single-level analyses. <sup>b</sup>Values from multi-level analysis. Gender and sport are on the between level, and not centered, the remaining variables are on the within-level and group-mean centered.

† $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

Table 4.3

Mediation of the relation between parental behavior and achievement goals by parent-initiated motivational climates

	Mastery app	95% CI <sup>a</sup>		Mastery avoid	95% CI <sup>a</sup>		Perf app single leve	95% CI <sup>a</sup>		Perf app multi level	95% CI <sup>a</sup>		Perf avoid	95% CI <sup>a</sup>	
		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL
Autonomy support															
total effect	.01	-0.20	0.24	.17	-0.09	0.65	-.11	-0.48	0.18	-.10	-0.31	0.11	-.20	-0.73	0.01
direct effect	-.04	-0.23	0.18	.15	-0.10	0.59	-.08	-0.39	0.18	-.06	-0.26	0.15	-.23*	-0.80	-0.06
ind eff via par mast clim	.06*	0.00	0.15	.05*	0.00	0.25	-.00	-0.05	0.07	-.00	-0.04	0.04	-.01*	0.00	0.24
ind eff via par perf clim	-.02	-0.10	0.04	-.02	-0.16	0.06	-.03	-0.19	0.09	.04	-0.13	0.05	-.01	-0.16	0.04
Responsiveness															
total effect	.21*	0.00	0.35	-.18	-0.57	0.02	-.10	-0.34	-0.10	-.04	-0.21	0.13	.03	-0.22	0.31
direct effect	.09	-0.08	0.23	-.27**	-0.70	-0.10	-.13	-0.37	0.06	-.12	-0.24	0.01	-.05	-0.36	0.22
ind eff via par mast clim	.09*	0.02	0.17	.08*	0.02	0.30	.00	-0.06	0.09	.00	-0.03	0.15	.01*	0.01	0.27
ind eff via par perf clim	.02	-0.03	0.07	.01	-0.04	0.11	.02	-0.07	0.13	.06	-0.03	0.15	.01	-0.03	0.10
Behavioral control															
total effect	.01	-0.15	0.18	.06	-0.25	0.44	.19*	0.06	0.54	.18	-0.01	0.37	.08	-0.20	0.47
direct effect	-.06	-0.21	0.10	.03	-0.33	0.39	.16*	0.01	0.46	.15	-0.04	0.34	.04	-0.30	0.39
ind eff via par mast clim	.05*	0.01	0.14	.05*	0.01	0.22	.00	-0.05	0.06	.00	-0.04	0.04	.04*	0.01	0.21
ind eff via par perf clim	.03	-0.01	0.10	.02	-0.02	0.16	.04	-0.03	0.19	.02	-0.05	0.10	.02	-0.01	0.14
Psychological control															
total effect	.24*	0.03	0.37	.28**	0.11	0.68	.04	-0.18	0.27	.04	-0.15	0.23	.18	-0.04	0.55
direct effect	.14	-0.05	0.27	.24*	0.02	0.65	-.14	-0.38	0.07	-.10	-0.30	0.09	.14	-0.11	0.50
ind eff via par mast clim	-.01	-0.06	0.04	-.01	-0.10	0.07	.00	-0.03	0.02	.00	0.00	0.00	-.01	-0.09	0.06
ind eff via par perf clim	.12**	0.04	0.18	.11**	0.05	0.30	.18**	0.11	0.36	.15**	0.04	0.27	.08*	0.01	0.26

Note.  $N = 136$ . ML estimation was used in the single-level analyses, MLR estimation was used in the multilevel analysis. 95% CI = 95% Confidence interval; Mastery app = mastery approach goals; Mastery avoid = Mastery avoidance goals; Perf app = performance approach goals; Perf avoid = performance avoidance goals; Ind eff = indirect effect; Par mast clim = parental mastery climate; Par perf clim = parental performance climate

<sup>a</sup>Based on bias corrected bootstrap. <sup>b</sup>Based on sample.

† $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

and performance-avoidance goals ( $\beta = .19, p = .03$ ) and Table 4.3 shows a significant positive indirect effect of psychological control via parent-initiated performance climate to performance-avoidance goals (95% CI [.01, .26]; Hypothesis 4b supported; standardized indirect effect = .08).

Finally, in line with our hypothesis, Table 4.2 demonstrates a significant positive relation between parent-initiated performance climate and mastery-avoidance goals ( $\beta = .25, p = .006$ ), and Table 4.3 shows a significant positive indirect effect of psychological control via parent-initiated performance climate to mastery-avoidance goals (95% CI [.05, .30]; Hypothesis 4c supported; standardized indirect effect = .11).

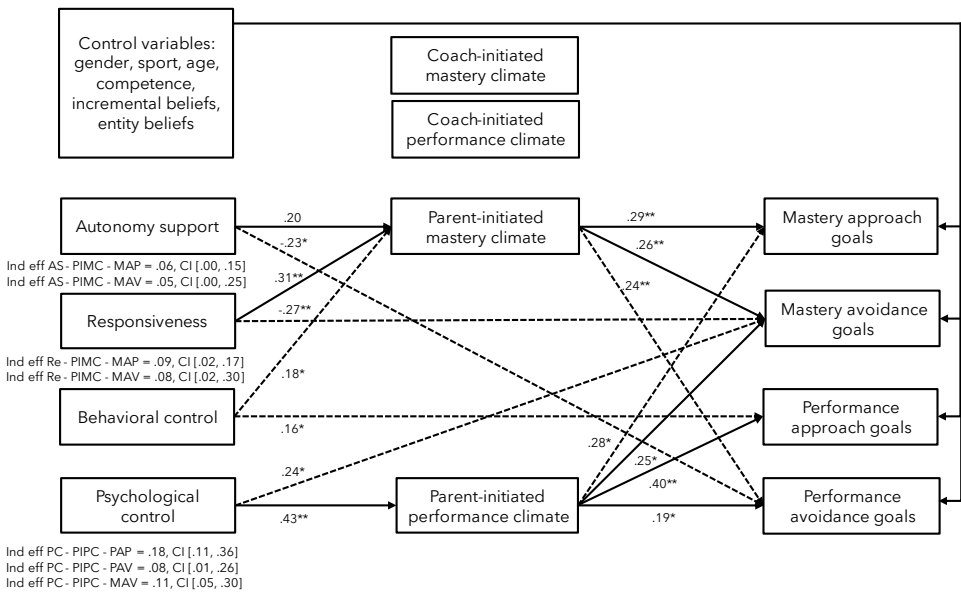


Figure 4.2. Path-coefficients of the relations between parental behavior, parent-initiated motivational climates and achievement goals. Only significant relations are shown. Solid lines represent hypothesized relations, dashed lines represent significant, non-hypothesized relations. Standardized indirect effects and 95% bias-corrected bootstrapped confidence intervals are presented for the indirect effects between parental behavior and achievement goals that were significant. None of the relations between coach-initiated motivational climates and achievement goals were significant. Path-coefficients for control variables and achievement goals are omitted for clarity reasons.

AS = Autonomy support, PIMC = Parent-initiated mastery climate, MAP = Mastery approach goals, MAV = Mastery avoidance goals, Re = Responsiveness, PC = Psychological control, PIPC = Parent-initiated performance climate, PAP = Performance approach goals, PAV = Performance avoidance goals.

## Additional Results

A result worth highlighting is that the parent-initiated motivational climates predict achievement goals, but the coach-initiated motivational climates do not. The individual level results in Table 4.2 show that parent-initiated mastery climate was a significant positive predictor of mastery-approach goals ( $\beta = .29, p = .001$ ), mastery-avoidance goals ( $\beta = .26, p = .01$ ) and performance-avoidance goals ( $\beta = .24, p = .01$ ). Furthermore, parent-initiated performance climate was a significant positive predictor of mastery-approach goals ( $\beta = .28, p = .001$ ), mastery-avoidance goals ( $\beta = .25, p = .006$ ), performance-approach goals ( $\beta = .42, p < .001$ ), and performance-avoidance goals ( $\beta = .19, p = .03$ ). In contrast, none of the coach-initiated motivational climates predicted any of the four types of goals (all  $\beta$ 's not significant).

A second result worth mentioning is that we expected behavioral control to be related to goals via parent-initiated performance climate, but our results show indirect effects of behavioral control via parent-initiated mastery climate. Table 4.3 shows a significant positive indirect effect of behavioral control via parent-initiated mastery climate to mastery-approach goals (95% CI [.01, .14]), a significant positive indirect effect of behavioral control via parent-initiated mastery climate to mastery-avoidance goals (95% CI [.01, .22]), and a significant positive indirect effect of behavioral control via parent-initiated mastery climate to performance-avoidance goals (95% CI [.01, .21]).

A final result to be highlighted is that, contrary to our theoretical reasoning, there was a significant positive indirect effect of psychological control via parent-initiated performance climate to mastery-approach goals (95% CI [.04, .18]), which suggests that the aim of parental psychological control can also be an adolescent's efforts for improvement.

## Discussion

In this study, we examined if parental behavior was related to achievement goals in adolescent athletes and if this relation was mediated by parent-initiated motivational climate.

Autonomy support and responsiveness were both related to mastery-approach and mastery-avoidance goals through parent-initiated mastery climate. Psychological control was related to performance-approach, performance-avoidance, and mastery-avoidance goals through parent-initiated performance climate. Behavioral control was not related to achievement goals through parent-initiated performance climate, as hypothesized, but it was indirectly related to

mastery-approach, mastery-avoidance, and performance-avoidance goals through parent-initiated mastery climate. We also found that while parent-initiated motivational climate predicted adolescents' achievement goals, coach-initiated motivational climate did not. This finding is in line with previous research showing that parent-initiated motivational climate significantly predicts athletes' self-esteem, anxiety, and motivation, beyond coach-initiated motivational climate (O'Rourke et al., 2014). Our results extend these findings and suggest that parents are more influential than coaches for adolescents' achievement goals.

More specifically, our findings suggest that parents who give their adolescent children freedom to choose and help them act in line with their volition (i.e., autonomy support), who are responsive to their emotional state and listen to what they have to say (i.e., responsiveness), and who communicate clear and reasonable expectations for their behavior (i.e., behavioral control) tend to create a mastery climate in their adolescent children's sport setting, which in turn will make them pursue mastery goals. These findings extend previous research in school settings, which reported positive relations between responsive and authoritative parenting and children's mastery goals (e.g., Duchesne & Ratelle, 2010; Gonzalez et al., 2002). We did not find support for the proposed associations between behavioral control and performance-approach and performance-avoidance goals through the parent initiated performance climate. We expected these relations because the theoretical essence of behavioral control is that parents regulate their children's behavior to make them adhere to societal standards. The primary standard for children in sport is that they do their best and try to win. Although parents will encourage this with the best intentions for their children, it will reinforce their children's desire to win and not their desire to learn and improve their abilities. Therefore we hypothesized behavioral control to be related to performance goals and not to mastery goals. However, our findings suggest a relation of behavioral control, via parent-initiated mastery climate with mastery-approach goals and mastery avoidance goals. Learning and development are also societal standards and if parents value these goals over winning, their behavioral control will be related to a mastery climate and mastery goals in children. Hence, we believe that the type of goals behavioral control relates to will depend on what goals parents find important. Future studies could explore this proposition.

Our findings further show that when parents try to control the way their adolescent children think, act, and feel by using techniques such as love withdrawal and guilt induction (i.e., psychological control), they likely initiate a performance climate which will make their adolescent children pursue

performance-approach, performance-avoidance, and mastery-avoidance goals, mirroring findings from school settings (e.g., Duchesne & Ratelle, 2010, Gonzalez et al., 2002; Gurland & Grolnick, 2005). The indirect relation between psychologically controlling parental behavior and both types of avoidance goals in adolescents may result from the fear of failure that is associated with psychological control (Conroy & Elliot, 2004; Elliot & McGregor, 2001).

Our outcomes provide additional support for the theoretical prediction that parent-initiated mastery climate is related to mastery-approach and mastery-avoidance goals, and that parent-initiated performance climate is related to performance-approach and performance-avoidance goals (Ames, 1992; White, 2007). The relation between parent-initiated climate and achievement goals was demonstrated previously in sport settings (e.g., White, 1996, 1998), using the distinction between task and ego goals. Our findings extend these studies by using the more elaborated 2x2 achievement goal framework.

A difference between our findings and results from school settings is that the latter have often reported direct relations between parental behavior and achievement goals (e.g., Duchesne & Ratelle, 2010; Gonzalez et al., 2002), whereas we found several indirect relations, mediated by parent-initiated motivational climate. This may follow from the different roles parents have in school and sport settings. In school settings, it is quite common for parents to monitor the academic achievements of their children, to demand a certain performance level, and to take action when children do not work hard enough for school. This is generally regarded as desirable parental behavior in the school setting. In sport on the contrary, parents are expected to keep a certain distance and are generally not supposed to monitor their children's achievements and impose sanctions when they underperform. Therefore, their role in sport may not be as direct as in the school setting, which may explain why we found mostly indirect, rather than direct relations. Future research is needed to test these explanations by directly comparing the involvement of parents in school and sport settings.

A second explanation could be that the items of the parental behavior questionnaire in our study were not about parental behavior within the sport setting but about general parental behavior, while the items of the parent-initiated motivational climate scale described parental behavior in the sport setting. This followed from our assumption that general parental behavior would be related to the domain-specific parent-initiated climate that adolescents perceive in sport, which would in turn be related to their achievement goals. However, it may have led adolescents to think about different settings while answering the questions.

Future studies may therefore consider using a parental behavior questionnaire adapted to sports.

An interesting question is what causes the relations between parental behavior and parent-initiated motivational climate. We assumed that parental behavior as well as the sport-specific motivational climate are related to a hierarchically organized set of parental goals (cf. Darling & Steinberg, 1993; DeShon & Gillespie, 2005). Some parents have goals that focus on competition and the avoidance of threats, leading to controlling behavior and a performance climate (Gurland & Grolnick, 2005; Luster, Rhoades, & Haas, 1989; Richman & Mandara, 2013), while other parents have goals that focus on growth and development, leading to supportive behavior and a mastery climate (Luster et al., 1989; Richman & Mandara, 2013). Parents may gradually transfer their goals to their children through their behavior and the climates they install. This could be examined in future studies by assessing parental goals and examining if they relate to parental behavior and parent-initiated motivational climate, and by investigating if the goals of parents and children converge over time.

This study has several limitations that should be addressed. First, we have only used adolescents as informants and did not gather parents' and coaches' reports. However, we believe that this is a valid approach, because adolescents' perceptions are what drives their behavior (cf. Appleton, Hall, & Hill, 2010). Earlier studies have sometimes found no relation between parental and children's self-reports of their achievement goals, while they did find a relation between children's perceptions of parental achievement goals and children's own achievement goals (Duda & Hom, 1993; Givvin, 2001). Nevertheless, it is advisable for future studies to collect multi-source data, especially parents' self-ratings of their achievement goals, because parental goals may influence children without the children being aware. Also the discrepancy between parent, and child-ratings could provide interesting insights into the parent-child relationship (cf. De Los Reyes, 2011).

A second limitation is that the sample was relatively small, including participants from only two sports, which may limit the generalizability of our findings, and the design was cross-sectional, which limits the possibility to draw causal conclusions. It would be of interest to test our hypotheses in a full, multilevel model, using a larger sample. By allowing for random slopes a multilevel model could also take the variation between teams into account, making it possible to detect possible moderators. Also, future studies should make use of a longitudinal or experimental design. The cross-sectional nature of our study is suitable for a

first exploration, but because it limits possible conclusions about causality, we hope future studies will employ more powerful designs.

Third, some of our measures can be improved. For example, the reliabilities of the measures for parent-initiated and coach-initiated motivational climates are relatively modest. Although the coach-initiated motivational climate was a control variable, and although these modest reliabilities are not uncommon when scales cover a broad range of behaviors, future research is needed to improve these measures.

Also, future research may examine a more fine grained conceptualization of motivational climate (i.e., both mastery and performance climate and approach and avoidance climate) as a mediator between the behavior of coaches and parents on the one hand, and athletes' achievement goals on the other. Furthermore, we did not counterbalance the order in which the questionnaires were administered, which might have affected responses. Finally, future studies could include additional predictors of achievement goals, such as perceptions of competence, need for achievement, self-efficacy, and attachment (Elliot & McGregor, 2001; Elliot & Reis, 2003; Payne et al., 2007).

In conclusion, this study underscores the important role parents have in the sport goals of their children by demonstrating that parents can be more influential than the coach. We recommend educating parents about the parental behaviors that are most detrimental or helpful for their children in sport.