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2019-09-12

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# Perceived Parental Psychological Control Predicts Intraindividual Decrements in Self-Regulation Throughout Adolescence

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The present study examined the intraindividual, longitudinal, cross-lagged associations between adolescents' perceptions of mothers' and fathers' psychologically controlling parenting and their self-regulation from ages 11–17. Using 7 waves of data involving 500 families and their adolescents ( $M_{\text{age}} = 11.29$ ;  $SD = 1.01$  at Wave 1), results indicated that adolescent-reported increases in mothers' and fathers' psychological control prospectively and uniquely predicted intraindividual decrements in their self-regulation, controlling for prior levels of self-regulation. Sex differences were largely absent except for one, where fathers' psychological control predicted adolescent females', but not males', declines in self-regulation, and where reverse associations manifested. Implications for intervention efforts are suggested for parents, educators, and practitioners, and future directions for research are discussed.

*Keywords:* adolescents, parenting, psychological control, self-regulation

*Supplemental materials:* <http://dx.doi.org/10.1037/dev0000818.supp>

Parenting environments are uniquely influential on their children's development of self-regulation, wielding the ability to both enhance and/or impair their children's regulatory systems (Brody & Ge, 2001; Wong, 2008). Self-regulation is nurtured in respectful and structured family contexts that support autonomy (Wong, 2008) and establish appropriate standards of behavioral and emotional expression, but is challenged when parenting is harsh, inconsistent, or when home environments are unstructured and/or chaotic (Bridgett, Burt, Edwards, & Deater-Deckard, 2015). Given the centrality of self-regulation for supporting positive adjustment throughout adolescence (e.g., Dahl, 2001; Gestsdóttir & Lerner, 2007), parents' unique influence on their adolescents' self-regulation represents an important leveraging point for families, educators and practitioners who seek to promote adolescent well-being.

Despite research showing that negative family environments challenge the development of self-regulation, parental psychological control remains understudied in this regard. Its association with adolescents' self-regulation has been theorized, but compelling empirical evidence in its support is lacking. Psychological control is important to examine in relation to adolescents' self-regulation because psychological control tends to increase across the adolescent years (Rogers, Padilla-Walker, McLean, & Hurst, 2019) as other forms of parental control (e.g., behavioral control) become less feasible with adolescents' growing independence (e.g., Keijsers & Poulin, 2013). Such an examination is particularly benefitted by adolescents' perspectives of their parents' psychological control, as these most closely resemble their direct experiences of their home environments, and avoid parents' desirability biases when they report on their own parenting practices (Bögels & van Melick, 2004). Therefore, in the present study we tested a causal model of the unique, intraindividual, and prospective associations between adolescents' perceptions of parental psychological control and their self-regulation from ages 11–17. We relied on Self-Determination Theory (SDT; Deci & Ryan, 2012) and developmental-ecological perspectives as our organizing frameworks.

We begin by clarifying our use of the term *self-regulation*, which can invoke a variety of meanings across psychological traditions. Among developmental scholars, and particularly those studying adolescents, self-regulation has typically referred to a range of psychological processes involved with self-control, including effortful control, inhibitory control, emotion regulation, intentionality, and so forth. However, SDT (the main organizing framework used in the present study) uses the term self-regulation

This article was published Online First September 12, 2019.

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We thank the Family Studies Center at Brigham Young University, the School of Family Life, and the College of Family Home and Social Science at Brigham Young University, and we recognize the generous support of the many private donors who provided support for this project. We also thank those families who were willing to spend valuable hours with our team in interviews, and the many students who assisted in conducting the interviews.

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to reference a broader process of self-directed goal-pursuit. Although these semantic differences do not invoke theoretical tensions, they do refer to distinct psychological processes and are not equivalent. Therefore, to avoid confusion in the present study, our use of the term *self-regulation* reflects that conceptualization already familiar to a developmental audience. Specifically, we define self-regulation as an individual's capacity to effectively monitor and direct arousal, attention, and behavior in response to environmental or intrapersonal demands, enabling a skillful pursuit of personal goals (Gestsdóttir & Lerner, 2007; Moilanen & DeLong, 2017). However, we do rely upon SDT as our guiding framework, and as such, we refer to its concept of self-directed goal pursuit as *self-directed* or *autonomously-motivated* behavior or functioning.

### A Self-Determination Theory Perspective on Parental Psychological Control

Parental psychological control refers to parents' attempts to elicit their child's compliance through the use of psychologically and emotionally manipulative tactics (Barber, 1996; Soenens & Vansteenkiste, 2010), such as love withdrawal, conditional regard, dismissiveness of their child's opinions or perspectives, and induction of guilt and shame (Barber & Harmon, 2002). For example, in response to a disagreement with an adolescent, a parent might become passive aggressive, such as bringing up past mistakes or showing a lack of affection toward their child. Psychological control is distinct from other controlling practices on a few accounts. First, it is often (though not always) void of highly charged affect and overt hostility (e.g., yelling, insulting), and so it represents a more covert strategy for eliciting compliance. Second, psychological control aims to maintain a child's psychological and emotional dependence on the parent by exploiting the love relationship between parent and child (e.g., love withdrawal). Thus, although correlated with overtly contentious and harsh-controlling parenting (Nelson, Hart, Yang, Olsen, & Jin, 2006), psychological control represents a distinct and more subtle approach to exercising control that increases in frequency during the adolescent years, (see Rogers et al., 2019).

Self-Determination Theory (SDT; Deci & Ryan, 2012; Ryan & Deci, 2000a, 2000b) is particularly helpful in sensitizing scholarship to the ostensible links between psychologically controlling parenting and child well-being. SDT is a theory of motivation that posits three inherent psychological needs: competence, relatedness, and autonomy. The satisfaction or frustration of these needs underlies opportunities for growth or vulnerabilities for maladjustment, respectively. Of particular focus in research is the need for autonomy, or the experience of volition, psychological freedom, and authenticity (see Soenens et al., 2018). This need is satisfied when behavior is *autonomously motivated*, that is, when individuals are able to function or pursue goals for reasons consistent with their genuine interests (i.e., intrinsic), personal values (internalized), and/or personal identities (integrated). The experience is then one of self-concordance. In contrast, the need for autonomy is frustrated under states of *controlled motivation*, in which individuals function or pursue goals because of demands or contingencies with which s/he does not identify, such as socialization pressures. Because controlled motivations frustrate the need for psychologi-

cal autonomy, they can accumulate to challenge psychological adjustment (Vansteenkiste & Ryan, 2013).

Against this backdrop, controlling parenting strategies stand out as problematic. In contrast to more autonomy supportive strategies for regulating adolescents' behavior (e.g., responsiveness and warmth, providing choices when possible, giving a rationale when choice is constrained), controlling parenting strategies apply extrinsic pressures to adolescents to elicit compliance. Scholarly attention has been given, for example, to aversive forms of behavioral control, such as harsh discipline and verbal hostility. Although these strategies aim to provide structured environments, they do so through coercive means, engendering extrinsic and pressured motivations, which may undermine adolescents' autonomy needs (Deci & Ryan, 2012; Ryan & Deci, 2000b).

An SDT perspective would further distinguish psychologically controlling parenting from other, overt controlling strategies. Specifically, Soenens and Vansteenkiste (2010) underscored the distinction between *external* and *internal* forms of control, or felt pressure. They described that external pressures are derived outside the self, usually from others, whereas internal pressures are applied by an individual to him/herself. Internally applied pressures are uniquely problematic because they promote a state of functioning known as *introjection*, an internally controlled motivational state wherein individuals regulate their *own* behavior but without fully adopting these regulations as their own. For example, whereas many other forms of parental control aim to leverage external pressures, such as revoking privileges, psychological control leverages leverage aversive, psychological (internal) states to get children to "pressure, coerce, and control themselves" (Soenens & Vansteenkiste, 2010, p. 80). Thus, psychological control promotes an introjected motivational state within children, undercutting autonomous or self-directed functioning. In this light, Soenens and Vansteenkiste (2010) have identified psychological control as a *uniquely* risky parenting practice that is distinct from other controlling or coercive strategies. Over time, the exposure to these pressures and the experience of introjected motivational states will frustrate adolescents' psychological needs for autonomy, potentiating psychological disruptions and symptoms of psychopathology. Indeed, studies implicate parental psychological control as one of the most consistently problematic parenting behaviors with regard to adolescent adjustment, predicting various externalizing problems, such as aggression, drug use, truancy, and delinquency (He, Yuan, Sun, & Bian, 2019; Pinquart, 2017a), and especially internalizing problems, such as lower levels of self-esteem and greater levels of depression and anxiety (Pinquart, 2017b; Rogers et al., 2019; Soenens, Park, Vansteenkiste, & Mouratidis, 2012)

### Psychological Control and Implications for Self-Regulation

Under an SDT framework, psychologically controlling parenting may particularly weaken adolescents' self-regulatory capacities. SDT holds that, in contrast to autonomous functioning, which is psychologically energizing, controlled functioning (e.g., introjection) is "ego-depleting" (e.g., Vansteenkiste & Ryan, 2013). That is, operating in a controlled motivational state frustrates underlying needs for autonomy and in the process, exhausts psychological resources. Self-regulation is a resource-dependent skill-

set requiring the vigilant monitoring and control of emotions, cognitions, and behavioral impulses, and as such, may be undermined by persistent controlled functioning. Experimental studies seem to support this premise. These show that when performing various executive function tasks (e.g., Stroop task, e-hunting task), individuals in controlled motivational states are lower performing, less persistent, and even exhibit lower neural signaling in brain-based error monitoring (ERN; error-related negativity) than autonomously functioning individuals (Legault & Inzlicht, 2013; Moller, Deci, & Ryan, 2006), suggesting lower levels of active self-control. Additionally, evidence suggests that controlled motivational states may also heighten the allure of goal-disruptive impulses and stimuli (e.g., temptations, Milyavskaya, Inzlicht, Hope, & Koestner, 2015). It stands to reason, then, that self-regulation may be one casualty of adolescents' experiences of parental psychological control.

### Within-Family Parent–Child Dynamics

Increasingly, research documents considerable variability in parent-adolescent dynamics at the *within*-person level, challenging the view that family processes are more or less stable across development. For example, and relevant to the present study, parents fluctuate significantly around their own averages of psychological control even on a day-to-day basis (Mabbe, Soenens, Vansteenkiste, van der Kaap-Deeder, & Mouratidis, 2018). The research implications of such within-person variability are that the information contained at the between- and within-person levels address different questions, and may ultimately be disconnected. This is notable because a handful of examinations have established between-person correlations between adolescents' perceived psychological control and select indices of their self-regulation, including lower self-perceived agency and locus of control (Mandara & Pikes, 2008; Nanda, Kotchick, & Grover, 2012), diminished attentional focusing and inhibitory control (Hofer, Eisenberg, & Reiser, 2010), poorer coping strategies (e.g., self-criticism; Soenens et al., 2008), and poorer anger regulation (Rueth, Otterpohl, & Wild, 2017). Although such correlations are informative, developmental questions about causal processes (including the present one) are usually couched at the *within-person* level, requiring analytic techniques sensitive to within-person effects. Relying on between-person evidence to make conclusions regarding within-person effects can introduce statistical artifacts that can seriously misrepresent developmental family processes (e.g., Simpson's paradox; for recent and relevant examples, see Dietvorst, Hiemstra, Hillegers, & Keijsers, 2018; Keijsers et al., 2016).

Put more simply, if psychological control actually creates self-regulation challenges for adolescents, one might reasonably expect that families in which parents are more psychologically controlling would also contain adolescents with lower self-regulation (i.e., the between-person, rank-order correlation reported in prior studies). However, one would ultimately desire evidence that when parents are more psychologically controlling beyond their *own typical levels*, adolescents experience subsequent declines in *their own typical levels* of self-regulation (a longitudinal, within-person association). Therefore, to more rigorously test a causal model in which parental psychological control leads to ensuing decrements in adolescents' self-regulation requires evidence that adolescents individually display lower self-regulation after periods when they

experience more psychologically controlling parenting. Such within-person, parent–adolescent dynamics involving psychological control have yet to be examined in the literature.

### Additional Limitations of the Current Literature

A number of additional limitations remain. No studies of which we are aware have tested reciprocal relations among these constructs, as the majority are cross-sectional examinations. Given the well-established evidence for the bidirectional influences of parents and their adolescents on one another, including with regard to psychological control (Steeger & Gondoli, 2013), this lack of rigorous longitudinal modeling is a considerable limitation of the present literature. Although it is theoretically plausible that parental psychological control undermines adolescents' self-regulation, it is perhaps equally as likely that a dysregulated adolescent is more likely to elicit or even simply perceive more psychologically controlling parenting (e.g., Brody & Ge, 2001; Pettit, Laird, Dodge, Bates, & Criss, 2001). For example, Steeger and Gondoli (2013) found that young adolescents' aggression longitudinally predicted parent–child conflict, which in turn predicted higher levels of parental psychological control. In fact, Pinquart's (2017a) recent meta analysis found that associations between psychological control and most other problem behaviors manifested as bidirectional in nature. Thus, although a stronger theoretical stance for psychological control influencing later self-regulation is typically assumed, both pathways of influence are possible. Unfortunately, the general lack of longitudinal modeling precludes any insights regarding the presence and/or predominance of these differential effects (Hamaker, Kuiper, & Grasman, 2015).

Finally, there is currently little evidence for the *unique* associations between psychological control and self-regulation. Some suggest such an association could theoretically be explained simply by overall negative parenting style (e.g., Moilanen, Rasmussen, & Padilla-Walker, 2015). That is, psychological control may simply fit into a larger profile of coercive, controlling parenting (e.g., harsh discipline, verbal hostility), the *profile* of which is primarily responsible for decrements in self-regulation. However, recent theorizing with SDT (e.g., Soenens & Vansteenkiste, 2010) is clear that psychological control should possess a *unique* influence, a supposition that can be tested empirically.

### The Current Study

Framed by Self-Determination Theory (Deci & Ryan, 2012; Ryan & Deci, 2000a, 2000b; Soenens & Vansteenkiste, 2010), we examined the *longitudinal, bidirectional, within-person associations between adolescents' perceived psychological control and their self-regulation, above and beyond overt coercive controlling strategies (e.g., harsh discipline) during adolescence*. Thus, the present study provides a particularly rigorous test of the theorized causal model in which psychologically controlling parenting uniquely undercuts adolescents' self-regulation. We hypothesized that individual adolescents' experiences of parents' psychological control would predict negative fluctuations in their self-regulation beyond their own-typical levels. We also predicted that adolescents' self-regulation would predict changes in their perceptions of their parents' psychologically controlling strategies, though the supporting theory here is less well-established. In addressing these

questions, we used both adolescent and parent informants of adolescents' self-regulation to provide multiple family perspectives as well as to estimate cross-reporter effects that circumvent within-reporter method variance.

We also examined adolescents' sex as a potential moderator, given the possibility of sex differences in parenting, and in particular, parental control attempts (see Endendijk, Groeneveld, Bakermans-Kranenburg, & Mesman, 2016). However, SDT posits that the psychological needs for volitional functioning are inherent regardless of an individual's sex (Soenens & Vansteenkiste, 2010). Under such a lens, psychologically controlling parenting should relate to self-regulation similarly for boys and girls. Given the lack of empirical data on this question, we examined whether the associations between parental psychological control and adolescent self-regulation were qualified by sex differences (sons vs. daughters). Although such an examination is well worth the empirical attention, specific predictions are difficult to derive in the context of sparse empirical findings and differing theoretical positions.

## Method

### Participants and Procedure

Participants for this study were taken from the Flourishing Families Project, which is a 10-year longitudinal study of family life and adolescent development involving 500 families in the Pacific Northwest region of the United States. In 2007, families were recruited using a purchased national telephone survey database (Polk Directories/InfoUSA) containing 82 million households across the United States. Families were eligible to participate if they had a child between the ages of 10 and 14 living within targeted census tracts. Using the Polk Directory, these families were randomly selected from targeted census tracts that paralleled the socioeconomic and racial/ethnic makeup of local school districts. A total of 692 eligible families were contacted, 423 of which agreed to participate. An additional subset of families ( $n = 77$ ) were recruited via referrals. Ethics board approval for the Flourishing Families Project was obtained from the Brigham Young University IRB, protocol F060311.

After parental consent and adolescent assent were obtained, the 500 participating families (i.e., each parent and the focal child) were interviewed in their homes once per year for the first five years (waves 1–5). These interviews included video-taped interaction tasks and questionnaires about family life and adjustment indices. Over the next five years (Waves 6–10), only questionnaire data were collected, and were done so via online surveys. The final wave of data was collected in 2016. The overall retention rate across the 10 waves was 87%. At the first wave of data collection (in 2007), focal adolescents were an average age of 11.29 ( $SD = 1.01$ ). Adolescents' ethnic backgrounds included non-Hispanic Caucasian (67%), African American (12%), Hispanic/Latinx (2%), Asian American (4%), multiethnic (12%), and other (2%). The median monthly income was just under \$5,000 USD per month, indicating that the typical family in the study was middle class. Most adolescents were from two-parent homes (67%), with a minority coming from single-parent homes (33%).

Given the current study's focus on adolescence, data were restructured such that variables were considered when all partici-

pants were the same age (e.g., 11, 12, 13), regardless of the wave of assessment. This resulted in some missing data, particularly at the age 11 assessment (40%), given the age range at wave 1 was 10–14. However, because age of the child at wave 1 was random, the missing values at age 11 were missing completely at random (Little's MCAR test:  $\chi^2[8] = 5.61, p = .69$ ; Little, 1988). Full Information Maximum Likelihood was used to handle these values. Altogether, family members' data were used that spanned 7 years in which their adolescent was ages 11 to 17.

## Measures

**Parent psychological control.** Adolescents reported their perceptions of their mothers' and fathers' psychologically controlling parenting practices using the Psychological Control Scale-Youth Self Report (PCS-YSR; Barber, 1996). The PC-YSR is the most widely used measure of parental psychological control, displaying unidimensional construct validity in Barber's (1996) early work, and high reliability across a number of key investigations (e.g., Barber, 1996; Soenens et al., 2012). This eight-item measure was completed using a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*) with higher scores indicating a greater degree of parental psychological control. Example items include, "My parent tries to change how I feel or think about things" and "If I have hurt her/his feelings, my parent stops talking to me until I please her/him again." From ages 11–17, Cronbach's Alpha coefficients for this measure ranged from .82 to .90 for mothers and .82 to .91 for fathers.

**Self-regulation.** At each assessment, primary caregivers (96% mothers, 4% fathers) and adolescents reported on adolescents' self-regulation by completing a modified survey instrument developed by Novak and Clayton (2001). We shortened the original 30-item scale to 12 items to reduce participant burden across the 10 waves of the study. This measure assessed emotional aspects of self-regulation such as the ability to control anger responses and intense affect (e.g., "My child has difficulty controlling his/her temper" [reverse scored]); cognitive aspects such as the ability to direct attention and plan for the future (e.g., "My child gets distracted by little things" [reverse scored] and "My child develops a plan for all his/her important goals"); and behavioral aspects such as controlling hyperactive responses, including fidgeting and aggressive displays; (e.g., "My child gets fidgety after a few minutes if s/he is supposed to sit still" [reverse scored]). Adolescent reports were identical but used a different stem (e.g., "I have difficulty controlling my temper"). Responses ranged from 1 (*never true*) to 4 (*always true*), with higher values indicating greater ability to self-regulate. In line with prevailing conceptualizations of self-regulation as a holistic skillset (Barkley, 1997; Gratz & Roemer, 2004; McClelland, Ponitz, Messersmith, & Tominey, 2010), we averaged all items for an overall self-regulation score. The treatment of this scale as such has been used in a number of prior examinations (e.g., Coyne, Warburton, Essig, & Stockdale, 2018) because the overall self-regulation factor is correlated as expected with subscales of self-regulation included in a more recently developed self-regulation measure (i.e., evidence for construct validity, see Moilanen, 2007). In the current study, Cronbach's Alpha coefficients ranged from .86–.90 for primary caregiver reports and .75–.80 for adolescent self-reports.

## Control—Harsh Discipline

At each assessment, mothers and fathers reported their disciplinary strategies using the Parenting Styles and Dimensions Questionnaire-Short Version (PSDQ; Robinson, Mandleco, Olsen, & Hart, 2001). Eight of these items tapped the frequency of coercive and punitive control attempts with their adolescent (e.g., “grab my child when s/he is being disobedient,” “scold or criticize to make my child improve”). These eight items were reported on a five-point Likert-type scale (1 = *never*, 5 = *always*), which were then averaged for an overall harsh discipline score, higher scores meaning greater use of harsh discipline. Alphas ranged from .73–.77 for mothers and .68–.76 for fathers.

## Analytic Strategy

**Data screening and descriptive statistics.** We first screened all variables for univariate outliers beyond  $\pm 3.29$  standard deviations from the mean. We then examined missing data patterns. Dummy variables were created to represent missingness on each of the key study variables (1 = *missing*, 0 = *not missing*), which were used in logistic regressions as dependent variables to identify variables within our data set that predicted missingness. Finally, means, standard deviations, and correlations were computed to identify preliminary data patterns.

**Associations between parental psychological control and adolescent self-regulation.** An inherent challenge of analyzing longitudinal family processes is that traditional cross-lagged panel models typically used for these purposes actually conflate between- and within-person sources of variance inherent to the longitudinal data. Not only does this produce statistical biases and incorrect estimates of presence, predominance, and directionality of cross-lagged effects (e.g., Miklikowska, 2018), it also produces serious interpretation challenges that are often indefensible (Hamaker et al., 2015). Therefore, we instead used autoregressive latent trajectory models with structured residuals (ALT-SR; Curran, Howard, Bainter, Lane, & McGinley, 2014) following procedures outlined by Berry and Willoughby (2017). This technique disaggregates between- and within-person sources of variability to allow for the *within-person* specification of cross-lagged effects.

As a first step, appropriate growth trends in all repeated measures must be determined. We used model-building procedures to arrive at best-fitting growth structures for mothers' and fathers' psychological control and parent and adolescent reports of self-regulation. Comparison of fit indices (AIC, BIC, Sample Size Adjusted BIC) indicated that a linear model was the best-fitting model to describe mothers' and fathers' psychological control, which increased steadily from age 11 to 17. A quadratic model was the best-fitting model to describe changes in parent and adolescent reports of self-regulation, which showed an accelerated growth from ages 11–17 (see Table S1 in the online supplemental material for fit indices and parameter estimates).

Figure 1 displays the ALT-SR model specification (see Example Input in the online supplemental material). First, observed scores on psychological control and self-regulation across ages 11–17 were regressed onto random intercepts, (loadings fixed to one). Random, linear slopes were also estimated with time centered at age 11. Finally, observed scores on self-regulation were regressed onto a random quadratic term. Together, these parameters represent random, *between-person* variability in developmental trajec-

tories of psychological control and self-regulation across adolescence (initial levels at age 11 and rates change across adolescence). Then, each observed score for parental psychological control and adolescent self-regulation was also regressed onto its own latent variable with loadings constrained to one to form structured residuals. These structured residuals absorbed all the remaining *within-person* variance in the observed scores, thereby representing adolescents' intraindividual deviations from their own expected trajectories at a specific point in time.

In the ALT-SR model, individual differences in the development of psychological control and self-regulation are captured by the random intercepts and slopes; individuals' time-specific deviations from their own, expected trajectories of psychological control or self-regulation are captured by the structured residuals. This disaggregation of between- and within-person variance facilitates the estimation of associations between parental psychological control and adolescent self-regulation at both the between- and within-person levels. Specifically, covariances between the random intercepts and slopes are specified to estimate the degree to which individual differences in psychological control trajectories (initial levels and rates of change) correspond to individual differences in self-regulation trajectories (initial levels and rates of change), much like a dual process model. Autoregressive and cross-lagged paths were then specified among the structured residuals. Autoregressive parameters, with self-regulation for example, represent the degree to which an individual's time-specific deviation from his or her expected self-regulation trajectory predicts deviations from said self-regulation trajectory at the ensuing assessment (one year later). A cross-lagged effect, with psychological control for example, represents the extent to which a parent's time-specific deviation in psychological control from his or her expected level predicts deviations in the adolescent's self-regulation from his or her expected level at the next assessment, adjusted for *prior* deviations from one's expected self-regulation levels. The 1-year spacing between measurement intervals is important for interpreting these within-person effects in a theorized causal model. A 1-year interval allows enough time for within-person deviations in psychological control to produce within-person change in self-regulation, but also demonstrates the relative sustainability of this process, and thus its meaningfulness, over a period of time (see Dormann & Griffin, 2015).

**Procedure for invariance testing.** Four separate ALT-SR models were specified. Specifically, we estimated separate models for mothers' and fathers' psychological control, each using two separate informants of adolescents' self-regulation (adolescent report and primary caregiver report). In each model, autoregressive and cross-lagged parameters were tested for invariance across time. A fully unconstrained model was first estimated, and then separate pieces of the within-person model (i.e., involving the structured residuals) were constrained to equality across the seven waves: autoregressive parameter estimates, cross-lagged parameter estimates, and within-time residual covariances. This produced a more theoretically parsimonious model with respect to adolescents' age that could be formally compared to the original, unconstrained model on the basis of model fit. These model comparisons were performed using the change in chi square statistic, wherein a nonsignificant change in the chi-square value represents that the more parsimonious (constrained) model did not significantly worsen model fit, justifying its retention over the more theoretic-

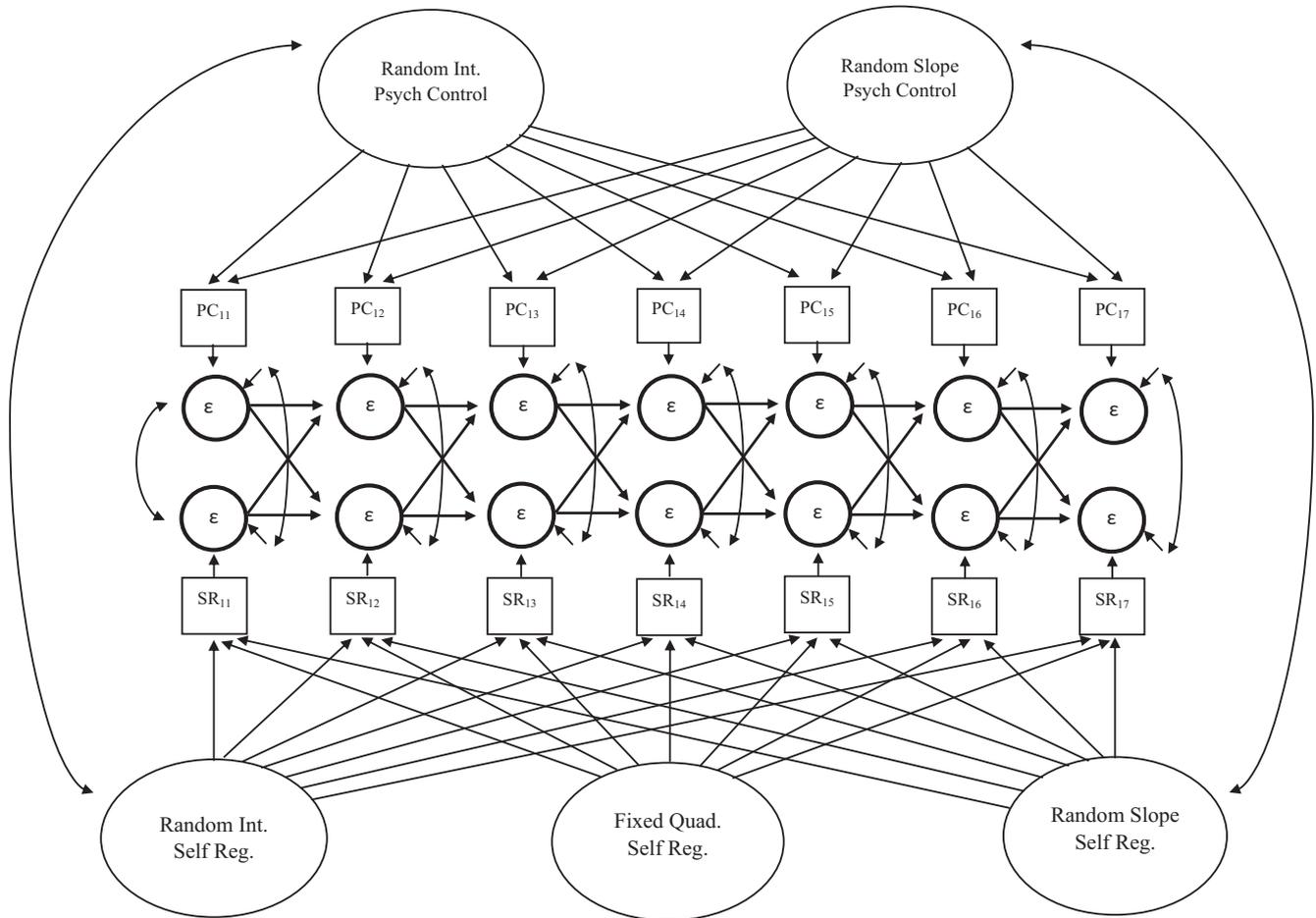


Figure 1. Specification of autoregressive latent trajectory models with structured residuals (ALT-SR) model examining between and within person associations between social network and mental health indices.

cally complex, unconstrained model. Building on this, *all* parameter estimates (between- and within-person elements of the model) were then tested for invariance by adolescents' sex using multiple group modeling. A fully unconstrained model was first estimated (parameters free to vary by sex). Then, separate pieces of the model were constrained to be equal across sex: autoregressive estimates, cross-lagged estimates, within-time residual covariances, intercept and slope covariances, and intercept, slope, and quadratic means. Constraints that did not worsen model fit (again using the change in chi square statistic), were retained; those that worsened model fit were discarded.

**Control variables.** In the ALT-SR model, trait-like and relatively stable individual characteristics (e.g., parent education, genetics) are controlled by the disaggregation of between- and within-person variance. Mothers' and fathers' harsh discipline was included as a within-time covariate in all models. Specifically, psychological control and self-regulation were regressed onto harsh discipline at each age (11–17) to partial them of any overlapping variance with parents' harsh discipline. The resulting variables represented all variance in psychological control or self-regulation that was unaccounted for by parents' harsh discipline, and these were the variables from which the disaggregated between and within-person estimates were derived.

## Results

### Data Screening

There were very few outliers from wave to wave, there were no cases that were outlying on more than two occasions, and there were no cases that reported any outlying score on more than one variable. Thus, all cases were retained. Missing data ranged from 4% to 40% for measures of parents' psychological control and 3% to 38% for self-regulation measures across ages 11–17. Missing values were more frequent at the extremes of the age continuum (particularly at age 11 given the restructuring of the data described previously), but missing data were low at all other ages. Across all ages and variables, data were not missing completely at random,  $\chi^2 = 2856.70$  (1948,  $p < .001$ ; MCAR; Little, 1988), and so we examined correlates of missingness. Missingness was negatively predicted by parent education level, but was unassociated with adolescent sex, minority status, or the key study variables. Attrition analyses further indicated that by age 17, a total of 17 families had attrited (3.5%), and these also had relatively lower levels of parents' formal education. We used Full Information Maximum Likelihood (Enders, 2010) to handle missing values at all waves.

## Descriptive Statistics

Means and standard deviations for all study variables across the seven assessments, as well as analyses for sex differences, can be found in Table 1. Correlations among the study variables across the seven assessments are presented in Table 2.

**Assessing sources of variance.** Intraclass correlations (ICCs) were calculated for each of the observed repeated measures. In this application, the ICC represents the total amount of variance in a repeated measure that is attributable to individuals' trait-like differences (i.e., between person variance). ICCs were calculated for mothers' and fathers' psychological control (ICCs = .53 and .55, respectively), and adolescent- and parent-reported self-regulation (ICCs = .62 and .76, respectively). Interpreted, 53% to 76% of the variance in the longitudinal assessment of psychological control and self-regulation was explained by individual differences among participants (between-person variance). However, this also means that a substantial amount of variance in these measures (24% to 47%) represents within-person fluctuations in which adolescents deviate from their own, cross-time averages. These results corroborate prior work showing parental psychological control within families fluctuates considerably around their own means (Mabbe et al., 2018), justifying the use of ALT-SR models to disaggregate between- and within-person sources of variance.

**Mothers' psychological control and adolescent self-regulation.** Adolescents' report of their mothers' psychological control was examined in relation to their self-regulation, first using primary caregivers' self-reports of their adolescents' self-regulation, and then using adolescents' reports of their own self-regulation (i.e., in two separate models). Model building procedures indicated that all the within-person processes were invariant across time (see Table S2 in the online supplemental material for model building results). Thus, we retained a model in which these paths were constrained to equality from ages 11–17. Then, this time-invariant model was specified in a multiple group framework to test for sex differences in the between- and within-person parameters. All paths were invariant across sex except the auto-regressive paths for psychological control. Thus, the most parsimonious and well-fitting model was one in which the within-person processes between psychological control and self-regulation were constant from age 11 to age 17, and in which all parameters at both the between- and within-person level, with the exception of the autoregressive paths for psychological control, were statistically indistinguishable among boys and girls. This final model fit the data well, RMSEA = .05 (95% CI [.04, .06]); CFI = .96; TLI = .95;  $\chi^2(367) = 578.95, p < .001$ .

Between-person parameter estimates (intercept, slope, and quadratic means; intercept and slope covariances) were not of primary substantive focus<sup>1</sup> (for these results, see Table S3 in the online supplemental material). Of primary interest to the study were the cross-lagged, within-person associations between psychological control and self-regulation (see Figure 2a). Mothers' psychological control predicted intraindividual decrements in adolescents' self-regulation one year later, adjusting for prior levels of self-regulation. Stated more simply, when adolescents reported time-specific increases in mothers' psychological control beyond their own expected trajectories, primary caregivers were more likely to report time-specific decreases in adolescents' self-regulation beyond their expected trajectories one year later, adjusting for prior

deviations in self-regulation (i.e., at the previous wave). Notably, these associations persisted above and beyond mothers' harsh discipline and were independent of any between-person factors (e.g., parent education, genetic factors), as these were controlled by virtue of the design itself. Associations in the reverse direction were not significant; adolescents' within-person fluctuations in self-regulation did not predict later fluctuations in mothers' psychological control.

In a second model, we examined child-reported self-regulation in relation to their reports of their mothers' psychological control. Model building procedures (see Table S2 in the online supplemental material) found that all the within-person associations were time-invariant from ages 11–17. Most parameter estimates were invariant across sex, with the exception of the autoregressive paths at the within-person level, which were allowed to vary sex. The final model displayed good fit to the data, RMSEA = .04 (95% CI [.03, .05]; CFI = .95, TLI = .95;  $\chi^2(362) = 529.13, p < .001$ ). Similar to the prior model, results showed significant, negative within-person associations between mothers' psychological control and adolescents' self-regulation one year later, adjusting for prior levels of self-regulation (see Figure 2b). Adolescents' self-regulation did not predict mothers' psychological control one year later.

**Fathers' psychological control and adolescent self-regulation.** A model was then estimated to examine the associations between fathers' psychological control and adolescents' self-regulation as reported by their primary caregiver. The same model-building procedures were used to test for invariance across time and sex, which produced a final model that fit the data well, RMSEA = .04 (95% CI [.03, .05]; CFI = .96; TLI = .96;  $\chi^2(364) = 520.56, p < .001$ ). In this model, autoregressive paths for fathers' psychological control could not be constrained to equality across time, leading us to relax this constraint. However, all other paths were invariant across time, and there were no sex differences in any of the between- or within-person parameter estimates. Within-person results showed a negative and significant association between fathers' psychological control and adolescents' self-regulation (see Figure 3a). Adolescents who experienced more psychological control from their fathers than their typical levels were predicted to show lower self-regulation than their typical levels one year later, adjusting for any prior fluctuations in self-regulation. The association between adolescents' self-regulation and fathers' psychological control was not significant. All associations, once again, emerged above and beyond fathers' use of harsh discipline and any stable individual differences.

Finally, a model was estimated for adolescents' perceptions of fathers' psychological control and adolescents' self-reported self-regulation. Model building procedures to examine invariance across time and sex produced a final model in which all within-person parameters were equivalent across time except for the

<sup>1</sup> In all four models, the between-person results indicated low initial levels of psychological control and moderate initial levels of self-regulation (intercepts centered at age 11), both of which were relatively stable across time (slopes and quadratic term was not significant). These initial levels were significantly correlated, indicating that adolescents who perceived their mothers or fathers to be more psychologically controlling were also more likely to display low levels of self-regulation (see Table S3 in the online supplemental material).

Table 1  
Means and Standard Deviations for All Study Variables

Variable	Age of assessment						
	Age 11 <i>M</i> ( <i>SD</i> ) <i>n</i> = 301	Age 12 <i>M</i> ( <i>SD</i> ) <i>n</i> = 411	Age 13 <i>M</i> ( <i>SD</i> ) <i>n</i> = 470	Age 14 <i>M</i> ( <i>SD</i> ) <i>n</i> = 475	Age 15 <i>M</i> ( <i>SD</i> ) <i>n</i> = 491	Age 16 <i>M</i> ( <i>SD</i> ) <i>n</i> = 492	Age 17 <i>M</i> ( <i>SD</i> ) <i>n</i> = 483
Mother psych control	1.68 (0.63)	1.75 (0.69)	1.82 (0.69)	1.91 (0.72)	2.02 (0.78)	2.05 (0.82)	2.08 (0.83)
Father psych control	1.65 (0.61)	1.69 (0.62)	1.75 (0.69)	1.81 (0.69)	1.87 (0.75)	1.85 (0.74)	1.85 (0.77)
Self-regulation (child)	2.88 (0.47)	2.86 (0.45)	2.83 (0.49)	2.81 (0.49)	2.83 (0.49)	2.87 (0.48)	2.90 (0.46) <sup>a</sup>
Self-regulation (parent)	2.82 (0.52) <sup>a</sup>	2.84 (0.51) <sup>a</sup>	2.89 (0.52) <sup>a</sup>	2.91 (0.52)	2.95 (0.53)	3.00 (0.53)	3.06 (0.55)
Mother harsh discipline	1.72 (0.34)	1.70 (0.39)	1.66 (0.38)	1.62 (0.38)	1.60 (0.39)	1.57 (0.40)	1.53 (0.42)
Father harsh discipline	1.70 (0.39)	1.69 (0.37) <sup>a</sup>	1.65 (0.39) <sup>a</sup>	1.62 (0.35)	1.60 (0.41)	1.51 (0.37)	1.47 (0.36) <sup>a</sup>

Note. All scales ranged from 1–5. Superscript *a* indicates significant sex differences. At age 17, boys (*M* = 2.98, *SD* = .40) self-reported higher mean levels of self-regulation than girls (*M* = 2.83, *SD* = .50) with a small effect size, Cohen’s *d* = .33. However, primary caregivers reported their daughters higher in self-regulation than their sons at age 11 (*M*<sub>girls</sub> = 2.90, *SD*<sub>girls</sub> = .52; *M*<sub>boys</sub> = 2.71, *SD*<sub>boys</sub> = .50, Cohen’s *d* = .37), age 12 (*M*<sub>girls</sub> = 2.91, *SD*<sub>girls</sub> = .50; *M*<sub>boys</sub> = 2.76, *SD*<sub>boys</sub> = .50, Cohen’s *d* = .30), and age 13 (*M*<sub>girls</sub> = 2.95, *SD*<sub>girls</sub> = .51; *M*<sub>boys</sub> = 2.81, *SD*<sub>boys</sub> = .52, Cohen’s *d* = .28). Fathers of sons reported harsher discipline than fathers of daughters at age 12 (*M*<sub>boys</sub> = 1.76, *SD*<sub>boys</sub> = .38; *M*<sub>girls</sub> = 1.62, *SD*<sub>girls</sub> = .35, Cohen’s *d* = .37) and age 13 (*M*<sub>boys</sub> = 1.72, *SD*<sub>boys</sub> = .44; *M*<sub>girls</sub> = 1.58, *SD* = .33; Cohen’s *d* = .32).

auto-regressive paths for psychological control. Furthermore, sex constraints could not be retained for autoregressive and cross-lagged paths, which were allowed to vary between boys and girls. All other parameter estimates (within-time covariances; means and covariances of intercepts and slopes) were constrained to equivalence for boys and girls. This final model showed good model fit, RMSEA = .04 (95% CI [.04, .05]); CFI = .94, TLI = .94,  $\chi^2(355) = 525.77, p < .001$ . The within-person processes between fathers’ psychological control and self-regulation differed for girls and boys (see Figure 3b). Among girls, results indicated significant and negative bidirectional associations between psychological control and self-regulation. Specifically, fathers’ greater psychological control from typical levels predicted lower-than-typical levels of self-regulation in their daughters one year later. At the same time, daughters’ lower-than-typical self-regulation predicted greater-than-typical levels of fathers’ psychological control one year later. However, among boys, only a positive path from self-regulation to later psychological control was significant. Specifically, higher self-regulation predicted increases in fathers’ psychological control one year later. Fathers’ psychological control did not predict boys’ later self-regulation.

Discussion

Framed from Self-Determination Theory and developmental-ecological perspectives, we examined bidirectional, longitudinal,

and intraindividual associations between adolescents’ perceived parental psychological control and their self-regulation from ages 11–17. Specifically, we examined evidence for how individuals’ time-specific deviations in one process predicted future deviations in the other. Parenting environments are widely regarded as a key socializing context for children’s development of self-regulation, a foundational skillset for an adolescent period characterized by major transitions. However, fewer studies have examined how parental psychological control specifically may undermine self-regulation, which is important to understand in the context of diminishing behavioral control, and for understanding unique and shared etiologies. We hypothesized that perceived psychological control would predict within-person decrements in self-regulation across adolescence. We also examined evidence for bidirectionality in these associations, as well as evidence of gendered patterns in these processes (boys vs. girls, mothers vs. fathers).

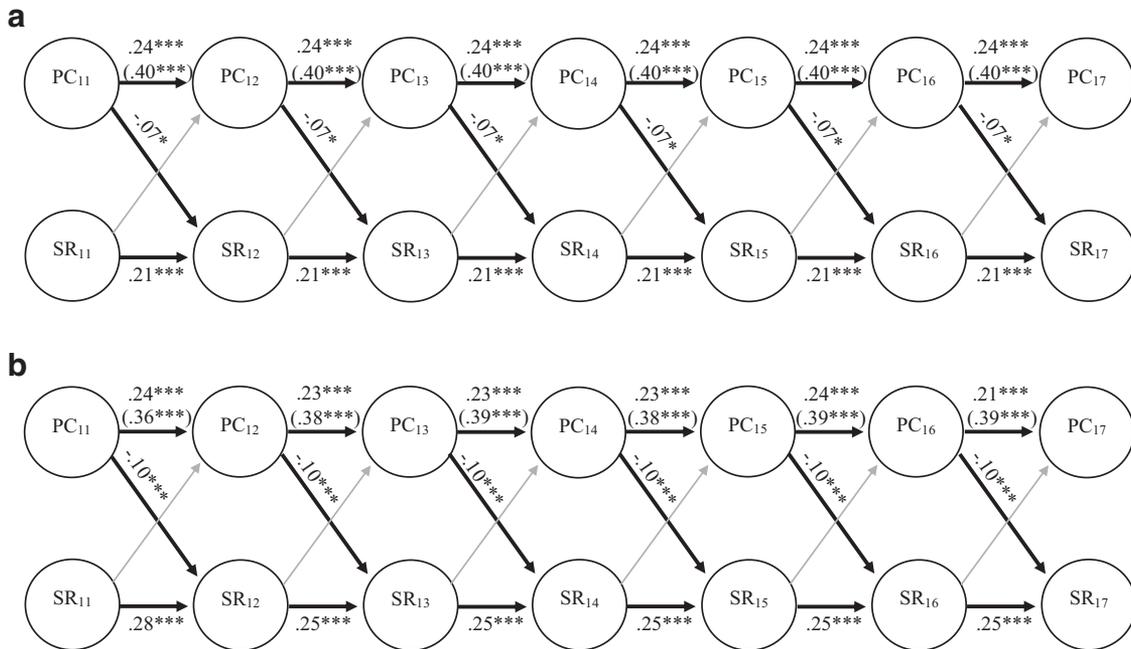
Psychological Control Predicts Intraindividual Declines in Adolescents’ Self-Regulation

Consistent with hypotheses, adolescents’ experiences of mothers’ and fathers’ psychological control predicted within-person declines in their self-regulation from ages 11–17 in all four models. Specifically, when adolescents’ experiences of mothers and fathers psychological control increased beyond their own typical levels, adolescents were more likely to display decreases in their

Table 2  
Within-Time Correlations Among Primary Study Variables From Ages 11–17

Variable	Psychological control 11/12/13/14/15/16/17	Child-reported self-regulation 11/12/13/14/15/16/17	Parent-reported self-regulation 11/12/13/14/15/16/17
Psych. control	—	-.27***/-.24***/-.25***/-.21***/ -.20***/-.21***/-.23**	-.13*/-.09*/-.23***/-.22***/ -.13***/-.18***/-.23**
Self-regulation (child report)	-.28***/-.26***/-.33***/-.31***/ -.26***/-.25***/-.17**	—	.43***/.39***/.37***/.43***/.45***/ .45***/.46**
Self-regulation (parent report)	-.12*/-.15***/-.27***/-.18***/ -.21***/-.25***/-.23**	.43***/.39***/.37***/.43***/.45***/ .45***/.46**	—

Note. Mothers’ psychological control is represented below the diagonal, fathers’ above the diagonal.  
\* *p* < .05. \*\* *p* < .01. \*\*\* *p* < .001.



**Figure 2.** Within-person auto-regressive cross-lagged associations between mothers' Psychological Control and Self-Regulation as reported by (a) primary caregivers, and (b) adolescents themselves. Bolded paths represent significant associations. For simplicity, within-time residual covariances are not shown, nor are any between person parameters (e.g., intercepts and slopes). When differing by sex, path estimates are displayed for girls (and boys). \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

own typical levels of self-regulation one year later, adjusted for any prior fluctuations in their self-regulation. These patterns emerged uniquely of parents' harsh disciplinary strategies (e.g., yelling, hitting), as well as trait-like differences among individuals (e.g., genetic factors). Furthermore, these associations replicated across parent and adolescent informants of self-regulation, and manifested consistently in cross-reporter models (adolescents reporting on parents and parents reporting on adolescents), ruling out the possibility of method effects that capitalize on shared method variance. Finally, these associations indicated a distinct predominance compared with associations in the opposite direction (i.e., self-regulation predicting psychological control).

These patterns are consistent with prior studies that report negative associations between psychological control and indices of self-regulation (e.g., Cui, Morris, Criss, Houlberg, & Silk, 2014), but advance this work in some key ways. Namely, this study is the first to our knowledge to examine longitudinal, bidirectional associations between perceived psychological control and adolescents' self-regulation, affirming the directional predominance from psychological control to self-regulation that is taken for granted in prior cross-sectional work. The aversive experience of psychological control can dysregulate an adolescent's affect and present him/her with coping challenges (Yap, Allen, & Ladouceur, 2008). Perhaps more problematic, and according to Self-Determination Theory, psychologically controlling parenting can produce within the adolescent controlled and introjected states of functioning that thwart autonomy needs and undermine psychological resources, including those for active self-regulation (see Soenens & Vans-teenkiste, 2010). The implications is that, as these process unfold

over time and across repeated family interactions (Bronfenbrenner & Morris, 2006), adolescents might experience sustained decrements in their self-regulation abilities.

Another important contribution of the present study is that it established these prospective associations between psychological control and self-regulation at the *intraindividual* level, whereas prior studies have relied on traditional, between person analytics. Developmental research questions like the present one are typically framed at the within-person level, but analyzing these questions with between-person statistical approaches can result in cross-lagged patterns that are not only biased or incorrect, but also sometimes impossible to interpret because they conflate between- and within-person sources of variability (Berry & Willoughby, 2017; Hamaker et al., 2015). The ALT-SR models used herein disaggregated these sources of variance to estimate associations at both the between- and within-person level, providing a rigorous (and more interpretable) test of the unique and directional relations between psychological controlling parenting and adolescents' self-regulation.

Finally, past studies have rarely considered the impact of psychological control on adolescent outcomes after controlling for other aspects of negative or controlling parenting. This study provides preliminary evidence that psychologically controlling parenting bears *unique* predictive association with adolescent development of self-regulation, above and beyond harsh discipline. Although other forms of controlling parenting (e.g., harsh discipline, verbal hostility) may negatively affect self-regulation through externally controlled motives (Moilanen et al., 2015; Snyder, 2016), our results suggest that psychological control has an *additive* effect on

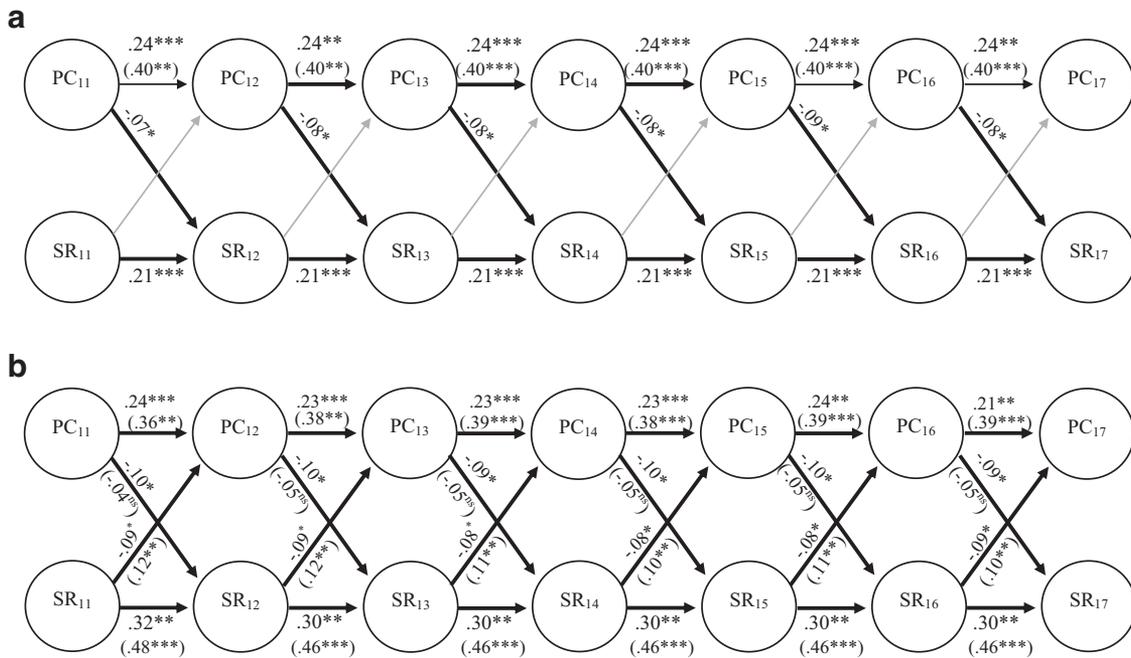


Figure 3. Within-person auto-regressive cross-lagged associations between fathers' Psychological Control and Self-Regulation as reported by (a) primary caregivers and (b) adolescents themselves. Bolded paths represent significant associations. For simplicity, within-time residual covariances are not shown, nor are any between person parameters (e.g., intercepts and slopes). When differing by sex, path estimates are displayed for girls (and boys). \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

adolescents' development of self-regulation, ostensibly through leveraging internally coerced motives (see Soenens & Vansteenkiste, 2010). Implied is that family-based intervention efforts should differentiate aversive forms of parental control.

**Inconsistent Evidence That Self-Regulation Predicts Psychologically Control**

Associations in the opposite direction were not consistently supported. Adolescents' self-regulation did not predict their later reports of psychological control in three of the four models, though in the adolescent-informed father model, this association did emerge. Although these latter nuances with fathers deserve acknowledgment, the prevailing pattern seems to suggest that in general, unlike other forms of parental control, psychological control may not be an immediate or direct response to adolescents' self-regulatory difficulties. Indeed, some scholars have asserted that psychological control is most fundamentally an outgrowth of the parents' own intrapsychic disturbances (e.g., Pettit et al., 2001), implying that it is a parent's own psychological resources (or the lack thereof) that may be a more salient antecedent of his or her psychologically controlling disposition, at least in general.

That said, in the adolescent-informed father model, fathers' psychological control predicted girls' lower self-regulation (as reported by adolescents themselves), and girls' self-regulation also predicted more psychologically controlling parenting from their fathers one year later. This pattern does have some precedent in prior work, in which adolescents' aggression (which is sometimes conceptualized as an index of self-regulation) predicted more

familial conflict, which in turn elicited greater psychological control (Steeger & Gondoli, 2013). Perhaps more surprising in this same model, fathers' psychological control did not predict boys' self-regulation, but boys' self-regulation actually positively predicted greater perceptions of their fathers as psychologically controlling. Given that this particular model was entirely adolescent-informed, these effects could be driven by adolescents' perceptions. For example, when boys perceive themselves as more self-controlled, they may be more likely to notice or perceive fathers' infringements on their autonomy, including psychological control. Indeed, gendered socialization can encourage boys' greater assertiveness in expressing their needs and opinions within their families, which could challenge existing parent-child hierarchies, especially between boys and their fathers. Of course, this is somewhat speculative on our part, and we hesitate to overinterpret this finding in light of very little extant longitudinal data on fathers' psychological control. Furthermore, we were unable to formally test differences between mother and father models. However, we believe these findings do signal the importance of (a) continuing to explore fathers' parenting of their adolescent children, and (b) considering reporter when measuring both parenting and adolescent behaviors (e.g., Dyer, Day, & Harper, 2014).

**The Ubiquity of Self-Regulation Difficulties Stemming From Psychological Control**

A striking pattern embedded within these findings was that associations between psychological control and self-regulation displayed relative constancy across age and, for the most part, adolescents' sex. For example, regarding age, all four models indi-

cated that experiences of parental psychological control should predict an adolescents' self-regulation difficulties equally well from ages 11 to 17. This may seem curious in the context of what we know about waning parental influence, including on self-regulation, as adolescents age and grow more autonomous (e.g., Moilanen et al., 2015; Moilanen, Padilla-Walker, & Blaacker, 2018). However, this decline in parental influence mostly applies to positive aspects of parenting, such as behavioral regulation and warmth or support, which promote internalized motives that eventually outpace the need for direct parental regulation. Negative aspects of parenting, such as authoritarian parenting, continue to challenge adolescents' adjustment over time, including difficulties with self-regulation (e.g., Moilanen et al., 2015). Furthermore, SDT posits that the need for volitional functioning is salient at every age throughout adolescence (Soenens & Vansteenkiste, 2010). Therefore, violations of adolescents' perceived autonomous motivation will be likely to predict self-regulatory difficulties at any period of adolescence.

Regarding our examination of sex differences, all models but one revealed that the within-person effects of psychological control on later self-regulation were statistically indistinguishable for boys and girls. Because some research indicates that girls may be more negatively affected by psychological control than boys (Pettit et al., 2001), these findings may also be somewhat surprising. However, SDT posits that the need for volitional functioning exists regardless of sex, and so psychological control should present self-regulation difficulties just the same for boys and girls (Soenens & Vansteenkiste, 2010). In this way, the trend of our findings again aligns more closely with SDT, seemingly reflecting the universal need for autonomous functioning. The exception to this was in the father model with adolescent informants where fathers' psychological control predicted girls', but not boys', declines in self-regulation 1-year later. Although this might reflect a unique element to father-son relationships, we again hesitate to overinterpret as this was not reflected in the model where parents informed on self-regulation. Again, this underscores the need for a more thorough treatment of multiple informants in future studies. Overall, however, the pattern was evident that suggested relative universality in these associations. As such, we encourage scholars and practitioners to approach the relation between psychological control and self-regulation difficulties as a relatively ubiquitous challenge for adolescents, regardless of age or sex. We assert this because perceiving age and sex differences where there may be none or where they are relatively small can result in the diversion of valuable attention and resources to select groups of adolescents, as well as reinforce or even reify the illusion of nonmeaningful differences among adolescents (e.g., gender stereotypes).

### Limitations

This paper was not without limitations. The sample was middle class and was generally a well-adjusted collection of families. As such, findings should be generalized with caution and scholars should pursue future research on this topic among families within more marginalized or disadvantaged contexts where ecological stressors often weigh heavier on families and individuals. Second, we looked at an overall profile of self-regulation, consistent with

predominant conceptualizations (for an exception, see Wills, Walker, Mendoza, & AINETTE, 2006). Although our study detected an important and common socialization process to be relevant to this conceptualization, self-regulation as a construct is nuanced and there are some diverging opinions regarding its empirical treatment. For example, some distinguish between short-term (e.g., impulse control, attentional control) and long-term (planning for the future) forms of self-regulation, even citing evidence that parental influence may be limited to some forms over others (Moilanen, 2007). The present study is unable to speak to such nuances given its holistic treatment of self-regulation. Future research is needed to determine if psychologically controlling parenting has more sway over short- or long-term regulatory skills, as this could have important implications of family-based intervention efforts. In a similar vein, though our measure of self-regulation is multidimensional and has been used in past work (e.g., Coyne et al., 2018), it is relatively short and is self-reported by parents and adolescents. As such, it may not be sensitive to certain temporal (e.g., long-term vs. short term) or natural contexts (e.g., strategies vs. tendencies) of self-regulation. Thus, there is some uncertainty as to the methodological and substantive extensions of our results, which might be addressed in future studies by using more comprehensive and/or objective (e.g., independent observers and/or lab-based tasks) assessments of self-regulation. Third, we assessed adolescents' perceptions of parents' psychological control. Adolescents' perceptions of their parenting environments are valuable as they are perhaps the most direct reflection of their own experiences, and they circumvent social desirability biases inherent to parents' reports of their own parenting (Bögels & van Melick, 2004). Nevertheless, future research including parents' perceptions would also be helpful to determine if the reporter matters in detecting these processes. Perhaps more importantly, future studies should investigate whether more objective assessments of parents' psychological control (e.g., independent observer ratings) are also predictive of self-regulation. Finally, our study used a 1-year measurement spacing between assessments. Although this is very common in developmental research, it is unclear whether a 1-year measurement spacing is best for studying within person change in these processes. For example, if the 1-year spacing is longer than these within-person effects take to materialize, our analyses would be prone to underestimating the size of these effects (Cohen, Cohen, West, & Aiken, 2003). Future studies employing similar within-person analytics should carefully consider what an optimal measurement interval might be for the processes under investigation.

### Conclusions

Psychological control is a subtle strategy for coercive control reliant on emotionally manipulative tactics. Results from the present study aligned closely with theory to suggest that adolescents' experiences of psychological control can uniquely interfere in the development of their self-regulation, an effect which appears relatively ubiquitous throughout the second decade of life. Family-based intervention efforts can help sensitize parents to the presence of their psychologically coercive dynamics and work to minimize its presence in family life.

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Received October 30, 2018

Revision received July 26, 2019

Accepted August 2, 2019 ■