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Trait Anxiety in Young Athletes as a Function of Parental Pressure and Motivational Climate: Is Parental Pressure Always Harmful?

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We assessed the role of parental behaviors on sport performance anxiety. Measures of trait anxiety, parental pressure, and parent-initiated motivational climate were administered to youth swimmers throughout the season. High parental pressure within either a low mastery or a high ego motivational climate was associated with the highest levels of anxiety at all time points. An early-season, high-pressure/low-mastery combination was also associated with relative increases in anxiety over the season, whereas high pressure within a high mastery climate was associated with relative decreases. Results indicate that parental pressure can have differential effects depending upon motivational climate.

Youth sport is a social system involving children, peers, coaches, and parents, all of whom influence the outcomes children derive from their participation (Horn & Horn, 2007). This includes the development of values, attitudes, competence perceptions, interpersonal relationships, and motivational factors. In this study, we focus on parental behaviors and their potential influence on performance anxiety in young athletes.

As a trait construct, sport performance anxiety may be defined as a predisposition to respond with cognitive and/or somatic state anxiety to competitive sport situations in which the adequacy of the athlete’s performance can be evaluated. The state anxiety response to the immediate situation has both cognitive (worry, cognitive interference) and physiological arousal components (Smith, 1986). Performance anxiety typically demonstrates a wide range of potentially negative consequences, including effects on performance, enjoyment, susceptibility to injury, motivation, and sport attrition (Smith & Smoll, 2004; Smith, Smoll, & Passer, 2002). Moreover, reductions in anxiety are associated with enhanced sporting experiences for children when evaluative pressures are reduced (e.g., Lewthwaite & Scanlan, 1989; Smith, Smoll, & Cumming, 2007).

The quality of child-parent relationships is an important predictor of young athletes’ stress, level of enjoyment, and self-determined motivation (Horn & Horn, 2007; Ullrich-French &
Although parental behaviors have received relatively less research emphasis than coaching behaviors within the sport psychology literature, there is little question that they should be an important focus of empirical attention (Babkes & Weiss, 1999; White, 1998). Within both the popular and scientific literature, parental pressure has long been one of the most frequently maligned parenting practices (Bigelow, Moroney, & Hall, 2001; Engh, 2002). Parent behavior construed as negative, coercive, or as communicating excessive evaluative concerns, contributes to a more threatening sport performance environment (Gould, Lauer, Rolo, Jannes, & Pennisi, 2008; Smoll & Smith, 2002). Such behaviors are frequently part of a “win at all costs” mentality that increases stress and reduces enjoyment (Engh, 2002; Smith et al., 2002). In some studies, parental pressure has been linked to higher performance anxiety and negative affect in young athletes (Lewthwaite & Scanlan, 1989; Sebire, Standage, & Vansteenkiste, 2009). Other studies carried out in educational settings indicate that parental pressure may negatively influence both academic motivation and school achievement (Grolnick, Gurland, DeCourcey, & Jacob, 2002; Koutsoulis & Campbell, 2001). Such results are consistent with predictions derived from self determination theory (SDT; Deci & Ryan, 2000; Gagne, Ryan, & Bargmann, 2003). Within SDT, coercive behaviors by authority figures are typically accorded a negative role because they frustrate the need for autonomy and undermine intrinsic motivation (Deci & Ryan, 2000). Conversely, autonomous forms of motivational regulation are related to higher levels of task perseverance, enjoyment, and psychological well-being (Duda & Treasure, 2010; Gagne et al., 2003). Parental pressure is directly relevant to the autonomy construct and is assumed to undermine the child’s sense of autonomy (Gagne et al., 2003; Gould et al., 2008). Parents who force their will on the child and demand normative success may create an atmosphere in which the child becomes fearful of failure and experiences a loss in autonomy. Conversely, children with autonomy-supportive parents are expected to experience more adaptive psychological outcomes due to a stronger sense of personal control over their goal-directed behavior (Gagne et al., 2003). Other theorists have argued that pressure to win and to outperform others to earn parental approval contributes to a less enjoyable and more anxiety-provoking sport environment (Brustad & Partridge, 2002; Gould et al., 2008; Scanlan 2002). In support of this view, Scanlan and Lewthwaite (1984) found positive relations between measures of parental pressure and pre-event state anxiety in young wrestlers. Bois, Lalanne, and Delforge (2009) also reported positive relations between athlete-perceived parental pressure and state anxiety measured prior to a single athletic event. Finally, Lewthwaite and Scanlan (1989) reported a positive relation between parental pressure and trait anxiety in youth soccer players.

Given these theoretical considerations and research results, we might expect that parental pressure has uniformly negative effects on children’s psychosocial outcomes in sport. However, other research has shown little relation between parental pressure and psychosocial measures, including anxiety (Brustad, 1988; Collins & Barber, 2005). In part, the lack of consistent results may be attributed to varying definitions and measures of parental pressure (e.g. Bois et al., 2009; Cassidy & Conroy, 2004; Hoyle & Leff, 1997). Beyond such inconsistencies, however, Lee and MacLean (1997) argued that the quality of parental pressure, rather than its intensity, is of utmost importance. The quality of the pressure encompasses many dimensions, such as influence intensity, supportiveness, and affective valence (Bois et al., 2009; Fredericks & Eccles, 2003). Perhaps the most critical question may be, “What is the child being pressured to do?” Being pressured to give maximum effort and exhibit self-improvement may have different consequences than being pressured to outperform others, in part because the outcomes in question differ in degree of controllability. There should be less undermining of the child’s autonomy needs and less creation of evaluation apprehension when the parent’s focus is on self-referenced outcomes. Indeed, in such circumstances, parental pressure may actually have
salutary effects by directing the child toward more adaptive achievement goals. Failure to consider what the child is being pressured to do may account for much of the variability in the research findings.

As noted above, most discussions of parental pressure focus on negative and coercive behaviors. In light of the foregoing discussion, however, we propose a more neutral definition of parental pressure as a variant of the many forms that parental engagement can take. We define parental pressure as a pattern of directive and controlling parental behaviors designed to prompt athlete responses and outcomes that are important to the parent. These parental behaviors may include the communication of achievement goals and expectations, careful monitoring of the athlete’s behavior, unsolicited technical instruction, encouragement, and the communication of response-contingent approval and disapproval. This broader definition allows for the exercise of parental pressure in the service of promoting a variety of goals and athlete behaviors.

Concepts from achievement goal theory (AGT; Nicholls, 1984, 1989; Reinboth & Duda, 2006; Roberts, 2001) are directly relevant to the varying forms that parental pressure may take. AGT, like SDT, posits that within achievement contexts, including sports, performers attempt to demonstrate competence. Individuals have both a tendency to adopt a certain definition of success, and the ability to be influenced in this regard by cues present in the environment. The tendency to perceive certain cues and to become engaged in certain goals and success criteria within achievement situations is termed goal orientation. Cues in the environment that promote or reinforce a particular criterion for success create the motivational climate. Parents influence the motivational climate experienced by young athletes (Duda & Treasure, 2010).

Within AGT, there are two types of goal-involvement that differ in their criterion for success: mastery and ego goals. Similarly, two corresponding (mastery or ego) motivational climates exist that contain cues conducive to promoting their respective goal-involvements. A mastery climate creates an environment in which effort, enjoyment, and self-improvement are emphasized, mistakes are not punished but viewed as a medium for learning, and the criterion for success is self-referenced instead of being based on social comparison (Ames, 1992). Conversely, in an ego-climate success is defined in terms of outperforming others using equal or less effort and mistakes are viewed as unacceptable and punished. The types of achievement goals promoted within a parent-initiated motivational climate may therefore produce qualitatively different forms of pressure. The intensity level of directive behaviors by the parent may be very similar, but, based on AGT research, they may have different effects on psychosocial outcomes, including performance anxiety.

A large body of research evidence in both educational and sport settings indicates that mastery climates are associated with better psychosocial and performance outcomes than are ego climates (Ames, 1992; Duda, 2005; Smoll, Smith, & Cumming, 2007a). Mastery climates create an environment in which evaluative concerns are diminished, intrinsic motivation for the activity is increased, and conditions that create anxiety are minimized. Reductions in normative comparisons and a focus on self-referenced cues, prominent under a mastery climate, are beneficial in minimizing anxiety (Harwood & Swain, 2002). Conversely, ego-involving motivational climates have been associated with higher levels of anxiety because other-referenced success criteria involve partially uncontrollable outcomes (Duda & Treasure, 2010; McArdle & Duda, 2002; Smith et al., 2007). Other studies have demonstrated success in reducing performance anxiety over the course of a season through interventions for coaches and parents that are designed to help them create a mastery climate (Smith et al., 2007; Smoll, Smith, & Cumming, 2007b).

The foregoing suggests that both theoretical and empirical advances might occur by jointly considering the roles of parental pressure and parent-initiated motivational climate in an
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attempt to investigate qualitatively different forms of parental pressure. Using our operational
definition of parental pressure, we predicted that the highest levels of athlete anxiety should be
fostered by high parental pressure applied within an ego-oriented motivational climate or a low
mastery-oriented climate. The lowest anxiety should occur when both parental pressure and
an ego orientation are low, reducing evaluative concerns and promoting autonomy perceptions
in athletes. High parental pressure within the context of a strong mastery climate should also
create less anxiety. Indeed, it is possible that parental pressure promoting maximum effort and
self-improvement (i.e., a mastery climate) might counteract anxiety, despite the autonomy-
reduction issues engendered by pressure.

In this study, we studied youth swimmers in a program associated with USA Swimming (the
Olympic development program) over a 32-week period. We obtained athlete reports of parental
pressure, parent-initiated motivational climate, and multidimensional sport performance trait
anxiety at the beginning, middle, and end of the sport season. This allowed us to assess the main
and interactive effects of the two aspects of parental behavior on both absolute anxiety levels
and changes in anxiety over the course of the season. We chose to study trait anxiety rather than
state anxiety because of its relatively stable dispositional nature and the demonstrated validity
of the measure we employed, together with the impracticality of measuring state anxiety on
the large number of occasions needed to produce a stable and representative set of responses.

METHOD

Participants

Participants were 307 athletes (122 boys and 185 girls, \( M \) age = 11.88, \( SD = 1.34 \), age
range = 9–14 years) who participated in a regional program associated with USA Swimming,
the National Governing Body for the sport of swimming in the United States. They were drawn
from three elite swim clubs. Ethnic membership was 71.0% Caucasian and 13.2% Asian, with
the remainder representing other and mixed ethnic group ancestry. On average, athletes had
been swimming competitively since age 7 (\( M = 7.27, SD = 2.22 \)) and had been club members
for 3.30 (\( SD = 2.03 \)) years. The athletes competed on a year-round basis, with daily weekday
practices and frequent competitive meets on weekends. The competitive season extended from
August to May. The attrition rate from Time 1 to Time 2 was 3.60% and from Time 2 to Time
3 was 23.65% because of reduced attendance at practices as the season ended. Those who did
not provide data at Time 3 did not differ significantly at Times 1 or 2 from those who did.
Most coaches were experienced professionals employed by the clubs.

Measures

Parental Pressure

Our interest was in intrusive and coercive behaviors of parents. Accordingly, we employed
the 10-item Directive Behavior Scale developed by Lee and MacLean (1997) and used in a
subsequent study by Bois et al. (2009). The items on this scale corresponded well with our
definition of parental pressure because they refer to intrusive and coercive behaviors engaged
in by parents before, during, or following competitive events, but do not necessarily refer to
the specific success goals implied by a mastery or ego climate. Sample items included “Before
a race do your parents tell you what particular things you need to work on to do well?,” “After
a poor race do your parents point out what they think you did badly?,” “Do your parents push
you to train harder?,” and “Do your parents get upset with you if they think your swimming
is not going as well as it should be?” Participants responded on a 5-point scale ranging from
The scale was designed to be used with an age group similar to ours, and a Flesch-Kincaid (Harrison, 1980) readability analysis of the scale indicated a reading level of Grade 3.9 (approximately a chronological age of 9). As an index of construct validity, Lee and MacLean reported that this scale correlated significantly with a one-item criterion measure (“In general, how much pressure do your parents put on you?”). Our reliability values (.80 to .84) are comparable to the internal consistency coefficient of .82 reported by Lee and MacLean (1997). We also performed a confirmatory factor analysis on the scale using the Amos 18.0 program, and the scale demonstrated acceptable fit with a single-factor model ($CFI = .92; RMSEA = .09, SRMR = .06$).

**Parent-Initiated Motivational Climate**

The Parent-Initiated Motivational Climate Questionnaire-2 (PIMCQ-2; White, 1998) was used to assess perceptions of the parent-initiated motivational climate. The PIMCQ-2 is typically scored for three subscales: a learning and enjoyment subscale reflecting mastery orientation and two subscales that reflect ego orientation: success-without-effort and worry-conducive behaviors (Duda & Whitehead, 1998). In our data set, the items did not produce the three-factor solution reported by Duda and Whitehead, but rather two mastery-related factors and two ego-related factors, all with eigenvalues exceeding 1.00. For conceptual purposes, we therefore labeled the aggregated items from the two mastery factors as our mastery climate scale, and combined the items on the other two factors into an ego climate scale. For each item, children responded to the stem “I feel that my mother/father/guardian...” on a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). Nine items assessed perceived parent mastery climate (e.g., “is most satisfied when I learn something new” and nine items examined perceived parent ego climate (e.g., “looks satisfied when I win without effort”). To test the viability of this two-factor solution, we subjected the scale to a confirmatory factor analysis. The analysis yielded a marginal $CFI$ of .87, but satisfactory fit as measured by the $RMSEA$ and $SRMR$ fit indices (both .07). At each of the three measurement periods the scales demonstrated acceptable internal consistency (.77 to .79 for the mastery climate scale, and .83 to .85 for the ego climate scale). A Flesch-Kincaid readability analysis placed the reading level of this scale, originally developed on an older population, at Grade 5.5 (approximately age 11). However, given the relatively high socioeconomic and educational characteristics of this sample, we judged the scale appropriate for our use.

**Performance Trait Anxiety**

Trait anxiety was measured using the total score on the Sport Anxiety Scale-2 (SAS-2; Smith, Smoll, Cumming, & Grossbard, 2006). Participants responded to the stem “Before or while I perform...” on a 4-point scale ranging from 1 (not at all) to 4 (very much). Three dimensions of anxiety were each measured through five items, assessing somatic anxiety (e.g., “my body feels tense”), worry (e.g., “I worry that I will play badly”) and concentration disruption (e.g., “I lose focus on the game”). Items from the three scales are summed to provide a global performance anxiety score. Smith et al. (2006) have demonstrated the factorial and construct validity of this measure for our age group and they reported reliability coefficients that are similar to ours (Table 1), with alpha coefficients exceeding .90 for total score in both child and adult samples. They also reported a Flesch-Kincaid reading level score of Grade 2.3, demonstrating its suitability for use in our age group.

**Procedure**

With written parental consent and athlete assent, all measures were administered to the athletes during team practice sessions on three occasions over 32 weeks. The first session
Table 1
Means, Standard Deviations, Cronbach Alphas and Bivariate Correlations between all Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Mean</th>
<th>SD</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 PP</td>
<td>—</td>
<td>.72**</td>
<td>.73**</td>
<td>.04</td>
<td>.40**</td>
<td>-.09</td>
<td>.39**</td>
<td>.02</td>
<td>.33**</td>
<td>.18**</td>
<td>.08</td>
<td>.08</td>
<td>26.08</td>
<td>8.27</td>
<td>.84</td>
</tr>
<tr>
<td>2 PP</td>
<td>—</td>
<td>.82**</td>
<td>-.05</td>
<td>.38**</td>
<td>.02</td>
<td>.34**</td>
<td>.00</td>
<td>.36**</td>
<td>.13*</td>
<td>.10</td>
<td>.07</td>
<td>.25</td>
<td>9.78</td>
<td>8.86</td>
<td>.80</td>
</tr>
<tr>
<td>3 PP</td>
<td>—</td>
<td>-.05</td>
<td>.35**</td>
<td>-.03</td>
<td>.32**</td>
<td>.02</td>
<td>.40**</td>
<td>.12</td>
<td>.12</td>
<td>.12</td>
<td>.10</td>
<td>.25</td>
<td>3.35</td>
<td>8.00</td>
<td>.84</td>
</tr>
<tr>
<td>4 MC</td>
<td>—</td>
<td>-.36**</td>
<td>.54**</td>
<td>-.32**</td>
<td>.49**</td>
<td>-.27**</td>
<td>-.24**</td>
<td>-.21**</td>
<td>-.19**</td>
<td>30.31</td>
<td>3.61</td>
<td>.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 EC</td>
<td>—</td>
<td>-.39**</td>
<td>.70**</td>
<td>-.34**</td>
<td>.61**</td>
<td>.34**</td>
<td>.21**</td>
<td>.16</td>
<td>15.99</td>
<td>4.94</td>
<td>.83</td>
<td></td>
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<tr>
<td>6 MC</td>
<td>—</td>
<td>-.40**</td>
<td>.61**</td>
<td>-.35**</td>
<td>-.23**</td>
<td>-.18**</td>
<td>-.19**</td>
<td>30.15</td>
<td>3.65</td>
<td>.77</td>
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<tr>
<td>7 EC</td>
<td>—</td>
<td>-.36**</td>
<td>.78**</td>
<td>.31**</td>
<td>.30**</td>
<td>.21**</td>
<td>15.12</td>
<td>4.87</td>
<td>.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 MC</td>
<td>—</td>
<td>-.42**</td>
<td>-.18*</td>
<td>-.24**</td>
<td>-.24**</td>
<td>30.43</td>
<td>3.81</td>
<td>.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>9 EC</td>
<td>—</td>
<td>-.22**</td>
<td>.25**</td>
<td>.24**</td>
<td>14.90</td>
<td>4.78</td>
<td>.84</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>10 Anxiety</td>
<td>—</td>
<td>.67**</td>
<td>-.58**</td>
<td>29.46</td>
<td>9.00</td>
<td>.90</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>11 Anxiety</td>
<td>—</td>
<td>.73**</td>
<td>29.23</td>
<td>9.47</td>
<td>.92</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>12 Anxiety</td>
<td>—</td>
<td>29.08</td>
<td>9.20</td>
<td>.93</td>
<td></td>
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</tr>
</tbody>
</table>

PP = parental pressure, MC = mastery climate, EC = ego climate
1 = early-season variable, 2 = mid-season variable, 3 = late-season variable
* p = < .05, ** = p < .01
occurred during the first week of practice, the second midway through the competitive season (Week 16), and the third during the final week of the season. Trained research assistants made arrangements with the coaches to conduct the data collection sessions. Coaches were told that the purpose of the research was to assess factors related to athletes’ attitudes and outcomes from youth sport participation. Athletes were told that the purpose of the study was to learn more about their experiences in sport. To increase the likelihood of obtaining valid and complete data, athletes were told before the season that if they answered the questionnaire items carefully and accurately, they would be given a $4 Baskin-Robbins ice cream gift certificate redeemable at local franchise stores after each questionnaire session.

RESULTS

Means, standard deviations, and alpha coefficients for the variables of interest, together with the Pearson product-moment correlations among the variables at the three measurement points, are reported in Table 1. The parental pressure and anxiety scores exhibited high temporal stability, averaging .76 and .66, respectively, over the three measurement periods. Ego climate scores showed somewhat higher stability than did mastery climate scores, although all stability coefficients were highly significant. At all time periods, mastery and ego climate scores correlated negatively (−.27 to −.39) with one another.

Parental pressure was essentially uncorrelated with parent-initiated mastery climate at each of the measurement periods, with correlations ranging from −.09 to .04. In contrast, parental pressure was moderately and positively correlated with ego climate scores, with correlations at the three time points ranging from .32 to .40. Despite the shared variance (10%–16%) between pressure and ego involvement, these correlations were deemed low enough to assess interaction effects involving the pressure and ego climate variables (Aiken & West, 1991).

We examined two empirical questions in our data analyses. First, we assessed relations between the parent and anxiety variables at each of the three measurement periods, permitting replication of the statistical findings in cross-sectional analyses. Second, in a longitudinal analysis, we addressed the relation of parental variables with relative changes in anxiety over the course of the season. In the latter analysis, we regressed late-season anxiety on early-season parental pressure and motivational climate (and their interactions), controlling for early-season levels of anxiety.

Cross-Sectional Analyses of Perceived Parental Behaviors and Anxiety

To understand how parental behaviors interact and relate to performance anxiety, we conducted cross-sectional analyses for early-, mid-, and late-season data. To examine main and interactive effects, we first conducted hierarchical regression analyses using the SPSS version 16.0 to determine the extent to which parental behaviors predicted performance anxiety. Prior to analyses, all variables were examined to determine their relative distributions, normality of the data distributions, and accuracy of data entry; participants with missing data were deleted from the analysis. To reduce multicollinearity between the parental pressure and motivational climate scores and the interaction product scores used to test the pressure-climate interaction, the scores on these measures were centered by subtracting each raw score from the variable’s grand mean in accord with the recommendations of Cohen and Cohen (1983) and Aiken and West (1991).

In our hierarchical regression analyses, we entered parental pressure at Step 1; and the mastery and ego motivational climate scores separately at Step 2. To assess the interaction effects between parental pressure and each respective motivational climate, the separate product
Table 2

Hierarchical Regression Analyses at Three Time Points, Using Parental Variables to Account for Variance in Performance Anxiety at each Time Point

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
<th>Time 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$R^2$</td>
<td>Increment</td>
<td>$F$</td>
<td>$R^2$</td>
<td>Increment</td>
<td>$F$</td>
</tr>
<tr>
<td>Parental Pressure (PP)</td>
<td>0.03</td>
<td>10.02**</td>
<td>0.01</td>
<td>2.49</td>
<td>0.01</td>
<td>2.29</td>
</tr>
<tr>
<td>Parent Mastery Climate (MC)</td>
<td>0.10</td>
<td>18.21**</td>
<td>0.09</td>
<td>13.71**</td>
<td>0.08</td>
<td>9.50**</td>
</tr>
<tr>
<td>Parent Ego Climate (EC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PP × MC PP × EC</td>
<td>0.02</td>
<td>4.10**</td>
<td>0.04</td>
<td>6.59**</td>
<td>0.04</td>
<td>5.49**</td>
</tr>
</tbody>
</table>

$^* = p < .05, ^{**} = p < .01$
N Time 1 = 307, N Time 2 = 296, N Time 3 = 226

scores derived from the mastery and ego climate scores and the parental pressure scores were entered together at Step 3. The results of these analyses are presented in Table 2. At each of the three time points, main effects were found for parent-initiated motivational climate ($p < .01$) and interactive effects were found between parental pressure and parent-initiated motivational climates ($p < .05$).

To assess further the nature of the significant interaction results and to display the nature of the interactions, we followed the procedure suggested by Cohen and Cohen (1983) and Aiken and West (1991) for hierarchical regression analyses using continuous predictor variables. This procedure involves the use of the regression equation containing the centered predictor variables ($X$ and $Z$) and their interaction ($XZ$) to generate predicted scores on the $Y$ variable (in this case, anxiety) at specified levels of these variables. Most typically, extreme scores 1 SD above and below the mean are chosen, a procedure analogous to creating discrete extreme groups as conditions in analysis of variance. In the case of parental pressure, we followed this procedure to assess the predicted anxiety scores at 1 SD above and below the mean. In the case of the motivational climate scores, however, the moderate negative correlations ($−.27$ to $−.39$) between the mastery and ego climate scores indicated that it was quite possible for parents to receive varying combinations of mastery and ego scores from their children (including being high or low on both sets of climate behaviors). To elucidate the separate effects of high and low scores on each climate variable, we therefore followed a more conservative procedure in selecting points on the motivational climate dimensions, entering into the regression equation the motivational climate scores at $±1$ SD above the mean for the mastery or ego climate score of interest and at the mean on the other variable. For example, to assess the role of high mastery climate, we assessed the predicted anxiety score by entering the value of the mastery score at 1 SD above the mean and the mean score on the ego climate distribution, together with the high or low value of the parental pressure distribution. This procedure generated eight data points representing four different patterns of motivational climate and pressure combinations, thereby enabling us to graph the interaction patterns in a manner that took into account the base relation between mastery and ego climate scores.

Figure 1 shows the nature of the interactions between parental pressure and motivational climate at early-, mid-, and late-season. The most notable feature is the manner in which motivational climate effects are amplified under conditions of high parental pressure. At all time points, the highest levels of anxiety occur when parental pressure is high and ego climate is high and/or mastery climate is low. In contrast, high parental pressure in the context of a high mastery climate or a low ego climate predicts the lowest levels of anxiety. Indeed, these patterns
are associated with greater anxiety extremes than in the low parental pressure combinations. At every time point, children who perceived their parents to exercise high pressure and high mastery climate behaviors reported lower anxiety than did those who reported high pressure combined with a low mastery climate, suggesting a protective function of a high mastery climate. High pressure in the context of a low ego climate was also associated with lower anxiety than was the high-pressure/high-ego climate combination at all three time points.

Parental Behaviors and Longitudinal Changes in Anxiety

In addition to the cross-sectional results at each point in the season, we explored the potential role of parental pressure and motivational climate on changes in performance anxiety over the course of the season. To conduct this prospective analysis, the same procedure was applied from the cross-sectional analyses, using a hierarchical regression approach in which late-season trait anxiety was regressed on the early-season parental variables while controlling for athletes’ early-season trait anxiety. We used the same predictor variable values used in the cross-sectional (±1 SD on the pressure distribution and ±1 SD on one motivational score and the group mean on the other) except that the analysis was carried out only for those
participants \((n = 222)\) who provided complete data at both time points. In the hierarchical model, early-season trait anxiety was entered at Step 1, followed by parental pressure at Step 2. Parental mastery and ego motivational climate scores were entered as a block at Step 3. At Step 4, the product (interaction) scores created by the (centered) parental pressure and motivational climate scores were entered.

At Step 1, early-season anxiety was a strong and significant predictor of late-season anxiety, \(F(1, 220) = 109.36, p < .01\), as would be expected for a relatively stable trait measure. Contrary to expectations, parental pressure and motivational climate were not significant main-effect predictors of late-season anxiety, \(F(1, 219) = .01, p > .05\), and \(F(2, 217) = .41, p > .05\), respectively. However, at Step 4, the analysis revealed that the interaction of parental pressure and parental motivational climate accounted for a significant increment in variance in late-season trait anxiety over and above early-season trait anxiety, parental pressure, and motivational climate alone, \(F(2, 215) = 3.65, p < .05\). The nature of the interaction is presented graphically in Figure 2. The longitudinal results were similar in some respects to those observed cross-sectionally, but not completely. The most consistent result relates to the impact of a mastery climate under high parental pressure. Controlling for Time 1 anxiety scores, the highest level of Time 3 anxiety is seen when high pressure occurs within a low mastery climate, whereas the lowest level occurs when high pressure is accompanied by a strong mastery climate. In contrast, the negative impact of parental pressure within the context of an ego climate seen in the cross-sectional data is not evident in these results.

To summarize, the present results suggest that early-season, high-pressure/high-mastery perceptions predict lower, late-season performance anxiety. At any given time period, high-pressure/high-mastery or low-pressure/low-ego perceptions predict lower performance anxiety.
DISCUSSION

The traditional use of the term “parental pressure” suggests a behavior pattern having a negative valence and negative effects on young athletes (e.g., Bigelow, Moroney, & Hall, 2001; Engh, 2002). Our results suggest parental pressure is a complex process and that a more encompassing conception of parental pressure involving directive behaviors that may be beneficial or detrimental is viable. The specific context in which parental pressure occurs, as measured by perceptions of the motivational climate, may influence a range of outcomes in youth sport, including performance anxiety. Understanding how combinations of parental pressure and motivational climate behavior influence performance anxiety is an unstudied area that has both theoretical and practical significance. The present findings shed light on interactions occurring between these classes of parental behaviors and offer insight into how parents may influence their children’s sporting experience during the course of a season.

In our cross-sectional analyses, temporal replication of the major findings occurred at all three time points. Two interaction effects were especially notable. First, high-pressure/high-mastery combinations were associated with lower anxiety than high-pressure/low-mastery conditions. The absence of a mastery climate combined with high parental pressure appears to elicit evaluation pressure and increases the potential for anxiety exacerbation. However, when combined with a mastery climate, high parental pressure is associated with low levels of anxiety, presumably because this combination serves to reduce evaluative pressure. Parents who engage more intensely with their child to encourage effort, learning from mistakes, and focus on self-improvement may essentially be pressuring their child in an adaptive manner. A key factor in this finding may be the greater perceived controllability that exists with a mastery climate (Smith et al., 2007). A mastery climate focuses on behaviors, such as effort, that are within the child’s personal control while placing less emphasis on the need to outperform others, over which the athlete has more limited control. Perceived personal control has been shown to reduce anxiety within many environmental domains (Bandura, 1997; Leitenberg, 1990).

Secondly, the combination of high-pressure/low-ego-initiating parental behavior was associated with lower anxiety than high-pressure/high-ego conditions. In line with previous research showing positive main effects of parental pressure and an ego climate, anxiety was highest when both pressure and ego climate were high, indicating that parental pressure heightens the impact of an ego climate. Under such conditions, children may perceive the need to beat other children for parental approval, and they are driven toward a goal standard over which they have limited control. AGT predicts a potential for negative outcomes (high anxiety included) when the child fails to meet these ego-oriented goals (Ames, 1992). However, when pressure (engagement) is high but the ego-initiating climate is low, the resulting climate appears to reduce evaluation pressure and therefore is associated with lower anxiety.

The cross-sectional results, thus, reveal an important and novel finding in relation to performance anxiety: Parental pressure, rather than being uniformly negative, can be a two-edged sword, depending on whether it occurs within a mastery goal context or an ego one. A high level of engagement by the parent enhances the impact of the parent-initiated motivational climate with which it is associated.

The cross-sectional results showed clear relations between the parental variables and anxiety that were replicated at three different points in time over the course of the season. However, they do not address whether parental behaviors are associated with relative changes in athletes’ performance anxiety over the course of the season. Therefore, we carried out a prospective analysis to examine whether the cross-sectional relations and interaction effects were also reflected longitudinally. The longitudinal relationship is important to demonstrate the role
of parental behaviors over the course of a season rather than at three separate time points. Controlling for early-season anxiety scores, we found that children’s late-season anxiety scores were predicted by certain combinations of parental pressure and motivational climate. The most notable feature was that, controlling for early-season anxiety, high pressure-high mastery conditions were associated with relative reductions in anxiety while high pressure-low mastery conditions were associated with a relative increase in anxiety by late-season. Low parental pressure was associated with comparable levels of anxiety regardless of motivational climate. It thus appears that, consistent with the cross-sectional results, a mastery climate provides protection against negative effects that might be created by high parental pressure. The impact of an ego climate was not consistent, however, with the cross sectional results. Unexpectedly, a low ego climate was associated with higher anxiety under high pressure than it was under low pressure. This may be because Time 1 anxiety was especially high to begin with in the high pressure/high-ego climate condition and this variable was controlled for in the regression analysis of change over time.

Both the cross-sectional and the longitudinal results indicate that motivational climate moderates the relation between parental pressure and performance anxiety. The relation between the two variables is notable because of both the novelty of the findings and the possible implications. In previous research on motivational climate, the quality of the parent-initiated climate has been studied, but not the vigor or intensity with which the climate is promoted by the parent. Two children may report a similar motivational climate, yet the experience and degree of internalization that occurs within the context of the motivational climate may vary considerably depending on how forcefully parents convey goals and expectations. In the current research, the construct of parental pressure may therefore be viewed as the level of parental engagement in the promotion of a parent-initiated mastery or ego climate. High pressure in this context would involve a more explicit and persistent method for conveying parental goals demands and expectations to children. Considering the quality of engagement of parents in youth sports and the forms such engagement can take should help provide greater understanding of their role in children’s development.

In general, our results support theoretical predictions from AGT. We found that a high-mastery or low-ego climate is associated with lower anxiety compared to low-mastery/high-ego conditions respectively. AGT proposes that a mastery climate reduces evaluative pressure thereby alleviating anxiety, whereas a high-ego climate increases anxiety as a result of evaluation pressure (Duda & Treasure, 2010; Harwood & Swain, 2002; McArdle & Duda, 2002). Although this pattern described is generally supported, our results show that anxiety differences between motivational climate groups (as predicted by AGT) are especially pronounced when parental engagement is high. Furthermore, a low level of parental engagement is related to comparable anxiety regardless of the conception of success communicated to the child by the parent, simply because there is little parental evaluation and the children are not striving to achieve their parents’ goals. In other words, low levels of parental engagement result in a “no harm done” situation even if the parent has an ego-oriented conception of success. In such cases children are left to other situational influences such as the motivational climates created by coaches and peers (which can themselves increase or decrease anxiety). In contrast, with high parental pressure, the motivational climate is strongly conveyed to children. High engagement allows the possibility of greater evaluation pressure by parents (under a high ego climate), but reduces ego-oriented evaluative pressures under a mastery climate. Consistent with previous research findings, our overall results indicate that high-mastery or low-ego climates are less anxiety-arousing (McArdle & Duda, 2002; Smoll et al., 2007b), but our results add the caveat that the frequency and intensity of the parent-initiated motivational climate influences anxiety.
Limitations and Future Directions

Conclusions derived from our study must necessarily be tempered by several limitations of our study. First, the youth sport environment is a complex social setting in which many sources of influence—coaches, parents, peers, general cultural values communicated in the media—impinge on the young athlete and influence psychosocial and skill development. Our study focuses on only one aspect of this matrix of influence. Likewise, additional research is needed to determine whether the results generalize to sports other than high-level swimming and to other age groups. It is likely that different sports and both younger and older ages feature parent-child relationships that may influence the nature of any interaction between pressure and motivational climate. It is also the case that parenting behaviors are a central experience in a child’s life and occur in many life contexts besides sports. The predictor variables we studied have occurred over a substantially greater time period than our 32-week window, and their effects on anxiety may be well-established by the time children reach the age level we studied. Thus, the level of anxiety may well be the result of more chronic exposure to these behaviors. Given that only about one-third of the anxiety score variance is accounted for by parental pressure and motivational climate at the point we measured these variables, other factors clearly influence a child’s trait anxiety. Nonetheless, we know from intervention studies with this age group that trait anxiety may be reduced with the imposition of a mastery climate promoted by coaches, so that even a stable disposition like trait anxiety may be impacted by appropriate interventions (Smith et al., 2007) and by coaches and parents (Smoll et al., 2007b).

Finally, we note that our results are based entirely on athlete perceptions of their parents’ behaviors. Although perceptions do indeed capture the psychological situation to which the child responds, it would be advantageous to also assess parental self-reports of behavior, or use behavioral assessment procedures to collect and code actual parent behaviors in competitive settings. Such data, combined with an understanding of the athlete’s perceptions, would provide a strong empirical basis for parent-based interventions that might mirror the effectiveness of coach-based interventions in enhancing the psychosocial development and well-being of young athletes (Smith & Smoll, in press; Smoll & Smith, 2002). Given that parents have a wider influence on their children than do coaches, particularly in non-sport environments, the benefit of such interventions may extend to domains outside of sport as well.

REFERENCES


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