

‘The Role of Intergenerational Similarity and Parenting in Adolescent Self-Criticism: An Actor–Partner Interdependence Model’

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Abstract

Research investigating the development of adolescent self-criticism has typically focused on the role of either parental self-criticism or parenting. This study used an actor–partner interdependence model to examine an integrated theoretical model in which achievement-oriented psychological control has an intervening role in the relation between parental and adolescent self-criticism. Additionally, the relative contribution of both parents and the moderating role of adolescent gender were examined. Participants were 284 adolescents ($M = 14$ years, range = 12–16 years) and their parents ($M = 46$ years, range = 32–63 years). Results showed that only maternal self-criticism was directly related to adolescent self-criticism. However, both parents' achievement-oriented psychological control had an intervening role in the relation between parent and adolescent self-criticism in both boys and girls. Moreover, one parent's achievement-oriented psychological control was not predicted by the self-criticism of the other parent.

Keywords: Perfectionism, self-criticism, intergenerational, parenting, psychological control, actor–partner interdependence model

Introduction

Self-criticism, or self-critical perfectionism, is a personality dimension characterized by high levels of negative self-evaluation and harsh self-scrutiny (Blatt, 1995; Dunkley & Blankstein, 2000; Shafran, Cooper, & Fairburn, 2002). Self-criticism has been shown to be a vulnerability factor for a wide range of disorders and for depression in particular (Blatt, 2004; Luyten & Blatt, 2013; Nietzel & Harris, 1990). The association between self-criticism and psychopathology has been demonstrated in both clinical and nonclinical samples and in cross-sectional and longitudinal studies (Blatt, 2004; Blatt & Luyten, 2009), even while controlling for broad personality dimensions such as neuroticism (Enns & Cox, 1999; Sherry, Gautreau, Mushquash, Sherry, & Allen, 2014a).

Given that self-criticism is a robust predictor of psychopathology, it should come as no surprise that researchers from different theoretical perspectives have sought to unravel its developmental origins (Blatt & Luyten, 2009; Kopala-Sibley & Zuroff, 2014). Although there is some evidence for the involvement of heritability in self-criticism, behavioral and molecular genetic research on self-criticism is still in its infancy (Bachner-Melman et al., 2007; Wade & Bulik, 2007). In contrast, there is now solid evidence suggesting that socialization experiences, including parenting, may play an important role in the developmental origins of self-criticism (Kopala-Sibley & Zuroff, 2014). Adolescence is considered a key period for the development of self-criticism because adolescents are highly sensitive to social evaluation (Flett, Hewitt, Oliver, & MacDonald, 2002).

Research on the socialization of self-criticism has taken one of two directions (Blatt & Homann, 1992; Kopala-Sibley & Zuroff, 2014). First, research suggests that parents' own self-criticism may influence the development of self-criticism in their

children through observational learning, conditioning, and identification processes (Frost, Lahart, & Rosenblate, 1991). Through these processes, children tend to become similarly self-critical as their parents. Research has indeed documented an association between self-criticism in parents and in their children, although it should be noted that the size of this association is relatively modest (Appleton, Hall, & Hill, 2010; Besser & Priel, 2005; Frost et al., 1991).

Second, it has been suggested that parenting styles may play a role in the development of self-criticism (Blatt, 1995; Blatt & Homann, 1992). A number of studies have addressed the role of parental psychological control (Barber, 1996, 2001; Schaefer, 1965), a parenting style involving intrusive and coercive strategies (e.g., love withdrawal, guilt induction, shaming). These strategies are experienced as intrusive by the child because the child feels forced to meet high parental expectations, which may contribute to a tendency to be self-critical (Soenens, Vansteenkiste, & Luyten, 2010). Consistent with these assumptions, research has shown systematic and substantial associations between psychologically controlling parenting and adolescent self-criticism in cross-sectional, longitudinal, and experimental studies (Ahmad & Soenens, 2010; Amitay, Mongrain, & Fazaa, 2008; Kenney-Benson & Pomerantz, 2005; Koestner, Zuroff, & Powers, 1991; Kopala-Sibley & Zuroff, 2014; Soenens et al., 2005; Soenens et al., 2008). Importantly, studies suggest that achievement-oriented psychological control in particular, that is, the use of psychological control to promote achievement and performance on the part of the child, is related to adolescents' self-criticism (Soenens, Park, Vansteenkiste, & Mouratidis, 2012; Soenens et al., 2010).

Although these studies offer important insights into the developmental pathways involved in self-criticism, there are still some important gaps in our knowledge in this area. First, only a few studies have simultaneously investigated the role of parenting and

parental self-criticism in predicting child self-criticism (Kopala-Sibley & Zuroff, 2014). Yet, psychologically controlling parenting may be an intervening variable in the intergenerational similarity of self-criticism between parents and their offspring (e.g., Soenens et al., 2005). Indeed, because of their unrealistic personal standards and fear of failure, parents with high levels of self-criticism may be particularly prone to demand high levels of performance not only from themselves but also from their children. Poor performance by their children may be experienced by these parents as a threat to their own self-worth. Psychological control can then be the mechanism through which parents convey these demands toward their children and this, in turn, may contribute to high levels of self-criticism in their offspring (Flett et al., 2002; Soenens et al., 2010). To date, only a few studies have investigated the intervening role of parental psychological control between self-criticism in parents and in their offspring (Ahmad & Soenens, 2010; Amitay et al., 2008; Soenens et al., 2005). Ahmad and Soenens (2010) showed, in a sample of mothers and adolescents, that maternal psychological control as reported by the adolescent mediated the relation between mothers' and adolescents' self-criticism. Amitay et al. (2008) found, in a sample of mothers, fathers, and daughters, that both mothers' and fathers' self-criticism predicted cold and controlling parental behavior as reported by mothers and fathers together, which in turn predicted daughters' self-criticism. Soenens et al. (2005), in a study of mothers, fathers, and their daughters, reported that only mothers' self-criticism was related to daughters' self-criticism. However, psychological control (as indexed by both parents' and daughters' reports) played an intervening role in associations of both mothers' and fathers' self-criticism with daughters' self-criticism. Overall, research is beginning to show that controlling parenting plays an intervening role in associations between parents' and

children's self-criticism. However, because few studies have addressed this intervening role, more research is clearly needed.

Second, studies investigating the relation between psychologically controlling parenting and self-criticism have not systematically addressed the role of parental gender. Studies have typically focused on one parent only (usually the mother, e.g., Campos, Besser, & Blatt, 2010), assessed parenting referring to parents in general (e.g., by phrasing questions in the form "my parents..."; Damian, Stoeber, Negru, & Băban, 2013), computed a combined score for both parents (e.g., Enns, Cox, & Clara, 2002), or performed separate analyses for mothers and fathers (e.g., Soenens et al., 2005). Hence, it remains unclear whether fathers' and mothers' psychological control are each independently related to child self-criticism. This is unfortunate because studies suggest that mothers and fathers may contribute in different ways to child development across different phases of development (Collins & Russell, 1991; Day & Padilla-Walker, 2009; Denham et al., 2000; McKinney & Renk, 2008). In Western countries, for instance, fathers may have a comparatively greater influence on the development of self-criticism compared with mothers, because of the relatively greater sociocultural emphasis on autonomy and achievement in men (Luyten & Blatt, 2013; Soenens et al., 2010).

Similarly, there has been a lack of attention to the question of whether children are differentially susceptible to developmental experiences depending on their gender (Kopala-Sibley & Zuroff, 2014). Vieth and Trull (1999), for instance, mentioned the possibility of gender congruency, meaning that the relations between parental achievement-oriented psychological control and adolescents' self-criticism may be particularly pronounced in same-sex dyads. Yet, very few studies have empirically investigated this possibility.

Moreover, and perhaps most importantly, no studies to date have investigated the potential interplay between mothers' and fathers' personality and parenting. Several studies suggest a low to moderate degree of similarity between spouses in terms of self-criticism and psychologically controlling parenting (e.g., Soenens et al., 2005; Soenens et al., 2008). This is consistent with theorizing and empirical research that demonstrates that self-criticism often goes together with criticism toward others, that is, a tendency to set high standards for others and to be critical of others (Blatt, 2008b; Blatt & Shahar, 2005; Hewitt & Flett, 1991; Sherry et al., 2014b). Thus, it can be expected that one parent's tendency to be self-critical is associated with a tendency to be critical of the other parent's opinions and behaviors, including opinions about parenting. Because of the high expectations of one's partner, one may feel pressured to adopt these high standards, including the high standards with regard to achievement-oriented psychological control. This raises the question of whether one parent's engagement in psychologically controlling parenting could also be predicted by the other parent's self-criticism. For instance, is mothers' use of achievement-oriented psychological control related not only to mothers' own self-criticism but also to fathers' self-criticism?

The Actor–Partner Interdependence Model (Cook & Kenny, 2005; Kenny, 1996) provides an excellent theoretical and methodological framework for addressing these issues. This framework models dyadic relationships between actor/partner predictors and actor/partner outcomes and can be integrated within a Structural Equation Modeling approach (Kenny & Ledermann, 2010): mothers' and fathers' scores for achievement-oriented psychological control are regressed on both mothers' and fathers' scores for self-criticism.

The Present Study and Hypotheses

This study addresses some of the key limitations of existing research on the development of self-criticism in adolescence noted above. Figure 1 outlines the theoretical model tested in this study. This model assumes, first, that self-criticism in parents is positively related to self-criticism in offspring. Second, the model proposes that both mothers' and fathers' use of achievement-oriented psychological control plays an intervening role in the association between parental self-criticism and self-criticism in offspring. Third, in addition to the assumption that one parent's self-criticism will be related to the same parent's achievement-oriented psychological control, the model includes the possibility that one parent's self-criticism will also be predictive of the other parent's achievement-oriented psychological control. Finally, we explored the moderating role of adolescents' gender on the relations between parental self-criticism, achievement-oriented psychological control, and adolescents' self-criticism.

Method

Participants and Procedure

Dutch-speaking families were recruited as part of an undergraduate course in developmental psychology, in which trained students were asked to invite two families (who were not relatives or close friends of the student) to participate in the study. In total, 284 adolescents and both of their parents (total $N = 852$) were recruited. Adolescents' age ranged between 12 and 16 years with a mean of 14.14 years ($SD = 0.93$). Of the adolescents, 58% were female and 69.8% were engaged in studies preparing for higher education. Fathers' age ranged from 34 to 60 years, with a mean of 46.27 years ($SD = 4.17$). Mothers' age ranged from 32 to 63 years, with a mean age of 44.85 years ($SD = 4.06$). Both fathers and mothers were on average relatively highly

educated, with 66.9% of the fathers and 72.7% of the mothers having obtained a college or university degree.

Participation in the study was voluntary and confidential treatment of the data was guaranteed. This study was approved by the local Ethical Committee of the faculty of Psychology and Educational Sciences at Ghent University (Belgium).

Measures

Self-criticism. The Depressive Experiences Questionnaire (Blatt, D'Afflitti, & Quinlan, 1976) and the Depressive Experiences Questionnaire for Adolescents (Blatt, Schaffer, Bers, & Quinlan, 1992) were used to assess self-criticism in parents and adolescents, respectively. Both versions of this self-report instrument measure self-criticism, dependency, and efficacy using 66 items that are scored on a 7-point Likert scale (e.g., "I often find that I fall short of what I expect of myself"). A self-criticism score is obtained by transforming item-scores to *z*-scores, which are weighted using self-criticism factor scores derived from the original samples collected by Blatt et al. (1976, 1992). The Depressive Experiences Questionnaire has good psychometric properties in both adult and adolescent samples (Blatt et al., 1992; Zuroff, Quinlan, & Blatt, 1990), and the Dutch version has psychometric characteristics similar to those of the original version (Luyten, Corveleyn, & Blatt, 1997; Luyten et al., 2007).

Parental psychological control. The Achievement-Oriented Psychological Control scale of the Dependency-Oriented and Achievement-Oriented Psychological Control Scale (Soenens et al., 2010) was administered to both parents (9 items for each parent, scored on a 5-point Likert scale; e.g., "I am less friendly with my son/daughter if s/he performs less than perfectly") and to the adolescents (9 items per parent, scored on a 5-point Likert scale; e.g., "My mother only respects me if I am the best at everything"). The Achievement-Oriented Psychological Control scale has shown good

reliability and validity in both adult and adolescent samples (Soenens et al., 2010). In this study, Cronbach's alphas were .77, and .79 for mothers and fathers, respectively, and .89 and .88 for adolescents' ratings of maternal and paternal achievement-oriented psychological control, respectively. The correlation between adolescent and mother reports of maternal achievement-oriented psychological control was significant ($r = .32$, $p < .001$), as was the correlation between adolescent and father reports of paternal achievement-oriented psychological control ($r = .28$, $p < .001$). To obtain multi-informant scores for maternal and paternal achievement-oriented psychological control, and in line with previous research (e.g., Bögels & van Melick, 2004; Garber, Robinson, & Valentiner, 1997), the standardized values of parent-reported and adolescent-reported scores of achievement-oriented psychological control were averaged. A combined score was computed only if both parent and adolescent reports of achievement-oriented psychological control were available. Cronbach's alphas for the combined (adolescent + parent) scores were .86 for maternal ratings and .85 for paternal ratings.

Results

Descriptive Statistics and Zero-Order Correlations

Table 1 shows the means, standard deviations, and correlations between all study variables. Maternal self-criticism was positively correlated with adolescent self-criticism. Paternal self-criticism, however, was not correlated with adolescent self-criticism. Maternal and paternal achievement-oriented psychological control were significantly correlated with both maternal and paternal self-criticism. Both maternal and paternal achievement-oriented psychological control were correlated with adolescent self-criticism.

We investigated the role of potential covariates (i.e., adolescents' age, adolescents' level of education, parental age, and parental level of education) on

parental self-criticism, achievement-oriented psychological control, and adolescent self-criticism, through a series of analyses of covariance. None of these analyses yielded significant results.

Structural Equation Modeling

The model proposed in Figure 1 was tested through Structural Equation Modeling with bootstrapped standard errors and confidence intervals (bootstrapping with 5,000 samples) using Mplus version 7.2 (Muthén & Muthén, 1998-2014). There were few missing values on main variables (e.g., the highest missing percentage was 2.5%, for paternal self-criticism and achievement-oriented psychological control). Moreover, Little's Missing Completely at Random test was non-significant ($\chi^2(18) = 25.16, ns$), suggesting that the data were missing completely at random and supporting the use of Full Information Maximum Likelihood estimation on all cases. Model fit was evaluated in terms of Chi-square, which ideally is non-significant, and in terms of several other fit indices: the Root Mean Squared Error of Approximation (RMSEA), which should be equal or lower than .08 for an acceptable fit (Byrne, 1998) and close to .06 for a good fit (Hu & Bentler, 1999), the Comparative Fit Index (CFI), which should be equal to or higher than .90 for an acceptable fit and close to or higher than .95 for a good fit (Hu & Bentler, 1999), and the Tucker-Lewis Index (TLI), which should be higher than .95 (Hooper, Coughlan, & Mullen, 2008; Hu & Bentler, 1999).

We first estimated the hypothesized model in Figure 1. Estimation of this fully saturated model, which by definition shows a perfect fit ($\chi^2(0) = 0.00, p < .001$; RMSEA = .00; CFI = 1.00; TLI = 1.00), showed that the direct paths between parental self-criticism and adolescent self-criticism were nonsignificant. There were significant paths, however, from maternal self-criticism to adolescent self-criticism through maternal achievement-oriented psychological control, and from paternal self-criticism

to adolescent self-criticism through paternal achievement-oriented psychological control. The cross-over paths between mothers' self-criticism and fathers' achievement-oriented psychological control, and between fathers' self-criticism and mothers' achievement-oriented psychological control, were nonsignificant. There were, however, significant covariances between maternal and paternal self-criticism and between maternal and paternal achievement-oriented psychological control, with the latter covariance being more pronounced than the former¹.

Before trimming nonsignificant paths, we investigated the potential moderating role of adolescent gender by means of multi-group analysis. To do this, we tested a constrained version of the fully saturated model (i.e., a version in which the regression coefficients and covariances were equal for males and females) and an unconstrained version of the model (i.e., a version in which the regression coefficients and covariances were allowed to vary by adolescent gender). We found that the constrained model did not differ from the unconstrained model in terms of fit ($\Delta\chi^2(6) = 3.55, ns$), indicating that adolescent gender did not moderate associations in the fully saturated model. Therefore, we proceeded with analyses on the whole group.

Next, we deleted paths that were nonsignificant in the fully saturated model. Removing the nonsignificant paths did not result in a worse fit ($\Delta\chi^2(4) = 4.66, ns; \chi^2(1) = 0.02, ns; RMSEA = .02; CFI = 1.00; TLI = 1.00$). The final regression estimates are presented in Table 2. In this model, both the indirect effects from maternal self-criticism to adolescent self-criticism through maternal achievement-oriented psychological control (bootstrapped unstandardized effect = 0.07, $SE = 0.02, p = .003, 95\% CI: [0.03, 0.12]$) and from paternal self-criticism to adolescent self-criticism through paternal achievement-oriented psychological control (bootstrapped unstandardized effect = 0.06,

$SE = 0.02, p = .001, 95\% \text{ CI: } [0.03, 0.10]$) were significant. This model is represented in Figure 2.

Discussion

This study examined the role of maternal and paternal self-criticism, as well as mothers' and fathers' use of achievement-oriented psychological control in adolescents' self-criticism. To the best of our knowledge, this is the first study to use an actor-partner interdependence model (Cook & Kenny, 2005; Kenny, 1996) in the investigation of the possible developmental origins of adolescent self-criticism, thus allowing an examination of the combined role of maternal and paternal characteristics.

Results showed, first, that maternal, but not paternal, self-criticism was directly related to adolescent self-criticism. However, the direct relation between maternal self-criticism and adolescent self-criticism was modest at best. This finding is consistent with previous research showing that direct associations between parental and adolescent self-criticism are small to nonexistent (e.g., Besser & Priel, 2005; Kopala-Sibley & Zuroff, 2014; Soenens et al., 2005; Vieth & Trull, 1999). This rather weak degree of intergenerational similarity suggests that processes other than direct modeling and identification as well as simple genetic transmission may be responsible for the transfer of self-criticism from one generation to the next. As such, this finding underscores the need to examine other intervening processes.

Second, based on developmental theories (e.g., Blatt & Homann, 1992) and previous research (e.g., Kopala-Sibley & Zuroff, 2014; Soenens et al., 2010), we investigated whether parental use of achievement-oriented psychological control played an intervening role in the relation between parental and adolescent self-criticism. We found that parental achievement-oriented psychological control indeed had a significant indirect effect on adolescent self-criticism. This finding suggests that parents with high

levels of self-criticism tend to have a parenting style characterized by high levels of criticism toward their child combined with high expectations concerning achievement and performance. The child then appears to internalize these demands, because these high parental demands are associated with high self-criticism on the part of the adolescent. Indeed, together with findings from previous studies (e.g., Ahmad & Soenens, 2010), this study provides further evidence that the use of psychologically controlling parenting may be an important “missing link” in the intergenerational similarity of self-criticism. Future longitudinal research should investigate the presumed developmental sequence.

Third, we investigated the unique associations of both mothers’ and fathers’ achievement-oriented psychological control with adolescent self-criticism. We found that both maternal and paternal achievement-oriented psychological control were related independently to adolescent self-criticism. In addition, we found that associations of mothers’ and fathers’ use of achievement-oriented psychological control with adolescent self-criticism did not differ between adolescent girls and boys. Future research should investigate whether these findings generalize to other samples and other cultures.

Finally, we investigated the relations between one parent’s self-criticism and the other parent’s achievement-oriented psychological control. We found that parental self-criticism predicted same-parent, but not other-parent, achievement-oriented psychological control. This suggests that one parent’s tendency to be self-critical does not “carry over” to the other parent’s use of psychological control toward the adolescent. Because this study is among the first to examine such carry-over effects, future research is needed to replicate this finding. For instance, it could be that such carry-over effects do manifest themselves in earlier developmental periods (and perhaps

quite early in partners' relationships). Still, we found significant associations between mothers' and fathers' self-criticism and between mothers' and fathers' achievement-oriented psychological control. There are several possible explanations for this finding. In the early phase of the formation of a partner relationship, people may select each other on the basis of personality traits (including self-criticism) and the interpersonal style associated with these traits (including a psychologically controlling style) (Blatt & Zuroff, 1992; Luyten, Corveleyn, & Blatt, 2005). For example, Hoffmann, Stoeber, and Musch (2015), in a sample of 422 participants and potential dating partners, found that participants rated their dates as more attractive if there was similarity between them in terms of perfectionism. However, one parent's self-criticism and achievement-oriented psychological control may also influence the other parent's self-criticism and parenting style in the course of their partner relationship (Luyten et al., 2005; Zuroff & Duncan, 1999). Strikingly, the association between maternal and paternal achievement-oriented psychological control was higher than the association between maternal and paternal self-criticism, suggesting that parents' parenting styles seem to "synchronize" more than their individual levels of self-criticism. Possibly, parental personality is a more stable feature of parents that is less influenced by becoming a parent than is their parenting style. Future longitudinal studies are needed to investigate the potential role of such selection and socialization effects related to parental self-criticism and achievement-oriented psychological control.

From a clinical perspective, results of this study shed further light on the potential developmental origins of self-criticism, an important vulnerability factor for a wide range of psychopathological disorders (Blatt, 2008a). The vulnerability related to self-criticism is particularly important in adolescence because this developmental period is characterized by a dramatic increase in the prevalence of psychopathology and

behavioral problems (Hankin et al., 1998; Merikangas et al., 2010). Specifically, results of this study suggest that treatments focusing on self-criticism may need to include a focus on the broader family context. Yet, most current interventions for self-criticism lack such a focus (Flett & Hewitt, 2008; Kutlesa & Arthur, 2008; Nehmy & Wade, 2015; Shafran et al., 2002).

Limitations

The findings of this study have to be considered in the context of a number of limitations. First, by averaging parent and adolescent reports in the composite score for achievement-oriented psychological controlling parenting, we did not control for error variance associated with both types of reports. Future research should include more indicators, such as partner reports of parent achievement-oriented psychological control (e.g., Koestner et al., 1991) and observations of parenting style during a parent-child interaction (e.g., Clark & Coker, 2009; Kenney-Benson & Pomerantz, 2005). These multiple indicators could then be combined in a latent score for achievement-oriented psychological control, thereby controlling for error variance.

Second, due to the cross-sectional design of the study, it was impossible to investigate whether parental self-criticism predicts change in parenting over time and if this in turn predicts change in adolescent self-criticism over time. Similarly, it was impossible to investigate whether there were reciprocal effects between adolescents and parents over time. For instance, highly self-critical adolescents may elicit more negative reactions from their parents, leading to a greater emphasis on achievement issues (Kopala-Sibley & Zuroff, 2014; Luyten et al., 2005). Longitudinal research is needed to answer these questions.

Third, due to the sampling strategy used, the sample may have been relatively selective and homogeneous (e.g., in terms of educational level and participants' level of

psychosocial adjustment). Future studies should investigate whether our findings can be generalized to other samples that are more heterogeneous and to more at-risk samples.

Fourth, Soenens and colleagues (2010) have made a convincing case for a distinction between achievement-oriented and dependency-oriented psychological control. While the former parenting style focuses on achievement, the latter style is related to parental concerns about the child's emotional and physical distancing. Furthermore, dependency-oriented psychological control has been related to high levels of dependency—a personality style marked by excessive fears of abandonment and being uncared for—in parents (e.g., Soenens et al., 2010). Future research should simultaneously test interactions among personality dimensions of self-criticism, dependency, and these two types of psychological control, using an actor-partner interdependence model of intergenerational similarity.

Future research should also address the role of potential moderating factors in the relation between parents' and adolescents' self-criticism. Because associations between parents' and adolescents' self-criticism were relatively small, it is important to identify other environmental (e.g., peers), psychological (e.g., early adversity, coping strategies), and biological (e.g., "susceptibility genes"; Belsky & Pluess, 2009) factors that may moderate these relations. The identification of such factors is important for both prevention and intervention efforts. In this context, there is also a need for more fine-grained studies into the micro-processes involved in associations between parental self-criticism and parents' use of psychological control. For instance, impairments in self-critical parents' reflective functioning (e.g., their inability to comprehend the adolescent's mental states) may play a role in parents' use of psychological control (Sharp & Fonagy, 2008). Another important aim for future research is to examine the interplay between the psychosocial developmental experiences examined in this study

(e.g., parenting style) and genetic vulnerability in the development of self-criticism. Given the emerging evidence for the role of parenting (Kopala-Sibley & Zuroff, 2014), as well as for the genetic heritability of self-criticism (Tozzi et al., 2004), a timely goal for further research is to examine the interplay between parenting and genes in the development of self-criticism (Luyten & Blatt, 2013).

Conclusion

This study found evidence for intergenerational similarity in self-criticism between parents and adolescents in a parenting environment characterized by achievement-oriented psychological control. Moreover, maternal and paternal self-criticism are related independently to adolescent self-criticism through the parenting style of both parents. Overall, our findings underscore the importance of parental personality and parenting in adolescent personality-related vulnerability to psychopathology.

Footnotes

1. As suggested by a reviewer, we also tested the hypothesized model using either parent reports of achievement-oriented psychological control or adolescent reports (instead of a combined score). While most relations were similar across models, two relations became marginally significant and one relation became nonsignificant. In the case of relations that became marginally significant they clearly still pointed to the same direction of associations as theoretically expected and as shown in the model reported in this article. When using only adolescent reports of achievement-oriented psychological control, the relation between maternal achievement-oriented psychological control and adolescent self-criticism was only marginally significant (yet in terms of effect size very similar to the coefficient reported in the paper). When using only parent reports of achievement-oriented psychological control, the relation between paternal achievement-oriented psychological control and adolescent self-criticism was positive, yet only marginally significant. The one relation that became fully nonsignificant is the relation between paternal self-criticism and adolescent-reported paternal achievement-oriented psychological control (see detailed information in Supplementary material 1).

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Table 1*Descriptive Statistics and Correlations*

Measure	1	2	3	4	<i>M</i>	<i>SD</i>
1. Adolescent self-criticism	-				-0.37	0.83
2. Maternal self-criticism	.14*	-			-1.32	0.84
3. Paternal self-criticism	.06	.27***	-		-1.14	0.88
4. Maternal achievement-oriented psychological control	.33***	.41***	.17**	-	0	0.81
5. Paternal achievement-oriented psychological control	.37***	.15*	.28***	.53***	0	0.80

Note. For all scales, higher scores indicate higher levels of the construct assessed. Maternal and paternal achievement-oriented psychological control are z-scores. * $p < .05$, ** $p < .01$, *** $p < .001$ (two tailed test).

Table 2*Final regression estimates*

	Regression estimates				
	<i>b</i>	<i>SEb</i>	<i>p</i> -value	95% CI	β
Mother					
maternal self-criticism → maternal achievement-oriented psychological control	0.36	0.05	<.001	[0.27, 0.47]	.38
Father					
paternal self-criticism → paternal achievement-oriented psychological control	0.22	0.05	<.001	[0.13, 0.31]	.24
Adolescent					
maternal achievement-oriented psychological control → adolescent self-criticism	0.20	0.06	.002	[0.07, 0.33]	.19
paternal achievement-oriented psychological control → adolescent self-criticism	0.28	0.07	<.001	[0.16, 0.41]	.27
Covariances					
mother and father self-criticism	0.20	0.05	<.001	[0.11, 0.30]	.26
mother and father achievement-oriented psychological control	0.30	0.04	<.001	[0.23, 0.38]	.52

Note. Regression estimates of the final model with bootstrapped standard errors and confidence intervals (CI).

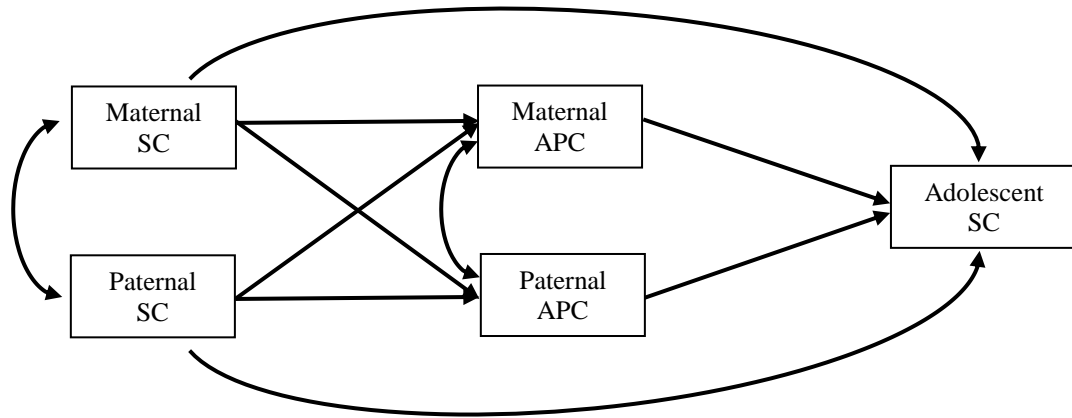


Fig. 1. Theoretical model tested in this study. SC = self-criticism; APC = mean achievement-oriented psychological control reported by the parent and adolescent. Regression paths are indicated with a single headed arrow and covariances with a double headed arrow.

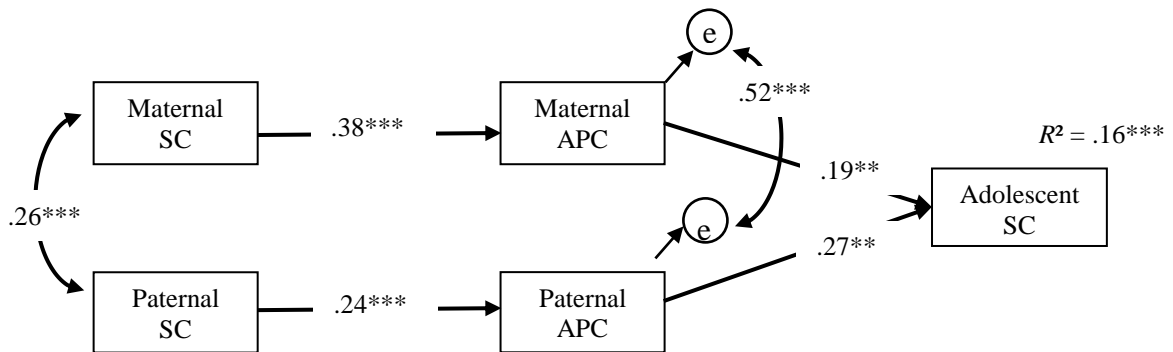


Fig. 2. Final model results. SC = self-criticism; APC = mean achievement-oriented psychological control reported by the parent and adolescent. Regression paths are indicated with a single headed arrow and covariances with a double headed arrow. Coefficients are standardized values. **p < .01, ***p < .001 (two tailed test of unstandardized estimates).

Supplementary material 1

Model with parent report of achievement-oriented psychological control:

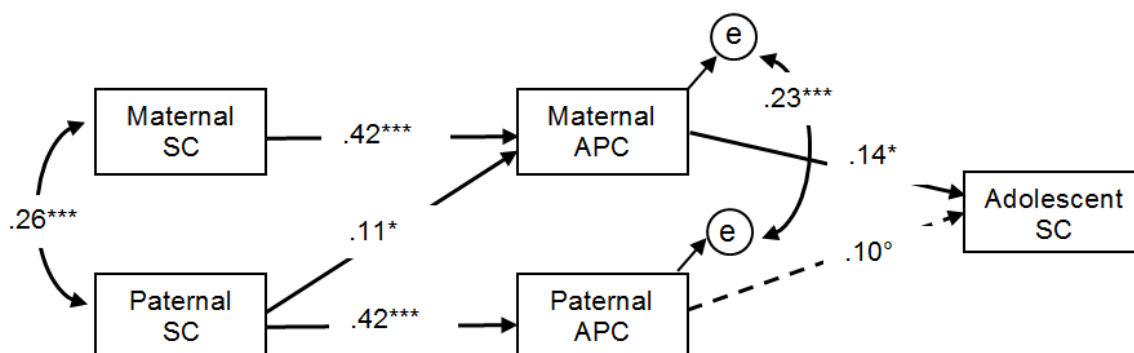


Fig. 1 Model results (n = 284 families). SC = self-criticism; APC = mean achievement-oriented psychological control reported by the parent. Regression paths are indicated with a single headed arrow and covariances with a double headed arrow. Coefficients are standardized values. ° $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$ (two tailed test of unstandardized estimates). Model fit information: $\chi^2(3) = 2.49$, *ns*, RMSEA = .00, CFI = 1.00, TLI = 1.00

Table 1
Final regression estimates

	Regression estimates				
	<i>b</i>	<i>SEb</i>	<i>P</i> -value	95% CI	β
Mother					
maternal self-criticism → maternal achievement-oriented psychological control	0.25	0.03	<.001	[0.18, 0.31]	.42
Father					
paternal self-criticism → paternal achievement-oriented psychological control	0.26	0.03	<.001	[0.19, 0.33]	.42
paternal self-criticism → maternal achievement-oriented psychological control	0.06	0.03	.04	[0.00, 0.12]	.11
Adolescent					
maternal achievement-oriented psychological control → adolescent self-criticism	0.24	0.09	.01	[0.05, 0.42]	.14
paternal achievement-oriented psychological control → adolescent self-criticism	0.16	0.09	.09	[-0.02, 0.33]	.10
Covariances					
mother and father self-criticism	0.20	0.05	<.001	[0.11, 0.29]	.26
mother and father achievement-oriented psychological control	0.05	0.01	<.001	[0.02, 0.08]	.23

Note. Regression estimates of the final model using only the parent report of achievement-oriented psychological control with bootstrapped standard errors and confidence intervals (CI).

Model with adolescent report of achievement-oriented psychological control:

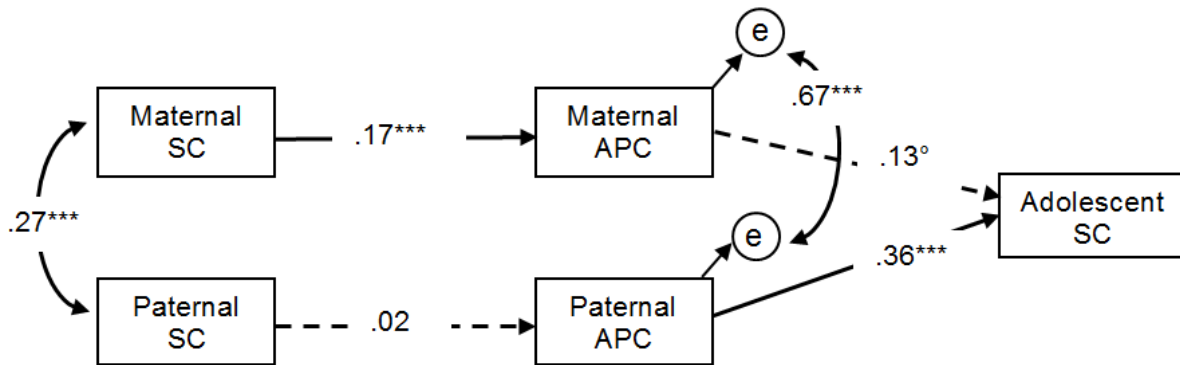


Fig. 2 Model results (n = 284 families). SC = self-criticism; APC = mean achievement-oriented psychological control reported by the adolescent. Regression paths are indicated with a single headed arrow and covariances with a double headed arrow. Coefficients are standardized values. ° $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$ (two tailed test of unstandardized estimates). Model fit information: $\chi^2(4) = 4.21$, *ns*, RMSEA = .01, CFI = 1.00, TLI = 1.00

Table 2
Final regression estimates

	Regression estimates				
	<i>b</i>	<i>SEb</i>	<i>p</i> -value	95% CI	β
Mother					
maternal self-criticism → maternal achievement-oriented psychological control	0.13	0.04	<.001	[0.06, 0.21]	.17
Father					
paternal self-criticism → paternal achievement-oriented psychological control	0.02	0.04	.66	[-0.05, 0.09]	.02
Adolescent					
maternal achievement-oriented psychological control → adolescent self-criticism	0.17	0.10	.09	[-0.02, 0.37]	.13
paternal achievement-oriented psychological control → adolescent self-criticism	0.44	0.09	<.001	[0.26, 0.62]	.36
Covariances					
mother and father self-criticism	0.20	0.05	<.001	[0.11, 0.29]	.27
mother and father achievement-oriented psychological control	0.28	0.03	<.001	[0.23, 0.34]	.67

Note. Regression estimates of the final model using only the adolescent report of achievement-oriented psychological control with bootstrapped standard errors and confidence intervals (CI).