

Parent-created climate and physical self-concept 0

2 RUNNING HEAD: PARENT-CREATED MOTIVATIONAL CLIMATE AND
3 SELF-CONCEPT

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11 The impact of parent-created motivational climate on adolescent athletes' perceptions
12 of physical self-concept

Sophia Jowett

Daniel J. A. Rhind

Loughborough University

Brunel University

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19 Correspondence concerning this article should be addressed to Sophia Jowett, PhD,

20 School of Sport and Exercise Sciences, Loughborough University, Leicestershire,

21 LE11 3TU, United Kingdom.

22 Tel.: +44 1509 226331

23 Fax: +44 1509 224321

24 Email: S.Jowett@lboro.ac.uk

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Abstract

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Grounded in expectancy-value model (Eccles, 1993) and achievement goal theory (Nicholls, 1989), this study examined the perceived parental climate and its impact on athletes' perceptions of competence and ability. Hierarchical regression analyses with a sample of 237 British adolescent athletes revealed that mothers and fathers' task- and ego-involving climate predicted their son's physical self-concept and that fathers particularly are the strongest influence in shaping athletes' (sons) physical self-concept positively and negatively. It was also found that young adolescent athletes' physical self-concept is more strongly affected by the perceived parental-created motivational climate (both task and ego) than the old adolescent athletes' self-concept. These findings support the expectancy-value model postulates related to the role of parents as important socializing agents, the existence of gender-stereotyping, and the heavy reliance of younger children's on parents' feedback.

2 The impact of parent-created motivational climate on adolescent athletes' perceptions
3 of physical self-concept

4 The general view is that parents have the capacity to influence children's
5 involvement and achievement in sport for a variety of reasons. Firstly, parents and
6 children spend a large amount of time together and do a variety of activities together.
7 Secondly, parents are seen to be highly involved in their child's sport participation
8 either as a coach, a chauffer or as a financial provider. Thirdly, parents provide
9 important information such as feedback related to competence, emotional support
10 such as encouragement, and opportunities such as enrolling the child in sport
11 programmes or finding a suitably qualified coach (see Jowett & Timson-Katchis,
12 2005). Although the theoretical and research work underline the significant role of
13 parents in shaping the young child's sport experience, there is still a great deal of
14 research that needs to be carried out (Brustad, 1992; Fredricks & Eccles, 2004). Thus,
15 this study aims to incorporate both the expectancy-value model (Eccles, 1993) and
16 situational dimension of achievement goal theory (Ames, 1992; Nicholls, 1989) to
17 examine children's perceptions of parents' influence on the development of their
18 physical self-concept.

19 *The Expectancy-Value Model*

20 Eccles and colleagues (Eccles, 1993; Eccles, Wigfield, & Schiefele, 1998;
21 Fredricks & Eccles, 2004) developed a model for understanding family socialisation
22 in the sport context and for explaining the impact of contextual influences on
23 children's motivational tendencies. The main postulate of the expectancy-value
24 model is that children's decisions to participate in sport activities are made in the
25 context of several available choices, hence understanding how parents influence these
26 choices is important (Fredricks & Eccles, 2004). According to the model, one of the

2 main predictors of choice behaviours is children's expectation for success (Eccles et
3 al., 1998). Expectations for success are influenced by children's self-concept
4 regarding how they view their own ability. Consequently, children who perceive that
5 they have high sport ability will be more inclined to want to participate in sport than
6 will children who have less favourable views about themselves as sport participants.
7 Moreover, the model postulates that parents influence children's expectations and
8 motivation through their beliefs and behaviours. Consequently, parents influence
9 their children by being interpreters and providers of children's experience in sport
10 settings (Fredericks & Eccles, 2004; Eccles et al., 1998).

11 Research in the sport and exercise psychology literature has started to
12 demonstrate how parents' patterns of encouragement affect children's affective
13 responses (e.g., motivation, enjoyment). For example, Brustad's (1993, 1996) studies
14 revealed that parental encouragement was related to both male and female children's
15 liking of physical activity. Scanlan and Lewthwaite (1984) conducted research on
16 young wrestlers and found that male wrestlers who perceived pressure from their
17 parents had higher levels of state anxiety in competitions. The potential negative
18 effects of high levels of parental pressure have been demonstrated in several studies
19 since (see e.g., Gould, Eklund, Petlichkoff, Peterson, & Bump, 1991) whilst low
20 levels of parental pressure have been associated with positive effects such as greater
21 enjoyment (Babkes & Weiss, 1999).

22 Parents' expectations, values, and beliefs have been also associated with
23 children's perceptions of being competent, skilful and having the necessary physical
24 capacities to be successful in sport. For example, Eccles and Harold (1991) found
25 that children's beliefs about the degree to which their parents' valued sport were
26 related to their beliefs about their own physical competence. Moreover, it was found

2 that girls reported that their parents placed lower value on sport participation than did
3 boys. In more recent studies, Fredricks and Eccles (2002) highlighted the impact of
4 parents' beliefs on the development of children's ability to do well in sport. They
5 revealed that when parents had higher expectations for their children's ability,
6 children had less sharp declines in their physical self-concept over time. Also
7 Fredricks and Eccles (2005) supported previous findings showing that boys have
8 higher perceived competence, and more positive values about participation in sport
9 than girls. It was further reported using longitudinal analyses that both mothers' and
10 fathers' ratings of children's ability was a positive predictor of changes in children's
11 perceived competence (Fredricks & Eccles, 2005).

12 *Situational Achievement Goal Theory*

13 One of the many ways, parents' communicate their beliefs and values is
14 through the motivational climate they create. A situational perspective of goal
15 achievement theory argues that the social situation created by significant others, in
16 this case parents, varies in terms of the achievement goals emphasized (Ames, 1992;
17 Duda & Balaguer, 2007). White (2007) conceptualized in accordance with
18 achievement goal theory principles the existence of two major social climates created
19 by parents, a task-involving and an ego-involving climate. Parents are likely to
20 promote one or another climate through what they do and what they say. Accordingly,
21 a task-involving climate is communicated when parents place an emphasis on task
22 goals (i.e., enjoying the learning of motor skills), whereas an ego-involving climate is
23 communicated when parents promote success without effort and an atmosphere of
24 worry and concern for making mistakes (White, 2007).

25 Recently, a study conducted by White, Kavusannu, Jowett, and England's (in
26 press) indicated that in comparison to a non-elite group of footballers, an elite group

2 of footballers had higher perceptions that their mothers valued a motivational climate
3 that emphasized learning and enjoyment, and lower perceptions that their fathers
4 created a climate in which success without effort was valued. Moreover, in the elite
5 group, footballers' perceptions that their parents (both mother and father) created a
6 climate that values learning and enjoyment were the most significant indicators of
7 task orientation. Ego orientation was associated with athletes' perceptions that their
8 mother values success without effort, and to a lesser degree learning and enjoyment.
9 These findings are in agreement with earlier studies (e.g., White, 1996; White &
10 Duda, 1993). For example, White (1996) found in a sample of volleyball players that
11 perceptions of the parental task-involving climate ("learning and enjoyment") was
12 predicted by players' task-orientation whereas perceptions of an ego-involving
13 climate ("success without effort") was predicted by players' ego-orientation. Ego-
14 orientation has been associated with maladaptive patterns of motivation and, hence, it
15 should not be encouraged (see White, 2007). These findings show a means by which
16 parents' values and beliefs are communicated to their children via the social climate
17 they create and further suggest the potential influence of parental influences upon
18 talent development.

19 *The Present Study*

20 The literature suggests that parents are central socialization agents in sport
21 settings and that parental influences is dependant on the child's gender. Consequently,
22 an understanding of how male and female sport performers' perceive the social-
23 psychological environment their parents create and subsequently communicate
24 alongside how these perceptions affect their physical self-concept would help
25 untangle the issues surrounding gender stereotyping. Because previous studies have
26 used less specific measures of athletes' ability and competence, this study utilized the

2 participants were categorized as either young adolescent (age ranged from 12 to 15
3 years) or old adolescent (age ranged from 16 to 19 years). A total of 114 participants
4 (45 males and 69 females) reported to belong to the young adolescent category
5 whereas 123 participants (75 males and 48 females) reported to belong to the old
6 adolescent category. The participants' experience with the specific sport ranged from
7 1 year to 15 years ($M=4.43$, $SD=2.9$). (Note that sport experience was recorded for
8 210 of the participants; thus this information was missing for the remainder of the
9 participants.) 115 participants reported to have a newly developed (no longer than 2
10 years) relationship with their coach whilst 122 participants reported to have an
11 established relationship (over 2 years) with their coach

12 *Instrumentation*

13 The *Parent-Initiated Motivational Climate Questionnaire - 2* (PIMCQ-2:
14 White & Duda 1993; also see White, 2007) was used to assess the motivational
15 climate created by participants' mother and father. The questionnaire comprised a
16 total of 18 items for the mother-created climate and 18 items for the father-created
17 climate. The questionnaire has been developed to measure three dimensions of the
18 motivational climate created by mothers and fathers. First, the learning and
19 enjoyment dimension contains 9 items that aim to measure the climate in which
20 parents promote enjoying the process of learning motor skills (e.g., "I feel that my
21 mother/father is most satisfied when I learn something new"). Second, the worry
22 conducive climate created by parents contains 5 items and aims to assess the degree to
23 which parents create a climate that makes young athletes feel concerned,
24 uncomfortable and stressed with the sport experience (e.g., "I feel that my
25 mother/father makes me worried about failing"). The final dimension contains 4 items
26 and aims to examine the climate in which parents create an atmosphere in which

2 success without effort is valued most (e.g., “I feel that my mother/father thinks I
3 should achieve a lot without much effort”). Answers are indicated on a 5-point scale
4 from 1 (“*Strongly Disagree*”) to 5 (“*Strongly Agree*”). The learning and enjoyment
5 dimension reflects a task-involving climate whilst the worry conducive climate and
6 the success without effort climate reflect an ego-involving climate (White, 2007). The
7 psychometric properties of the questionnaires have been satisfactory (see White &
8 Duda, 1992). All dimensions or sub-scales were found to have satisfactory internal
9 consistency with this sample. Specifically, Cronbach’s alphas ranged from 0.86 to
10 0.96 for both the mother and father subscales.

11 A slightly modified version of the *Elite Athlete Self-Description Questionnaire*
12 (EASDQ: Marsh, Hay, Johnson & Perry 1997) was used to assess participants'
13 physical self-concept. This questionnaire contained 26 items and measured six
14 interrelated dimensions of physical self-concept. The dimensions of physical self-
15 concept included: skills which was assessed through 4 items (e.g., “I am a most skilful
16 athlete in my best sport”); body which was assessed through 4 items (e.g., “I excel in
17 my best sport because of the suitability of my body composition”); aerobic which was
18 assessed through 3 items (e.g., “Compared to my team-mates, I am superior in
19 endurance activities like continuous running in my best sport”), anaerobic which was
20 assessed through 3 items (e.g., “Compared to others at my level I am superior in
21 activities that need short bursts of high intensity in my best sport”); mental which was
22 assessed through 5 items (e.g., “Coaches and other competitors at my level of
23 competition see me as a focused competitor at my best sport”); and performance
24 which was assessed through 7 items (e.g., “I am consistently able to give my best
25 overall performance in my best sport”). Respondents indicated their answers on a 6-
26 point scale which ranged from 1 (“*Not True of Me at all*”) to 6 (“*True of me*”). For

2 this sample, the internal consistency of each of the six dimensions or sub-scales was
3 above the recommended 0.70 cut off point (Nunnally & Bernstein 1994). The internal
4 consistency of the physical self-concept as a single dimension was 0.97.

5 *Procedure*

6 Club-level qualified coaches were approached and informed about the nature
7 and aims of the study. Three test administrators arranged a date and time to meet the
8 coaches who agreed to permit their teams to participate in the study. This meeting
9 provided the opportunity to discuss with the coach further the study and allow time to
10 introduce the study, explain its main objectives, highlight its voluntary nature and
11 answer any questions to the team and to the parents present before or after a training
12 session. Participants' informed consent was obtained. For athletes under the age of
13 18 years old, their parents were asked to sign a consent form whilst the athletes were
14 asked to sign an assent form. Once these formalities were in place, the athletes were
15 instructed to complete the questionnaire as honestly as possible. Test administrators
16 arranged to return to a subsequent training session in order to collect the complete
17 questionnaires. Ethical clearance for conducting the study was granted by
18 Loughborough University's Ethical Advisory Committee.

19 Results

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21 *Descriptive Statistics.* The means and standard deviations for all of the sub-scales
22 studied are presented in Table 1. Bivariate correlations between each of the parent-
23 created motivational climate sub-scales and global self-concept are presented in Table
24 2. The bivariate correlations between the father- and mother-created motivational
25 climates varied from -0.44 to 0.79 and between the physical self-concept dimensions
26 from 0.54 to 0.87. Analyses of variance (ANOVA) were conducted to ascertain
27 whether athletes' perceptions about their parents' created motivational climates and

2 physical self-concept vary as a function of their gender and age. The first two-way
3 ANOVA conducted asked “Are there mean differences in athletes’ perceptions of the
4 father- and mother-created climate – measured by learning and enjoyment, worry
5 conducive climate, and success without effort – associated with differences in
6 athletes’ gender and age?” Results indicated some main effects for athletes’ gender
7 and age but no interaction effects were found. A one-way analysis of variance
8 indicated that athletes’ gender affected perceptions of both father’s and mother’s
9 climates of learning and worry whilst athletes’ age affected perceptions of only the
10 mother’s learning climate (see Table 3).

11 The second two-way ANOVA conducted asked “Are there mean differences
12 in athletes’ perceptions of global physical self-concept associated with differences in
13 athletes’ gender and age?” Results indicated main effects for athletes’ gender and age
14 and interaction effects (see Table 3). The interaction effect suggests that perceptions
15 of the physical self-concept increase more significantly for females (young adolescent
16 $M=4.01$ and old adolescent $M=4.73$) than males (young adolescent $M=4.38$ and old
17 adolescent $M=4.62$).

18 *Hierarchical Multiple-Regression Analyses.* These analyses were conducted to test
19 whether parental influences, as manifested by the climate fathers and mothers create,
20 predict adolescent athletes’ physical self-concept. The unique contribution of athletes’
21 perceptions of the father and mother created motivational climate to physical self-
22 concept was determined by four sets of hierarchical regression analyses. Thus,
23 athletes’ perceptions of physical self-concept was predicted from athletes’ perceptions
24 of the father’s motivational climate and the mother’s motivational climate separately
25 for male and female athletes as well as for the young adolescent and old adolescent
26 groups. The independent variables of parents motivational climate were entered in a

2 pre-specified order that was dictated by the literature that indicates fathers remain to
3 be a more salient source of influence for young children's sport involvement (e.g.,
4 Greendorfer, Lewko, & Rosengren, 1996). Thus, the father created climate and its
5 dimensions of learning and enjoyment, worry conducive climate, and success without
6 effort were entered into the first step. Mother-created climate and its corresponding
7 dimensions were entered into the second step. The scores were centered to avoid
8 multicollinearity between the independent variables.

9 Table 4 illustrates the proportions of unique physical self-concept variances
10 for the gender and adolescent groups respectively (R^2 , and adjusted R^2) accounted for
11 by father and mother created motivational climates and the F statistic for the R^2
12 change. The results indicated that more variance in physical self-concept is accounted
13 for by the climates created by the parents for the young adolescent group ($R^2 = .18$ -
14 $.22$) and for the male athletes ($R^2 = .11 - .12$). On one hand, father-created climate (F
15 $= 7.98, p = .000$) and mother-created climate ($F = 5.09, p = .000$) significantly
16 predicted athletes' physical self concept for the young adolescent group. On the other
17 hand, father-created climate ($F = 4.88, p = .003$) and mother-created climate ($F = 2.5,$
18 $p = .02$) significantly predicted athletes' physical self concept for the male athletes.
19 Table 5 presents the regression coefficients (beta weights) for variables within sets
20 that reported significant F values.

21 Discussion

22 The study aimed to investigate the impact of athletes' perceptions of the
23 parent-created motivational climate (both mother and father) on their physical self-
24 concept whilst considering athletes' gender and developmental stage. The first set of
25 findings suggest that perceptions of parental influences impact positively on male and
26 young adolescent athletes' self-concept as opposed to female and old adolescent

2 athletes. Male athletes' perceptions of parental influences (especially the father's
3 climate) as these were manifested from the task-involving climate ("learning and
4 enjoyment") seem to positively affect their perceptions of physical self-concept . The
5 learning and enjoyment dimension of the parent-created climate emphasizes the
6 learning of motor skills and encourages the improvement of skill development
7 through hard work, whilst accepting that learning occurs even when mistakes are
8 made (White, 2007). It is likely that athletes viewed this dimension of the parent-
9 created climate as supportive, hence its positive association with physical self-
10 concept.

11 However, our findings suggest that parents (particularly fathers) through the
12 worry conducive climate communicated undue pressure to the young male athlete as it
13 was negatively associated to athletes' physical self-concept. This dimension of the
14 ego-involving climate promotes a sense of superiority over other members in the team
15 (White, 2007); however, because such superiority is not possible to be sustained over
16 time failure, whilst not appreciated by parents, is inevitable. Previous studies have
17 supported that parental pressure is linked to negative outcomes such as increased
18 levels of state anxiety (Gould et al., 1991; Scanlan & Lewthwaite, 1984) and parental
19 support is linked to positive outcomes such as enjoying physical activity (Brustad,
20 1993, 1996).

21 The findings of this study support the view that parents are more likely to
22 encourage their sons involvement (positively and negatively) in sport than they are to
23 encourage their daughters (see e.g., Eccles & Harold, 1991) and that fathers continue
24 to be the strongest parental influence on sport involvement (see Greendorfer et al.,
25 1996). These results may reflect the demographics of the sample as the majority of
26 the sports from which participants were recruited were male-dominated sports in

2 both administrative roles (e.g., more male coaches) and popularity amongst young
3 participants (e.g., more male athletes). In this study only the sport of netball could be
4 characterized as female-dominated. In male-dominated sports fathers may be in a
5 better position to have an influence because it may be a sport that they know, follow,
6 play, even coach. More research is required to clarify the contribution of the specific
7 sport context (e.g., male versus female dominated sports, team versus individual
8 sports) in the association between parental influences and outcomes related to the
9 young and developing athlete.

10 The second set of findings provide support for the view that the young
11 adolescent athlete's physical self-concept is more likely to be affected by both the
12 father's and the mother's task-involved climate and ego-involved climate than the old
13 adolescent athlete's physical self-concept. This was not unexpected as the literature
14 theoretically and empirically has demonstrated that parental influences decline during
15 the period of adolescence mainly because the psychosocial context of the developing
16 athletes broadens and often coaches (and peers) take on more prominent roles (see
17 e.g., Bloom, 1985; Côté, 1999; Jowett & Timson-Katchis, 2005; Lewko &
18 Greendorfer, 1988). Nonetheless, the results highlighted an inconsistency or
19 contradiction. Both the mother and the father ego-involving climate of worrying for
20 making mistakes, for failing, for not being able to outperform others, was positively
21 associated with the young adolescent athlete's physical self-concept as was the task-
22 involving climate of learning and enjoying practicing motor skills.

23 One explanation is that when the athletes are young and relatively
24 inexperienced in the sport, that type of parental pressure may be less influential than
25 when they are older, more experienced and perhaps when sport participation starts to
26 take a different meaning (i.e., becomes more competitive and central in one's

2 identity). Indeed, the salience of sport to the athlete and the parent is an important
3 determinant for how the young athlete may come to perceive the support or pressure
4 of their parents (Ntoumanis & Biddle, 1999). Sport is more likely to become more
5 salient as the athlete develops; therefore the older the athlete, the more there is at
6 stake (e.g., selection to play for better teams, better coaches, better facilities).
7 Another related explanation may be that the ego-involving climate (“worrying”)
8 although a type of potential parental pressure feeds into the athletes’ physical self-
9 concept as another type of support (albeit negatively) but with positive consequences.
10 It is not unusual for young athletes to say, “My mum and dad are pushing me hard and
11 want me to be first and best so I must have what it takes to become really good in my
12 sport”. There is evidence that argues that athletes with ego-involving parental
13 perceptions would exhibit adaptive patterns of motivation (e.g., they will persist
14 more) if the athlete had high levels of perceived competence (cf. Elliott & Church,
15 1997). The direction of the relationship between parent-created motivational climates
16 and athletes’ physical self concept or perceived competence in sport needs to be
17 further investigated.

18 The findings of this study could have bearings on every day situations in
19 which parents make a deliberate effort to influence, support, encourage, and offer
20 such opportunities that enhance the young athletes’ perceptions of physical self
21 including ability competence, skill improvement, and mental capacities. Positive
22 parental encouragement as opposed to pressure has been consistently associated with
23 the young athlete’s positive affective responses (e.g., enjoying and liking sports).
24 Consequently, parents can support the young athlete by creating a task-involving
25 climate in which they communicate positive feedback about the child’s ability and
26 supplying messages that emphasize skill development through hard work. On the

2 other hand, parents should be cautious when an ego-involving climate is created and
3 excessive pressure on their children to perform takes center-stage. This pressure
4 although could be translated by some children as positive pushing, particularly those
5 who already have an elevated physical self-concept or innate talent, could have
6 negative ramifications for the majority of the children. Finally, parents should be
7 sensitive and perceptive to the sort of cues and feedback they supply. As sport is an
8 activity to be enjoyed by all regardless of gender, age, color or religion, parents
9 should underline to both their sons and their daughters the benefits of sport
10 participation by providing equal opportunities to both genders.

11 This research has such strengths as the inclusion of both parents in measuring
12 athletes' perceptions of specific parental influences, the study of British adolescent
13 sport performers who participated in popular team sports, and the use of a
14 multifaceted measure to assess athletes' perceptions of physical ability. However, this
15 research has also weaknesses that limit its conclusions. From a methodological point
16 of view, this study used a cross-sectional data and regression techniques to examine
17 the main questions. Whilst this approach is important, it does not reveal with a degree
18 of precision how parental influences differ at different stages of the young athlete's
19 sport involvement. Moreover, this approach cannot capture how parents and young
20 athletes reciprocally influence each other (see Fredricks & Eccles, 2004). Thus,
21 future research should consider examining the dynamic and interactive nature of
22 parental socialization processes through the use of longitudinal and qualitative
23 methods to examine parent-child/athlete socialization processes across time.

24 Findings in this study point to the conclusion that adolescent athletes perceive
25 their parents as important socialization agents in their sport involvement. In
26 examining athletes' perceptions of their mother- and their father-created motivational

2 climate, it seems that both parents encourage the son's involvement and fathers
3 particularly are the strongest influence on sport involvement. We also found that, for
4 our participants, young adolescent athletes' physical self-concept is more likely to be
5 affected by the perceived parental-created motivational climate (both task and ego)
6 than the old adolescent athletes' self-concept. The results show the varied parental
7 motivational influences and opportunities available and their impact on young
8 athletes' physical self-concept.

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2 Table 1.

3 *Means and standard deviations*

<i>Variables</i>	Whole		Male		Female		Young		Old	
	Sample						Adolescent	Adolescent		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>M</i>	<i>SD</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>Father Climate</i>										
Father Learning	3.81	0.74	3.72	0.91	3.89	3.74	0.75	0.75	3.74	0.75
& Enjoyment										
Father Worry	2.16	0.96	2.27	1.10	2.16	2.15	0.98	0.98	2.15	0.98
Father Success	2.65	0.87	2.61	1.02	2.68	2.63	0.87	0.87	2.63	0.87
Without Effort										
<i>Mother Climate</i>										
Mother Learning	3.88	0.69	3.79	0.84	4.03	3.75	0.66	0.66	3.75	0.66
& Enjoyment										
Mother Worry	2.06	0.93	2.24	1.06	1.98	2.13	0.92	0.92	2.13	0.92
Mother Success	2.53	0.86	2.46	0.98	2.58	2.50	0.81	0.81	2.50	0.81
Without Effort										
<i>Physical Self-</i>										
<i>Concept</i>										
Self-Concept	4.42	0.86	4.53	0.92	4.15	4.66	0.83	0.83	4.66	0.83

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2 Table 2.

3 *Correlations between parent-initiated motivational climate and physical self-concept*

<i>Variables</i>	<i>Physical Self-Concept</i>				
	Males	Females	Young Adolescent	Old Adolescent	Whole Sample
<i>Father Climate</i>					
Father Learning & Enjoyment	0.26**	-0.12	0.17	0.15	0.12
Father Worry	-0.17	0.06	0.02	-0.14	-0.6
Father Success Without Effort	-0.29**	-0.08	-0.26**	-0.17	-0.21**
<i>Mother Climate</i>					
Mother Learning & Enjoyment	0.21*	-0.04	0.24*	0.12	0.10
Mother Worry	-0.13	-0.06	-0.02	-0.19*	-0.08
Mother Success Without Effort	-0.23*	-0.06	-0.20	-0.13	-0.17**

4 * p < .05, ** p < .01

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2 Table 3.

3 *Analyses of variance of parent-created motivational climate and physical self-concept*4 *scores*

Source of Variance	Wilks' Lambda	Df1	Df2	F
<i>Athletes' Age</i>				
Mother learning	0.92	1	234	10.14*
Father learning	0.92	1	234	2.64**
Physical self-concept	0.87	1	236	22.76*
<i>Athletes' Gender</i>				
Mother learning	0.90	1	234	4.23*
Mother worry	0.90	1	234	9.50*
Father learning	0.90	1	234	3.40*
Father worry	0.90	1	234	3.11**
Physical self-concept	0.86	1	236	4.06*

5 $p < 0.05$, $p < 0.10$

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2 Table 4.

3 *Effects of father- and mother-created motivational climate on athletes' physical self-*

4 *concept*

Predictors	<i>R</i>	<i>R</i> ²	<i>R</i> ² Adj	<i>F</i> for change	<i>p</i>	
<i>Females</i>						
Father Climate	0.19	0.03	0.01	1.37	0.25	7
Mother Climate	0.26	0.07	0.01	1.27	0.27	8
<i>Males</i>						
Father Climate	0.34	0.11	0.09	4.88	0.003	10
Mother Climate	0.35	0.12	0.07	2.55	0.02	11
<i>Younger</i>						
Father Climate	0.42	0.18	0.16	7.98	0.000	13
Mother Climate	0.47	0.22	0.18	5.09	0.000	14
<i>Older</i>						
Father Climate	0.19	0.04	0.01	1.52	0.21	16
Mother Climate	0.29	0.05	0.003	1.05	0.40	17

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2 Table 5.

3 *Coefficients for predictors within sets with significant F values*

Predictors	<i>Beta (unstand)</i>	<i>B (stand)</i>	<i>p</i>
<i>Males</i>			
<i>Father Climate</i>			
Learning	0.20	0.20	0.06
Success without effort	-0.30	-0.33	0.02
Worrying	0.16	0.19	0.19
<i>Father Climate</i>			
Learning	0.30	0.30	0.12
Success without effort	-0.29	-0.32	0.10
Worrying	0.11	0.14	0.43
<i>Mother Climate</i>			
Learning	-0.11	-0.10	0.59
Success without effort	-0.05	-0.05	0.77
Worrying	0.08	0.10	0.55
<i>Younger</i>			
<i>Father Climate</i>			
Learning	0.37	0.33	0.01
Succeeding without effort	-0.41	-0.43	0.00
Worrying	0.47	0.54	0.00
<i>Father Climate</i>			
Learning	-0.002	-0.002	0.99
Succeeding without effort	-0.42	-0.44	0.01
Worrying	0.32	0.37	0.03

Mother Climate

Learning	0.50	0.43	0.03
Succeeding without effort	-0.01	-0.1	0.98
Worrying	0.22	0.25	0.09

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