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Adolescents' Internalizing and Aggressive Behaviors and Perceptions of Parents' Psychological Control: A Panel Study Examining Direction of Effects

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Abstract This panel study investigated the directionality of relations between adolescents' perceptions of their parents' psychological control and adolescents' self-reported internalizing and aggressive (physical and relational) behaviors. Data were collected from a random, community sample of 530 adolescents ages 12–19 years old at time 1, and again 2 years later. Hierarchical regression analyses found that adolescents' perceptions of parents' psychological control at baseline did not predict changes in adolescents' internalizing and aggressive behaviors over 2 years but higher internalizing behavior and physical aggression at time 1 predicted increases in adolescents' estimates of their mothers' and fathers' psychologically controlling behaviors. Higher relational aggression reported by adolescents at time 1 predicted increases in their perceptions of mothers as psychologically controlling. This study provides more evidence for child effects on adolescents' ratings of their parents' psychological control than for parent effects of perceived psychological control on adolescents' behavior.

Keywords Parent–adolescent relations · Psychological control · Internalizing behaviors · Physical aggression · Relational aggression

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Introduction

The developmental systems perspective on human development (Lerner 2004) draws attention to dynamic adolescent-context relations as a source of influence on adolescents' behavior. From this perspective, the family is seen as a key context, with parental behaviors and adolescents' reactions to them constituting sources of diversity in adolescents' behavior. In this regard, parents' psychological control (use of love withdrawal, guilt induction, and criticism), behavioral control (regulation of adolescent's behavior through consistent and firm discipline), and parental support (responsiveness and connectedness to the adolescent) have long been considered as global and independent dimensions of parenting that have impacts on adolescents (Barber et al. 1994; Maccoby and Martin 1983; Schwarz et al. 1985). Whereas support and behavioral control have been the subjects of much empirical work, the import of psychological control has been relatively neglected (Barber 1996).

The current study focuses on the relations between adolescents' perceptions of parents' psychological control and adolescents' behavior. As a parenting behavior that intrudes into the adolescent's inner life, psychological control is believed to inhibit the development of psychological autonomy in adolescents, which leads to learned helplessness in interactions with others and a failure to express personal initiative (Barber et al. 1994). Adolescents' reports of parents' psychological control are associated consistently and positively with internalizing behaviors in adolescents (e.g., depressed mood, anxiety, loneliness) but also to some extent with externalizing problems (e.g., antisocial, delinquent, or substance use behaviors; Barber 1996; Barber and Harmon 2002; Barber et al. 1994, 2005; Gray and Steinberg 1999; Herman et al.

1997). Thus, adolescents' perceptions of parents' psychological control are related to behaviors that are important indicators of adolescents' adjustment.

Although the associations between perceived psychological control and adolescents' internalizing and externalizing behaviors are easily interpreted as effects that parents have on adolescents (typically called ''parent effects''), an alternative interpretation is that adolescents' behaviors might increase parents' psychological control (referred to as ''child effects''; Reitz et al. 2006). After all, from a developmental systems perspective, relations between the adolescent and parents are bidirectional or mutually influential: adolescents affect parents as much as parents affect adolescents (Lerner 2004). It is difficult to draw clear conclusions about the direction of effects because most relevant research is based on data collected at a single point in time (e.g., Barber et al. 1994) or longitudinal data are used to examine only parent effects (e.g., Galambos et al. 2003). The purpose of the current study is to use panel data to examine the directionality of effects in the relations between adolescents' perceptions of their parents' psychological control and adolescents' internalizing and externalizing (specifically, aggressive) behaviors. We ask: is there evidence for parent effects, child effects, or both?

Decades ago Bell (1968) highlighted the faulty conclusion that cross-sectional, correlational data linking parenting practices with children's behavior is evidence for the effects of parenting. Only through longitudinal studies that control for initial levels of adolescents' behavior can conclusions be drawn about parent effects (Collins et al. 2000; Pettit and Laird 2002). Longitudinal data are essential also for examining child effects (Bell and Chapman 1986). As an example, Stice and Barrera (1995) showed that adolescents' externalizing symptoms (aggressive and antisocial behaviors) predicted perceived parenting behaviors (behavioral control and support) 1 year later but that parenting behaviors did not prospectively predict adolescents' externalizing symptoms. Although Stice and Barrera (1995) did not investigate parents' psychological control, their evidence for child effects points to the importance of understanding how adolescents' behavior may influence adolescents' perceptions of parenting behaviors.

Parents' psychological control and adolescents' internalizing problems

There is a growing set of longitudinal studies examining the longer-term (typically across 1 or 2 years) effects of adolescents' and parents' perceptions of parents' psychological control on adolescents' behavior (e.g., Barber 1996; Barber et al. 2005; Conger et al. 1997; Galambos et al. 2003; Herman et al. 1997; Pettit et al. 2001; Rogers et al. 2003). A few have found lagged effects of parents' psychological control, measured via adolescents' or mothers' reports, on adolescents' internalizing problems when earlier levels of internalizing problems are controlled. Pettit et al. (2001), for example, showed that mother-reported psychological control was positively related to teachers' reports of adolescents' anxiety/depression one year later in eighth graders who had high levels of preadolescent anxiety. Conger et al. (1997) found that adolescent-reported fathers' and mothers' psychological control in Grade 7 predicted adolescent boys', but not girls', internalizing behavior in Grade 9. Barber et al. (2005) indicated that adolescents' reports of mothers' psychological control predicted depression in girls, but not boys, and in younger adolescents (those in Grade 5 compared to Grade 8) across a 1-year interval. There were also selective effects of perceived maternal psychological control on adolescents' depression across 3 years. Thus, some data suggest longer-term relations between parents' psychological control and adolescents' later levels of internalizing problems.

Other studies have not found lagged effects of psychological control on adolescents' internalizing problems 1 or 2 years later (Chen et al. 2000; Herman et al. 1997; Reitz et al. 2006). Rogers et al. (2003) reported no 1-year lagged effects of adolescent-perceived parental control on self- and parent-reported internalizing behavior but self-reported internalizing behavior predicted adolescents' perceptions of parental psychological control 1 year later, controlling for earlier perceptions of psychological control. Finally, Galambos et al. (2003) found no evidence that parents' psychological control, assessed with mothers' and fathers' reports in Grade 6, was related to adolescents' trajectories of internalizing problems across the next 2½ years. Altogether, the most methodologically rigorous studies examining effects of psychological control on later levels of adolescents' internalizing problems have not shown consistent parent effects.

Few prospective studies have investigated effects of earlier adolescents' behavior on subsequent levels of parental psychological control, partialling out psychological control at baseline. As noted, Rogers et al. (2003) provided evidence for child effects on perceptions of parents' psychological control. In addition, Pettit et al. (2001) found that mother-reported child externalizing behaviors predicted mothers' perceptions of the use of higher psychological control 8 years later. Barber et al. (2005) also reported that girls' and boys' depression significantly predicted their perceptions of mothers' and fathers' psychological control 1 year later. The sparseness of results connecting adolescents' earlier internalizing problems with subsequent changes in psychological control begs for further consideration of child effects.

Parents' psychological control and adolescents' aggression

There is accumulating evidence that adolescent- and parent-reported psychological control is related significantly to externalizing behaviors (Barber 1996; Barber et al. 2005; Buehler et al. 2006; Conger et al. 1997; Pettit et al. 2001). One form of externalizing behavior is the expression of aggression, whether it is physical or relational. Physical aggression includes intended behavior that directly harms others' physical well being through, for example, hitting or pushing. Relational aggression is a purposeful behavior that includes direct and indirect acts to harm other persons, not by physical means, but by damaging or manipulating their relationships with others (e.g., gossiping, rumor spreading, or exclusion from a social group) (Crick and Grotpeter 1995; Loukas et al. 2005; Nelson and Crick 2002). Whereas the punitive techniques of psychological control contain hostile elements that could evoke anger in children, leading to their physical aggression against peers (Casas et al. 2006; Mills and Rubin 1998), psychological control strategies also include elements similar to relational aggression (e.g., love withdrawal or unpredictable emotional behavior), warranting the assumption of a connection of psychological control with relational aggression (Nelson and Crick 2002).

Few studies have looked specifically at how parental psychological control is related to physical and relational aggression. One study (Loukas et al. 2005) found that adolescent-rated maternal psychological control was a significant predictor of both forms of peer-rated aggression in boys and girls. In a 2-year longitudinal study, Chen et al. (2000) found that adolescent-reported paternal psychological control at baseline predicted later aggressive-disruptive behavior in adolescents who were initially high on aggressive-disruptive behavior. Two studies of preschoolers, however, found that mothers' and fathers' reports of their psychological control were generally not predictive of children's relational and physical aggression (Casas et al. 2006; Hart et al. 1998), with the exception of a significant positive relationship between mothers' self-reported psychological control and children's physical aggression (Hart et al. 1998). Nelson and Crick (2002) reported a relationship between father-reported psychological control and peer-rated relational aggression in third-grade girls. In a Chinese preschool sample of girls, those rated by their peers as more physically and relationally aggressive had parents who rated each other as high on psychological control (Nelson et al. 2006). On the whole, the evidence points to possible ties between parents' psychological control and adolescents' physical and relational aggression.

There are limitations to drawing conclusions about adolescents from these studies of parents' psychological control and aggression. First, except for Chen et al. (2000) and Loukas et al. (2005), the participants were either preschool (Casas et al. 2006; Hart et al. 1998; Nelson et al. 2006) or third grade children (Nelson and Crick 2002). The potential effects of parental psychological control on adolescents' aggression may be stronger because the striving for autonomy is so important at this age (Barber et al. 1994; Nelson and Crick 2002). Second, the Loukas et al. (2005) study was limited to maternal psychological control. Given that paternal psychological control may be important for aggressive behavior (e.g., Chen et al. 2000; Nelson et al. 2006) fathers should be included. A third limitation of these studies is that only one used longitudinal data, and this study did not differentiate between physical and relational aggression (Chen et al. 2000). Finally, we are aware of no studies that have examined whether physical and relational aggression influence parents' psychological control.

Controlling for gender and age in predicting internalizing and aggressive behaviors

There are consistent gender differences in internalizing and externalizing behaviors in adolescence (Galambos 2004). For instance, after age 13, more girls than boys show depressive symptoms and become clinically depressed (Galambos et al. 2004; Petersen et al. 1991). Adolescent boys show higher levels of externalizing problems such as delinquency and physical aggression (Moffitt et al. 2001). In an interesting twist, girls engage in as much or more relational aggression as boys (Crick and Grotpeter 1995; Crick et al. 1998). Consistent gender differences in the associations between parents' psychological control and adolescents' internalizing and aggressive behaviors have not been found. Indeed, Barber et al.'s (2005) comprehensive series of cross-national comparisons led to the conclusion that psychological control operates similarly for girls and boys. In the current study, gender of adolescent is controlled due to its predictable relationship with adolescents' internalizing and aggressive behaviors, but gender differences in the associations of psychological control with adolescents' behaviors were neither expected nor explored.

Age of the adolescent is important to consider, as it is positively related to some indicators of internalizing behavior (e.g., depressive symptoms increase in adolescence; Galambos et al. 2004) and negatively related to physical aggression across adolescence (Farrington 2004). The most complete examination of age differences in the relations between psychological control and adolescents' behaviors found that the associations between psychological control and adolescents' depression and antisocial behavior generalized across the period of adolescence in 11

samples from the U.S. and other nations (Barber et al. 2005). Thus, age differences in child and parent effects were not considered in the current study, but age was controlled due to its direct associations with internalizing and physically aggressive behaviors.

Assessment of psychological control

Many studies of parents' psychological control have been based solely on adolescents' reports (e.g., Barber et al. 2005; Gray and Steinberg 1999), although some have used parents' or combined parents' and adolescents' reports (e.g., Pettit et al. 2001; Galambos et al. 2003). The importance of the source of measurement derives from concern about construct validity. To examine this issue, Schwarz et al. (1985) used mothers', fathers', adolescents', and siblings' reports to demonstrate that median interrater agreement on parenting behaviors was low but significant, averaging .30, that aggregate scores composed of at least two raters were more valid than single-informant scores, and that no single rater (parent, adolescent, or sibling) of parenting behavior was inherently superior to another, although parents tended to portray themselves in a more positive light than did their children. In another study, the same relations between psychological control and internalizing and externalizing behaviors were obtained regardless of whether adolescents or mothers reported on psychological control (Barber et al. 1994). Barber (1996) showed that the elements of psychological control assessed in questionnaire format could be reliably coded in observed family interactions. Bean et al. (2006) asserted that the pattern of associations between psychological control and adolescents' behavior have been observed in the literature regardless of the source of measurement. In the current study, adolescents' reports of psychological control are used, recognizing that they reflect only adolescents' perceptions of parenting behavior, which would likely but not completely overlap with other reports or observations of parents' psychological control. This is a valid approach, as a developmental systems perspective (Lerner 2004) leads us to consider the adolescent's interpretation and understanding of parents' psychologically controlling behaviors as a critical part of the process that shapes ongoing interactions between them as well as adolescents' behavior in general.

Current study

The current study assesses parent and child effects involving adolescents' perceptions of parents' psychological control and adolescents' behavior, thus adding to a growing but limited literature considering both directions of influence. Adolescents' perceptions of both parents' psychological control are examined, so that fathers are not overlooked as they have been in some studies. Furthermore, the study assesses not only adolescents' internalizing behavior, but physical and relational aggression as well. These two forms of aggression are common in adolescence and are likely to be related to perceptions of parents' psychological control but no longitudinal data have been used to examine their associations in adolescence. A random, community-based sample of adolescents ages 12–19 years, who were interviewed at baseline, provided data for this study. They were interviewed again 2 years later, allowing for an examination of temporal relationships between parents' psychological control and adolescents' internalizing and aggressive behaviors. The research questions guiding this study were:

1. Do adolescents' perceptions of mothers' and fathers' psychological control prospectively predict adolescents' internalizing and aggressive (physical and relational) behaviors 2 years later, after controlling for adolescents' earlier behaviors? Given that some previous research has found effects of earlier psychological control on later internalizing and externalizing problems (e.g., Barber et al. 2005; Conger et al. 1997; Pettit et al. 2001), we hypothesized that higher perceived levels of parental psychological control would predict increases in adolescents' internalizing and aggressive behaviors.
2. Do adolescents' internalizing and aggressive behaviors prospectively predict their perceived parental psychological control 2 years later, after controlling for earlier levels of psychological control? Based on some studies suggesting such effects (Barber et al. 2005; Rogers et al. 2003), we hypothesized that higher levels of internalizing and aggressive behaviors would be related to increases in adolescents' perceptions of their mothers' and fathers' psychological control.

Methods

Sample and procedures

The sample consisted of 530 adolescents (47% male) ages 12–19 years old at time 1. Mean age was 186.78 months (SD = 22.94) or 15.65 years. These were participants who had complete data on the variables examined in the current study at both times of measurement, and who also reported on the same mother and father figure at both times. Canadian Census 2001 figures for the closest approximate age cohort and the geographic region from which the sample was drawn show that sample characteristics were nearly identical to those for the population base (Census

data are presented in parentheses next to the figures for the sample). As assessed at time 2, 68.9% (64.7%) of participants lived in two-parent families, 15.3% (18.8%) lived in single female parent families, 5.1% (5.0%) lived in single male parent families, and 10.8% (11.5%) lived alone or in other situations. Parents were fairly well educated, with adolescents reporting that 50% (48%) of fathers and 53% (54%) of mothers had completed college or university. Participants' self-described ethnicities were 85.7% (83.2%) Caucasian, 11.5% (12.1%) visible minority, and 2.5% (4.7%) Aboriginal. Ninety-four percent of participants indicated that they were enrolled in school, 3.6% had graduated, and 2.3% were not enrolled in school (due to dropout, suspension, or other reasons); comparable Census data are not available.

Data for this study were collected in a medium sized Canadian city (with a population of 300,000) in the spring of 2003 (time 1) and 2 years later in the spring of 2005 (time 2). The original (time 1) sample of 664 participants was selected through a two-part procedure. First, a random sample of household telephone numbers listed in the white pages was generated by a private company. Second, a different company screened (by telephone) these listings for households containing eligible adolescents ages 12–19 years. Consent for the adolescent's participation was first sought from a parent or guardian and, second, from adolescents. From a random sample of 9,500 telephone listings, 1,036 households with eligible adolescents were identified. Of these, 185 (17.8%) parents or guardians and 187 (22.0%) adolescents refused participation. Thus, the total participation rate for eligible adolescents was 64.1%.

Two years later when the youth were 14–21 years of age they were again contacted and 580 agreed to be re-interviewed, for a retention rate of 87%. Both waves of interviews were administered in person by trained and supervised interviewers who met with the adolescent either at home or in a different location selected by the adolescent, where privacy could be assured. During the 1-h meeting adolescents answered a two-part questionnaire with the first part recorded by the interviewer. Adolescents recorded their answers to the shorter second part of the questionnaire while the interviewer read the questions. Participants received an honorarium in the form of a $25.00 gift certificate at each interview.

Twenty-eight participants who participated at times 1 and 2 were missing data on one or more variables. As these missing cases constituted a small proportion of the overall time 2 sample (less than 5%) we excluded them rather than imputing values to replace missing data. Another 22 cases were excluded because they reported on different parent figures at times 1 and 2; their inclusion could have biased the results. The 134 cases for whom data were not available or applicable at time 2 were compared to the 530 participants in the current study on time 1 scores for age, gender, mothers' and fathers' psychological control, and internalizing and aggressive behaviors. There were no differences.

Measures

Chronological age was coded in months. Gender was coded as 0 (females) or 1 (males). Adolescents' reports of mothers' and fathers' psychological control and adolescents' internalizing and aggressive behavior were assessed at both times.

Parents' psychological control

The mean of the eight-item Psychological Control Scale—Youth Self-Report (Barber 1996) assessed adolescents' perceptions of the extent to which each parent engages in psychologically controlling behaviors such as invalidation of feelings, constraining verbal expressions, verbally attacking, and love withdrawal. This eight-item version of the larger psychological control subscale from the Children's Reports of Parental Behavior Inventory (Schaefer 1965) was designed to ask about specific parental control behaviors, to be unidimensional (representing a single factor), and to be internally consistent (Barber 1996). Adolescents rate each parent on items like ''is always trying to change how I feel or think about things'' and ''will avoid looking at me when I have disappointed him/her'' along a three-point scale: (1) *Not like him/her*; (2) *Somewhat like him/her*, and (3) *Like him/her*. Barber (1996) reported evidence for the unidimensionality and reliability of this scale; it performed similarly in several regions outside of North America, including South Africa, China, and Europe (Barber et al. 2005). In the current study, alphas for father's psychological control were .79 and .75 at times 1 and 2, respectively (respective alphas for mothers were .74 and .74).

Internalizing behavior

The Internalizing Behavior subscale from the Adolescent Report of the Brief Child and Family Phone Interview, Version 3 (BCFPI-3) assessed adolescents' internalizing problems (Cunningham et al. 2006). Developed at the Offord Centre for Child Studies as part of the Ontario Child Health Study (OCHS), the BCFPI-3 was designed as a standardized interview to assess mental health of adolescents ages 12–18 years over the phone, but in the current study, the interviewer read the questions in person and the adolescent checked off the appropriate responses in the questionnaire. Questions were developed to correspond with problems as described in the Diagnostic and Statistical Manual of the American Psychiatric Association

(DSM-IV). The Internalizing Behavior subscale from the Adolescent Report is composed of the mean of 18 items from three subscales (Managing Anxiety, Managing Mood, and Separation from Adults), with six items each assessing anxiety (e.g., adolescent indicates fear of making mistakes or is worried about the future), mood (e.g., adolescent is not as happy as others his or her age), and separation difficulties (e.g., is upset when away from loved ones). Items begin with the stem question ''Do you notice that you...?'', and responses are rated on a three-point scale indicating frequency of the stated feeling: (1) *Never*, (2) *Sometimes*, and (3) *Often*. Results based on population and clinic samples show high factor loadings and internal consistencies for each of the three subscales, as well as strong concurrent and construct validity, as judged by correlations of the internalizing composite score with longer self-report scales from the OCHS diagnostic instrument and a self-report scale assessing impaired social and school functioning (Cunningham et al. 2006). In the current study, alphas were .85 at time 1 and .86 at time 2.

Physical and relational aggression

Adolescents' perceptions of the extent to which they engaged in physical and relational aggression toward peers were assessed with a version of the Children's Peer Relations Scale (Crick and Grotpeter 1995), with wording slightly modified to be appropriate for use with adolescents. The physical aggression scale consisted of three items reflecting how often adolescents hit, yelled at, and pushed/shoved other teens. Relational aggression was a five-item scale assessing behaviors such as telling lies about other teens, keeping others out of a group, and saying mean things about others. Items were rated on a five-point scale ranging from (1) *Never* to (5) *All the time*. Alpha coefficients of .82 and .73 were observed for self-reports of physical and relational aggression in a sample of third- to sixth-graders. Furthermore, factor analyses of peer reports have shown that the physical and relational aggression items form unique constructs (Crick and Grotpeter 1995). Coefficient alpha was .77 (time 1) and .73 (time 2) for physical aggression and .62 (time 1) and .69 (time 2) for relational aggression in the current sample.

Results

Descriptive statistics

Table 1 shows the means and standard deviations for each variable in this study. The means indicate that adolescents viewed their parents as not particularly psychologically controlling. Dependent *t*-tests showed that adolescents rated their fathers as more psychologically controlling than their mothers at time 1, $t(529) = -4.66$, $p < .05$, and at time 2, $t(529) = -3.07$, $p < .05$. Adolescents reported some but not high levels of internalizing and aggressive behaviors.

Correlations showed that older adolescents were more likely to report parents as psychologically controlling, at least at time 1. Across time and parent, adolescents' internalizing behaviors were associated positively with higher levels of psychological control. Time 1 scores for physical and relational aggression were significantly and positively correlated with parents' psychological control at times 1 and 2, but these relations were less consistent for aggression assessed at time 2.

Table 1 Means and standard deviations for study variables, and correlations with fathers' and mothers' psychological control, times 1 and 2

Variable	*M*	*SD*	Psychological control			
			Fathers		Mothers	
			T1	T2	T1	T2
Age (months) T1	186.78	22.94	.15*	.11*	.16*	.07
Gender (male = 1)	.47	.50	–.10*	–.05	–.03	.03
Internalizing T1	1.68	.33	.35*	.30*	.35*	.32*
Internalizing T2	1.71	.34	.23*	.29*	.22*	.38*
Physical aggression T1	1.41	.56	.10*	.15*	.14*	.18*
Physical aggression T2	1.37	.51	.05	.20*	.05	.22*
Relational aggression T1	1.30	.34	.13*	.13*	.21*	.22*
Relational aggression T2	1.26	.34	.04	.11*	.11*	.23*
F Psychological control T1	1.35	.39		.65*	.47*	.27*
F Psychological control T2	1.31	.33			.30*	.36*
M Psychological control T1	1.27	.33				.54*
M Psychological control T2	1.27	.29				

Note. $N = 530$; F = fathers'; M = mothers'; T1 = time 1; T2 = time 2; *$p < .05$

Point biserial correlations between gender and internalizing behaviors revealed that girls were more likely than boys to report internalizing behaviors at time 1 ($r = -.15$, $p < .05$) and at time 2 ($r = -.11$, $p < .05$). Boys were more likely than girls to report physical aggression at time 1 ($r = .39$, $p < .05$) and at time 2 ($r = .27$, $p < .05$). Although there was a small correlation between gender and relational aggression at time 1, indicating that boys reported more relational aggression ($r = .12$, $p < .05$), the parallel correlation at time 2 was not significant ($r = .03$, $p > .05$).

Regression analyses

We analyzed the relations between parents' psychological control and adolescents' behavior through a series of hierarchical multiple regressions. Each analysis focused on one of the adolescent's behaviors. To minimize nonessential multicollinearity, all continuous predictors were centered, as suggested by Cohen et al. (2003).

Psychological control as predictors of change in adolescents' behaviors (parent effects)

Table 2 summarizes the three regressions predicting adolescents' internalizing behavior, physical aggression, and relational aggression at time 2. Predictors were entered in blocks as follows: Block 1 included age, gender, and the score for the adolescent's behavior at time 1. Controlling for the behavior at time 1 created a regressed change score (Cohen et al. 2003). Scores for mothers' and fathers' psychological control at time 1 were entered in Block 2. Block 3 consisted of mothers' and fathers' psychological control scores at time 2.

As expected, internalizing behavior at time 1 was a significant predictor of later internalizing behavior, explaining up to 35% of the variance. There were no significant effects of parental psychological control at time 1, but fathers' and mothers' psychological control at time 2 were significant. Adolescents who perceived increases in their fathers' and in their mothers' psychological control between times 1 and 2 also reported a corresponding increase in internalizing behavior.

With respect to physical aggression, younger adolescents as well as males showed higher levels of physical aggression. The significant effect of time 1 physical aggression on time 2 physical aggression indicates some stability in this behavior. Although time 1 scores for mothers' and fathers' psychological control were unrelated to time 2 physical aggression, both mothers' and fathers' psychological control at time 2 predicted increases in physical aggression. In other words, adolescents who reported increases in their own physical aggression also

Table 2 Results of hierarchical regressions predicting internalizing and aggressive behaviors

Predicted behavior	Block and predictor		*B*	*SE*	*β*	Step R^2	Total R^2
Internalizing T2	1	Age (months)	–.00	.00	–.03	.35*	.35*
		Gender (male = 1)	–.01	.02	–.02		
		Internalizing T1	.61	.04	.59*		
	2	Fathers' PC T1	.02	.04	.03	.00	.35*
		Mothers' PC T1	.01	.04	.01		
	3	Fathers' PC T2	.10	.05	.10*	.06*	.41*
		Mothers' PC T2	.29	.05	.25*		
Physical aggression T2	1	Age (months)	–.00	.00	–.13*	.22*	.22*
		Gender (male = 1)	.12	.04	.12*		
		Physical aggression T1	.35	.04	.38*		
	2	Fathers' PC T1	.07	.06	.05	.00	.22*
		Mothers' PC T1	–.01	.07	–.01		
	3	Fathers' PC T2	.28	.08	.18*	.05*	.28*
		Mothers' PC T2	.29	.08	.17*		
Relational Aggression T2	1	Age (months)	–.00	.00	–.08*	.23*	.23*
		Gender (male = 1)	–.02	.03	–.03		
		Relational aggression T1	.47	.04	.47*		
	2	Fathers' PC T1	–.03	.04	–.03	.00	.23*
		Mothers' PC T1	.04	.05	.04		
	3	Fathers' PC T2	.07	.05	.07	.02*	.25*
		Mothers' PC T2	.17	.05	.15*		

Note. $N = 530$; T1 = time 1; T2 = time 2; PC = psychological control. Due to rounding error, Step R^2 may not sum to Total R^2; *$p < .05$

perceived increases in their mothers' and fathers' psychological control.

Relational aggression at time 1 was positively related to relational aggression 2 years later. In addition, the significant effect for age indicates that younger adolescents reported more relational aggression. There was no effect of mothers' and fathers' psychological control at time 1, but the effect of mothers' psychological control at time 2 indicated that adolescents who reported increases in their relational aggression across the 2-year period also perceived that their mothers became more psychologically controlling.

Adolescents' behaviors as predictors of change in parents' psychological control (child effects)

In the second set of hierarchical regressions we examined whether adolescents' earlier behavior predicted changes in perceived parental psychological control. Mothers' and fathers' psychological control were considered separately, as was each of the adolescents' behaviors. In the first block we entered age, gender, and the respective parental control score at time 1. In the second block, we entered the adolescents' behavior score at time 1. The third block tested the effect of the adolescents' behavior at time 2. Results are shown in Table 3.

The first block included identical predictors in each of the three regressions (internalizing behavior, physical aggression, and relational aggression) predicting mothers' psychological control and in each regression predicting fathers' psychological control. Thus, the results for the first block were identical for each behavior of the adolescent but could differ across the two sets of regressions for mothers' and fathers' psychological control. These results showed considerable stability in adolescents' perceptions of their mothers' and fathers' psychological control, explaining 29 and 43% of the variance in psychological control at time 2, respectively. A higher level of internalizing behavior at time 1 predicted significant increases in adolescents' reports of mothers' and fathers' psychological control across 2 years. Adolescents' internalizing behavior at time 2 explained an additional 6% of the variance in mothers' psychological control and an additional 2% of the variance in fathers' psychological control at time 2.

Next, both time 1 and time 2 levels of physical aggression were significant predictors of mothers' and fathers' psychological control, demonstrating that baseline levels of physical aggression were related to increases in perceptions of mothers' and fathers' psychological control in the next 2 years. Finally, the analyses for relational aggression revealed that adolescents' relational aggression at time 1 was a significant and positive predictor of perceived mothers' psychological control. Higher relational aggression at time 2 was associated with higher psychological control in both mothers and fathers.

Discussion

The goal of this study was to examine the temporal connections between adolescents' reports of parental psychological control and adolescents' internalizing and aggressive behaviors. The evidence was consistently in favor of child effects on perceived parental psychological control whereas in no case did adolescents' initial perceptions of parents' psychological control predict changes in adolescents' internalizing and aggressive

Table 3 Results of hierarchical regressions predicting parents' psychological control

Block and predictor	Mothers' psychological control					Fathers' psychological control				
	B	*SE*	*β*	Step R^2	Total R^2	*B*	*SE*	*β*	Step R^2	Total R^2
1 Age (months)	–.00	.00	–.01	.29*	.29*	.00	.00	.01	.43*	.43*
Gender (male = 1)	.03	.02	.04			.01	.02	.01		
PC T1	.49	.03	.54*			.55	.03	.65*		
Internalizing behavior										
2 Internalizing T1	.15	.04	.17*	.03*	.32*	.08	.04	.08*	.01*	.43*
3 Internalizing T2	.25	.04	.29*	.06*	.37*	.15	.04	.15*	.02*	.45*
Physical aggression										
2 Physical agg T1	.05	.02	.10*	.01*	.30*	.06	.02	.10*	.01*	.43*
3 Physical agg T2	.11	.02	.20*	.03*	.33*	.11	.02	.17*	.02*	.46*
Relational aggression										
2 Relational agg T1	.09	.03	.11*	.01*	.30*	.05	.03	.05	.00	.43*
3 Relational agg T2	.13	.04	.15*	.02*	.32*	.09	.04	.09*	.01*	.43*

Note. $N = 530$; PC = psychological control; agg = aggression. The results for Block 1 are identical across all three regressions. Blocks 2 and 3 differ according to the adolescent's observed behavior. Due to rounding error, Step R^2 may not sum to Total R^2. *$p < .05$

behaviors. Our hypothesis that parent effects would be found was not supported, but there was strong support for our hypothesis of child effects.

Psychological control and internalizing behavior: parent effects

With respect to parent effects, perceptions of mothers' and fathers' psychological control at time 1 did not predict adolescents' internalizing behavior at time 2, but perceptions of mothers' and fathers' psychological control at time 2 were related to an increase in adolescents' internalizing behavior. In other words, increases in adolescents' internalizing problems accompanied increases in perceptions of both parents' psychological control. These results point to the real association between psychological control and adolescents' internalizing behavior that is evident throughout the literature, but are inconsistent with the few studies finding that parents' psychological control *predates* changes in adolescent girls' (Barber et al. 2005) and boys' internalizing behavior (Conger et al. 1997). On the other hand, the lack of a lagged effect of psychological control on internalizing behavior is consistent with similar results by others (Chen et al. 2000; Conger et al. 1997, for their subsample of girls; Galambos et al. 2003; Herman et al. 1997; Reitz et al. 2006; Rogers et al. 2003).

The weight of the evidence seems to be in favor of the conclusion that there are no uniform effects of perceived parents' psychological control on subsequent changes in adolescents' internalizing behavior. A developmental systems perspective (Lerner 2004) leads us to consider other contexts and relationships in adolescents' lives that may be more influential. Indeed, a review of the literature revealed that internalizing behaviors are the result of a wide variety of influences at multiple levels of analysis, including age, gender, biological processes, temperament, family characteristics, stressful life events, and social support (Graber 2004). Like the current study, most studies examining effects of parents' psychological control have not considered potential influences outside of parenting behavior and basic demographic characteristics. Clearly, more longitudinal research is required in order to better understand the conditions under which parents' psychological control might affect adolescents' internalizing behavior and how parental control stacks up against and interacts with other competing predictors of internalizing symptoms.

Psychological control and aggressive behavior: parent effects

Adolescents' perceptions of parents' psychological control at time 1 did not predict time 2 physical or relational aggression. Similar to the results for internalizing behavior, however, increases in perceived mothers' and fathers' control were related to increases in physical aggression and in relational aggression. These results are consistent with those of Loukas et al. (2005) who found that perceived mothers' control was associated with physical and relational aggression in young adolescents, as measured at one point in time. Thus, the idea that hostile, emotionally controlling, and boundary violating parenting behaviors might be associated with similar behaviors of adolescents towards their peers (Mills and Rubin 1998; Nelson and Crick 2002) is supported in this study, although it is not clear that perceptions of such behaviors lead to increases in physical and relational aggression over time. Why not? Again, we can turn to the developmental systems perspective, which suggests that the adolescent interacts in and with many different contexts, with adolescent-context relations comprising a source of diversity in development (Lerner 2004). Physically and relationally aggressive behavior is the result of multiple influences. Externalizing problems in general are predicted by difficult temperament and impulsive personality characteristics, low SES, family conflict, antisocial peers, and school and community disorganization (Farrington 2004). In addition, perceptions of parents' behavioral control may be a more potent predictor of externalizing problems than are perceptions of parents' psychological control (Barber et al. 2005).

Psychological control and internalizing behavior: child effects

We turn now to the results for child effects on perceived parental psychological control. Regressions showed that adolescents' baseline levels of internalizing behavior were associated with subsequent increases in their perceptions of both parents' psychological control. These findings accord with other studies of child effects (Barber et al. 2005; Rogers et al. 2003). To the extent that adolescents' views of parenting behaviors are accurate, it may be that parents increase their psychological control in reaction to their adolescents' internalizing symptoms. It may seem reasonable from a parent's perspective to react to apathetic, distant, or uninvolved behavior with intrusive parenting, to stop their children from showing such behavior. Parents may increase psychologically controlling behaviors in desperation if other behaviors have not been effective, or they may engage in psychologically controlling behaviors in good faith that these behaviors might have positive effects. It is possible, too, that parents may not understand that some of their adolescents' behavioral symptoms arise from feelings of depression and/or anxiety. Rogers et al. (2003) suggested that negative emotional problems expressed by adolescents could lead to a negative emotional response on the part of the parents. Alternatively, Rogers

et al. (2003) argued that the connection between internalizing problems and psychological control could derive from cognitive bias that makes adolescents with higher levels of internalizing problems see their parents as more psychological controlling. This is a possibility in the present study where adolescents reported on their own and their parents' behaviors. If cognitive bias explains the association between earlier internalizing behavior and later psychological control, however, it is not clear why earlier perceptions of psychological control were unrelated to later internalizing behavior.

Psychological control and aggressive behavior: child effects

In considering the effects of adolescents' aggression on perceived psychological control, physical aggression at time 1 was predictive of perceived increases in both parents' psychological control. Relational aggression at time 1 was predictive of adolescents' reports of mothers' but not fathers' increased psychological control. Mothers may be more sensitive than are fathers to relational aggression or fathers may evaluate relational aggression as less harmful than mothers do. The significant effects for time 2 physical and relational aggression showed that increases in adolescents' aggression (both forms) were accompanied by increases in perceptions of both parents' psychologically controlling behaviors. As with internalizing behaviors, the evidence suggests that parents may respond to adolescents' aggressive behaviors by criticizing, blaming, and guilt induction. If parents react to difficult behavior with increased psychological control, then efforts can be made to increase their understanding of the source of adolescents' difficult behavior and to appropriately redirect potentially ineffective control strategies. The results may also reflect cognitive bias on the part of adolescents: those who show aggressive behavior may be more likely to see parents as psychologically intrusive (although again, if cognitive bias explains evidence for child effects, it is not clear why there was no evidence for parent effects). To the extent that cognitive bias affects the relation between aggression and perceptions of psychological control, such cognitive distortions can be discussed and managed in therapeutic contexts involving the adolescent.

Limitations

The findings showing child effects were significant, but small in magnitude. After controlling for age, gender, and time 1 levels of perceived psychological control, time 1 levels of adolescents' internalizing and physically aggressive behaviors explained from 1 to 3% of additional variance in perceptions of mothers' and fathers' psychological control at time 2. Time 1 relational aggression explained an additional 1% of variance in time 2 perceptions of mother's psychological control. Small effect sizes are not unusual in studies where the outcome variable shows stability (i.e., the block incorporating time 1 levels of psychological control explained 29 and 43% of variance in time 2 mothers' and fathers' psychological control, respectively). The small increments in explained variance mean that some change in adolescents' perceptions of parents' psychological control is attributable to factors other than adolescents' internalizing or aggressive behaviors.

A limitation of the study is reliance on adolescents' reports for all measures. As noted, there is only moderate concordance between parents' and adolescents' reports of parents' psychological control, and aggregate scores from multiple raters are preferred as a way to maximize validity (Schwarz et al. 1985). Cognitive bias, which arises from using adolescents as single informants for parents' psychological control and adolescents' behavior, inflates observed associations between parenting and adolescents' behaviors. Such bias could be present in the current study, but it cannot explain away the directional findings, indicating child and not parent effects.

The majority of the sample consisted of adolescents from white families. Even though the sample is quite representative of adolescents in the area from which the sample was drawn, it is not necessarily the case that the findings would generalize to different ethnic groups (see e.g., Bean et al. 2006). A strength of the study is that 82% of a random sample of parents in a community agreed for their adolescent to participate, and 78% of youth whose parents agreed actually participated.

Conclusion

The current study contributes to the literature by examining the direction of effects in the relations between adolescents' perceptions of parents' psychological control and adolescents' behavior. In addition to the inclusion of adolescents' internalizing behavior, we investigated two important forms of aggression in adolescence that have received little empirical attention in studies of parents' psychological control. Furthermore, adolescents' reports on mothers and fathers were gathered, enabling the comparison of adolescents' behaviors in the context of both parents' psychological control. These analyses found nearly identical results for adolescents' reports of mothers and fathers. Specifically, adolescents' internalizing and physically aggressive behaviors predicted increases in perceptions of both parents as psychologically controlling. The only difference was that adolescents' relational aggression predicted increases in perceptions of mothers as psychologically controlling, but not fathers. These results

correspond with Barber et al.'s (2005) conclusion that the associations between psychological control and adolescents' behaviors are fundamental in nature and not parent-specific. Future research should continue to use longitudinal data to investigate both parent and child effects when considering how parents' psychological control is related to adolescents' behavior. Our study found clear evidence for child effects, and no evidence for parent effects. Additional research is required in order to resolve the inconsistencies in studies of parent effects, and to discover whether child effects are significant, as found here.

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