



Parenting and procrastination: gender differences in the relations between procrastination, parenting style and self-worth in early adolescence

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Abstract

The goal of this study was to explore the main effects and interactions between gender, maternal and paternal parenting style, and global self-worth in the prediction of procrastination in adolescence. A sample of 105 adolescents (60 females) between the ages of 13 and 15 years completed measures of parenting style, self-concept and trait procrastination. Results of hierarchical multiple regression analyses predicting procrastination revealed significant interactions between parenting styles, adolescent gender and self-worth. For females only, the effects of maternal authoritative and authoritarian parenting on procrastination were mediated through the self-system, whereas paternal parenting had a direct relation with procrastination. These gender effects in the role of the self-system are discussed in relation to parenting and procrastination. © 2002 Published by Elsevier Science Ltd. All rights reserved.

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1. Introduction

One of the major changes thought to occur during early adolescence is a shift in orientation from parents towards peers (e.g. Coleman, 1980; Havinghurst, 1987; Hill, 1993). However, even as adolescents become more peer-oriented and increasingly aware of their peers' evaluations

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(Kelly & Hansen, 1987), parents continue to play a significant role in their child's development (e.g. Brown, Mounts, Lamborn, & Steinberg, 1993). Given the continued importance of parenting, researchers have explored the relations between parental variables and many diverse aspects of adolescents' development including achievement and academic motivation (Lamborn, Mounts, & Steinberg, & Dornbusch, 1991), autonomy (Youniss & Smollar, 1985), and adolescent self-worth (see Grotevant, 1998, for a recent review). The focus of the present study was on parenting and self-worth, particularly as they might be related to procrastination.

Results from both clinical observations (e.g. Burka & Yuen, 1983) as well as empirical studies (e.g. Ferrari & Olivette, 1993, 1994) have provided evidence for the role of parental influence and self-worth in the development of procrastination, the irrational tendency to delay intended tasks (Lay, 1986). For example, high parental expectations and criticism have been linked to a form of socially-prescribed perfectionism that is positively related to procrastination (Frost, Lahart, & Rosenblate, 1991; Frost, Marten, Lahart, & Rosenblate, 1990). Similarly, parenting that is characterized by stern inflexibility and overcontrol has been found to correlate with a measure of decisional procrastination for late adolescent females (Ferrari & Olivette, 1993). On the basis of this evidence, Flett, Hewitt, and Martin (1995) concluded that, "... procrastination may be a response to the expectation that parents will respond to self-characteristics in a harsh and controlling manner" (p. 128).

The relation between parenting and procrastination remains largely uninvestigated. In only two studies have researchers directly examined the relations between parental authority and the development of indecision (Ferrari & Olivette, 1993) or chronic avoidant procrastination (Ferrari & Olivette, 1994). Ferrari and Olivette (1993, 1994) had a sample of late adolescent females rate their parents' authority style and their own tendency toward decisional procrastination and avoidant procrastination. Results showed that parents perceived as having authoritarian parenting style characterized by stern inflexibility and overcontrol had the greatest influence on daughters who develop chronic indecision tendencies. Ferrari and Olivette (1994) also reported that scores on fathers' authoritarianism accounted for approximately 10% of the variance in both decisional and avoidant procrastination. However, the ability to generalize these findings is limited by the fact that only females were studied. Ferrari and Olivette (1994) note that this is a significant limitation in their study and that, "it remains unclear how male procrastinators perceive their parents, authority" (p. 97).

Most recently, Ferrari, Harriott, and Zimmerman (1999) examined the quality of relationships between both women and men procrastinators with their mothers and fathers, as well as with their participants' more general social-support network. Interestingly, Ferrari et al. reported that procrastination tendencies were significantly related to more conflicts in relationship with parents and best friend of the same sex, as well as less depth in the relationship with the participants' fathers and same sex best friends. Based on this and the previous research reviewed, we can see that parental factors are related to procrastination and that there is some indication that gender may play a role in how parental influences are manifested in procrastination.

1.1. Conceptualizing the link between parenting and procrastination

Despite the correlational evidence, there is little known about the underlying nature of the relation between parenting and procrastination. Conceptually, both direct and indirect links seem

plausible. A *direct* link between parenting and procrastination would suggest that parenting styles have a primary influence on the development of procrastination. In support of this conception, there is a great deal of empirical evidence to suggest that parenting variables have a significant effect on the development of children's personality traits. For example, a parenting style characterized by acceptance and involvement, as well as strictness and supervision (i.e. authoritative parenting), is associated with children who tend to be independent, self-assertive, friendly with peers, and cooperative with parents (Baumrind, 1971), as well as intellectually and socially successful with a strong motivation to achieve (Maccoby & Martin, 1983). More recently, Lamborn et al. (1991) found that children of authoritative parents feel more competent, have higher self-esteem, and are more mature than other children. In contrast, the authoritarian parenting style is associated with children who tend to be more fearful, moody, hostile, and vulnerable to stress (Kuczynski, Kochanska, Radke-Yarrow, & Girnius-Brown, 1987). As such, given that parenting directly influences the development of many different traits, procrastination may also be directly affected by parenting styles.

It is also possible, however, that there is an *indirect* relation between parenting and procrastination, mediated through a third variable. One possible mediating variable in this relation is *self-concept*, as there is both an established relation between procrastination and measures of the self-system (e.g. Beswick, Rothblum, & Mann, 1988; Effert & Ferrari, 1989; Flett et al., 1995; Ferrari, 1991a, 1991b, 1992), as well as evidence of a relation between the self-system and parenting. For example, Beswick and his colleagues (1988) found that procrastination scores were related to low self-esteem, depression, and state anxiety. Similarly, Effert and Ferrari (1989) reported that procrastination was related to low self-esteem. In terms of the research linking parenting variables and adolescent self-concept, children of harsh, punitive, and overcontrolling (i.e. authoritarian) parents report low self-esteem (Coopersmith, 1967), while self-esteem in adolescence has been found to be positively related with parental attachment relations (Greenberg, Siegel, & Leitch, 1983; Paterson, Pryor, & Field, 1995) and negatively associated with retrospective accounts of childhood dissatisfaction with parents (Hojat, Borenstein, & Shapurian, 1990).

1.2. Gender differences

The issue of gender differences in procrastination can be approached from two different perspectives: differences in the *amount* of procrastination by males and females; and gender differences in terms of the *correlates* of procrastination. To date, results from the majority of studies in the area have indicated no significant gender differences in the incidence of procrastination (e.g. Effert & Ferrari, 1989; Rothblum, Solomon, & Murakami, 1986; Solomon & Rothblum, 1984). However, some researchers (e.g. Haycock, McCarthy, & Skay, 1998; Paludi & Frankell-Hauser, 1986) have cautioned that there is evidence that women are at greater risk for procrastination than men, and that women may in fact experience greater levels of procrastination-related anxiety than do men (Rothblum et al., 1986).

In terms of the correlates of procrastination, no significant gender differences have been reported to date (e.g. Ferrari, Johnson, & McCown, 1995; Effert & Ferrari, 1989; Solomon & Rothblum, 1984). For example, with a sample of 388 undergraduate students, Ferrari and colleagues (1995) reported that procrastination was associated positively with test anxiety in both men and women. They also found that procrastination was significantly and positively correlated with depression

in both men and women. Similarly, Effert and Ferrari (1989) examined self-reported personality factors associated with procrastination in a sample of 111 college students. They reported that decisional procrastination was related significantly to cognitive failures, low self-esteem, speed and impatience at tasks and low competitiveness at tasks, and that there were no significant gender differences.

Although the results of past research have revealed little in the way of significant gender differences in procrastination, there is evidence of gender differences with respect to adolescent self-esteem and parenting styles. For example, Kling, Hyde, Showers, and Buswell (1999) reported that males scored higher on standard measures of global self-esteem than females. As well, authoritarian parenting, which has been linked to low self-esteem (Coopersmith, 1967), has also been shown to have a greater impact on the personality development of females than males (Fischer & Crawford, 1992).

Given the strong relation between self-concept and procrastination that has been demonstrated in past research (e.g. Beswick et al., 1988; Effert & Ferrari, 1989; Flett et al., 1995; Ferrari, 1991a, 1991b, 1992) and the demonstrated relation between parenting and self-concept (e.g. Baumrind, 1991; Buri, 1989; Lamborn et al., 1991; Parish & McCluskey, 1992), we hypothesized that self-concept would mediate, at least in part, the relation between parental authority and procrastination. The purpose of this study was to extend the existing research on the relations between parenting style, self-concept and procrastination through an examination of a sample of male and female adolescents. In addition to including both males and females in the research, this study also contributed to the current literature by examining the role of self-concept in relation to parenting style and procrastination more specifically through an examination of the interaction between parental authority, procrastination, and gender.

2. Method

2.1. Participants

The participants in this study were 105 middle- and high-school students (45 males, 60 females) between the ages of 13 and 15 years ($M_{\text{age}} = 13.65$, $S.D. = 0.73$ years) drawn from a larger group of students who were taking part in a one week “enrichment” program offered by our university. Students who participated in the university program were, in general, succeeding well academically (52% reported receiving mostly As or above in school) and came from a wide variety of local high schools, both urban and rural, from middle to upper-middle socioeconomic strata. About 45% of mothers and 57% of fathers had completed university. Eighty-three percent of the sample came from intact families. The school board did not allow for the collection of racial or ethnicity data.

2.2. Procedures

Each year, approximately 600 middle- and high-school students are invited to take mini-enrichment courses in a variety of different areas at the university. The students were on campus participating in the mini-enrichment program for one week. We chose a stratified sample across the faculties of Science, Engineering, Computer Science, and Arts and Social Sciences.

It was necessary to obtain permission from each of the participating local school boards, as well as parental consent for students under 18 years of age. Students did not receive payment, course credit, or remuneration of any kind for their participation.

Packages containing general information, parental consent forms and the questionnaires were distributed on the first day of the mini-course (i.e. Monday). Throughout the week, the course instructor reminded students to complete and return their packages. The questionnaire package took approximately 30–45 min to complete. On Friday, the packages were picked up from the course instructors.

2.3. Measures

Participants completed a questionnaire package that contained a series of self-report questionnaires, including: (1) demographic information, (2) a measure of self-concept, (3) a parental authority questionnaire, and (4) a measure of procrastination. The order of the measures was randomized across the sample. Each of these is described below.

2.3.1. Demographic information

The participants were required to complete a one-page demographic questionnaire providing information about their age, sex, average grade in school, as well as their parents' marital status, and parental education (separate for mothers and fathers). Parental education was measured by having adolescents select how much formal education each parent had completed from a list ranging from "junior high school" to "graduate school."

2.3.2. Self-concept

The *Self-Perception Profile for Adolescents* (Harter, 1988) is a 45-item self-report measure designed to assess various domains of perceived competence, as well as global self-worth. Items are rated on a 4-point Likert-type scale. The reliability and validity of this measure are well established (e.g. Cauce, 1987; Connolly & Konarski, 1994; Granleese & Joseph, 1994; Harter, 1982, 1988). Of particular interest for the present study was the subscale of global self-worth (e.g. "some teenagers are very happy being the way they are"; 5 items). The Cronbach's alpha calculated in the present sample for this sub-scale was $\alpha = 0.80$.

2.3.3. Parenting style

The *Parental Authority Questionnaire* (Buri, 1991) was used to measure Baumrind's (1971) three parental authority prototypes: permissive, authoritarian and authoritative. These 30 items are grouped into three subscales consisting of 10 items that assess each of the three parental authority prototypes. Each item is rated on a 5-point, Likert-type scale ranging from 1, *strongly disagree*, to 5, *strongly agree*. Sample items on the *mother's* version include, "While I was growing up my mother felt that in a well run home the children should have their way in the family as often as the parents do" (Permissive prototype subscale), or, "Whenever my mother told me to do something as I was growing up, she expected me to do it immediately without asking any questions" (Authoritarian prototype subscale). Participants completed this 30-item scale separately for their mothers and fathers. For the *father's* version, the word "mother" was replaced with "father" throughout.

Buri (1991) provides evidence of the test–retest and internal consistency reliability, as well as the validity of the measure for identification of the three parental authority prototypes. The

2-week test–retest scores for the three prototypes ranged from 0.78 for mother’s authoritativeness to 0.92 for father’s authoritativeness. The prototype subscales demonstrate acceptable internal consistency with Cronbach coefficient alpha values ranging from $\alpha = 0.74$ for father’s permissiveness to $\alpha = 0.87$ for father’s authoritarianism. The parental authoritative prototype score was reported to have a strong positive relation with adolescent self-esteem, while the authoritarian prototype score demonstrated a strong negative relationship with adolescent self-esteem (Buri, Louiselle, Misukanis, & Mueller, 1988). In the present sample, Cronbach’s alphas were calculated at $\alpha = 0.90$ for father authoritarian; $\alpha = 0.88$ for father authoritative; $\alpha = 0.77$ for father permissive; $\alpha = 0.90$ for mother authoritarian; $\alpha = 0.85$ for mother authoritative; and $\alpha = 0.75$ for mother permissive.

2.3.4. Procrastination

The *General Procrastination (GP)* scale (Lay, 1986) was the final measure in the questionnaire package. The *GP* scale is a 20-item measure that includes items such as “I generally delay before starting on work I have to do” and “In preparing for some deadlines, I often waste time by doing other things.” Each item is scored on a 5-point Likert-type scale (1 = *false of me*; 5 = *true of me*). Ten items are reversed-scored and ratings are summed for a single-scale score. The *GP* scale has been demonstrated to be a valid and reliable measure of procrastination in a number of studies (e.g. Blunt & Pychyl, 1998; Ferrari, 1992; Lay, 1986, 1988; Lay & Burns, 1991; Lay & Schouwenburg, 1993). In the present sample, Cronbach’s alpha was calculated at $\alpha = 0.85$ for this scale.

3. Results

3.1. Preliminary analyses

The first set of analyses concerned the relations between child age and maternal/paternal education, and measures of parenting style, global self-worth and procrastination. Results indicated only significant relations between maternal permissive parenting and both maternal education ($r = 0.23$, $P < 0.05$) and paternal education ($r = 0.22$, $P < 0.05$). As such, age and parental education were *not* controlled for in subsequent analyses.

A series of *t* tests was performed to explore gender differences in the measures of parenting style, global self-worth and procrastination. Results indicated significant gender differences in terms of both maternal and paternal *authoritative* parenting style. Girls rated their fathers as being more authoritative ($M = 3.73$, S.D. = 0.75) than did boys ($M = 3.42$, S.D. = 0.72, $t = 2.04$, $P < 0.05$). Girls also rated their mothers as being more authoritative ($M = 3.91$, S.D. = 0.59) than did boys ($M = 3.57$, S.D. = 0.72, $t = 2.61$, $P < 0.01$).

3.2. Hierarchical multiple regression analyses

The primary goal of this study was to explore the interactive relations between gender, parenting and global self-worth in the prediction of procrastination. In particular, we were interested in the potential interactions between gender and parenting, as well as gender and self-worth, in the

prediction of procrastination. These interactions between predictor variables were explored using Cohen's partialled products technique (Aiken & West, 1991; Cohen, 1978; Cohen & Cohen, 1983). Using this approach, a series of regression equations was computed, with procrastination as the dependent variable and the various independent variables entered first into the regression equation as a block (e.g. gender, maternal authoritative parenting) followed by the interaction term, as represented by the multiplicative product (e.g. gender \times maternal authoritative parenting). The significance in R^2_{change} was assessed to determine if the interaction added to the predictiveness of the overall equation.

3.3. Parenting and procrastination

The first set of analyses concerned the relations between maternal and paternal parenting style (authoritative, authoritarian and permissive), gender and procrastination. No significant results were found for any analyses involving either maternal and paternal permissive parenting. As such, and in the interest of brevity, the results concerning these variables are not presented.

Four separate equations were computed for (1) maternal authoritative parenting; (2) paternal authoritative parenting; (3) maternal authoritarian parenting; and (4) paternal authoritarian parenting. For each equation, the main effects (gender, parenting) were entered first, followed by the interaction term (gender \times parenting).

The first two equations concerned *authoritative* parenting. For *mothers*, results indicated a significant negative relation between maternal-authoritative parenting and procrastination ($\beta = -0.22$, $t = -2.20$, $P < 0.05$). No interaction with gender was found. For *fathers*, a significant negative relation between paternal authoritative parenting and procrastination ($\beta = -0.25$, $t = -2.54$, $P < 0.05$) was also found. However, this main effect was superseded by a significant gender by parenting interaction ($R^2_{\text{change}} = 0.06$, $F = 7.24$, $P < 0.01$). This interaction was explored by re-computing the regression equation separately for males and females. Results indicated that for males, paternal authoritative parenting was not significantly related with procrastination ($\beta = 0.05$, $t = 0.33$, ns). In contrast, for females, a significant negative relation was found between paternal authoritative parenting and procrastination ($\beta = -0.47$, $t = -3.90$, $P < 0.001$).

The next two equations concerned *authoritarian* parenting. For *mothers*, no significant relations with parenting or interactions with gender were found in the prediction of procrastination. For *fathers*, a significant positive relation between paternal authoritarian parenting and procrastination ($\beta = 0.20$, $t = 2.01$, $P < 0.05$) was found. There was no significant interaction with gender.

3.3.1. Self-worth and procrastination

The next set of analyses concerned the relations between global self-worth, gender and procrastination. As before, the main effects (gender, self-worth) were entered first, followed by the interaction term (gender \times self-worth). Results indicated a significant negative relation between self-worth and procrastination ($\beta = -0.31$, $t = -3.25$, $P < 0.01$). However, this main effect was superseded by a significant gender by self-worth interaction ($R^2_{\text{change}} = 0.06$, $F = 6.78$, $P < 0.05$). This interaction was explored by re-computing the regression equation separately for males and

females. Results indicated that for males, self-worth was not significantly related with procrastination ($\beta = -0.09$, $t = -0.55$, ns). In contrast, for females, a significant negative relation was found between self-worth and procrastination ($\beta = -0.52$, $t = -4.40$, $P < 0.001$).

3.3.2. Regression path analyses

The final set of analyses concern the nature of the inter-relations between parenting, self-worth and procrastination. The goal of these analyses was to explore the direct and indirect pathways from parenting style, to self-worth, to the prediction of procrastination behaviors. In order to accomplish this goal, path coefficients were calculated by performing a series of multiple regression analyses following the predictive model procedures outlined in Pedhazur (1987). This technique allowed for an examination of the direct and indirect paths between conceptually related variables. Given the significant interactions found between gender, parenting, self-worth, and procrastination, separate path models were computed for males and females.

3.4. Males

The first set of path analyses concerned the relations between parenting styles, self-worth and procrastination behaviors for males. Four separate path models were computed for (1) maternal authoritative parenting; (2) paternal authoritative parenting; (3) maternal authoritarian parenting; and (4) paternal authoritarian parenting. *No significant relations* were found between any of the variables in the path models.

3.5. Females

The next set of path analyses concerned the relations between parenting styles, self-worth and procrastination behaviors for females. As above, four separate path models were computed (i.e. maternal authoritative parenting, paternal authoritative parenting, maternal authoritarian parenting, and paternal authoritarian parenting).

For authoritative parenting, results indicated only an indirect relation between maternal authoritative parenting and procrastination, mediated through self-worth. Maternal authoritative parenting was significantly associated with self-worth, which in turn predicted procrastination. In contrast, paternal authoritative parenting was not associated with self-worth, but did have a direct relation with procrastination (i.e. controlling for the effects of self-worth). In other words, paternal authoritative parenting uniquely predicted procrastination beyond the contributions of self-worth. A trimmed path diagram (i.e. with only significant paths indicated) with standardized Beta weights for authoritative parenting is displayed in Fig. 1. The corresponding results of the regression analyses are presented in Table 1.

An identical pattern of results was indicated for authoritarian parenting. Results again indicated only an indirect relation between maternal authoritarian parenting and procrastination. Maternal authoritarian parenting was significantly associated with self-worth, which in turn predicted procrastination. As before, paternal authoritarian parenting was not associated with self-worth, but did uniquely predict procrastination beyond the contributions of self-worth. A trimmed path diagram with standardized Beta weights for authoritative parenting is displayed in Fig. 2.

Table 1
 Prediction of procrastination from parenting style, self-worth, and child gender

Dependent variable: procrastination	Main effects (β)	Interaction term (ΔR^2)
Variable		
Step 1 Mother-Authoritative	-0.22*	
Gender	-0.07	
Step 2 Gender \times Mother-Authoritative	0.01	
Step 1 Father-Authoritative	-0.25*	
Gender	-0.07	
Step 2 Gender \times Father-Authoritative		0.06**
Step 1 Mother-Authoritarian	0.08	
Gender	-0.11	
Step 2 Gender \times Mother-Authoritarian		0.01
Step 1 Father-Authoritarian		0.20*
Gender	-0.11	
Step 2 Gender \times Father-Authoritarian		0.02
Step 1 Self-Worth	-0.31**	
Gender	-0.12	
Step 2 Gender \times Self-Worth		0.06**

* $P < 0.05$; ** $P < 0.01$.

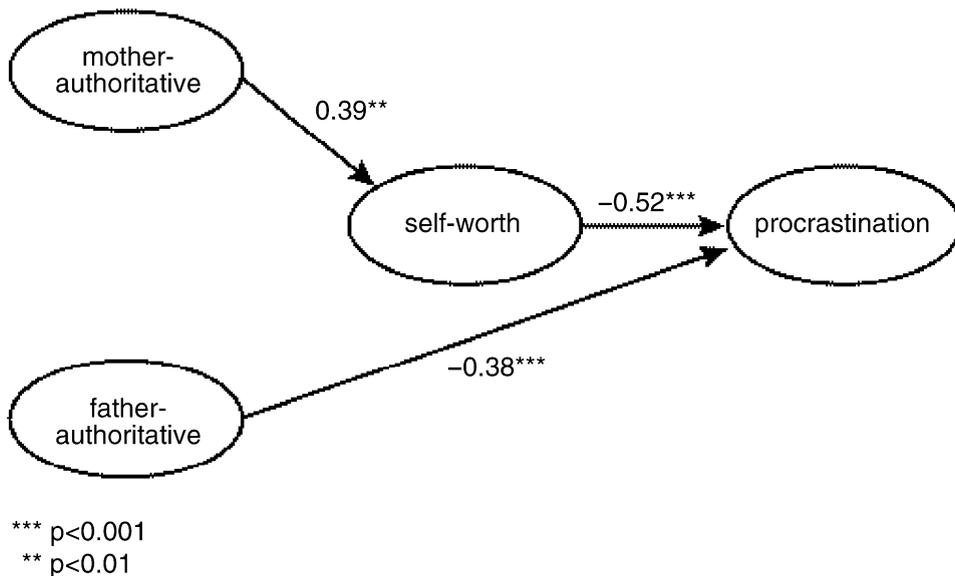


Fig. 1. Path analysis coefficients for authoritative parenting style, self-worth and procrastination for the female adolescents.

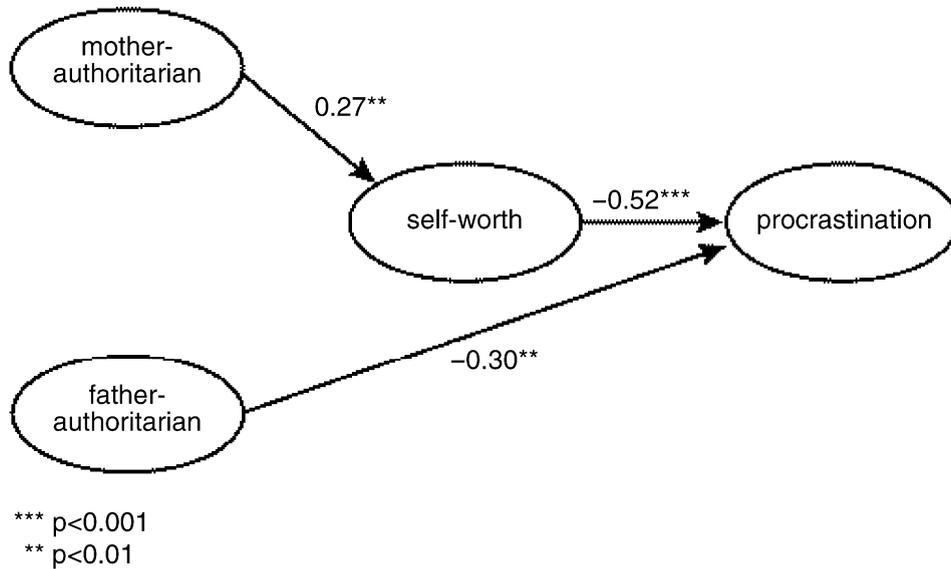


Fig. 2. Path analysis coefficients for authoritarian parenting style, self-worth and procrastination for the female adolescents.

4. Discussion

The present study sought to extend the existing research on parenting style, global self-worth and procrastination. Our main interest was to examine potential interactions between gender and parenting styles as well as gender and self-worth in the prediction of adolescent procrastination. With respect to gender and parenting styles, previous researchers have investigated the link between parenting styles and daughters' procrastination with mixed results. Ferrari and Olivette (1993) reported no significant differences in self-reported procrastination. In contrast, Ferrari and Olivette (1994) found that fathers' authoritarian parenting style was significantly negatively correlated with daughters' procrastination. In the current study, our findings indicated that the relations between parenting and procrastination are significantly moderated by child gender.

4.1. Parenting and procrastination

Results from the present study revealed a significant negative relation between maternal *authoritative* parenting and procrastination. However, for fathers, a significant gender by parenting interaction was found. For males, paternal authoritative parenting was not significantly related with procrastination, but as expected for females, a significant negative relation was found between paternal authoritative parenting and procrastination.

In terms of *authoritarian* parenting, no significant relations with parenting or interactions with gender were found for authoritarian mothers, but for fathers, a significant positive relation between paternal authoritarian parenting and procrastination was found. There was no interaction with gender. These results are consistent with Ferrari and Olivette's (1994) study of adolescent girls, and the present results extend these findings to include boys.

Overall, the results related to authoritarian parenting and procrastination are consistent with findings from the parenting literature more generally. For example, Rothblum et al. (1986) suggested that children with overly critical, demanding parents might learn to avoid tasks, rather than risking failure. Specifically, they found that females of authoritarian style fathers tended to avoid tasks more often. They found no significant relationships between fear of failure, task avoidance and maternal childrearing styles. Similarly, other parenting researchers (e.g. Buri, 1988; Fischer & Crawford, 1992) have demonstrated that authoritarian parenting appears to have a greater effect on females' personalities than on males. Our findings also suggest that fathers' parenting style appears to have greater impact on their adolescent's procrastination than does the mothers. With respect to *permissive* parenting, no significant results were found for analyses involving maternal and paternal permissive parenting, which is also consistent with previous research (Ferrari & Olivette, 1993, 1994). These results were not surprising as previous research has established that permissive parenting is not related to dysfunctional personality tendencies such as low self-esteem (Buri et al., 1988) or codependency (Fischer & Crawford, 1992).

4.2. *Self-worth and procrastination*

A second objective of the present study was to explore the link between global self-worth, gender and procrastination. Based on previous research (e.g. Effert & Ferrari, 1989), we expected to find a significant negative relation between global self-worth and procrastination. Our results demonstrated that self-worth was not significantly related to procrastination for males; however, for females a significant negative relation was found between self-worth and procrastination. A possible explanation for this finding is that women may in fact experience greater levels of procrastination-related anxiety than do men (Rothblum et al., 1986), thus lowering their global sense of self-worth. It is also possible that one contributor to self-esteem could be the quality of relationship an individual has with his or her parents. As this is only speculation, future research is needed to explore the entire area of global self-worth, gender and procrastination more fully.

4.3. *Mediation effects*

Our final objective was to explore the inter-relations between parenting, self-worth and procrastination, while examining the direct and indirect pathways from parenting style, to self-worth, to the prediction of procrastination. Using path analyses, we proposed a model whereby self-concept would mediate, at least in part, the relation between parental authority and procrastination, with a possible interaction with gender. Our findings supported our hypothesis to some extent. For females, we found an indirect relation between maternal authoritative parenting and procrastination mediated through the self-system. However, paternal authoritative parenting was not associated with self-worth, but had a direct relation with procrastination. We also found an indirect relation between maternal authoritarian parenting and procrastination. Paternal authoritarian parenting was not associated with self-worth; however, it did have a direct relation with procrastination. Results from previous research provide support for these findings as well as some possible explanation for the pattern of results. For example, it has been reported that authoritarian parenting appears to have a greater impact on daughters than on sons (Buri et al., 1988; Fischer & Crawford, 1992). In this regard, Ferrari and Olivette (1993) suggested that

daughters may rebel against the authoritarian parenting style by delaying the completion of tasks.

In sum, mothers' parenting style predicted self-worth in their daughters which in turn predicted procrastination, whereas fathers' parenting style had a direct effect on procrastination even after controlling for self-worth. It is apparent from these results that mothers and fathers have different effects on their daughters' development. Our results suggest that fathers have a more direct effect on their daughters' development of procrastination, while the mother's effect is mediated through the self-system. Research by Parke (1996) provides some explanation for these gender differences. Parke reported that mothers encourage closeness and connectedness in their daughters, while the father's role is one of fostering a sense of identity and encouraging autonomy in his offspring. What is clear from this and related developmental research is that fathers and mothers play different roles in their daughter's development.

However, for males the results differed as expected. We found no significant relations between parenting styles, self-worth, and procrastination in the path models. These findings suggest that perhaps procrastination has a different meaning for males that is not associated with parenting styles or self-worth. It may be possible that procrastination is a type of deviant behavior or misbehavior that is more socially acceptable in males than in females. Certainly, other researchers have found gender differences of this sort in previous studies. For example, Eagley and Steffen (1986) studied gender differences in aggression and found that females feel more guilt, anxiety and fear about aggressive acts than do males. There is also evidence to suggest that there are fewer negative consequences for misbehavior in boys than in girls. Perry, Perry, and Weiss (1989) discovered that girls expected more parental disapproval for aggressive acts than did boys. Based on previous findings, we can speculate that if procrastination is indeed a form of misbehavior like aggression, then it would be reasonable to expect a significant relationship between procrastination scores and parenting styles mediated through the self-system for girls and not for boys. Further research to investigate and expand upon this possibility is clearly needed.

4.4. Caveats

While the findings of the present study provide a meaningful extension of existing research and are of theoretical interest, several caveats are in order. First, although this study included a sample of both males and females, participants were all middle or high school students, most with high academic averages from intact families (83%). Future research is needed to determine if the findings hold for children from more diverse backgrounds. Additionally, parental authority styles were determined by the children's perceptions and not by the parents themselves. Ferrari and Olivette (1993) have reported that children and parents are actually quite consistent in their ratings of parental authority styles; however, the present study might have benefited from including parent reports of authority styles.

Finally, although we have tentatively established a link between parenting styles and procrastination, particularly as it relates to the self-system for females, it is possible that parents affect their children's procrastination behavior in other ways. For example, it is well established that people often adopt attitudes and behaviors simply by observing the attitudes and behaviors of others. Future research is needed to determine if parents' or quite possibly even siblings' procrastination tendencies predicts the same kind of behavior in children.

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References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: testing and interpreting interactions*. Thousand Oaks, CA: Sage.
- Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology*, 4(1), 1–103.
- Baumrind, D. (1991). Effective parenting during the early adolescent transition. In P. A. Cowan, & E. Hetherington (Eds.), *Advances in family research (Vol 2)* (pp. 111–163). Hills Dale, NJ: Erlbaum.
- Beswick, G., Rothblum, E. D., & Mann, L. (1988). Psychological antecedents of student procrastination. *Australian Psychologist*, 23, 207–217.
- Blunt, A., & Pychyl, T. A. (1998). Volitional action and inaction in the lives of undergraduate students: state orientation, boredom and procrastination. *Personality and Individual Differences*, 24(6), 837–846.
- Brown, B. B., Mounts, N., Lamborn, S. D., & Steinberg, L. (1993). Parenting practices and peer group affiliation in adolescence. *Child Development*, 64(2), 467–482.
- Buri, J. R. (1988). The nature of humankind, authoritarianism, and self-esteem. *Journal of Psychology and Christianity*, 7(1), 32–38.
- Buri, J. R. (1989). Self-esteem and appraisals of parental behavior. *Journal of Adolescent Research*, 4, 33–49.
- Buri, J. R. (1991). Parental authority questionnaire. *Journal of Personality Assessment*, 57(1), 110–119.
- Buri, J. R., Louiselle, P. A., Misukanis, T. M., & Mueller, R. E. (1988). Effects of parental authoritarianism and authoritativeness on self-esteem. *Personality and Social Psychology Bulletin*, 14, 271–282.
- Burka, J., & Yuen, L. (1983). *Procrastination: why you do it and what to do about it*. Reading, PA: Addison-Wesley.
- Cauce, A. M. (1987). School and peer competence in early adolescence: A test of domain-specific self-perceived competence. *Developmental Psychology*, 23(2), 287–291.
- Cohen, J. (1978). Partialled products are interactions; partialled vectors are curve components. *Psychological Bulletin*, 85, 858–866.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hills Dale, NJ: Lawrence Erlbaum Associates.
- Coleman, J. C. (1980). Friendship and the peer group in adolescence. In J. Adelson (Ed.), *Handbook of adolescent psychology* (pp. 408–431). New York, NY: Wiley-Interscience Publication.
- Connolly, J. A., & Konarski, R. (1994). Peer self-concept in adolescence: analysis of factor structure and of associations with peer experience. *Journal of Research on Adolescence*, 4(3), 385–403.
- Coopersmith, S. (1967). *The antecedents of self-esteem*. San Francisco, CA: Freeman.
- Eagley, A. H., & Steffen, V. J. (1986). Gender and aggressive behavior: A meta-analytic review of the social psychological literature. *Psychological Bulletin*, 100(3), 309–330.
- Effert, B. R., & Ferrari, J. R. (1989). Decisional procrastination: Examining personality correlates. *Journal of Social Behavior and Personality*, 4, 151–156.
- Ferrari, J. R. (1991a). Procrastination and project creation: Choosing easy, nondiagnostic items to avoid self-relevant information. *Journal of Social Behavior and Personality*, 6, 619–628.
- Ferrari, J. R. (1991b). Self-handicapping by procrastinators: protecting self-esteem, social esteem, or both? *Journal of Research in Personality*, 25, 245–261.
- Ferrari, J. R. (1992). Procrastinators and perfect behavior: an exploratory factor analysis of self-presentation, self-awareness, and self-handicapping components. *Journal of Research in Personality*, 26, 75–84.
- Ferrari, J. R., Harriott, J. S., & Zimmerman, M. (1999). The social support networks of procrastinators: friends or family in times of trouble? *Personality and Individual Differences*, 26(2), 321–331.

- Ferrari, J. R., Johnson, J. L., & McCown, W. G. (1995). *Procrastination and task avoidance: theory, research and treatment*. New York: Plenum Press.
- Ferrari, J. R., & Olivette, M. J. (1993). Perceptions of parental control and the development of indecision among late adolescent females. *Adolescence*, 28, 963–970.
- Ferrari, J. R., & Olivette, M. J. (1994). Parental authority and the development of female dysfunctional procrastination. *Journal of Research in Personality*, 28, 87–100.
- Fischer, J. C., & Crawford, D. W. (1992). Codependency and parenting styles. *Journal of Adolescent Research*, 7, 352–363.
- Flett, G. L., Hewitt, P. L., & Martin, T. R. (1995). Dimensions of perfectionism and procrastination. In J. R. Ferrari, J. L. Johnson, & W. G. McCown (Eds.), *Procrastination and task avoidance: theory, research and treatment* (pp. 113–136). New York: Plenum Press.
- Frost, R. O., Lahart, C. M., & Rosenblate, R. (1991). The development of perfectionism: a study of daughters and their parents. *Cognitive Therapy and Research*, 15, 469–490.
- Frost, R. O., Marten, P. A., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, 14, 449–468.
- Granleese, J., & Joseph, S. (1994). Reliability and validity of the Harter self-perception profile for children and predictors of global self-worth. *Journal of Genetic Psychology*, 155, 487–492.
- Greenberg, M. T., Siegel, J. M., & Leitch, C. J. (1983). The nature and importance of attachment relationships to parents and peers during adolescence. *Journal of Youth and Adolescence*, 12(5), 373–386.
- Grotevant, H. D. (1998). Adolescent development in family contexts. In W. Damon, & N. Eisenberg (Eds.), *Handbook of Child Psychology; Vol. 3: social, emotional, and personality development*. (5th Ed.) (pp. 1097–1149). New York: Wiley.
- Harter, S. (1982). The perceived competence scale for children. *Child Development*, 53, 87–97.
- Harter, S. (1988). *Manual for the self-perception profile for adolescents*. Denver, Colorado: University of Denver.
- Havinghurst, R. J. (1987). Adolescent culture and subculture. In V. B. Van Hasselt, & M. Hersen (Eds.), *Handbook of adolescent psychology* (pp. 401–412). New York, NY: Pergamon Press.
- Haycock, L. A., McCarthy, P., & Skay, C. L. (1998). Procrastination in college students: the role of self-efficacy and anxiety. *Journal of Counseling and Development*, 76, 317–324.
- Hill, P. (1993). Recent advances in selected aspects of adolescent development. *Journal of Child Psychology and Psychiatry*, 34, 69–99.
- Hojat, M., Borenstein, B. D., & Shapurian, R. (1990). Perception of childhood dissatisfaction with parents and selected personality traits in adulthood. *Journal of General Psychology*, 117(3), 241–253.
- Kelly, J. A., & Hansen, K. J. (1987). Social interactions and adjustment. In V. B. Van Hasselt, & M. Hersen (Eds.), *Handbook of adolescent psychology* (pp. 131–146). New York, NY: Pergamon Press.
- Kling, K. C., Hyde, J. S., Showers, C. J., & Buswell, B. N. (1999). Gender differences in self-esteem: a meta-analysis. *Psychological Bulletin*, 125(4), 470–500.
- Kuczynski, L., Kochanska, G., Radke-Yarrow, M., & Girnius-Brown, O. (1987). A developmental interpretation of young children's non-compliance. *Developmental Psychology*, 23, 799–806.
- Lamborn, S., Mounts, N., Steinberg, L., & Dornbusch, S. (1991). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent and neglectful homes. *Child Development*, 62, 1049–1065.
- Lay, C. H. (1986). At last, my research on procrastination. *Journal of Research in Personality*, 20, 479–495.
- Lay, C. H. (1988). The relationship of procrastination and optimism to judgments of time to complete an essay and anticipation of setbacks. *Journal of Social Behavior and Personality*, 3, 201–214.
- Lay, C. H., & Burns, P. (1991). Intentions and behaviour in studying for an examination: the role of trait procrastination and its interaction with optimism. *Journal of Social Behaviour and Personality*, 6, 605–617.
- Lay, C. H., & Schouwenburg, H. C. (1993). Trait procrastination, time management and academic behavior. *Journal of Social Behaviour and Personality*, 8, 647–662.
- Maccoby, E. E., & Martin, J. A. (1983). Socialization in the context of the family: parent-child interaction. In P. H. Mussen, & E. M. Hetherington (Eds.), *Handbook of child psychology; Vol. 4. Socialization, personality, and social development* (pp. 1–101). New York: Wiley.
- Paludi, M. A., & Frankell-Hauser, J. (1986). An idiographic approach to the study of women's achievement striving. *Psychology of Women Quarterly*, 10, 89–100.

- Parish, S., & McCluskey, J. (1992). The relationship between parenting styles and young adults' self-concepts and evaluation of parents. *Adolescence*, 27(4), 915–918.
- Parke, R. D. (1996). *Fatherhood*. Cambridge: Harvard University Press.
- Paterson, J., Pryor, J., & Field, J. (1995). Adolescent attachment to parents and friends in relation to aspects of self-esteem. *Journal of Youth and Adolescence*, 24(3), 365–376.
- Pedhazur, E. J. (1987). *Multiple regression in behavioral research: explanation and prediction* (3rd ed.). Fort Worth, TX: Harcourt Brace.
- Perry, D. G., Perry, L. C., & Weiss, R. J. (1989). Sex differences in the consequences that children anticipate for aggression. *Developmental Psychology*, 25, 312–319.
- Rothblum, E. D., Solomon, L. J., & Murakami, J. (1986). Affective, cognitive, and behavioral differences between high and low procrastinators. *Journal of Counseling Psychology*, 33(4), 387–394.
- Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology*, 31, 503–509.
- Youniss, J., & Smollar, J. (1985). *Adolescent relations with mothers, fathers, and friends*. Chicago: University of Chicago Press.