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Exploring the Etiology of Perfectionism and Perceptions of Self-worth in Young Athletes

Siobhain McArdle, *Dublin City University*, and Joan L. Duda, *The University of Birmingham*

Abstract

This study assessed the main and interactive effects of perceived parental expectations and perceived parental criticism on 180 young talented athletes' perfectionistic tendencies and level and reported fluctuation in self-esteem. A potential quadratic effect of perceived parental expectations on the targeted dependent variables was also tested. Moderated hierarchical regression analyses indicated that perceived parental criticism was the strongest predictor of concerns over mistakes and doubts about actions whereas perceived parental expectations were positively related to personal standards only. Self-esteem was predicted by high perceived parental expectations and low perceived parental criticism. Children's reported fluctuation in self-esteem was highest when perceived parental criticism was high and perceived parental expectations were deemed high or low. The results argue against a unidimensional and linear examination of factors relating to the etiology of perfectionism and perceptions of self-worth.

Keywords: parental attitudes; perfectionism; level and stability of self-esteem

Introduction

Although several different conceptualizations of perfectionism exist in the literature, contemporary frameworks tend to view perfectionism as a multidimensional, dispositional tendency or lens by which individuals process, in particular, achievement-related activities (Flett & Hewitt, 2002). Frost, Marten, Lahart, and Rosenblate (1990), in their multidimensional model of perfectionism, suggest that the construct is comprised of five core dimensions. These include reacting negatively to mistakes (concerns over mistakes), doubting the quality of one's performance (doubts about action), and setting very high personal standards (personal standards). Included in Frost et al.'s (1990) conceptualization are also two dimensions pertinent to the etiology of perfectionism, namely perceiving that one's parents are highly critical (parental criticism) and believing that one's parents have extremely high achievement expectations (parental expectations). These five facets of perfectionism are tapped in Frost et al.'s (1990) multidimensional perfectionism scale (MPS).

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Studies employing the MPS have shown that the tendency to set high personal standards, coupled with low concerns over mistakes and doubts about actions, has been positively associated with adaptive characteristics and responses such as conscientiousness, self-esteem, and personal satisfaction (Flett, Hewitt, Blankstein, & O'Brien, 1991; Parker, 1997). This constellation of variables is believed to represent normal/healthy perfectionistic tendencies or positive achievement striving (Flett & Hewitt, 2002; Hamachek, 1978; Parker, 1997; Rice & Mirzadeh, 2000). High personal standards have also been associated with maladaptive achievement attributes and outcomes such as increased anxiety and low confidence (Frost & Henderson, 1991; Hall, Kerr, & Matthews, 1998), procrastination (Solomon & Rothblum, 1984) and self-handicapping (Hobden & Pliner, 1995), but *only* when high concerns over mistakes and doubts about actions and/or high parental criticism and high parental expectations have also been expressed. This pattern is believed to reflect neurotic, dysfunctional or maladaptive perfectionistic tendencies (Flett & Hewitt, 2002; Hamachek, 1978; Parker, 1997; Rice & Mirzadeh, 2000).

Although Frost et al. (1990) highlight *perceptions of* parental expectations and parental criticism as critical to the conceptualization of the perfectionism construct, research exploring the role of these two parental characteristics in the development of cognitions and self-appraisals associated with perfectionism has been limited and inconclusive (Frost, Lahart, & Rosenblate, 1991; Greenspon, 2000; Parker, 1997). Parker (1997), in his work with children in the academic domain, found that youngsters who perceived high parental criticism and high parental expectations were characterized by maladaptive perfectionistic tendencies (i.e., high concerns over mistakes, doubts about actions, and personal standards). Conversely, those children who exhibited more adaptive perfectionistic tendencies (i.e., showed relatively less concerns with errors, lower doubts over their actions, and strove for moderately high self-standards) reported low perceived parental criticism and moderate parental expectations. These results suggest that high perceived parental criticism plays an important role in the development of maladaptive perfectionism. However, the role of perceived parental expectations in the promotion of negative perfectionistic characteristics as well as positive achievement-related self-evaluations is not as clear.

The perfectionism literature suggests that parents who impose stringent standards and respond to their children in a critical and guilt-inducing manner, not only contribute to the development of maladaptive perfectionism, but also engender feelings of inferiority, shame and contingent self-worth (Hollender, 1965; Missildine, 1963; Pacht, 1984). The belief that one's self-worth is inextricably tied to achievement is assumed to be fostered in this type of parental environment. It has been proposed that the resulting negative cognitions, affect, and behaviour stemming from such feelings of conditional self-worth hold implications for both the individual's overall self-esteem level *and* the stability of his or her self-esteem (Blatt, 1995; Burns, 1980). Greenier, Kernis, and Waschull (1995) define self-esteem instability as the degree of short-term fluctuations that people experience in their contextually based global self-esteem. In contrast, the level of self-esteem describes people's typical or relatively stable baseline feelings of self-worth (Greenier et al., 1995).

Despite repeated suggestions in the literature that maladaptive perfectionists are often characterized by fluctuating self-esteem (cf., Burns, 1980; Greenspon, 2000; Missildine, 1963), no research has explored whether parental characteristics thought to contribute to the development of maladaptive perfectionism are also predictive of fluctuating self-esteem. Moreover, the few studies that have explored the link between

perceived parental expectations and criticism and level of self-esteem have been inconclusive. Rice, Ashby, and Preusser (1996) found that self-esteem was positively associated with perceived parental expectations in youth identified as exhibiting *both* adaptive and maladaptive aspects of perfectionism. Surprisingly, Rice et al. (1996) found that perceived parental criticism was not a significant predictor of self-esteem in either adaptive or maladaptive perfectionists. In contrast to the findings of Rice et al. (1996), Gotwals, Dunn, and Wayment (2003), and Slaney, Rice, Mobley, Trippi, and Ashby (2001) reported a significant negative correlation between self-esteem and perceived parental criticism yet found no relationship between perceptions of parental expectations and overall level of self-worth.

A possible reason for these discrepant findings may be that the inter-dependencies between parental characteristics, perfectionism, and its concomitants are far more complex than considered in past work. Steinberg (2000) contends that children's perceptions of parental practices (e.g., the expectations expressed by mothers/fathers) can have different meanings depending on the emotional climate in which they occur. For example, high parental expectations may be perceived differently when communicated by parents in a highly critical and harsh manner versus via a communicative style that is supportive and non-critical. To this end, a comprehensive exploration of the etiology of perfectionism may involve considering the potential interplay between the different dimensions of the parental environment.

Taking initial steps in this direction, Flett, Hewitt, Oliver, and Macdonald (2002) proposed a model of perfectionism in which parental expectations and parental harshness are conceptualized as distinct, orthogonal dimensions, highly relevant to the development of perfectionism. Flett et al. (2002) argued that various combinations of these parental characteristics can result in differential developmental outcomes. For example, it is suggested that children who experience both high parental expectations and parental criticism should be distinguishable in terms of levels of emotional adjustment from those who experience high parental expectations but low to moderate criticism. To date, no research has tested Flett et al.'s (2002) proposed model and explored the interactive effects of parental expectations and parental criticism on indices of perfectionism and emotional adjustment. As such, the main objective of the present study was to examine the main and interactive effects of parental expectations and criticism on dimensions of perfectionism (i.e., concerns over mistakes, doubts about actions and personal standards) and on level and stability of self-esteem.

The literature consistently suggests, as noted above, that high perceived parental criticism has negative developmental implications for perfectionistic tendencies and perceptions of self-worth (Barrow & Moore, 1983; Frost et al., 1990; Hamachek, 1978; Missildine, 1963) whereas the results regarding the consequences of parental expectations have been equivocal. With respect to this latter finding, Flett et al. (2002) have pointed out that the parental expectations variable can range from exceedingly high to exceedingly low expectations and propose that both ends of the parental expectations continuum may have implications for the development of maladaptive perfectionistic tendencies and negative self-perceptions. Aligned with their proposition, past research has revealed a positive association between perceived parental expectations and children's self-reports of personal competence (Eccles, Wigfield, & Schiefele, 1998). Low perceived parental expectations, however, have been linked to maladaptive outcomes such as disordered eating among adolescents (Neumark-Sztainer, Story, Hannan, Beuhring, & Resnick, 2000). Aiken and West (1991) recommend that testing for curvilinear relationships between the variables in question might help explicate such

apparent inconsistencies in the literature. As such, a second major focus of the present study was to examine whether the relationship of perceived parental expectations to concerns over mistakes, doubts about action, personal standards, and the level and stability of self-esteem is non-linear.

In their efforts to develop a comprehensive model of the etiology of perfectionism, Flett et al. (2002) highlight the importance of considering individual difference factors such as gender and the developmental stage of the child. Research to date has shown that boys score higher than girls on perceived parental expectations (Parker, 2002). Further, whereas males in general tend to report higher self-esteem (Kling, Hyde, Showers, & Buswell, 1999), the research also indicates that self-evaluative judgments overall are less positive in early adolescence (ages 11–13) when compared to other developmental stages in young people (Marsh, Parker, & Barnes, 1985; Rosenberg, 1986). Although the etiology of perfectionism is regarded as an ongoing process, it is believed that key periods in the development of perfectionism include the early stages of childhood and the early stages of adolescence characterized by heightened levels of self-consciousness (Flett et al., 2002). Thus, in a sample of young adolescents, we also considered potential gender and age differences in the etiology of perfectionism.

Most studies of perfectionism have focused on a generalized multidimensional personality characteristic with the assumption that extreme perfectionists are those who pursue high personal standards across a number of life domains (Flett & Hewitt, 2002). Research grounded in Frost et al.'s (1990) multidimensional model of perfectionism has examined the dimensions of perfectionism in young people among the academically talented (Ablard & Parker, 1997; Parker, 1997; Parker & Stumpf, 1995). As such, what we know about the relationship of the inter-personal (i.e., perceptions of parental expectations and criticism) to the intra-personal dimensions (i.e., personal standards, concern for mistakes, and doubts about action) of perfectionism and their correlates has largely stemmed from samples of boys and girls characterized as gifted in the classroom. Recognizing that adolescents can possess high ability and exhibit perfectionistic tendencies in other achievement settings besides the academic classroom, the current research focused on young talented athletes.

Method

Participants

The sample consisted of 196 young male ($N=77$) and female ($N=119$) athletes ranging in age from 12 to 17 years ($M=14.0$, $SD=1.42$) with 46 percent of the athletes in early adolescence (12–14 years) and 54 percent in late adolescence (15–17 years). The participants in this study were recruited from 18 different sporting clubs in the United Kingdom and represented a variety of individual sports including gymnastics (4 percent), diving (4 percent), synchronized swimming (13 percent), skating (1 percent), trampolining (11 percent), swimming (52 percent), athletics (4 percent), golf (6 percent), and squash (5 percent). In an effort to control for potential confounding factors, the participant sample was delimited by age (12–17 years), sport (individual versus team sports), and competitive level (national level competitors and above). On average, the participants had participated in their respective sports for 6.71 years ($SD=2.61$). At the time of the data collection, this group of athletes was training for approximately 13.14 hours per week ($SD=6.58$).

Measures

Independent Variables

Inter-personal Dimensions of Perfectionism. The parental expectations (five items) and parental criticism (four items) subscales of the MPS (Frost et al., 1990) measure perceived parental characteristics. High scores on the parental expectations subscale reflect the individual's belief that his or her parents endorse very high achievement standards. Individuals who exhibit high scores on perceived parental criticism believe that failure to meet the standards of their parents will result in disapproval and/or loss of love. Exemplary items from these two subscales include 'My parents have expected excellence from me' (parental expectations) and 'As a child, I was punished for doing things less than perfect' (parental criticism). To ensure that the sport setting was reflected when measuring perfectionistic tendencies, the word 'work' in the MPS was replaced by the athlete's specific sport (e.g., 'If I fail at work/school, I am a failure as a person' was altered to read 'If I fail at gymnastics/school, I am a failure as a person'). In previous research, the perceptions of parental expectations and perceptions of parental criticism subscales of the MPS have demonstrated adequate internal reliability (Cronbach's [1951] $\alpha = .84$; Frost et al., 1990).

Dependent Variables

Intra-personal Dimensions of Perfectionism. The three intra-personal subscales of Frost et al.'s (1990) MPS were used to measure athletes' personal standards and self-evaluation tendencies in the central achievement domains of sport and school. For all the subscales, participants were asked to respond on a Likert scale from one (strongly disagree) to five (strongly agree). The seven items of the personal standards subscale reflect the relative difficulty of the standards set by the individual in achievement situations, for instance 'I set higher goals than most people'. The concern over mistakes subscale (nine items) taps the individual's tendency to process mistakes negatively, often equating faults with personal failure (e.g., 'The fewer mistakes I make the more people will like me'). Items from the doubts about actions subscale ($N = 4$), such as 'Even when I do something very carefully, I often feel that it is not quite right' measure the individual's tendency to feel dissatisfied with his or her performance. In previous research, the intra-personal subscales of the MPS have demonstrated adequate validity and reliability and the questionnaire has been successfully employed with children. For example, in a sample of 820 academically talented children, Parker (1997) reported alphas for these three subscales scores ranging from .67 to .90.

Self-esteem. The general self (GENR) subscale of the self-description questionnaire II (SDQII; Marsh et al., 1985) was employed as a measure of general self-esteem. The SDQII consists of 11 self-concept scales and is specifically designed for early to middle adolescence. From the 10 items comprising the GENR subscale, five of the items are negatively worded. Examples are 'Overall, I have a lot to be proud of' and 'Overall, I am a failure'. Respondents are asked to indicate their degree of agreement with each statement on a one (false) to six (true) response scale and a composite self-esteem score is calculated. Validated in an academic sample of children ranging in age from 11 to 18 years, the GENR subscale has demonstrated adequate internal reliability in previous studies (mean $\alpha = .89$) (Marsh, 1989; Marsh et al., 1985).

Fluctuations in Self-esteem. Fluctuations in self-esteem were assessed with the five-item labile self-esteem scale (LSES; Dykman, 1998). Some of the items include 'Compared to most people, my self-esteem changes rapidly' and 'My self-esteem shifts rapidly from feeling good about myself on one day to feeling bad about myself the next day'. Participants are asked to indicate their relative agreement with each item on a response scale from one (not characteristic of me) to five (extremely characteristic of me) with higher scores indicating higher labile self-esteem. Previous research has reported adequate internal reliability ($\alpha = .84$; Cronbach, 1951) and predictive validity for this measure (Dykman, 1998).

Procedure

Upon the approval of the authors' institutional human subjects review board and the consent of the relevant sport governing bodies and/or medical committees, coaches from numerous sport clubs in the United Kingdom were contacted and informed of the study. With the consent of club coaches, athletes who met the criteria for inclusion in the study were then provided with study information and both parental and individual consent forms. Upon receiving parental approval, those athletes who agreed to participate in the study were invited to complete a multi-section questionnaire. The multi-section questionnaire, consisting of measures of the targeted dimensions of perfectionism, self-esteem and labile self-esteem, was initially pilot-tested with a group of young gymnasts to ensure that the length and wording of the multi-section questionnaire were acceptable for the targeted participants. Questionnaires were administered either before or after the athletes' training session by the first author. The study participants were assured that all responses were confidential and encouraged to ask questions to clarify any misunderstanding or confusion with the items presented.

Results

Pre-analysis

Following the recommendations of Tabachnick and Fidell (2001) for multiple-group, multiple-variable designs, several pre-diagnostic analyses were performed. Univariate and multivariate outliers were removed using Box plots and the Mahalanobis distance criterion, respectively. With the elimination of 16 participants, 180 individuals ($N = 106$ females, $N = 74$ males) were included in the final analyses. Subsequent reliability analyses for each measure indicated that other than the parental criticism subscale of the MPS ($\alpha = .64$), all alpha levels were above the criterion of $\alpha \geq .70$ (Hair, Anderson, Tatham, & Black, 1998; Nunnally, 1978) suggest that allowances for internal consistencies slightly below this standard can be made for subscales with fewer items. On this basis, the four-item parental criticism subscale was included in subsequent analyses.

Potential gender differences in dimensions of perfectionism and self-esteem and labile self-esteem were initially examined. Consonant with Keselman et al.'s (1998) suggestion that outcome variables in multivariate analysis of variance (MANOVA) should conceptually 'hang together' (p. 363), two separate one-way MANOVAs were conducted. With the independent variable being gender, the dependent variables were dimensions of perfectionism and the level and stability of self-esteem. Bartlett's test of sphericity indicated a significant level of correlation between each set of dependent

Table 1. Descriptive Statistics and Cronbach's Alphas for All Variables

	<i>M</i>	<i>SD</i>	α	<i>Min-max</i>
MPS—perceived parental criticism	7.29	2.39	.64	4.00–14.00
MPS—perceived parental expectations	11.63	3.67	.72	5.00–21.00
MPS—concern over mistakes	20.79	5.12	.78	9.00–34.00
MPS—doubts about action	10.49	2.94	.74	4.00–18.00
MPS—personal standards	24.58	4.43	.76	15.00–35.00
Self-esteem	52.05	5.32	.80	37.00–60.00
Labile self-esteem	13.09	4.49	.82	5.00–25.00

variables. Pre-analysis diagnostic checks indicated that the data did not satisfy the Kolmogorov–Smirnov test for normality. However, Box's *M* indicated covariance matrix equality for both sets of dependent variables.

For each set of dependent variables, the multivariate effect size index was determined based on the formula multivariate $\eta^2 = 1 - \Lambda^{1/S}$. Follow-up analyses of variance (ANOVAs) with Bonferroni adjustment ($p = .05 / 7 = .007$) were also conducted. Effect sizes for follow-up analyses were based on Hedges *g* for unequal cell sizes ($g = t\sqrt{(n_1 + n_2) / \sqrt{(n_1 n_2)}}$). Based on Cohen's (1977) univariate effect size (ES) criterion, values of .2 were considered small, values of .5 were classified moderate, and values of .8 and above were deemed large effect sizes.

Gender Differences

Results revealed a significant multivariate effect for gender on the dimensions of perfectionism (concerns over mistakes, doubts about actions, personal standards, parental expectations, and parental criticism), Wilk's lambda = .93, $F(5, 174) = 2.92$, $p < .05$, $\eta^2 = .07$. However, follow-up univariate *F* Tests failed to reach significance ($p > .007$). A multivariate gender effect also emerged for self-esteem and labile self-esteem, Wilks lambda = .95, $F(2, 177) = 4.49$, $p < .01$, $\eta^2 = .05$. Consistent with Marsh et al. (1985), follow-up univariate *F* Tests indicated that boys scored significantly higher than girls on level of self-esteem $F(1, 178) = 9.01$, $p < .007$, $g = 1.36$. Overall, the mean self-esteem for boys was at approximately the 68.1 percentile of the mean self-esteem observed for females. As a result, the subsequent regression analysis with self-esteem as the dependent variable was performed controlling for gender.

Descriptives

Table 1 displays the descriptive statistics and Cronbach's alphas for all variables. The results indicate that the young athletes in this sample were analogous to other similarly aged children on dimensions of perfectionism (Gould, Udry, Tuffey, & Loehr, 1996; Parker, 1997). Inspection of reported means for self-esteem suggested that these athletes were also representative of youth in this age range (Marsh et al., 1985).

Table 2. Zero-order Correlations among Variables for the Entire Sample

	1	2	3	4	5	6	7
1. PC	1.00						
2. PE	.52**	1.00					
3. CM	.52**	.37**	1.00				
4. DA	.33**	.21**	.42**	1.00			
5. PS	.09	.23**	.39**	.21**	1.00		
6. SE	-.30**	-.03	-.14	-.22**	.31**	1.00	
7. LB	.28**	.23**	.39	.34**	.14	-.33**	1.00

Note: PC = parental criticism; PE = parental expectations; CM = concern over mistakes; DA = doubts about actions; PS = personal standards; SE = self-esteem, LB = labile self-esteem. ** Correlation is significant at the .01 level (two-tailed).

Correlations

As shown in Table 2, perceptions of parental expectations and criticism were positively correlated and both moderately and positively related to doubts about action and concerns over mistakes (with the associations with perceived parental expectations being weaker). Although the results showed that perceived parental criticism did not significantly relate to personal standards, a significant and positive association between perceived parental expectations and personal standards did emerge. Perceptions of parental criticism showed a significant negative relationship with self-esteem and a significant positive association with labile self-esteem. Perceived parental expectations were also positively associated with the reporting of fluctuating self-esteem.

Regression Analyses

Following the recommendations of Cohen and Cohen (1983), moderated hierarchical regression was employed to examine the univariate, interactive, and quadratic effects of parental expectations and criticism on each dependent variable. In all analyses, the problem of multi-collinearity between lower- and higher-order regression terms in moderated hierarchical regression was addressed by centring the independent variables ($M = 0$). In each of the analyses, age was entered in the first step to control for age differences on each DV. Parental criticism and parental expectations were entered in the second step to account for the univariate effects of parental attitudes on each dependent measure. In the third step, the quadratic (parental expectations squared) and interactive (the cross product of parental expectations and parental criticism) terms were entered simultaneously to (1) assess whether these terms added to the overall prediction of the regression equation and, (2) determine which function form best characterized the relation between predictor set and criterion (as recommended by Lubinski & Humphreys, 1990). In the case of the regression analysis with self-esteem as the dependent variable, we controlled for the observed gender difference by entering this variable in the first step along with age. Parental expectations and parental criticism

Table 3. Moderated Hierarchical Regression Analysis with Concerns over Mistakes Subscale Scores as the Dependent Variable

Variable	<i>B</i>	<i>t</i>	Adjusted <i>R</i> ²	ΔR^2
<i>Concerns over mistakes</i>				
Step 1				
Age	.13	1.72	.01	
Step 2				
Parental expectations	.15	1.97		
Parental criticism	.45	6.05**	.29	.29***
Step 3				
Parental expectations × Parental criticism	.04	.49		
Parental expectations × Parental expectations	.00	-.08	.29	.00 (NS)

** $p < .01$; *** $p < .001$.

were then entered in the second step, and the interaction and quadratic terms included in the third step.

Although the effect size of interaction terms are usually reported in terms of *R* squared change for the product variable(s), Aiken and West (1991) contend that *R* squared change is not linearly related to effect size. As per Aiken and West (1991) and Cohen and Cohen (1983), ES for set I (higher-order terms) over and above set M (lower-order terms) was calculated employing the formula $f^2 = r^2_{Y.MI} - r^2_{Y.M} / 1 - r^2_{Y.MI}$. Cohen (1977) suggests that for higher order terms around $f^2 = .02$ are 'small', around $f^2 = .15$ are 'moderate', and $f^2 = .26$ are labelled as large.

Dimensions of Perfectionism. Both concerns over mistakes and doubts about actions were positively predicted by perceptions of parental criticism (Tables 3 and 4). Specifically, 29 percent of the variance in concerns over mistakes and 10 percent of the variance in doubts about actions were explained by the athletes' perceptions of parental criticism. With regard to personal standards, age and parental expectations positively accounted for 8 percent of the variance (Table 5). Older participants set higher personal standards for themselves. Neither the product of perceived parental expectations and perceived parental criticism nor the squared perceived parental expectations or perceived parental criticism terms significantly added to the prediction of concerns over mistakes, doubts about action or personal standards.

Self-esteem. Self-esteem was positively predicted by gender and parental expectations and negatively predicted by parental criticism ($R^2 = 15$ percent). Once again, neither the interaction nor the quadratic terms added to the prediction of self-esteem (see Table 6).

Table 4. Moderated Hierarchical Regression Analysis with Doubts about Actions Subscale Scores as the Dependent Variable

Variable	<i>B</i>	<i>t</i>	Adjusted <i>R</i> ²	Δ <i>R</i> ²
<i>Doubts about actions</i>				
Step 1				
Age	-.10	-1.29		
			.00	
Step 2				
Parental expectations	.05	.62		
Parental criticism	.30	3.57***		
			.10	.11***
Step 3				
Parental expectations × Parental criticism	-.20	-2.05*		
Parental expectations × Parental expectations	.11	1.23		
			.11	.02 (NS)

* *p* < .05; *** *p* < .001.

Table 5. Moderated Hierarchical Regression Analysis with Personal Standards Subscale Scores as the Dependent Variable

Variable	<i>B</i>	<i>t</i>	Adjusted <i>R</i> ²	Δ <i>R</i> ²
<i>Personal standards</i>				
Step 1				
Age	.18	2.46*		
			.03	
Step 2				
Parental expectations	.26	3.11**		
Parental criticism	-.04	-.51		
			.08	.06**
Step 3				
Parental expectations × Parental criticism	-.06	-.65		
Parental expectations × Parental expectations	-.02	-.19		
			.07	.00 (NS)

* *p* < .05; ** *p* < .01.

Table 6. Moderated Hierarchical Regression Analysis with Self-esteem as the Dependent Variable

Variable	<i>B</i>	<i>t</i>	Adjusted <i>R</i> ²	ΔR^2
<i>Self-esteem</i>				
Step 1				
Gender	.23	3.28**		
Age	.05	2.96		
			.04	
Step 2				
Parental expectations	.17	2.08*		
Parental criticism	-.40	-4.90***		
			.15	.12***
Step 3				
Parental expectations × Parental criticism	.00	.06		
Parental expectations × Parental expectations	-.06	-.67		
			.14	.00 (NS)

* $p < .05$; ** $p < .01$; *** $p < .001$.

The emergent positive and significant main effect for perceived parental expectations was surprising given that perceived parental expectations did not significantly correlate with self-esteem. These findings would suggest that perceptions of parental criticism acted as a suppressor variable in this analysis by suppressing variance that is irrelevant in the prediction of self-esteem and thereby enhancing the predictive utility of perceived parental expectations (Tabachnick & Fidell, 2001).

Labile Self-esteem. For labile self-esteem, results indicated that a 'set' of higher order terms reached significance (i.e., the curvilinear term and the interaction term), $F(4, 175) = 5.75, p < .001, f^2 = .04$ (Table 7). In this case, the effect of set I (higher order effects) over and above set M (first order effects) was relatively small (Cohen, 1977). Although the effect size was relatively small, the curvilinear relationship between perceived parental expectations and labile self-esteem indicated that a one-unit change in perceived parental expectations did not produce a constant change in labile self-esteem across the range of scores. The positive coefficient of the quadratic term (parental expectations squared) suggests that both very low and very high perceptions of parental expectations were associated with higher levels of fluctuating self-esteem.

To explore the observed significant interaction and curvilinear effects, simple slopes were plotted to illustrate the relationship between perceived parental criticism and labile self-esteem when perceived parental expectations were either high, medium or low. These results are displayed in Figure 1. Both the high parental criticism and the low parental expectations slopes were significant ($p < .05$) indicating that, in combination, high parental criticism and low parental expectations were predictive of higher

Table 7. Moderated Hierarchical Regression Analysis with Labile Self-esteem as the Dependent Variable

Variable	B	t	Adjusted R ²	Δ R ²
<i>Labile self-esteem</i>				
Step 1				
Age	-.07	-.94		
			.00	
Step 2				
Parental expectations	.10	1.20		
Parental criticism	.42	2.65**		
			.07	.08***
Step 3				
Parental expectations × Parental criticism	-.21	-2.18*		
Parental expectations × Parental expectations	.21	2.28*		
			.09	.03*

* $p < .05$; ** $p < .01$; *** $p < .001$.

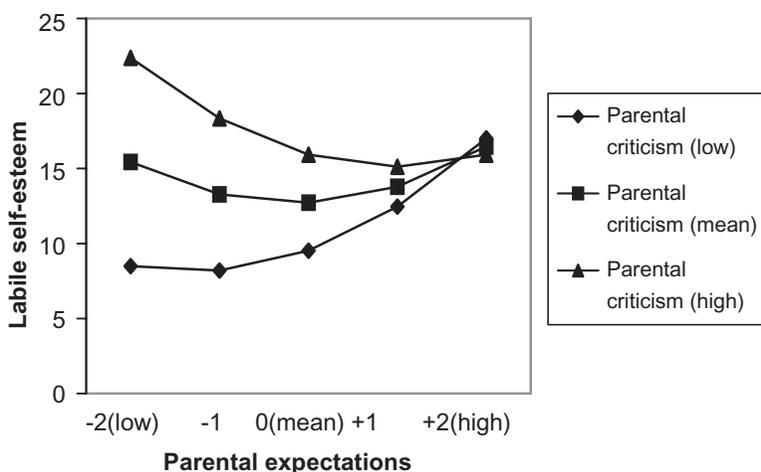


Figure 1. Quadratic and Interactive Effects of Perceived Parental Expectations and Perceived Parental Criticism on Labile Self-esteem.

fluctuations in self-esteem. Further, the slopes depicting high perceived parental expectations and low and moderate levels of perceived parental criticism respectively were significant ($p < .05$). These results suggest that regardless of the manner in which parental expectations were communicated (i.e., in combination with high, moderate or low levels of criticism), high perceived parental expectations were associated with greater self-esteem fluctuation.

Discussion

Aligned with Flett et al.'s (2002) developmental model of perfectionism, the main purpose of the present study was to explore whether different combinations of perceived parental expectations and perceived parental criticism contribute to differential perfectionistic tendencies and perceptions of self-worth among young talented athletes. We addressed this issue by examining the main and interactive effects of perceived parental expectations and criticism on children's perfectionistic tendencies, feelings of general self-worth and the reported stability of their self-esteem. We also tested for non-linearities in the relationship between perceived parental expectations and dimensions of perfectionism, self-esteem, and labile self-esteem.

Results revealed perceptions of parental criticism to predict young talented athletes' concerns over their mistakes and doubts about their actions. Contrary to the literature (Blatt, 1995; Frost & Henderson, 1991), the hypothesized link between high perceived parental expectations and the maladaptive self-evaluation tendencies reflective of maladaptive perfectionism was not supported. However, in line with previous research (Frost et al., 1990; Rice & Dellwo, 2001), perceived parental expectations emerged as a positive predictor of children's personal standards but this relationship was weak.

Consistent with the work of Kawamura, Frost, and Harmatz (2002), our findings suggest that athletes who perceived their parents to be harsh, critical, and punitive placed greater importance on their mistakes and equated them with personal failure. Such athletes also expressed more extensive doubts about the quality of their achievement efforts. These results imply that anticipated parental criticism in response to achievement efforts may foster a tendency in children to focus on personal shortcomings and tie their performance outcomes to feelings of self-worth. Approaching achievement situations with this type of interpretative lens may initiate the pervasive negative self-evaluations and performance dissatisfaction historically associated with maladaptive perfectionism (Blatt, 1995; Pacht, 1984). This perspective on achievement may also serve as the cornerstone for the development and perpetuation of contingent self-worth (Deci & Ryan, 1995).

Given the potential implications of perceived parental criticism for children's self-evaluation tendencies (Frost et al., 1991), it is not surprising that perceived parental criticism also corresponded to lower levels of self-esteem. It would be most difficult for a child to hold positive perceptions of self-worth when his or her parents are seen as providing critical feedback when performance at a salient achievement activity is not up to par. On the other hand, and consistent with the findings of Rice et al. (1996), perceived parental expectations positively predicted self-esteem. According to Frome and Eccles (1998), perceptions of parental expectations can be interpreted by the child as an expressed belief in his/her ability, and thus, conducive to a sense of competence and self-worth. That high perceived parental expectations *and* low perceived parental criticism were linked to higher levels of self-esteem for this sample of young athletes is also consonant with the work of Grolnick and Ryan (1989). They suggest that parents who set clearly defined expectations and limits in the context of a warm, nurturing supportive environment foster the general well-being, competence and adjustment of their children.

The results concerning the prediction of self-esteem as a function of perceptions of parental expectations should be interpreted with caution. Given that perceived parental expectations were not significantly associated with self-esteem in the correlational

analysis, the positive finding stemming from the hierarchical regression analyses suggests that statistical suppression occurred. That is, there is a strong possibility that perceived parental criticism acted as a suppressor variable in the regression model and exacerbated the predictive power of perceived parental expectations.

In support of Flett et al.'s (2002) contention that various combinations of parenting dimensions (i.e., parental expectations and parental criticism) may contribute to potentially meaningful differences in concomitants of perfectionism, adolescents' tendency to fluctuate in self-worth was predicted by the interaction between perceived parental expectations and perceived parental criticism. Moreover, and also consistent with Flett et al. (2002), a significant curvilinear relationship between perceived parental expectations and labile self-esteem was revealed. Specifically, the results suggested that *high* perceived parental criticism coupled with *low* perceived parental expectations was associated with greatest self-esteem instability. However, the results also indicated that *high perceived parental expectations* regardless of parental level of criticism correspond to heightened fluctuation in self-esteem. As such, our results support the proposition that both ends of the parental expectations continuum may have implications for psychological adjustment during childhood (Flett et al., 2002).

It is important to consider the reasons why low perceptions of parental expectations rather than high perceived expectations should interact with high perceived parental criticism to predict the greatest reported self-esteem fluctuation in this group of young talented athletes. Harter (1998) contends that low perceived parental expectations are likely to thwart children's sense of competence and self-worth. Thus, it is possible that children interpret low perceived parental expectations as reflective of their parents' lack of belief in their ability to attain high levels of accomplishment. It also might be the case that the child who perceives low parental expectations *and* views his or her parents to be highly critical may feel especially pressured to prove his or her ability to gain parental approval and to avoid the negative repercussions of failure. With such an outlook on parents' expected responses to poor performance, it is not surprising that children would report their self-worth to be highly unstable.

Our results regarding the predictors of level of self-esteem suggest that high parental expectations play a positive role in the development of children's feelings of self-worth. On the contrary, the findings regarding self-esteem fluctuation imply that high parental expectations can have negative implications for feelings of self-worth. In explicating these seemingly discrepant results for high perceived parental expectations, it is informative to consider the work of Flett et al.'s (2002). They suggest that parents' standards/expectations can be examined according to their level, importance, and type. With regard to 'type', it is argued that parental expectations may be conveyed in a manner that endorses one of two perspectives on achievement. Parents whose high expectations endorse the importance of learning and self-improvement are thought to foster adaptive perfectionistic tendencies, cognitions, and behaviors. Conversely, parental expectations that convey the importance of normative comparison and high levels of ego involvement are believed to foster maladaptive perfectionistic tendencies and feelings of contingent self-worth (Ablard & Parker, 1997; Hamachek, 1978; Missildine, 1963). More specifically, Flett et al. (2002) postulate that parental endorsement of performance or ego goals may result in the development of a form of perfectionism that stems from concerns about self-esteem. It is possible that the link between high parental expectations and self-esteem instability found in the current study reflects tenuous feelings of self-worth that stem from perceptions of more ego-involving parental expectations. To further test these aspects of Flett et al.'s (2002)

model of perfectionism, future research should explore whether expectancy 'type' moderates the relationship between parental expectations and level and stability of self-esteem.

Our results provide evidence for the potential socializing influence of parents with respect to children's self-evaluative tendencies and perceptions of self-worth in important achievement settings. However, the correlational nature of the findings leaves open at least two interpretations of the present findings. The most obvious is that perceived parental expectations and perceived parental criticism do have a significant influence on the development of children's perfectionistic tendencies and the level and stability of their self-esteem. An alternative interpretation is also plausible, namely that the child's self-evaluation tendencies and perceptions of self-worth may be influencing their perceptions of their parents' behavior and perspectives on achievement. In terms of possible bidirectional influences, the child's internalization of parents' opinions and evaluations as well as the assumption that the child who has a grounded sense of self-worth will perceive parental feedback differently from a child who suffers from low or labile self-esteem, are likely to be operative. Consequently, future research should employ multi-method, multivariate, and longitudinal designs to explore the nature and direction of parent-child interactions and ensuing self-perceptions.

The finding that older participants could be distinguished from younger participants by their higher personal standards has significant implications for future research. Harter (1998) suggests that by late adolescence, youngsters have formulated their own self-standards that are separable from their familial and social origins. As such, perceptions of parental expectations in older adolescents may be less tied to their own personal standards. On the other hand, research has shown that the association between parental approval and feelings of self-worth does not decline during adolescence (Harter, 1990; Oosterwegel & Oppenheimer, 1993). As such, the relevance of perceptions of parental expectations and criticism to the negative self-evaluation tendencies reflective of perfectionism and perceptions of self-worth may remain unchanged throughout adolescence. Thus, it seems important for subsequent work to examine the interplay between parental interactions and children's self-perceptions and perfectionistic tendencies across different developmental levels.

The association found between age and personal standards also highlights the importance of reflecting on the context of the gifted participants in this study. It is feasible that the setting of more demanding goals and standards by older participants could be a function of competitive level and years participating in sport. Sport is a unique achievement domain where the competitive level or standard can increase yearly or in the case of an older individual athlete the standard of competition can increase exponentially over the course of a year depending on the individual's performance success. As such, current future competitive opportunities and experiences may act as a catalyst for the level of personal standards. In subsequent work, it would be interesting to explore factors that may moderate the development of perfectionistic tendencies in gifted children in different achievement domains (i.e., contextual characteristics, such as the existence and level of competitive structures and the influence of significant others such as coaches and teachers).

In line with Eccles' expectancy-value model (Eccles & Harold, 1991), it would also be of interest to explore whether parental expectations for, and evaluations in, different achievement domains are associated with the development of domain specific perfectionistic tendencies. To date, no research has addressed whether individuals are more perfectionistic in one domain over another, or examined whether context-specific

measures have greater predictive validity than more omnibus assessments such as the MPS (Frost et al., 1990). Future context specific research in the domain of sport should also explore whether timing of test administration (i.e., before or after training vs. before or after competition) has implications for self-reported perfectionism scores.

As also tends to be the case in the perfectionism literature, the reliance on self-reported assessments of the targeted independent and dependent variables comprises another limitation of the present work. However, it is important to keep in mind that children's perceptions of their parents' behaviors have been found to be correlated with objective measures of parenting practice to nearly the same degree as parents' self-reported behaviour (Gonzales, Cauce, & Mason, 1996; Schwartz, Barton-Henry, & Pruzinsky, 1985). Flett et al. (2002) contend that both actual and perceived parental characteristics contribute significantly to children's self-evaluation tendencies. Thus, in subsequent work, it would seem prudent to tap both objective and subjective aspects of parental expectations and criticism in an effort to test a comprehensive model of the development of perfectionism and children's associated perceptions of self-worth.

In sum, to our knowledge, this is the first study to explore Flett et al.'s (2002) proposed developmental model by examining the combined effects of perceived parental expectations and perceived parental criticism on dimensions of perfectionism, self-esteem, and labile self-esteem. In accordance with Flett et al.'s (2002) framework, this study also considered that the relationship of perceived parental expectations to self-evaluation tendencies, self-esteem, and labile self-esteem may be curvilinear. We also explored whether age and gender are important considerations in the etiology of perfectionism and associated perceptions of self-worth. The findings support past work implicating perceptions of parental criticism as a concomitant of maladaptive perfectionistic characteristics and indices of poor personal adjustment (Flett & Hewitt, 2002). Overall, the results are consonant with Flett et al.'s (2002) contention that the social environmental pathways to perfectionism and personal adjustment are complicated, multifaceted, and inter-dependent.

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