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LINKAGES BETWEEN SCHOOL AND HOME: ASSOCIATIONS BETWEEN ADOLESCENT SCHOOL-DAYS AND PARENT PERCEPTIONS OF FAMILY RELATIONS

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ABSTRACT

This study examined how adolescent school-day challenges are linked to parent perceptions of three key family functioning domains on the same day, using daily diary data collected from 128 parent-adolescent pairs across an average of 12 days. The present study tested within- and between-family associations between adolescent reports of school-day challenges and parent reports of family-level, parent-adolescent, and interparental relations on the same day. At the within-family level it was hypothesized that on days when adolescents experienced more than usual school-day challenges, parents would report less warmth and more conflict. At the between-family level, it was hypothesized that higher levels of school-day challenges would be associated with less warmth and more conflict, on average. Exploratory analyses were conducted to examine if adolescent gender moderated the association between school-day challenges and family relations. On days when adolescents experienced more than usual challenges at school, parents reported less warmth and more conflict than usual across domains. The between-family hypothesis was partially supported with higher levels of school-day challenges associated with parent reports of decreased warmth across domains. Adolescent gender moderated several daily associations, such that the same-day links between school-day challenges and two family functioning domains were stronger for adolescent males. This study underscores the value of including adolescent-specific stressors when evaluating processes influencing family relations.

Keywords: Adolescence; Daily Diary; Family-Level; Family Systems; Interparental; Multilevel Modeling; Parent-Adolescent; School; Peer Conflict

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Chapter 1: INTRODUCTION

The quality of family relations play a critical role in adolescent development. Thus, it is vital to understand the factors, within and outside the family, that impact its functioning. The majority of this research investigates family relations from a linear, parent to adolescent, perspective, despite the implicit interdependence and bidirectional linkages occurring between family members and subsystems (Minuchin, 1985). Adolescent moods and behaviors are associated with how their caregivers engage in parenting practices, as well as various dyadic and subsystem functioning within the family system (Crouter & McHale, 2003; Kerr & Statin, 2003; Maccoby, 2003). Therefore, like their parents, it is important to recognize that adolescents' experiences are likely associated with broader family relations.

Key Family Functioning Domains Associated with Adolescent Development

This study focuses on three key domains of family functioning – family-level, parent-adolescent, and interparental relations– that are related to successful adolescent developmental outcomes. The first domain, *family-level relations*, is represented by family cohesion. Family cohesion is defined as general feelings of affection, support and togetherness at the family-level (Barber & Buehler, 1996; Reeb et al., 2015). Family cohesion is a well-established protective factor against internalizing and externalizing behaviors during adolescence (Barber & Buehler, 1996; Fosco, Caruthers, & Dishion, 2012; Luebbe & Bell, 2014). The second domain, *parent-adolescent relations*, includes parent-adolescent closeness, conflict, and parenting practices. Although some parent-adolescent conflict is normative in this developmental period, conflict-driven parent-child interactions have been associated with a variety of maladaptive psychological and behavioral outcomes (Fosco, Lippold, & Feinberg, 2014; Kim et al., 2003; Steinberg & Silk, 2002). The third domain, *interparental relations*, includes interparental positivity and conflict. Empirical research on interparental relations focus on interparental conflict, or conflict between

parents, and has been associated with internalizing, externalizing, and general behavior problems during adolescence (Buehler et al., 1997; Fosco & Feinberg, 2015). These three domains of family functioning are critical for adolescent development.

Linking Internal and External Factors to Family Processes

From a family systems perspective, families are comprised of smaller, interdependent subsystems; functioning in one subsystem influences and is influenced by functioning in other subsystems through daily interactions (Cox & Paley, 1997; Minuchin, 1985). The emotional experiences, moods, or behaviors in one context may be linked to later interactions or emotional experiences in other contexts (Almeida, Wethington, & Chandler, 1999; Erel & Burman, 1995; Larson & Almeida, 1999). Within the family system, the inherent interdependent nature of subsystems creates linkages between them. For example, if a parent experienced high levels of stress at work, their negative emotions may be associated with their routine interactions with other family members across subsystems at home (Larson & Almeida, 1999; Repetti et al., 2009; Story & Repetti, 2006). Additionally, the emotional experiences, moods, or behaviors of one family member transfer to another family member, influencing how they second engage with various subsystems (Bolger et al., 1989). Therefore, the impact of emotional experiences within and outside the home are especially salient processes in families.

Interparental conflict is associated with more problematic parent-adolescent relations, demonstrating the interdependent nature of the family subsystems (Buehler et al., 1997, Erel & Burman, 1995). In two-parent households, interparental relations play an important role in managing the quality of family relationships such as family cohesion and parent-adolescent relations (Cox & Paley, 1997; Nichols & Everett, 1986). With a sample of 39 studies, Krishnakumar and Buelher (2000) provide meta-analytic evidence indicating that interparental conflict or hostility is reliably negatively correlated with parenting and parent-child interactions.

Overwhelmingly, the interparental conflict literature supports the idea that conflict between parents can be transmitted across family subsystems, negatively influencing how parents engage with each other, as well as in parent-adolescent relations.

Extra-familial stressors are thought to impact family functioning through effects on parents' psychological well-being, parenting, and child developmental outcomes in the family system (Belsky, 1984). Parents who experience more work-related stress have an increased likelihood of engaging in more conflict-driven interactions at home, influencing their routine interactions with other family members (Crouter & Maguire, 1998; Crouter, Bumpus, Maguire, & McHale, 1999; Larson & Almeida, 1999; Margolin & Christensen, 1996; Repetti, Wang, & Saxbe, 2009; Story & Repetti, 2006). For example, husbands' work stress has been associated with men reporting more social isolation at home (Bianchi & Milkie, 2010; Story & Repetti, 2006). Further, female partners reported feeling less able to balance work and family when their partners experience elevated levels of work stress (Bianchi & Milkie, 2010; Bolger et al., 1989). While the work-family literature provides empirical evidence linking work-related processes to family relations, less research has examined how determinants or factors of adolescent-driven processes are linked to family relations at home.

Exploring the Link between Adolescent School and Home Processes

Adolescents directly influence family system functioning. Unlike earlier periods of development, adolescents become increasingly autonomous, while gaining more complex executive functioning and abstract thought in preparation for the challenges and expectations of adulthood (Rowe et al., 2015; Steinberg, 2005; Steinberg & Morris, 2001; Steinberg & Silk, 2002, Wray-Lake, Crouter, McHale, 2010). These changes prompt increased interest and motivation for adolescents to play larger roles in family decision making processes (Beveridge & Berg, 2007; Serbin et al., 2015). Just as parents experience work stressors, adolescents

increasingly experience school-related stressors as expectations for their behavior and success at school increases (Steinberg & Silk, 2002; Trucco et al., 2014). During adolescence, the school context presents individuals with a unique set of social and academic pressures directly linked to their long-term psychological, economic, and career trajectories (Oswald, 1997). Thus, adolescents' experiences and emotions at school likely linked to family relations at home.

Adolescents engage in numerous interpersonal interactions throughout the school-day. In turn, stressful experiences throughout the day at school may impact family life at home. During adolescence, stressful or challenging interactions with teachers have been associated with lower academic motivation (Eccles et al., 1993), and may negatively impact adolescent overall school-day experiences. Further, peer relationships take on new importance during adolescence, and experiences of peer conflict at school may be negatively associated with adolescents' school-day experiences, affecting how they later engage in routine family interactions at home (Hartup, 1993, 1996; Laursen, Hartup, & Koplas, 1996; Chung, Flook, & Fuligni, 2011). It is vital to examine how adolescents' school experiences are associated with to key family functioning domains.

Using daily diary methods, previous research has demonstrated a link between adolescent reports of school experiences and their perceptions of subsequent family relations at home. Lehman and Repetti (2007) found that on days when fifth grade students experienced more challenges with teachers and peers at school, they also reported parent-child interactions to be more aversive. In a similar study fourth to sixth grade students, child perceptions of academic failures, such as feeling socially isolated or receiving a bad grade on an assignment, where linked to their perceptions of being less warm towards their parents at home (Repetti, 1996). A study of family to school linkages in ninth grade students demonstrated an association between adolescent

reports of peer conflicts at school and their reports of increased family conflicts persisting into the following day (Flook & Fuligni, 2008).

While establishing links between school and home contexts, these studies use a single reporter. More recent studies examining linkages between school and home contexts have begun longer data collection periods and incorporating multiple reporters, increasing the rigor of examinations of the school to home linkages. Further, the inclusion of multiple reporters provides unique inference into context to context processes. Conceptually, multiple reporters illustrate a more impactful and clear depiction of family processes than single reporters by illustrating the interdependent nature of family members and subsystems to broader family functioning.

The inclusion of multiple reporters provides more robust findings by decreasing measurement error associated with reporter bias, and demonstrates how one's experience in one context may be associated with another (Almeida & Larson, 1999; Bolger et al., 1989). Using data collected separately from adolescents and their parents, studies have demonstrated the salience of negative events at school to family relations at home (Bai, Reynolds, Robles, & Repetti, 2016; Timmons & Margolin, 2015). Bai and colleagues (2016) examined how mother and father perceptions of parent-child warmth and conflict were negatively associated with academic and peer problems and extended the literature by examining if either parent's perceptions were uniquely associated with adolescent school-day experiences, but focused exclusively on parent-adolescent relations. Similarly, Timmons and Margolin (2015) found parent-child conflict positively, bidirectionally associated with problems at school on the same-day and the next day, but defines school problems broadly, without examining the combined influence of general problems at school, challenges with teachers, or peer conflict. The current

study examines how challenges at school, including peer or teacher relations, drive linkages between school and home context. Previous research has shown negative school experiences are linked to parent reports of more parent-child/adolescent conflict, less time spent together, and less warm family interactions (Bai, et al., 2016; Timmons & Margolin, 2015). Less is known about how challenges at school are uniquely associated other key domains of family functioning at home.

The Current Study

This study examined how daily variations in adolescent school-day experiences are linked to three family functioning domains. Intensive longitudinal methods, such as daily dairy studies, are uniquely suited to capture the dynamics nature of family processes (Bolger, Davis, & Rafaeli, 2003; Bolger & Laurenceau, 2013; Laurenceau & Bolger, 2005). Our daily diary approach required participants to repeatedly complete surveys over 21 consecutive days, of which school-days were extracted for analysis. The repetition allowed the current study to examine daily school to home linkages as they naturally occur (Bolger & Laurenceau, 2013; Larson & Almeida, 1999). Additionally, the daily dairy approach reduces participant recall bias by allowing participants to answer research questions on the same day events occurred (Bolger & Laurenceau, 2013; Stone & Shiffman, 2002). Moreover, using a daily diary approach, this study was able to distinguish between daily variations in within-family processes and sample-level between-family differences (Bolger & Laurenceau, 2013). Analysis of between-family differences has been the standard of family-focused research, increasing the generalizability of research findings across groups, but decreasing specificity and the ability to distinguish specific temporal sequences necessary to investigate family processes available in a within-family analytic framework (Almeida et al., 1999; Laurenceau & Bolger, 2005).

This study examined the daily link between adolescent challenges at school and parent reports of family relations at home using multilevel modeling. Adolescents reported on three different school-day experiences – challenges with teacher, peers, and general difficulties across the school-day – which were combined into one overall school-day challenges variable. Participating parents reported on three family functioning domains at home: family cohesion, parent-adolescent relations, and interparental relations. Within and between-family effects were disentangled to examine both within-family variations and sample-level trends. Next, I examined the same-day associations between each school-day challenge and within- and between-family relation at home in twelve individual models. At the between-family level, I hypothesized that as adolescent challenges at school increase, parents would report less warmth and more conflict than average. At the within-family level, I hypothesized that on days when adolescents experienced more challenges than usual at school, parents would report less warmth and more conflict than usual. Second, I examined how daily associations between school-day challenges and family relations were moderated by differences in adolescent gender. Previous studies in this area have not consistently found adolescent gender to moderate the association with linkages between school to home contexts (Flook & Fuligni, 2008; Chung et al., 2011). Given the small number of studies in this area and little direct evidence of gender moderation, exploratory analysis examined if there were adolescent gender differences relative to the associations between adolescent school-day experiences and parent reports of family relations at home in this sample.

Chapter 2: METHOD

Data for the current study come from the Penn State Family Life Optimizing Well-being (FLOW) study, a daily diary study wherein parents and their adolescents completed up to 21 daily reports about family functioning, their mood, and well-being.

Participants

In total, participants included 151 families of 9th and 10th grade adolescents recruited primarily through high schools in Pennsylvania, then from participant referrals. Due to the inclusion of participant referrals in the recruitment process, some families are from other geographic regions. Eligibility requirements included the following criteria: (1) two-caregiver family status, (2) adolescents lived in one household continuously, (3) internet access and means to complete daily surveys at home, (4) English fluency, (5) the participating adolescent was in 9th or 10th grade, and (6) both parent and adolescent agreed to participate (via consent, assent, respectively).

A subset of the full sample was used for analysis. First, to examine interparental relations, the sample was limited to families indicating the primary and secondary caregivers were in a romantic relationship (n = 145). Second, given the small number of participating fathers (n = 7), the analytic sample was restricted to participating caregivers identifying as mothers (n = 138). Next, participating families with adolescents indicating they were home schooled or attended school online were excluded from the sample (n = 130), as analyses examine daily challenges experienced within the school context. Finally, families providing inadequate school data (n = 128) were excluded from the analytic sample. The final sample included 128 participating families.

Participating adolescents (76 female, 52 male) were between the ages of 14 and 16 years old (M_{Age} = 14.76, SD_{Age} = 0.73) and primarily identified as White (89.8%). Participating

caregivers (128 female) were between 30 and 61 years old (M_{Age} = 43.7, SD_{Age} = 6.61), and primarily identified as their adolescent's mother (97.7%), step-mother (1.6%), or foster mother (0.8%). Participating caregivers identified as primarily White (93.7%). The majority of caregivers reported being married (n = 119) or living with a significant other (n = 7), while some indicated being single (n = 2); all were living with another caregiving adult. Participating caregivers reported living together for an average of 17.8 years (SD = 6.71). The majority of participating caregivers completed at least a high school degree or something similar (97%), and over half had completed at least junior college or an associates degree (66%). The family income for participants ranged from 'Less than $10,000' to '$125,000 and over' ($Median_{Income}$ = '$70,000 – $79,999').

Procedure

Families were recruited primarily through emails sent to parents from school principals. Other families were recruited through referrals from study participants. Interested parents accessed study information through a web page containing detailed information about the purpose and design of the study and provided consent to participate and contact information. Consent forms and contact information was reviewed by research staff to determine that the interested families met all eligibility criteria. Once this determination was met, adolescents were contacted with a description of the study and an opportunity to assent or decline participation. If the adolescent assented, she/he was sent a link to a baseline survey, once completed, parents were emailed a link to complete their own baseline survey.

Upon completion of both baseline surveys, participants initiated the 21-day daily diary protocol. Links to daily surveys were emailed separately to parents and adolescents at 7:00 PM each evening, followed by a reminder text message or phone call. Parents and adolescents were instructed to complete their daily survey before going to bed, although access links remained

open until 9:00 AM the next morning. In cases where participants completed surveys the following morning, they were instructed to report on the prior day.

Daily surveys took approximately 5 minutes to complete each evening and included items related to family-level relationships (e.g., cohesion), interparental and parent-child relationship quality (e.g., conflict, warmth), parenting practices (parent report only), daily emotion regulation, daily mood, and daily well-being. Because this study focused on adolescents' school challenges, the data included in analysis were limited to school-days. Adolescents were asked each day if they attended school, if yes, they were then asked to respond to questions about their experiences at school. Data for analysis was restricted to days adolescents reported attending school. Adolescent compliance rates were based on the number of total possible school-days each participant could have attended, which ranged between 9 and 15 days during the 21-day daily dairy protocol. Variability in the number of total possible school-days relates to differences in each participants' academic calendar, as well as when, in the calendar year, they began the 21-day daily diary protocol. Adolescents in this sample provided daily school-day reports on between 6 and 15 school-days ($M_{Adolescent}$ = 11.52 [84.99%], $SD_{Adolescent}$ = 2.29) during the 21-day diary protocol. Parents provided family relations reports on 98.35% (M_{Parent} = 11.34, SD_{Parent} = 2.33) of days adolescents indicating attending school. At the conclusion of the data collection protocol, parents and adolescents were compensated with Amazon or Walmart gift cards (based on preference): $25 each after completing the baseline assessment; $2.50 for the first 4 daily surveys of each week, and $5 for the last 3 surveys of each week. For this portion of the study, families could be compensated up to $200.

Measures

Our empirical analysis uses adolescents' daily reports about *challenges at school* and parents' daily reports of *family cohesion, parent-adolescent closeness, parent-adolescent*

conflict, parenting behaviors, interparental positivity, and interparental conflict. For scales with multiple items, within-family (R_c) and between-family (R_{1F}) reliability scores were calculated to assess whether scales reliably capture within and between-family change, respectively (Bolger & Laurenceau, 2013; Cranford et al., 2006). There is no clear standard defining thresholds for within-family (R_c) and between-family (R_{1F}) scores in the current literature. Generally, reliability scores of 0.5 or higher have been sufficient and acceptable based on previous work published using the R_c (eg. Geldhof, Preacher, Zyphur, 2014; Lida et al., 2017; Ng & Lucuanetti, 2016) and R_{1f} reliability scores (eg. Fosco & Lydon-Staley, 2017; Huguet et al., 2015; Segerstrom et al, 2016). Similar to traditional Cronbach's alpha calculations of reliability, higher values for both the R_c and R_{1f} reliability score indicate increased reliability. Non-school-days were omitted from analysis. Adolescent gender was coded as a dichotomous variable (female = 0 and male =1) to better facilitate interpretation of results.

Challenges at School. On school-days, adolescents rated that day's challenges at school, using a slider scaled 0 ("Very Bad") to 10 ("Very Good") in 0.1 increments. Adolescents responded to three items, "How was your day at school today", "How well did you get along with your teachers today", and "How well did you get along with your friends today". Daily *challenges at school* scores, calculated for adolescents (3 items) as the average of items, was reverse coded so larger numeric responses indicated more challenges at school. Daily *challenges at school* scores ranged from 0 to 10 (M = 1.35, SD = 1.27) for adolescents. Daily *challenges at school* demonstrated meaningful within-person (R_c = 0.67) and between-person (R_{1F} = 0.82) variation.

Family Cohesion. As part of each evening's web-based survey, parents rated that day's level of family cohesion, adapted from the short version of the Family Environment Scale to fit a

daily timescale (Bloom, 1985), using a slider scaled 0 (“Not at All”) to 10 (“A lot”) in 0.1 increments. Parents responded to three items, “Family members really helped and supported one another”, “There was a feeling of togetherness in our family”, and “Family members really backed each other up”. Daily *family cohesion* scores, calculated for parents (3 items) as the average of items, ranged from 0 to 10 ($M = 7.70$, $SD = 1.76$) for parents. Daily *family cohesion* demonstrated meaningful within-family ($R_c = 0.83$) and between-family ($R_{1F} = 0.89$) variation.

Parent-Adolescent Connectedness. Parents rated that day’s level of parent-adolescent connectedness, using a slider scaled 0 (“Not at All”) to 10 (“Very”) in 0.1 increments. Parents responded to four items, “I tried to understand my child’s point of view”, “I felt close and connected to my child”, “I was loving and affectionate with my child”, and “I felt loved by my child today”. Daily *parent-adolescent connectedness* scores, calculated for parents (4 items) as the average of items, ranged from 0 to 10 ($M = 7.99$ $SD = 1.66$) for parents. Daily *parent-adolescent connectedness* demonstrated meaningful within-family ($R_c = 0.81$) and between-family ($R_{1F} = 0.90$) variation.

Parent-Adolescent Conflict. Parents rated that day’s level of parent-adolescent conflict, using a slider scaled 0 (“Not at All”) to 10 (“Very”) in 0.1 increments. Parents responded to two items, “I was angry at my child”, and “There was tension between my child and I today”. Daily *parent-adolescent conflict* scores, calculated for parents (2 items) as the average of items, ranged from 0 to 10 ($M = 0.96$, $SD = 1.11$) for parents. Daily *parent-adolescent conflict* demonstrated meaningful within-family ($R_c = 0.71$) and between-family ($R_{1F} = 0.57$) variation.

Parenting Practices. Parents rated that day’s parenting practices, using a slider scaled 0 (“Not at All True”) to 10 (“Very True”) in 0.1 increments. Parents responded to six items, including, “I praised or complimented my child for good behavior”, “I enforced parenting rules

and/or expectations with my child", "My disciplinary decisions depended on my mood", and "I felt like a good parent today". Daily *parenting practice* scores, calculated for parents (5 items) as the average of items, ranged from 0 to 10 (M = 6.45, SD = 1.26) for parents. Daily *parenting practices* demonstrated meaningful within-family (R_c = 0.56) and between-family (R_{1F} = 0.78) variation.

Interparental Positivity. Parents each rated that day's level of positivity/warmth between caregivers, using a slider scaled 0 ("Not at All") to 10 ("A Lot) in 0.1 increments. Parents responded to two items, "My partner and I GOT ALONG with each other today", and "My partner was LOVING and AFFECTIONATE with me today." Daily *interparental positivity* scores, calculated for parent (2 items) as the average of items, ranged from 0 to 10 (M = 7.57, SD = 2.19) for parents. Daily *interparental positivity* demonstrated meaningful within-family (R_c = 0.72) and between-family (R_{1F} = 0.86) variation.

Interparental Conflict. Participating parents each rated that day's level of conflict with secondary caregivers, using a slider scaled 0 ("Not at All") to 10 ("A Lot) in 0.1 increments. Parents responded to two items, "My partner and I were MAD AT EACH OTHER today" and "My partner and I DISAGREEED WITH EACH OTHER today". Daily *interparental conflict* scores, calculated for parent (3 items) as the average of items, ranged from 0 to 10 (M = 0.98, SD = 1.09) for parents. Daily *interparental conflict* demonstrated meaningful within-family (R_c = 0.82) and between-family (R_{1F} = 0.62) variation.

Data Analysis Plan

Multilevel modeling captures the nested nature of daily reports of family and school experiences within individuals (Bolger & Laurenceau, 2013; Laurenceau & Bolger, 2005; Larson & Almeida, 1999). The multilevel modeling analytic approach allows linkages between school and home context to be examined at both the within- and between-person levels. Within- and

between-family equations were estimated in the nlme package (Pinheiro et al, 2017) using the RStudio statistical program (RStudio Team, 2016). All models were run using RStudio version 1.0.136 (RStudio Team, 2016).

Before conducting multilevel models, data preparation and preliminary analyses were conducted. First, the within- and between-family effects were disentangled by splitting each family relation variable into two separate variables using group-mean-centering (Bolger & Laurenceau, 2013; Hoffman, 2007). Between-family variables were calculated as the mean reported levels of each family relations measure reported over the 21-day period (Bolger & Laurenceau, 2013). The within-family variable subtracts the family-specific mean from each daily report, centering the variable on each family-specific mean (Bolger & Laurenceau, 2013). Second, means, standard deviations, and ranges were calculated for each variable. Third, unconditional means models were conducted to test the amount of within-person variance available to be modeled to make sure there was sufficient within-person variance to proceed with multilevel models. Fourth, within-person (R_c) and between-person (R_{1f}) reliability scores were calculated to determine if daily variables adequately captured within- and between-family variability necessary for analysis (Bolger & Laurenceau, 2013; Cranford et al., 2006). Finally, average within-family and between-family correlations were calculated to determine potential multicollinearity and domain specificity across family domain variables.

Then, multilevel models were computed. The Level 1 equation estimates the within-family effect of adolescents' reports of day's school challenges predicting variability in parents' reports of family functioning. The Level 2 equation accounts for between-family differences in usual school challenges and daily family functioning. Congruent with previous research in the area, adolescent gender was included in the models to estimate if gender moderates the within-

person association between adolescents' reports of day's school challenges and parents' reports of daily family functioning. Bonferroni correction was employed when evaluating significance levels of each model in the first and second steps of analysis. To calculate the corrected p-value, the original α-value (0.05) was divided by the number of family relations in each domain (family relations: $p < .05$; parent-adolescent relations: $p < .017$; interparental relations: $p < .025$).

Equation 1 demonstrates how Level 1 was estimated in the first step of our analytic plan - interparental positivity as an example outcome:

Level 1:

$$InterparentalPositivity_{it} = \beta_{0i} + \beta_{1i} Day's\ SchoolChallenges_{it} + \beta_{2i} Time_{it} + e_{it} \quad \textbf{(1)}$$

This example includes interparental positivity as the outcome variable for each participating parent (i) on a school-day (t) modeled as a function of their adolescents' (i) intercept (β_{0i}), adolescents' within-person reports of challenges at school (β_{1i}), and the day (β_{2i}). An error term (e_{it}) was included to represent unexplained variance for each adolescent across each day. To reduce potential differences presented by family relations on non-school-days, data analysis was restricted to school-days.

Equation 2 demonstrates how Level 2 was estimated in the first step of our analytic plan:

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01} UsualSchoolChallenges_i + \gamma_{02} YSex_i + \gamma_{03} YAge_i + u_{0i}$$
$$\beta_{1i} = \gamma_{10} + u_{1i}$$
$$\beta_{2i} = \gamma_{20} \quad \textbf{(2)}$$

In this example, the Level 1 intercept (β_{0i}) was modeled as a function of the between-person intercept (γ_{00}), usual or average levels of challenges at school (γ_{01}) for each adolescent (i), each adolescents' gender (γ_{02}), and each adolescents' age (γ_{03}) at the between-person level. The Level 1 slope for challenges with teachers (β_{1i}) was modeled as a function of the between-person

slope (γ_{10}) and random effects. The Level 1 slope for Time (β_{2i}), was modeled as a function of itself (γ_{20}). Both the Level 1 intercept (β_{0i}) and Level 1 slope for challenges with teachers (β_{1i}) was allowed to randomly vary by adolescent participants, represented in the Level 2 equations as two error terms (u_{0i} and u_{1i}).

Equations 3 demonstrates how Level 2 was estimated in the second step of our analytic plan examining gender moderation:

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01} UsualSchoolChallenges_i + \gamma_{02} YGender_i + \gamma_{03} YAge_i + u_{0i}$$
$$\beta_{1i} = \gamma_{10} + \gamma_{11} YGender_i + u_{1i}$$
$$\beta_{2i} = \gamma_{20} \quad \textbf{(3)}$$

In this example, the Equation 2 was altered to include adolescents' gender as a cross level predictor of the Level 1 slope for challenges at school to examine any moderating effects. Bonferroni correction was used to adjust the p-value for each domain.

Chapter 3: RESULTS

Table 1 presents the mean, standard deviation, and range for each variable included in analyses, as well as interclass correlations representing the proportion of within-person variance present, total number of occasions, and estimates of within-person (R_c) and between-person (R_{1F}) reliability for each measure (Bolger & Laurenceau, 2013; Cranford et al., 2006).

Table 1. Descriptive Statistics for Adolescent and Parent Daily Variables

	M	*SD*	Range	Occasions	ICC	R_c	R_{1F}
Adolescent Daily Report							
School Challenges [a,b]	1.35	1.27	0.00 to 10.00	1498	.41	.67	.82
Parent Daily Report							
Family Cohesion [a,b]	7.70	1.76	0.00 to 10.00	1457	.40	.83	.89
Parent-Adolescent Closeness [a,b]	7.99	1.66	0.00 to 10.00	1474	.35	.81	.90
Parent-Adolescent Conflict [a,b]	0.96	1.11	0.00 to 10.00	1471	.72	.71	.57
Parenting Practices [a,b]	6.45	1.26	0.00 to 10.00	1474	.42	.56	.78
Interparental Positivity [a,b]	7.57	2.19	0.00 to 10.00	1474	.35	.72	.86
Interparental Conflict [a,b]	0.98	1.09	0.00 to 10.00	1473	.75	.82	.62

Note. N = 128 participants. [a] Within-day scale of averaged daily items. [b] Averaged across individual reporters.

Table 2 presents a summary of the between-person bivariate correlations for variables included in analyses. As expected, parent reports within domain were generally moderate to highly correlated, but cross-domain correlations were moderate to small, suggesting discriminate reporting across family relation domains. Adolescent daily reports of challenges at school were moderately associated with parent perceptions of family relations across domains (r = -.40 to .29). Adolescent reports of challenges at school were negatively associated with all parent report variables except for parent-adolescent conflict (r = .27) and interparental conflict (r = .29). As expected, family cohesion was highly correlated with parent-adolescent closeness (r = .84, parenting practices (r = .73), and interparental positivity (r = .75), demonstrating the close, but distinct association between family-level variables and specific family relations. Similarly, the strong correlation between parent-adolescent closeness and parenting practices (r = .80)

demonstrate the expected association executive and parent-adolescent subsystems. Finally, adolescent gender was moderately associated with both parent-adolescent closeness (r = -.20) and conflict (r = .20).

Table 2. Between-Person Bivariate Correlations for Study Variables

	1	2	3	4	5	6	7	8	9
1. School Challenges	--								
2. Family Cohesion	-.27**	--							
3. Parent-Adolescent Closeness	-.25**	.84**	--						
4. Parent-Adolescent Conflict	.27**	-.38**	-.45**	--					
5. Parenting Practices	-.25**	.73**	.80**	-.25**	--				
6. Interparental Positivity	-.40**	.75**	.65**	-.27**	.67**	--			
7. Interparental Conflict	.29**	-.33**	-.28**	.41**	-.22**	-.51**	--		
8. Adolescent Gender	-.05	-.11	-.20**	.20**	-.10	-.06	.11	--	
9. Adolescent Age	.03	-.03	-.07	.01	-.09	-.09	.13	.03	--
SD	1.35	1.76	1.66	1.11	1.26	2.19	1.09	.49	.84

Note: $N = 128$ participants. Gender is dichotomous with 0 = female and 1 = male. **p < .01, *p< .05, $^{+}$p = .05.

Table 3 presents a summary of intraindividual correlations and their ranges for variables included in analyses. Unlike the between-person bivariate correlations described in Table 2, the intraindividual correlations in Table 3 describes the average individual associations among paired variables across occasions (Ram & Gerstoff, 2009). Although the number of occasions included in these analyses are among the highest found in the literature, there is an inadequate number of occasions to accurately calculate significance values for intraindividual correlations (Bakdash & Marusich, 2017; Schönbrodt & Perugini, 2013). Instead, the range for each intraindividual correlation has been provided to demonstrate variation across participants and days. As expected, parent reports within and across domains were generally small to moderately correlated, demonstrating that family domains were very distinguishable. Moreover, the range of correlations demonstrates that associations between paired variables varied across days and individuals. The range for some paired variables includes perfect negative (-1) or positive (1) correlations due to a lack of variation in some participants responses. Intraclass correlations detailed in Table 2 demonstrate that, despite some participants' lack of variation in their responses, there was an adequate amount of within-family variance to include all variables in our analyses.

Table 3. Intraindividual Correlations (Range) for Study Variables

	1	2	3	4	5	6	7
1. School Challenges	--						
2. Family Cohesion	-.09 (-.87-.77)	--					
3. Parent-Adolescent Closeness	-.11 (-.89-.73)	.43 (-.43-.99)	--				
4. Parent-Adolescent Conflict	.11 (-.84-.99)	-.19 (-.97-.77)	-.32 (-1.00-.58)	--			
5. Parenting Practices	-.08 (-.74-.89)	.35 (-.60-.97)	.48 (-1.00-1.00)	-.13 (-1.00-.1.00)	--		
6. Interparental Positivity	-.06 (-.76-.69)	.40 (-.79-.98)	.25 (-.86-.94)	-.11 (-1.00-.57)	.23 (-.74-.96)	--	
7. Interparental Conflict	.05 (-.85-.99)	-.22 (-.99-.80)	-.08 (-.95-.60)	.18 (-.51-.97)	-.08 (-.96-.76)	-.42 (-1.00-.68)	--

Note: $N = 128$ participants. Range for correlations in parentheses.

Same Day Within- and Between-Person Association between Adolescent School Challenges and Parent Perceptions of Family Relations

The goal of the study was to test within- and between-family hypotheses related to how adolescent school-day challenges would be linked to family-level, parent-adolescent, and interparental relations. To test these hypotheses, we conducted analyses in two steps detailed in Table 4 examining whether adolescents' challenges at school were related to diminished family relations across family-level functioning, parent-adolescent, and interparental relations. In each step, analyses controlled for adolescents' gender, age, and time in reference to the days in the sequence of assessments.

Table 4. Day's and Average Adolescent School Challenges Predicting Family Processes

	Key Family Functioning Domains					
	Family-Level Relations	Parent-Adolescent Relations			Interparental Relations	
	1	2	3	4	5	6
	Family Cohesion B (SE)	P-A Closeness B (SE)	P-A Conflict B (SE)	Parenting Practices B (SE)	Interparental Positivity B (SE)	Interparental Conflict B (SE)
Intercept (γ_{00})	7.87* (.19)	8.30* (.17)	.76* (.12)	6.54* (.13)	7.70* (.22)	.83* (.12)
Usual SC (γ_{01})	-.42* (.12)	-.38* (.11)	.20* (.07)	-.26* (.08)	-.74* (.14)	.15 (.08)
Day's SC (γ_{10})	-.05 (.05)	-.08 (.05)	.11* (.05)	-.12* (.03)	-.12* (.04)	.07 (.06)
Gender (γ_{02})	-.42 (.31)	-.75* (.28)	.45 (.18)	-.24 (.22)	-.26 (.36)	.35 (.19)
Youth Age (γ_{03})	-.16 (.18)	-.20 (.16)	.04 (.11)	-.19 (.12)	-.12 (.21)	.13 (.11)
Time (γ_{20})	-.01 (.01)	-.01* (.01)	-.02* (.01)	-.02* (.00)	-.01 (.01)	-.02* (.01)
Day's SC*Gender Interaction (γ_{11})	-.19* (.09)	-.19^{+} (.08)	----	----	----	----
Bonferroni Correction	*p<.05		*p<.017, $^{+}$p<.029		*p<.025	

Note: *N* = 128. SC = School challenges. P-A = Parent-Adolescent. Asterisks reflect significant effects for each domain using Bonferroni correction. Time refers to days in the sequence of assessments. Gender is dichotomous with 0 = female and 1 = male.

All final models examined are shown in Table 4. In the family-level functioning domain, within and between-family associations between daily adolescent reports of challenges at school and parent reports of family cohesion were examined in column 1. At the between-family level, increased challenges at school for adolescents was associated with lower parent perceptions of family cohesion (γ_{01} = -.42, p <.05).

Parent-adolescent relations contains models examining parent-adolescent closeness (column 2), conflict (column 3), and parenting practices (column 4). On days when adolescents experienced more than usual challenges at school, parents reported higher levels of parent-adolescent conflict (γ_{10} = -.11, p <.017) and reported feeling less confident in their parenting practices (γ_{10} = -.12, p <.017). At the between-family level, adolescents who experienced more challenges at school tended to have worse parent-adolescent relations. Specifically, more challenges at school was associated with lower parent reports of parent-adolescent closeness (γ_{01} = -.38, p <.017), higher reports of parent-adolescent conflict (γ_{01} = -.20, p <.017), and lower reports of parenting practices (γ_{01} = -.26, p <.017), on average.

Interparental relations, in Table 4, was the last family functioning domain included in analyses, containing interparental positivity (column 5) and conflict (column 6). On days when adolescents experienced more than usual challenges at school, parents reported less interparental positivity (γ_{10} = -.12, p <.025). At the between-family level, when adolescents experienced more challenges at school, their parents tended to report worse interparental relations. Specifically, more challenges at school were associated with less interparental positivity (γ_{01} = -.74, p <.025), but not with increased levels of interparental conflict, on average.

The adolescent's biological gender was positively associated with parent perceptions of parent-adolescent closeness. Finally, the time variable was negatively associated with parent-

adolescent closeness, parent-adolescent conflict, parenting behaviors, and interparental conflict, potentially suggesting a period of adjustment for parents responding to daily measures.

Testing Adolescent Gender as a Moderator of the Association between Adolescent School Challenges and Parent Perceptions of Family Relations

Exploratory analyses examined if same-day associations between adolescent reports of challenges at school and parent reports of family relations across domains were moderated by adolescent gender. Adolescent gender was included as a between-person predictor of the Level 1 slope for adolescent school challenges, adding a cross-level interaction term in Step 2 of analysis. Broadly, adolescent gender moderated within-family associations between challenges at school and parent perceptions across two family functioning domains.

Adolescent gender significantly moderated within-family associations between daily challenges at school and parent perceptions of family cohesion. Specifically, on days when adolescent males experienced more than usual challenges at school, parents experienced more negative perceptions of family cohesion as illustrated in Figure 1.

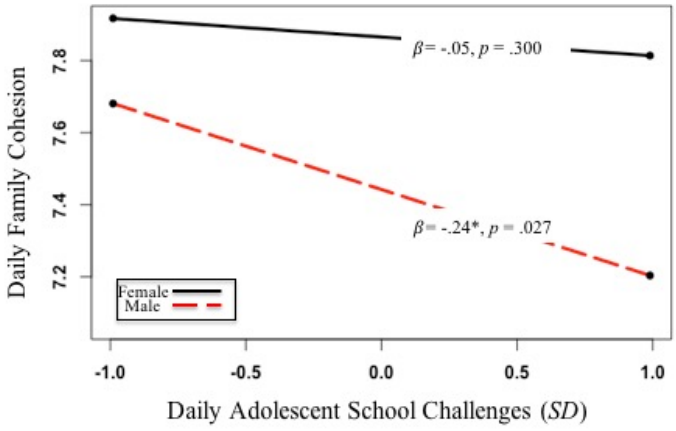

Figure 1 Moderation effect of adolescent gender on same day association between school challenges and parent report of family cohesion

Although beneath the significance threshold for the Bonferroni correction for the parent-adolescent relation's domain ($p < .017$), a similar trend emerged for the within-family associations between daily school challenges experienced by adolescent males and parent perceptions of parent-adolescent closeness. As illustrated in Figure 2, on days when adolescent males experienced more than usual challenges at school, parents reported steeper declines in parent-adolescent closeness.

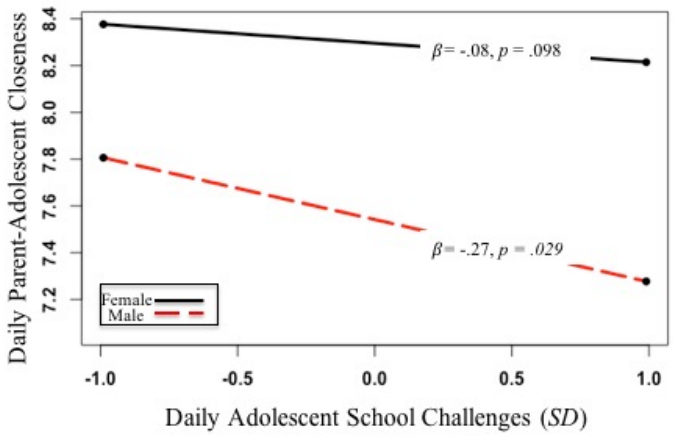

Figure 2 Moderation effect of adolescent gender on same day association between school challenges and parent report of parent-adolescent closeness

Chapter 4: DISCUSSION

The goal of this study was to examine how adolescents' challenges at school impact family-level, parent-adolescent, and interparental domains of family functioning. Using daily diary data collected from adolescents in 9th or 10th grade and one of their parents, this study examined how daily variations in adolescent school-day experiences were associated with parent perceptions of family relations. Analyses disentangled within- and between-family effects to examine daily within-family processes, as well as sample-level trends between school and home. Statistically significant within-family effects indicated that on days when adolescents experience more than usual challenges at school, their participating parent reported less warmth in family relations across subsystems. Further, several within-family daily associations were found to be moderated by adolescent gender. Finally, between-family effects indicated that higher reports of school challenges were associated with lower parent perceptions positive family relations and an increase in their perception of conflict across domains.

Overall, partially supported the within-family hypothesis and between-family hypotheses. Evidence supporting the within-family hypothesis demonstrated that on days when adolescents experienced more challenges than usual at school, their participating parent reported lower levels of warmth, and higher levels of conflict across family domains. At the between-family level, higher levels of challenges for adolescents at school were negatively associated with parent perceptions of family cohesion, parent-adolescent closeness, parenting practices, and interparental positivity. Between-family level associations were also found between adolescent school challenges and parents' perceptions of parent-adolescent. These findings support the between-family level hypothesis as significant associations were found between school

challenges and parents' perceptions of less warmth across family domains and more conflict, than average.

Daily associations between adolescent school challenges and parent perceptions of within-family functioning were significantly moderated by adolescent gender in family-level relations and at trend-level for parent-adolescent relations; there were no gender differences for interparental relations. Previous research has suggested that the challenges at school may be especially salient for parents with adolescent daughters as adolescent females are thought to be more emotionally susceptible to daily stressors (Almeida & Kessler, 1998), but adolescent females did not significantly moderate the association between school-day challenges and family relations. The lack of significant findings for adolescent females may reference socialization practices that penalize externalizing behaviors, instead reinforcing internalizing strategies when dealing with challenges as to no disrupt interpersonal relations (Davies & Lindsay, 2004). Socialization practices for adolescent males may emphasize externalizing behaviors as a means of coping with frustrations or challenges (Davies & Lindsay, 2001; Grych, Harold, & Miles, 2003). Externalizing behaviors are more likely to impact parent-adolescent relations and the broader family system. Similar to findings about men in the work-family literature, these findings suggest that stressors experienced by adolescent males are associated family-level dynamics, as well as parent's ability to engage in parent-adolescent relations (Bianchi & Milkie, 2010; Bolger et al, 1989; Fagan & Press, 2008; Repetti, 1989). The lack of significant moderating effects for interparental relations may suggest that the boundary around the interparental subsystem, for participating families, was less open than the boundaries of other subsystems (Cox & Paley, 1997). The significant moderating effects demonstrated in the current findings require further investigation.

Study findings support for previous research demonstrating that problems at school translate into problems at home, while extending the literature in several key directions. Parents reported more conflict with their adolescents on more challenging school-days (Timmons & Margolin, 2015), and the study's inclusion of two reporters, further validates findings in single reporter studies by demonstrating linkages between contexts (Chung et al., 2011; Flook & Fuligni, 2008; Repetti, 1996). Unlike previous research, the current study expanded to include new dependent variables across three key family functioning domains. The inclusion of both parent and adolescent reports further validated how daily variations in adolescent reports of challenges at school are associated with family dynamics at home. The inclusion of multiple family functioning domains and multiple reporters demonstrates that adolescent school-day experiences are linked to their perceptions of family relations, as well as associated with how their parents perceive subsequent family dynamics and relations. Moreover, participants in the current study provided up to 15 days of daily dairy data on their school-day experiences, more measurement occasions than typically found in the family literature. The increased number of measurement occasion allows the current study to generate more reliable and robust models, as well as more power to detect potential interaction. Current findings suggest that problems at school for adolescents in 9th and 10th grade may translate into decreased warmth and increased conflict at home for both adolescents and their parents.

This study provides consistent, robust evidence for adolescent's influence on the family, across family-level, parent-adolescent, and interparental domains. Much of the previous research on family functioning domains has focused on parents as agents of change, and adolescents are rarely considered in terms of how they shape family functioning. Unlike earlier periods of development, adolescents are actively seeking more autonomy (Steinberg, 2005; Wray-Lake,

Crouter, McHale, 2010), while becoming more engaged in family decision making processes (Beveridge & Berg, 2007). Moreover, adolescents bring a level of intentionality to how they engage or disengage in their school context (Li & Lerner, 2011; Rowe et al., 2015). Despite these developmental changes, few studies have examined how adolescent experiences may evoke different responses from other family members across subsystems. Similar to when their parent's experience high levels of work-stress, adolescent school-day challenges may have direct and indirect effects at home. Current findings add to the literature on interparental relations by demonstrating the association between adolescent school-day challenges and decreased perceptions of interparental positivity. Previous research has generally focused on the deleterious effects of interparental conflict on adolescent developmental outcomes (Buehler et al., 1997; Erel & Burman, 1995; Krishnakumar & Buehler, 2000). Less is known about how adolescent-driven effects may impact interparental relations. Future studies examining family relations should include potential adolescent specific stressors to better understand their impact on system functioning.

Limitations and Future Directions

The current study has several important limitations to consider. First, although the analyses include both adolescent and parent report in the same household, analyses were limited to the participating caregivers' perceptions of family relations and their relationship with their partner. A study strength is reflected in the disentangling of effects by using both adolescent and parent reports, but the sample of participating caregivers was primarily mothers. A more diverse sample of parents may have provided more information into potential parent gender difference related to perceptions of family relations across domains. Future studies should include fathers to increase general understanding of the potential vulnerabilities associated with fathers and their engagement in key family relations during the adolescent developmental period.

Second, the current sample lacked of diversity in regard to the racial/ethnic background participating families; the sample was primarily comprised of White and geographically constrained. Increased racial and ethnic diversity would provide insights into how links between key family relations and school-day challenges may differ due to differences in socialization processes related to racial and ethnic group membership. Moreover, geographic diversity would allow for a broader understanding of how community environments are linked to both school-day challenges and family relations at home. Future studies should to include my racial and ethnic diversity by partnering with community organizations, as well as school districts. Further, a web-based research designs could be easily incorporated into school or family-based prevention programs already engage with diverse communities.

The final limitation to consider relates to a lack of temporal ordering in regard to adolescent reports of school challenges and parent reports of family relations. Both adolescent and parents received their daily survey at 7:00 PM in the evening and were asked to describe events that occurred earlier in the day. In the future, increasing the number and timing of assessment throughout the day may have further validated the linkages between school and home contexts detailed in this study.

Conclusion

Results from the current study have important implications for in family researchers and practitioners. First, the inclusion of both adolescent and parent reporters in the present study allowed for a more statistically robust analysis of the linkages between school and home. Moreover, the inclusion of multiple family domains allowed for a more comprehensive understanding of how adolescent school-day experiences are linked to key family functioning domains. Congruent with previous research, this study demonstrates that more difficult days at

school are associated with parent perceptions of more conflict with their adolescent. Moreover, the current study extends the research literature by detailing the scope and reach of adolescent school-day challenges links to other important parent-specific domains such as parenting and interparental conflict. Future studies should include family functioning variables, like parenting practices and interparental relations, and multiple family members into models examining child-driven effects and family processes.

Finally, the current study has implications for family-based prevention and intervention programs. Although it is common practice to focus on parents as primary change agents within the family system, these findings support the practice of identifying and providing support for adolescents and adolescent-specific stressors that may impact whole-family functioning. Experiencing discontinuity is a normal part of adolescent development and providing general support and resources to adolescents and their parents could be beneficial across context. Most of the support and resources available to families with adolescents are only presented when an academic, psychological, or behavior problem has been identified. Providing more general support is consistent with a recent meta-analysis of family-based prevention programs, where including child-focused content often bolsters overall program effects (Van Ryzin et al., 2016). Including adolescent-specific content into family-based prevention and intervention programs will provide families skills to better neutralize the potential impact of school challenges into family relations at home, and practical strategies to help adolescents cope with external stressors. Understanding the complex links between internal and external contexts on parents and adolescents is a vital component in developing successful family-based prevention and intervention programs. The current study suggests that family researchers should consider how adolescent experiences outside the family context are linked to important family relations.

References:

Ackerman, R. A., Kashy, D. A., Donnellan, M. B., & Conger, R. D. (2011). Positive-engagement behaviors in observed family interactions: A social relations perspective. *Journal of Family Psychology*, *25*(5), 719–730. https://doi.org/10.1037/a0025288

Almeida, D. M., & McDonald, D. (1998). Weekly rhythms of parents' work stress, home stress, and parent-adolescent tension. *New Directions for Child and Adolescent Development*, *1998*(82), 53–68. https://doi.org/10.1002/cd.23219988205

Almeida, D. M., Wethington, E., & Chandler, A. L. (1999). Daily transmission of tensions between marital dyads and parent-child dyads. *Journal of Marriage and the Family*, *61*(1), 49–61. https://doi.org/10.2307/353882

Arnett, J. (1999). Adolescent storm and stress, reconsidered. *American Psychologist*, *54*(5), 317–326.

Bai, S., Reynolds, B. M., Robles, T. F., & Repetti, R. L. (2016). Daily links between school problems and youth perceptions of interactions with parents: A diary study of school-to-home spillover. *Social Development*, (October 2016), 1–18. https://doi.org/10.1111/sode.12229

Bakdash, J. Z., & Marusich, L. R. (2017). Repeated measures correlation. *Frontiers in Psychology*, *8*(MAR), 1–13. https://doi.org/10.3389/fpsyg.2017.00456

Barber, B. K., & Buehler, C. (1996). Family cohesion and enmeshment: Different constructs, different effects. *Journal of Marriage and the Family*, *58*(2), 433–441. https://doi.org/10.2307/353507

Barber, B. L., Jacobson, K. C., Miller, K. E., & Petersen, A. C. (1998). Ups and Downs: Daily Cycles of Adolescent Moods Patterns of Mood Change. *New Directions For Child and Adolescent Development*, (82), 23–36.

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2014). Fitting Linear Mixed-Effects Models using lme4. *Journal of Statistical Software*, *67*(1), 1–48. https://doi.org/10.18637/jss.v067.i01

Bell, R. Q. (1968). Effects in Studies of Socialization. *Psychological Review*, *75*(2).

Belsky, J., Steinberg, L., Draper, P., Belsky, J., Steinberg, L., & Draper, P. (1991). Childhood Experience , Interpersonal Development , and Reproductive Strategy : An Theoretical Paper Childhood Experience , Interpersonal Development , and Reproductive Strategy : An Evolutionary Theory of Socialization. *Child Development*, *62*(4), 647–670. https://doi.org/10.1111/j.1467-8624.1991.tb01558.x

Beveridge, R. M., & Berg, C. A. (2007). Parent-adolescent collaboration: An interpersonal model for understanding optimal interactions. *Clinical Child and Family Psychology Review*, *10*(1), 25–52. https://doi.org/10.1007/s10567-006-0015-z

Bolger, N., & Laurenceau, J.-P. (2013). *Intensive Longitudinal Methods: An Introduction to Diary and Experience Sampling Research*. The Guilford Press.

Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary Methods: Capturing Life as it is Lived. *Annual Review of Psychology*, *54*, 579–616. https://doi.org/10.1146/annurev.psych.54.101601.145030

Bolger, N., DeLongis, A., Kessler, R. C., & Schilling, E. A. (1989). Effects of daily stress on negative mood. *Journal of Personality and Social Psychological*, *57*(5), 808–818. https://doi.org/10.1037/0022-3514.57.5.808

Bolger, N., DeLongis, A., Kessler, R. C., & Wethington, E. (1989). The Contagion of Stress across Multiple Roles. *Journal of Marriage and Family*, *51*(1), 175–183. https://doi.org/10.2307/352378

Buehler, C., Anthony, C., Krishnakumar, A., Stone, G., Gerard, J. M., & Pemberton, S. (1997). Interparental Conflict and Youth Problem Behaviors: A Meta-Analysis. *Journal of Child and Family Studies*, *6*(2), 233–247. https://doi.org/10.1023/A:1025006909538

Buehler, C., Benson, M. J., & Gerard, J. M. (2006). Interparental Hostility and Early Adolescent Problem Behavior: The Mediating Role of Specific Aspects of Parenting. *Family Life*, *16*(2), 265–292. https://doi.org/10.1111/j.1532-7795.2006.00132.x

Buehler, C., Krishnakumar, A., Anthony, C., Tittsworth, S., & Stone, G. (1994). Hostile Interparental Conflict and Youth Maladjustment. *Family Relations*, *43*(4), 409. https://doi.org/10.2307/585372

Chung, G. H., Flook, L., & Fuligni, A. J. (2011). Reciprocal Associations Between Family and Peer Conflict in Adolescents' Daily Lives. *Child Development*, *82*(5), 1390–1396. https://doi.org/10.1111/j.1467-8624.2011.01625.x

Cox, M. J., & Paley, B. (1997). Families as systems. *Annual Review of Psychology*, *48*(1), 243–267. https://doi.org/10.1146/annurev.psych.48.1.243

Crosnoe, R., & Cavanagh, S. E. (2010). Families with children and adolescents: A review, critique, and future agenda. *Journal of Marriage and Family*, *72*(3), 594–611. https://doi.org/10.1111/j.1741-3737.2010.00720.x

Crosnoe, R., & Elder, G. H. (2004). Family Dynamics, Supportive Relationships, and Educational Resilience During Adolescence. *Journal of Family Issues*, *25*(5), 571–602. https://doi.org/10.1177/0192513X03258307

Crouter, A. C., Bumpus, M. F., Maguire, M. C., & McHale, S. M. (1999). Linking parents' work pressure and adolescents' well-being: Insights into dynamics in dual-earner families. *Developmental Psychology*, *35*(6), 1453–1461. https://doi.org/10.1037/0012-1649.35.6.1453

Darling, N., & Steinberg, L. (1993). Parenting styles as context: an integrative model. *Psychological Bulletin*, *113*(3), 487–496.

Davies, P. T., & Lindsay, L. L. (2004). Interparental Conflict and Adolescent Adjustment: Why Does Gender Moderate Early Adolescent Vulnerability? *Journal of Family Psychology*, *18*(1), 160–170. https://doi.org/10.1037/0893-3200.18.1.160

Dishion, T. J., Nelson, S. E., & Kavanagh, K. (2003). The Family Check-Up with high-risk young adolescents: Preventing early-onset substance use by parent monitoring. *Behavior Therapy*, *34*(4), 553–571. https://doi.org/10.1016/S0005-7894(03)80035-7

Dornbusch, S. M., Ritter, P. L., Leiderman, P. H., Roberts, D. F., & Fraleigh, M. J. (1987). The relation of parenting style to adolescent school performance. *Child Development*, *58*(5), 1244–1257. https://doi.org/10.1111/j.1467-8624.1987.tb01455.x

Eccles, J. S., Midgley, C., Wigfield, A., Buchanan, C. M., Reuman, D., Flanagan, C., & Iver, D. Mac. (1993). The Impact of Stage-Environment Fit on Young Adolescents' Experiences in Schools and in Families. *American Psychologist*, *48*(2).

Eisenberg, N., Zhou, Q., Spinrad, T. L., Valiente, C., Fabes, R. A., & Liew, J. (2005). Relations among Positive Parenting, Children's Effortful Control , and Externalizing Problems : A Three-Wave Longitudinal Study Author (s): *Child Development*, *76*(5), 1055–1071.

Erel, O., & Burman, B. (1995). Interrelatedness of marital relations and parent-child relations: a meta-analytic review. *Psychological Bulletin*, *118*(1), 108–132. https://doi.org/10.1037/0033-2909.118.1.108

Flook, L., & Fuligni, A. J. (2008). Family and School Spillover in Adolescents' Daily Lives. *Child Development*, *79*(3), 776–787.

Fosco, G. M., & Feinberg, M. E. (2015). Cascading effects of interparental conflict in adolescence: Linking threat appraisals, self-efficacy, and adjustment. *Development and Psychopathology*, *27*(01), 239–252. https://doi.org/10.1017/S0954579414000704

Fosco, G. M., & Lydon-Staley, D. M. (2017). A Within-Family Examination of Interparental Conflict, Cognitive Appraisals, and Adolescent Mood and Well-Being. *Child Development*, 1–16.

Fosco, G. M., Caruthers, A. S., & Dishion, T. J. (2012). A six-year predictive test of adolescent family relationship quality and effortful control pathways to emerging adult social and

emotional health. *Journal of Family Psychology*, *26*(4), 565–575. https://doi.org/10.1037/a0028873

Fosco, G. M., Lippold, M. A., & Feinberg, M. E. (2014). Interparental boundary problems, parent–adolescent hostility, and adolescent–parent hostility: A family process model for adolescent aggression problems. *Couple and Family Psychology: Research and Practice*, *3*(3), 141–155. https://doi.org/10.1037/cfp0000025

Fuligni, A. J., & Hardway, C. (2006). Daily variation in adolescents' sleep, activities, and psychological well-being. *Journal of Research on Adolescence*, *16*(3), 353–378. https://doi.org/10.1111/j.1532-7795.2006.00498.x

Grych, J. H., Raynor, S. R., & Fosco, G. M. (2004). Family processes that shape the impact of interparental conflict on adolescents. *Development and Psychopathology*, *16*(3), 649–665. https://doi.org/10.1017/S0954579404004717

Grzywacz, J. G., & Marks, N. F. (2000). Reconceptualizing the work–family interface: An ecological perspective on the correlates of positive and negative spillover between work and family. *Journal of Occupational Health Psychology*, *5*(1), 111–126. https://doi.org/10.1037/1076-8998.5.1.111

Hartup, W. W. (1993). Adolescents and their friends. *New Directions for Child and Adolescent Development*, *1993*(60), 3–22. https://doi.org/10.1002/cd.23219936003

Hartup, W. W. (1996). The Company They Keep: Friendships and Their Developmental Significance. *Child Development*, *67*(1), 1–13.

Hinshaw, S. P. (1992). Externalizing Behavior Problems and Academic Underachievement in Childhood and Adolescence. *Psychological Bulletin*, *111*(1), 127–155.

Johnson, H. D., Lavoie, J. C., & Mahoney, M. (2001). Interparental Conflict and Family Cohesion: Predictors of Loneliness, Social Anxiety, and Social Avoidance in Late Adolescence. *Journal of Adolescent Research*, *16*(3), 304–318. https://doi.org/10.1177/0743558401163004

Kerr, M., & Stattin, H. (2003). Parenting of Adolescents: Action or Reaction? In A. C. Crouter & A. Booth (Eds.), *Children's Influence on Family Dynamics: The Neglected Side of Family Relationships* (pp. 121–151).

Kouros, C. D., Papp, L. M., Goeke-Morey, M. C., & Cummings, E. M. (2014). Spillover between marital quality and parent–child relationship quality: Parental depressive symptoms as moderators. *Journal of Family Psychology*, *28*(3), 315–325. https://doi.org/10.1037/a0036804

Krishnakumar, A., & Buehler, C. (2000). Interparental conflict and parenting behaviors: A meta-analytic review. *Family Relations: Interdisciplinary Journal of Applied Family Studies*, *49*, 25–44.

Krishnakumar, A., Buehler, C., & Barber, B. K. (2003). Youth Perceptions of Interparental Conflict, Ineffective Parenting, and Youth Problem Behaviors in European-American and African-American Families. *Journal of Social and Personal Relationships*, *20*(2), 239–260. https://doi.org/10.1177/02654075030202007

Larson, R. W., & Almeida, D. M. (1999). Emotional Transmission in the Daily Lives of Families: A New Paradigm for Studying Family Process. *Journal of Marriage and Family*, *61*(1), 5–20. https://doi.org/10.2307/353879

Larson, R. W., & Richards, M. H. (1994). Family Emotions: Do Young Adolescents and Their Parents Experience the Same States. *Journal of Research on Adolescence*, *4*(4), 567–583. https://doi.org/10.1207/s15327795jra0404_8

Laurenceau, J.-P., & Bolger, N. (2005). Using diary methods to study marital and family processes. *Journal of Family Psychology*, *19*(1), 86–97. https://doi.org/10.1037/0893-3200.19.1.86

Laurenceau, J.-P., & Bolger, N. (2013). Analyzing Diary and Intensive Longitudinal Data from Dyads. In M. R. Mehl & T. S. Conner (Eds.), *Handbook of Research Methods for Studying Daily Life* (pp. 407–421). The Guilford Press.

Laursen, B., Hartup, W. W., & Koplas, A. L. (1996). Towards Understanding Peer Conflict. *Merrill-Palmer Quarterly*, *42*(1), 76–102.

Lehman, B. J., & Repetti, R. L. (2007). Bad Days Don't End When the School Bell Rings: The Lingering Effects of Negative School Events on Children's Mood, Self-esteem, and Perceptions of Parent – Child Interaction. *Journal of Family Psychology*, *16*(3), 596–618. https://doi.org/10.1111/j

Li, Y., & Lerner, R. M. (2011). Trajectories of School Engagement During Adolescence: Implications for Grades, Depression, Delinquency, and Substance Use. *Developmental Psychology*, *47*(1), 233–247. https://doi.org/10.1037/a0021307

Margolin, G., & Christensen, A. (1996). The continuance and spillover of everyday tensions in distressed and nondistressed families. *Journal of Family Psychology*, *10*(3), 304–321. https://doi.org/10.1037//0893-3200.10.3.304

McHale, S. M., & Crouter, A. C. (2003). How do Children Exert Impact on Family Life? In A. C. Crouter & A. Booth (Eds.), *Children's Influence on Family Dynamics: The Neglected Side of Family Relationships* (pp. 207–220).

Minuchin, P. (1985). Families and individual development: Provocations from the field of family therapy. *Child Development*, *56*(2), 289–302.

Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The role of the family context in the development of emotion regulation. *Social Development*, *16*(2), 361–388. https://doi.org/10.1111/j.1467-9507.2007.00389.x

Nichols, W. C., & Everett, C. A. (1986). *The family as an interactive system*. *Systemic family therapy: An integrative approach*.

Oswald, A. J. (1997). Happiness and Economic Performance. *The Economic Journal*, *107*(November), 1815–1831.

Pinheiro, J., Bates, D., DebRoy, S., & Sarkar, D. (2017). nlme: Linear and Nonlinear Mixed Effects Models. Retrieved from https://cran.r-project.org/package=nlme

Ram, N., & Gerstorf, D. (2009). Time-structured and net intraindividual variability: Tools for examining the development of dynamic characteristics and processes. *Psychology and Aging*, *24*(4), 778–91. https://doi.org/10.1037/a0017915

Reeb, B. T., Chan, S. Y. S., Conger, K. J., Martin, M. J., Hollis, N. D., Serido, J., & Russell, S. T. (2015). Prospective Effects of Family Cohesion on Alcohol-Related Problems in Adolescence: Similarities and Differences by Race/Ethnicity. *Journal of Youth and Adolescence*, *44*(10), 1941–1953. https://doi.org/10.1007/s10964-014-0250-4

Repetti, R. L. (1996). The effects of perceived daily social and academic failure experiences on school-age children's subsequent interactions with parents. *Child Development*, *67*(4), 1467–1482. https://doi.org/10.1111/j.1467-8624.1996.tb01808.x

Repetti, R. L., & Wood, J. (1997). Effects of Daily Stress at Work on Mothers' Interactions With Preschoolers. *Journal of Family Psychology*, *11*(1), 90–108. https://doi.org/10.1037/0893-3200.11.1.90

Repetti, R. L., Wang, S., Saxbe, D. E. (2009). How Outside Stressors Shape Families' Everyday Lives. *Current Directions in Psychological Science*, *18*(2), 106–111. https://doi.org/10.1111/j.1467-8721.2009.01618.x

Repetti, R., Wang, S., & Saxbe, D. (2017). Bringing It All Back Home: How Outside Stressors Shape Families' Everyday Lives. *Current Directions in Psychological Science*, *18*(2), 106–111.

Reynolds, B. M., & Repetti, R. L. (2008). Contextual Variations in Negative Mood and State Self-Esteem: What Role Do Peers Play? *The Journal of Early Adolescence*, *28*(3), 405–427.

Rstudio Team. (2016). RStudio: Integrated Development for R. Boston, MA: RStudio, Inc.

Ryan, A. M. (2001). The Peer Group as a Context for the Development of Young Adolescent Motivation and Achievement. *Child Development*, *72*(4), 1135–1150.

Saxbe, D. E., & Repetti, R. L. (2009). Brief report: Fathers' and mothers' marital relationship predicts daughters' pubertal development two years later. *Journal of Adolescence*, *32*(2), 415–423. https://doi.org/10.1016/j.adolescence.2008.06.009

Saxbe, D. E., & Repetti, R. L. (2010). For better or worse? Coregulation of couples' cortisol levels and mood states. *Journal of Personality and Social Psychology*, *98*(1), 92–103. https://doi.org/10.1037/a0016959

Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality*, *47*(5), 609–612. https://doi.org/10.1016/j.jrp.2013.05.009

Silk, J. S., Steinberg, L., & Morris, A. S. (2003). Adolescents' Emotion Regulation in Daily Life: Links to Depressive Symptoms and Problem Behavior. *Child Development*, *74*(6), 1869–1880. https://doi.org/10.1046/j.1467-8624.2003.00643.x

Simmons, R. G., Burgeson, R., Carlton-ford, S., Blyth, D. A., & Untverstty, C. (1987). The Impact of Cumulative Change in Early Adolescence, *58*(1974), 1220–1234.

Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences*, *9*(2), 69–74. https://doi.org/10.1016/j.tics.2004.12.005

Steinberg, L., & Morris, A. S. (2001). Adolescent Development. *Annual Review of Psychology*, *52*, 83–110. https://doi.org/10.1146/annurev.psych.52.1.83

Steinberg, L., & Silk, J. S. (2002). Parenting Adolescents. In M. H. Bornstein (Ed.), *Handbook of Parenting Volume 1 Children and Parenting* (Vol. 1, pp. 103–133). https://doi.org/10.2307/353999

Story, L. B., & Repetti, R. L. (2006). Daily occupational stressors and marital behavior. *Journal of Family Psychology*, *20*(4), 690–700. https://doi.org/10.1037/0893-3200.20.4.690

Thompson, R. A., & Meyer, S. (2013). Socialization of Emotion Regulation in the Family. In J. J. Gross (Ed.), *Handbook of Emotion Regulation* (pp. 249–268). The Guilford Press.

Timmons, A. C., & Margolin, G. (2015). Family Conflict, Mood, and Adolescents' Daily School Problems: Moderating Roles of Internalizing and Externalizing Symptoms. *Child Development*, *86*(1), 241–258. https://doi.org/10.1111/cdev.12300

Van Ryzin, M. J., Roseth, C. J., Fosco, G. M., Lee, Y. Kyung, & Chen, I. C. (2016). A component-centered meta-analysis of family-based prevention programs for adolescent substance use. *Clinical Psychology Review*, *45*, 72–80. https://doi.org/10.1016/j.cpr.2016.03.007