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Adolescent Relationship Quality: Is There an Intergenerational Link?

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Abstract:
Objective: *This study examines intergenerational continuities in relationship instability, general relationship quality, and intimate partner violence (IPV) between mothers and adolescents.*
Background: *A growing body of literature has observed similarities in relationship quality between parents and their adult offspring. Less attention has focused on whether intergenerational continuities are present in adolescent relationships.*
Method: *Using age 3, 5, 9, and 15 data from the Fragile Families and Child Wellbeing birth cohort study (N=3,162), the authors examined associations between maternal reports of relationship instability, general quality, and IPV in early and middle childhood and similar adolescent reports at age 15. Variations based on timing and persistence of exposures were considered.*
Results: *In general, exposures to low-quality maternal relationships were associated with higher risk of forming adolescent partnerships and lower relationship quality. Intergenerational links in quality were predominantly construct-specific, consistent with observational learning processes. Adolescents exposed to maternal relationships of poor general quality in middle childhood were less likely to report high-quality relationships themselves, and those exposed to any maternal physical IPV victimization during childhood were more likely to perpetrate IPV in their own relationships. Exposure to maternal relationship instability in both early and middle childhood was associated with more adolescent romantic partners.*
Conclusion: *The study illuminates additional pathways through which healthy and unhealthy relationships are reproduced across generations.*

Keywords: relationship quality; intergenerational transmission; adolescent peer relations; romantic relationships; family process

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INTRODUCTION

Adolescent romantic relationships have been linked to short- as well as long-term outcomes, with the developmental significance of these relationships depending on their quality. High-quality adolescent relationships can promote emotional health, support identity development, and foster competencies that benefit adult relationships (Collins, Welsh, & Furman, 2009; Furman & Shaffer, 2003; Harden, 2014). Conversely, low-quality relationships can trigger depression, weaken school engagement, and set in motion patterns of relationship instability and conflict that persist into adulthood (Cui et al., 2013; Davila, 2008; Raley, Crissey, & Muller, 2007).

Despite its developmental significance, adolescent relationship quality is less frequently examined in empirical work than behaviors such as sexual activity, in part because relatively few adolescent surveys measure the emotional and relational content of teen partnerships (Giordano, Manning, & Longmore, 2010a; Harden, 2014). Existing evidence on adolescent relationship quality shows substantial variation, ranging from very positive to very negative (Collins et al., 2009; Giordano, 2003). Some relationships include both positive and negative elements, such as high levels of affection co-occurring with conflict or jealousy (Giordano et al., 2010b).

Adolescent relationship quality is subject to family, peer, and individual influences (Collins, 2003; Giordano et al., 2010b; Kochendorfer & Kerns, 2017). At the family level, prior research has linked more supportive parent-child relationships with higher-quality adolescent romantic ties (Collins,

2003; Roisman et al., 2009). Adolescents may also be influenced by their parents' romantic relationship dynamics. Intergenerational continuities in relationship quality between parents and adult offspring have been observed across various measures, including relationship instability (e.g., Amato & Patterson, 2017; Wolfinger, 2000), IPV perpetration and victimization (e.g., Ehrensaft et al., 2003; Narayan, Englund, & Egeland, 2013; Stith et al., 2000), and general relationship quality (e.g., Amato & Booth, 2001; Conger et al., 2000). Whether such continuities are present in adolescent relationships is less clear, in part because longitudinal studies spanning childhood and adolescence with reports from parents and youth are rare (the Minnesota Longitudinal Study of Risk and Adaptation is a notable exception--e.g., Sroufe et al., 2005).

This study uses recently available data from the Fragile Families and Child Wellbeing Study (http://www.fragilefamilies.princeton.edu/), a population-based birth cohort study of children born in large U.S. cities at the turn of the millennium, to examine whether childhood exposures to maternal relationship instability, poor romantic relationship quality, and physical IPV victimization are associated with the number of relationships adolescents form, the general quality of their relationships, and whether their relationships involve physical violence (i.e., pushing, hitting, or throwing objects that can hurt). We contribute to the literature on intergenerational continuities in four main ways. First, we link adolescents' reports of relationship quality with similar maternal reports measured in early and

middle childhood. Second, we examine continuities across multiple constructs of relationship quality. Prior research has focused primarily on one dimension of quality (e.g., instability), leaving open questions about whether observed continuities reflect construct-specific processes due to observational social learning or more generalized disruptions of social-emotional functioning. Third, our data allow us to control for harsh parenting, which is important because children learn not only from observing parental relationship dynamics, but also from parents' direct interactions with them (Cui et al., 2010). Harsh parenting often co-occurs with inter-parental conflict (Holt, Buckley, & Whelan, 2008; Nomaguchi et al., 2017) as well as with later life IPV perpetration/victimization (e.g., Linder & Collins, 2005; Swinford et al., 2000; Stith et al. 2000) and poor adult relationship quality (e.g., Kretschmer, Vollebergh, & Oldehinkel, 2017) among offspring. Finally, building on evidence that the developmental salience of childhood events often depends on both the duration (e.g., Narayan et al., 2013; Rutter & Sroufe, 2000) and developmental stage of exposures (e.g., Elder, 1998; Holt et al., 2008; Narayan et al., 2013), we assess how the timing and persistence of maternal relationship difficulties is associated with variation in adolescent relationship outcomes.

BACKGROUND

Previous Research on Intergenerational Continuities in Relationship Quality

Existing empirical evidence linking parent and offspring relationship quality comes from separate literatures that examine continuities in relationship

instability, general quality, and IPV. First, a sizeable body of research has examined intergenerational continuities in divorce, observing that adult children of divorced parents have an elevated risk of divorce themselves (e.g., Amato, 1996; McLanahan & Bumpass, 1988). Other studies have established links between parents' and adult children's relationship instability. For example, Amato and Patterson (2017) associated parental transitions into and out of unions during childhood with elevated levels of union instability among adult offspring. Wolfinger (2000) identified links between marital disruptions in the family of origin and the likelihood of divorce among adult offspring.

One limitation of existing research on intergenerational continuities in divorce and union instability is its reliance on offsprings' reports of parents' relationship transitions, which can produce a hypothesis-confirming bias if, for example, divorced offspring are more likely than their married peers to recall and report parental union disruptions (Amato & Patterson, 2017). In addition, few studies have explored intergenerational continuities in instability among adolescents. Notable exceptions are two studies that associated parental union transitions during childhood (reported retrospectively by mothers) with a higher likelihood of being in a romantic relationship in adolescence (Cavanagh, Crissey, & Raley, 2008) and having more romantic partners in adolescence and young adulthood (Cui, Gordon, & Wickrama, 2016).

A different line of inquiry has assessed intergenerational continuities in more general measures of relationship quality. This research has largely relied on adults' recollections of parental relationships during childhood, although several studies have identified continuities in relationship quality using prospective data involving two generations (Amato & Booth, 2001; Caspi & Elder, 1988; Conger et al., 2000; Yoshida & Busby, 2012). Amato and Booth (2001), for example, found that the adult offspring of parents who reported marital acrimony, conflict and instability in 1980 reported less happiness, less interaction, and more conflict in their own marriages in 1997. Conger et al. (2000) reported that exposure to warm and supportive parental relationships during adolescence was mirrored in romantic experiences in young adulthood. We are not aware of previous studies linking parents' and adolescents' relationship quality.

A third body of research has considered intergenerational continuities in IPV. Stith and colleagues (2000) argued that intergenerational transmission is among the most studied explanations for IPV. A growing number of studies have prospectively linked exposures to parental IPV during childhood (e.g., Ehrensaft et al., 2003; Fite et al., 2008; Narayan et al., 2017) and adolescence (e.g., Cui et al., 2010) with IPV perpetration and victimization in adulthood. For example, Narayan, Englund, and Egeland (2013) linked mothers' reports of victimization during childhood with reports of IPV perpetration and victimization in early adulthood. Scholarship testing whether childhood exposures to parental IPV manifest in adolescents'

relationships remains relatively rare. Tschann and colleagues (2008) and Liu, Mumford, and Taylor (2018) observed that exposure to inter-parental violence during adolescence predicted teenagers' dating violence perpetration and victimization. They lacked information on earlier childhood exposures to violence, however. Although reliant on offspring reports, Arriaga and Foshee (2004) showed that adolescents who retrospectively reported any childhood exposure to inter-parental violence were more likely than non-exposed youth to report IPV perpetration and victimization.

Explanations for Intergenerational Continuities in Relationship Quality

To explain intergenerational continuities in relationship dynamics, some researchers invoke observational social learning, which posits that offspring model the behaviors they observed in their parents' relationships in their own intimate relationships (Bandura, 1973, 1977; Straus, Geller, & Steinmetz, 1980). When parents' relationships are stable and mutually supportive, children witness and learn positive relationship skills, such as how to express emotional support and amicably resolve conflict (Amato & Patterson, 2017). Conversely, when children are exposed to acrimonious dyadic behavior and frequent parental conflict, they have fewer opportunities to learn skills that facilitate successful relationship functioning (Amato, 1996; Amato & Booth, 2001). Unstable parental unions may leave children with the impression that most romantic relationships are temporary (Amato & Patterson, 2017; Cui et al., 2016); moreover, witnessing parental dating may increase teens' likelihood of dating (Cavanagh et al., 2008).

Likewise, exposure to IPV may convey the idea that violence is an acceptable way to resolve partner conflicts and control partner behavior (O'Leary, 1988; Smith et al., 2011).

Other theoretical perspectives postulate that childhood exposures to family adversity can influence later relationship outcomes by weakening key developmental processes and/or disrupting regulatory physiological processes (e.g., Allen, 2008; Rutter & Sroufe, 2000; Shonkoff et al., 2012). Attachment and developmental psychopathology perspectives suggest that exposures to parental relationship disruption, conflict, and violence may interrupt developmental processes that manifest as difficulties regulating emotions and problems forming and maintaining salutary socio-emotional attachments in adolescence and adulthood (Allen, 2008; Amato & Patterson, 2017; Smith et al., 2011; Sroufe et al., 1999). Toxic stress explanations focus on the consequences of strong, frequent, and/or prolonged activation of the body's stress-response system in the absence of the buffering protection of adult support (Shonkoff, Boyce, & McEwen, 2009). Associated disruptions of brain architecture and other organ systems during sensitive development periods may impair later life learning and behavior (Shonkoff et al., 2012; Rutter & Sroufe, 2000). Exposure to family violence during childhood, for example, can induce a toxic stress response that potentially weakens lifelong emotionality and stress responsiveness (Shonkoff et al., 2012; McEwen & McEwen, 2017), and consequentially, also engenders difficulties establishing and sustaining healthy relationships.

Finally, it is also conceivable that poverty and economic insecurity drive intergenerational links in relationship quality. Because poverty is a major cause of toxic stress and poverty is highly correlated across generations (McEwan & McEwen, 2017), intergenerational associations in relationship quality could reflect intergenerational continuities in economic disadvantage. The empirical evidence for adults indicates that intergenerational links in relationship quality persist even after controlling for parents' and adult offsprings' socioeconomic status (e.g., Amato & Booth, 2001; Ehrensaft et al., 2003; Narayan et al., 2017); whether a similar pattern obtains for parents and adolescent offspring is an empirical question.

Timing and Continuity of Exposures

Given the extensive evidence that the developmental and physiological impacts of life events are age and duration contingent (e.g., Elder 1998; Holt et al., 2008; Rutter & Sroufe, 2000), it is conceivable that intergenerational continuities in relationship quality vary both by children's age at exposure and the persistence of exposures over time. Adverse experiences like family disruption or inter-parental IPV may be more consequential during early childhood, when children are totally dependent upon others for care; when they are first learning how to regulate behaviors and emotions; when the developing brain is highly receptive to environmental signals; and before youth can develop a solid foundation for resilience (Fomby & Bosick, 2013; Heard, 2007; Holt et al., 2008; Narayan et al., 2013). Supporting the salience of both age and persistence, toxic stress

research has identified early childhood as a particularly sensitive period and also called attention to the negative consequences of stress exposures experienced over a prolonged period (Shonkoff et al., 2009). Attachment explanations have often focused on the primacy of early bonding, although some research suggests that later childhood experiences can also alter the developmental course of the attachment system, and that a cumulative history of maladaptation is more pathogenic than a single early period (Allen, 2008; Sroufe et al., 1999).

Observational learning begins early in childhood but exposures during middle-to-late childhood may be particularly salient for social learning processes. Because exposures during this time are temporally closer to decisions about whether and with whom to form partnerships (McLanahan, 2009), children may be more highly attuned to parents' relationship behaviors during this later developmental stage. If exposures to adverse parental relationships occur early in childhood and do not recur, children may have time to observe and internalize positive models of relationships before forming their own partnerships (Heard, 2007).

Existing research provides mixed evidence on the sensitivity of childhood development to the relative timing and duration of exposures to parental relationship dynamics. For example, Cavanagh et al. (2008) observed that instability in middle childhood and early adolescence influenced adolescent relationship formation more than instability in early childhood. In contrast, Narayan et al. (2013) found that exposure to parental

IPV in early childhood, rather than continuity of exposures through middle childhood, predicted IPV in early adulthood.

Hypotheses

In sum, the theoretical insights and empirical evidence described above indicate that: 1) links between maternal and adolescent relationship dynamics may be driven by observational social learning and/or by more generalized disruptions of social-emotional development and regulatory physiological processes; 2) exposures in middle childhood may be more salient than earlier exposures if observational learning drives intergenerational continuities, but early childhood exposures may be more salient if attachment or toxic stress processes dominate; and 3) cumulative exposures may be more pathogenic than exposures in a single period. These insights suggest three testable hypotheses:

Hypothesis 1a: If observational social learning drives intergenerational continuities, the strongest associations will be construct specific (e.g., exposures to maternal IPV will be more strongly linked to adolescent IPV than to adolescent relationship instability).

Hypothesis 1b: If toxic stress or attachment disorder drive intergenerational continuities, exposure to low-quality maternal unions will be associated with various measures of poor adolescent relationship quality.

Hypothesis 2a: If intergenerational continuities are driven by observational learning, exposures in middle childhood will be more salient than exposures limited to early childhood.

Hypothesis 2b: If attachment or toxic stress processes operate, early childhood exposures will be more salient than middle childhood exposures.

Hypothesis 3: Consistent with all of the explanations, exposures spanning both early and middle childhood will be more consequential than exposures in either stage alone.

DATA AND METHODS

To investigate intergenerational continuities in relationship quality, we used data from the Fragile Families and Child Wellbeing Study (FFCWS), a population-based birth cohort study of nearly 5000 births in large U.S. cities from 1998-2000; children born to unmarried parents were oversampled. Mothers and fathers were interviewed in the hospital soon after their child's birth and again when the child was roughly 1, 3, 5, 9, and 15 years old. Telephone interviews were conducted at all waves; in-person interviews and child assessments were conducted with a subset of respondents at years 3, 5, 9, and 15. Of mothers who participated at baseline, 89%, 86%, 85%, 76%, and 74% completed the year 1, 3, 5, 9, and 15 surveys, respectively. When the year-15 wave was fielded, the average focal child age was 15.4 years (Table 1). Our analyses relied on data collected from mothers from baseline to year 9, and from youth at year 15.

We limited our analytic sample to adolescents who completed the year-15 interview (N=3,253) and whose mothers were interviewed in at least two of three waves between years 3 and 9 (N=3,162). A smaller share of the 91 excluded teens had non-Hispanic black mothers compared to the analytic

sample (39% vs. 51%; $p<0.05$). Non-Hispanic black mothers may be at greater risk of relationship instability than non-Hispanic white and Hispanic mothers (Brown et al., 2016) and of physical IPV than non-Hispanic white mothers (McLanahan et al., 2014).

To impute missing data for the independent variables, we used Stata's multiple imputation with chained equations commands to create ten imputed datasets. The percentage of imputed responses ranged from 1% to 23% across the survey items and was below 7% for all but the harsh parenting measures. We included the dependent variables in the imputation models, but excluded cases missing data on the dependent variables from the regression analyses (N=178 for relationship instability, N=27 for relationship quality, N=26 for IPV) (von Hippel, 2007).

Measures

Adolescent Relationship Quality

We used information collected at year 15 to operationalize three aspects of adolescent relationship quality: instability, general quality, and physical IPV perpetration and victimization.

1. Adolescents' relationship instability. We operationalized instability using a categorical variable measuring the number of people adolescents had dated by the year-15 interview: 0, 1-2, or 3+ (ref.). Respondents were told to consider people they liked who liked them back, not limited to those with whom they had gone on formal dates (Giordano et al., 2010a).

2. Adolescents' general relationship quality. Respondents in a relationship at the time of the year-15 interview were asked to characterize

its overall quality using a 5-point scale ranging from *poor* to *excellent*. We generated a 4-category variable capturing both relationship involvement and quality: in a *poor*, *fair*, or *good* relationship (ref.); in a *very good* or *excellent* relationship; not in a relationship currently (but ever dated); and never in a relationship. We combined *good* with *fair* or *poor* because separate analyses revealed that *good* relationships were more similar along several dimensions to *fair* or *poor* ones than to *very good* or *excellent* ones.

3. Adolescents' physical IPV victimization and perpetration. The FFCWS adolescent IPV items were abbreviated from Straus' (1979) Conflict Tactics (CT) Scale and asked as single questions as in the Youth Risk Behavior Survey (CDC, 2017). For physical IPV victimization, youth were asked, "Has your partner pushed you, hit you, or thrown something at you that could hurt?" and whether this occurred *often*, *sometimes*, or *never*. For perpetration, they were asked "Have you pushed, hit, or thrown something at your partner that could hurt?" We generated 4-category measures of perpetration and victimization: in a relationship with physical IPV (ref.) (combining responses *sometimes* and *often*); in a relationship with no physical IPV; not in a relationship; and never in a relationship. Small cell sizes precluded distinguishing mutual aggression from perpetration or victimization only (Gray & Foshee, 1997). Notably, only one-fifth of those reporting any physical IPV reported mutual aggression (3.3% of all coupled teens reported perpetration only, 2.1% victimization only, and 1.3% both). We focused on physical rather than emotional IPV because it was more

reliably measured in the survey and because emotional IPV was more highly correlated with general relationship quality.

Mothers' Relationship Quality

The FFCWS measured multiple dimensions of maternal relationship quality (instability, general quality, IPV), which were asked when the focal child was approximately ages 3, 5, and 9:

1. Mothers' relationship instability. We generated a 4-category variable denoting whether mothers transitioned into and/or out of a co-residential union between years 3 and 5 only, between years 5 and 9 only, in both time periods, or in neither period (ref.). We constructed this measure by comparing mother reports at years 5 and 9 of whether they were romantically involved with the child's father or someone else, and whether they were living with this partner, with their reports from the prior survey wave. To determine whether mothers were involved in additional co-residential relationships between waves, we also used reports about how many relationships lasting at least one month mothers had formed since the last survey and whether these partnerships involved co-residence. Following prior research (e.g., Osborne & McLanahan, 2007), we did not consider shifts between cohabitation and marriage to be transitions.

2. Mothers' general relationship quality. To measure general relationship quality, we created wave-specific scales that combined maternal reports on positive and negative aspects of their current romantic relationships, including how frequently (*often*, *sometimes*, or *never*) their

partner: was fair and willing to compromise when they disagreed; expressed affection or love; insulted or criticized them or their ideas; encouraged them or helped them do things important to them; listened to them when they needed someone to talk to; and really understood their hurts and joys (Carlson et al., 2011; Winefield, Winefield, & Tiggemann, 1992). We recoded the items so that higher scores indicated lower-quality relationships. We averaged the six items at each wave. Principal components analyses confirmed that single factors adequately represented the items (α = .77, .78, and .82, respectively, for years 3, 5, and 9). At each wave, mothers scoring above the 75th percentile were considered to be in poor-quality romantic relationships; mothers without current romantic partners were coded as not in a poor-quality relationship (Schneider, Harknett, & McLanahan, 2016). We then generated a 4-category summary measure denoting whether mothers reported a poor-quality romantic relationship in early childhood only (year 3 and/or year 5); in later childhood only (year 9); in both early and later childhood; or in neither period (ref.). The quality of mothers' ongoing interactions with ex-partners (including biological fathers) was not recorded and is therefore not included in the relationship quality measure.

3. Mothers' physical IPV victimization. At each wave, mothers were asked how frequently (*often*, *sometimes*, or *never*) they endured various types of physical IPV in their current romantic relationships with the child's father or a different partner. Based on Straus' Conflict Tactics scale (1979) and Lloyd's expanded scale (2002), items included being slapped or kicked;

hit with a fist or object that could hurt; pushed, grabbed, or shoved (years 5 and 9); and having something thrown at them (years 5 and 9). Mothers who responded *sometimes* or *often* to any of the items in a wave were coded as enduring physical IPV. Additionally, we included maternal reports of having been seriously hurt in a fight with the father since the last interview (if romantically involved in the last year); having been seriously hurt in a fight with another current partner since the last interview (years 5 and 9); having ended a relationship in the last year because the partner was violent or abusive; having been slapped, kicked, or hit with a fist or an object that could hurt by the father in the last month of the relationship (if the relationship ended within the last year, years 3 and 5); and having had a physical fight with the current partner in front of the child since the last interview (years 5 and 9). Due to small cell sizes, we considered only whether IPV was reported in any of the waves, and did not distinguish timing or persistence of exposure. We were not able to measure maternal IPV perpetration because mothers were asked only about victimization; reports of victimization from mothers' partners were available only from fathers coupled with the mothers at years 3 and 5, and were not asked in any wave from other partners or at year 9 from fathers.

Although instability, IPV, and general relationship quality may co-occur, separate analyses confirmed that they were not highly collinear. Tests for multicollinearity produced variance inflation factors below 1.4 and tolerance above 0.7. Tests of correlation showed the measures to be weakly

correlated ($0.01<\rho< 0.23$). Robustness checks confirmed that substantive results were identical whether the three dimensions were modeled separately or simultaneously.

Controls

The multivariate models also included a variety of control variables that are summarized in Table 1. Because children may learn not only from observing parental relationships but also from the way parents interact directly with them (Cui et al., 2010), and because harsh discipline often co-occurs with parental IPV and also with later-life IPV and poor relationship quality among offspring (Kretschmer et al., 2017; Nomaguchi et al. 2017; Holt et al., 2008; Stith et al. 2000), we controlled for harsh parenting (Ehrensaft et al., 2003; Narayan et al., 2013). We drew on a series of questions based on Straus' (1998) Parent-Child Conflict Tactics Scales (CTS-PC), asked in the year-9 mother interview and also the primary caregiver (PCG) year-3 and year-5 interviews (over 95% of PCGs were mothers). In addition to being a confounder, harsh parenting may also mediate links between mothers' and adolescents' relationship quality (Cui et al., 2010), in which case including harsh parenting in all of our models might understate intergenerational continuities. To guard against this possibility, we estimated models with and without harsh parenting controls.

We operationalized psychological aggression with questions from a CTS-PC sub-scale asking how often in the past year (*never*, *once*, *twice*, *3-5 times*, *6-10 times*, *11-20 times*, *>20 times*) mothers: shouted, yelled, or

screamed at the child; swore or cursed at the child; threatened to spank or hit the child but did not do it; called the child names; and threatened to send the child away or kick the child out of the house. The physical aggression sub-scale asked how often in the past year the mother: shook the child; hit the child on the bottom with a hard object; spanked the child on the bottom with a bare hand; slapped the child on the hand, arm, or leg; and pinched the child. To reflect frequency (Straus et al., 1998), we recoded each item in both sub-scales with a mid-point value (*0*, *1*, *2*, *4*, *8*, *15*, and *25*) and constructed wave-specific indicators designating scores above the 75th percentile for the sample (Berger et al., 2005).

We also controlled for several socio-demographic and family characteristics that are potential confounders of associations between maternal and teen relationship quality. These included the mothers': age at the child's birth; union status at the child's birth (not married or cohabiting (ref.), married, or cohabiting); race/ethnicity (non-Hispanic white (ref.), non-Hispanic black, Hispanic, or other); nativity (US-born or foreign-born (ref.)); completed education at baseline (less than high school graduate (ref); high school diploma, GED, or some college or technical training; or college graduate or higher); and poverty ratio at baseline (household income 0-49% (ref), 50-99%, 100-199%, 200-299%, or 300%+ of the federal poverty line). We also included indicators of not being coupled at each wave. Finally, we controlled for respondents' age in months at the year-15 wave as well as respondent sex (female or male (ref)).

Analytic Strategy

After generating descriptive statistics, we estimated associations between maternal and adolescent relationship quality net of the control variables using multinomial logistic regression models. Models predicting adolescent relationship instability and general relationship quality distinguished the timing and persistence of exposures to maternal relationship instability and poor general relationship quality. Owing to small cell sizes, models predicting adolescent IPV included only summary measures of exposures to all three maternal relationship constructs aggregated across ages 3-9.

To adjust coefficients and standard errors for variability between imputations (Rubin, 1987), all analyses used Stata's *mi estimate* commands. We used year-15 city sampling weights in our descriptive analyses, adjusting for both sample design and attrition. The multivariate analyses were unweighted but included all variables used to derive the sampling weights.

RESULTS

Descriptive Results

Table 1 displays descriptive statistics for adolescents' relationship quality, mothers' relationship quality, and the control variables. At the time of the year-15 interview, 33% of adolescents had never dated, 30% had dated 1-2 people, and 37% had dated three or more people. Roughly one-quarter were currently in a relationship. Among these, 82% described their current relationship as *excellent* or *very good*. Author calculations of Wave 3 Add Health data yielded similar percentages reporting high relationship

satisfaction in that sample, inspiring confidence in our estimates. Five percent of partnered adolescents admitted to perpetrating physical IPV in their relationship, and 3% reported physical IPV victimization. That these estimates are lower than those observed in some other studies (e.g., Giordano et al., 2010b; Halpern et al., 2001) may reflect the younger age of FFCWS respondents, as IPV prevalence rises across adolescence (Johnson et al., 2015). Moreover, FFCW respondents were asked only about IPV in their *current* partnership; earlier partnerships that may have dissolved due to conflict were not queried.

(Table 1 About Here)

Table 1 also provides descriptive statistics for maternal relationship quality. Exposure to maternal relationship instability was most common in middle childhood, with 17% of adolescents exposed to maternal co-residential partnership change(s) between ages 5-9 but not earlier, 14% exposed to instability in both the earlier and later periods, and 10% exposed in only the age 3-5 interval. By contrast, exposure to poor-quality maternal romantic relationships was most common in early childhood; one-in-five adolescents were exposed to a maternal romantic relationship that met the poor-quality threshold at ages 3 or 5 only, 11% were exposed in both early and middle childhood, and 7% were exposed at age 9 only. Thirteen percent of mothers reported physical IPV victimization by a romantic partner at some point between years 3 and 9.

Intergenerational Continuities in Relationship Quality

Tables 2-4 present relative risk ratios (RRR) derived from multinomial logistic regression analyses predicting, respectively, adolescent relationship instability, low relationship quality, and physical IPV perpetration and victimization. The referent is always the poorest quality outcome (e.g., in a relationship with IPV perpetration).

In Table 2, net of the controls, exposure to maternal co-residential partnership instability in both early and middle childhood was associated with lower risk of no relationship formation (RRR=0.60; $p<0.01$) and lower risk of 1-2 relationships (RRR=0.76; $p<0.05$) by year 15, relative to 3+ relationships. Substantively, the results indicate that persistent exposure to maternal relationship instability was associated with a generally higher relative risk of relationship instability in adolescence. Exposure to maternal relationship instability in only middle childhood was also associated with a lower relative risk of no romantic involvement (RRR=0.75; $p<0.05$). Table 2 revealed one significant cross-construct intergenerational link. Exposures in both early and middle childhood to poor-quality maternal relationships was associated with lower risk of having 1-2 lifetime relationships compared to 3+ relationships (RRR=0.67; $p<0.05$).

(Table 2 About Here)

In Table 3, exposure to poor-quality maternal relationships in middle childhood was associated with lower adolescent relationship quality, although persistent exposures were not. Specifically, adolescents exposed to poor maternal relationship quality at age 9 had lower risk of being in a *very*

good or *excellent* relationship (RRR=0.40; p<0.01) and of not being in a relationship (RRR=0.54; p<0.05) at year 15, relative to being in a lower-quality relationship. No significant cross-construct intergenerational links emerged for maternal relationship quality.

(Table 3 About Here)

Overall, the results from Tables 2 and 3 indicate the salience of persistent exposures for intergenerational links in relationship instability, and of exposures in middle childhood for links in quality. In addition to being less likely to experience stable, high-quality relationships, adolescents exposed to unstable and poor-quality maternal relationships also were more likely than their non-exposed counterparts to enter into romantic relationships in early adolescence.

Table 4 shows results from multinomial logistic regression models predicting physical IPV perpetration (Panel A) and physical IPV victimization (Panel B). In Panel A, adolescents exposed to maternal physical IPV victimization at some point during childhood were more likely both to enter into relationships in adolescence and to perpetrate IPV in their current partnership than those not exposed. Specifically, youth exposed to any maternal physical IPV victimization between ages 3 and 9 had significantly lower risks than those not exposed of never having been in a relationship (RRR=0.29; p<0.01), of not being in a relationship currently (RRR=0.35; p<0.01), and of being in a relationship without IPV (RRR=0.42; p<0.05). Table 4 provides little evidence of cross-construct intergenerational links and

also reveals no statistically significant intergenerational continuities in IPV victimization. As noted above, however, small cell sizes precluded consideration of the timing and persistence of childhood exposures in these models.

(Table 4 About Here)

Robustness Checks

Table 2 revealed that girls formed fewer partnerships than boys, and supplementary analyses (available on request) examined whether associations between maternal and adolescent relationship instability also differed between girls and boys. We found little evidence of gender variation; 95% confidence intervals for all instability-sex interaction terms contained 1.0. Small cell sizes precluded similar analyses for general relationship quality or IPV.

Measures of maternal psychological and physical harsh parenting were included as control variables in Tables 2-4. If harsh parenting is to some extent also a mediator (Cui et al., 2010), it is possible that our models underestimated intergenerational continuities in relationship quality. The lack of harsh parenting measures between years 9 and 15 precluded formal mediation analyses; however, robustness checks to removing the harsh parenting variables revealed no evidence that harsh parenting masked intergenerational links. Appendix Tables 1-3 affirm that the substantive results were unchanged from those reported in Tables 2-4.

A final check considered the extent to which confounding by socioeconomic resources explained intergenerational links. We re-estimated the Table 2-4 models absent controls for maternal educational attainment, poverty ratio, union status, and age at birth (Fomby & Bosick, 2013). Comparisons between Appendix Tables 4-6 and Tables 2-4 show that resource measures attenuated associations between maternal union instability and adolescent romantic involvement, but other point estimates were essentially unaltered with inclusion of the resource variables.

DISCUSSION

Overall, our analyses revealed that intergenerational continuities in relationship quality between mothers and their adolescent offspring were largely construct-specific and stronger than cross-construct associations. This finding is more consistent with observational social learning (Bandura 1973; Straus, et al., 1980) than with toxic stress or attachment explanations, which imply more generalized relationship dysfunction (Allen, 2008; Shonkoff et al., 2012; Smith et al., 2011). In support of Hypothesis 1a, and consistent with previous research (Cavanagh et al., 2008; Cui et al., 2016), we found that childhood exposure to maternal relationship instability was associated with both higher risk of romantic involvement in adolescence and more partnerships. Because one purpose of dating is to rule out poor matches, some partner turnover is expected; however, a history of high relationship turnover in early adolescence may signal difficulty in forming stable attachments that can carry over to adulthood (Amato & Patterson, 2017).

Our results also indicated that adolescents exposed to poor-quality maternal relationships were more likely to be in poor-quality relationships, and less likely to be unpartnered, compared with unexposed youth. Intergenerational continuities in relationship quality have been observed in previous studies focused on adult offspring (e.g., Amato & Booth, 2001; Conger et al., 2000). Consistent with empirical research showing associations between childhood exposures to inter-parental IPV and perpetration of IPV in adult relationships (e.g., Narayan et al., 2014; Stith et al., 2000), adolescents exposed during childhood to maternal physical IPV victimization were also at higher risk of perpetrating physical IPV in their relationships than non-exposed youth. Intergenerational continuities in IPV victimization were not statistically significant, however. Small cell sizes may have limited statistical power, but a meta-analysis also found stronger effect sizes for links between inter-parental IPV and adult IPV perpetration than for links with IPV victimization (Stith et al., 2000). Robustness checks revealed little evidence that harsh parenting confounded or mediated the intergenerational associations in relationship quality, or that intergenerational links in relationship quality reflected variations in economic resources.

A second major finding was that the strength of intergenerational continuities depended on the timing and persistence of exposures during childhood. Consistent with Hypothesis 2a, exposures to poor-quality maternal relationships in middle childhood were more salient than such exposures in early childhood. Although observational social learning begins

early, children may be more attuned to and more likely to internalize parents' relationship behaviors in late childhood and early adolescence, when they are closer to forming their own romantic relationships. Our findings for relationship instability supported Hypothesis 3, indicating that for intergenerational continuities in partnership instability, cumulative exposures in early and middle childhood were more consequential than exposures during either stage in isolation.

Strengths of this study included its use of longitudinal, national-level data spanning two generations, consideration of multiple constructs of relationship quality, and attention to both the timing and persistence of childhood exposures. Nonetheless, several data-related limitations warrant discussion. First, cell size constraints precluded examination of variation by age and persistence of exposure for intergenerational continuities in IPV, and of gender differences in intergenerational links in relationship quality and IPV. Moreover, it is conceivable that relationship attributes elicited through phone interviews yielded conservative estimates of negative behaviors; future research might draw on measures collected in a more private way, such as through audio computer-assisted self-interviewing (ACASI) (Tourangeau & Yan, 2007).

Although the FFCWS collected highly detailed information on mothers' relationships over time, the measures of adolescent relationship quality were relatively limited. Adolescent physical IPV was restricted to pushing, hitting, and throwing an object that could hurt. Future research should use full IPV

scales spanning physical, emotional, and sexual IPV, and should also consider mutual aggression and the severity of physical IPV (Holt et al., 2008). Additionally, we used a global measure of relationship quality, but detailed measures of power, influence, conflict, support, and caring would reveal which aspects of adolescent relationships are most strongly influenced by parents' relationships. More precise measures of instability than number of partners (Manning et al., 2014), such as can be gleaned from intensive longitudinal data, would also help unpack links between maternal and adolescent relationship instability (Goldberg & Tienda, 2017). For example, precise measurement of within-partnership churning could be a useful start toward this end (Halpern-Meekin et al., 2013).

The salience of exposures to poor maternal relationship quality in middle childhood, and of persistent exposures to maternal relationship instability, suggests that interventions aimed at addressing problematic relationship behaviors among adults and secondary prevention programs for children exposed to such behaviors might target families with preadolescent children and those with long-term exposures to parental relationship instability. More generally, our findings that intergenerational continuities are apparent in adolescent relationships support the idea that waiting until adolescence to provide programs designed to prevent maladaptive relationship behaviors and teach prosocial skills may be too late (Ehrensaft et al., 2003; Narayan et al., 2017).

Overall, the results from this study illuminate additional pathways through which healthy and unhealthy relationships are reproduced across generations. It is conceivable that the intergenerational continuities we discerned in adolescence could become stronger with age as romantic relationships become more common and the incidence of negative attributes like IPV reach their peak (Johnson et al., 2015). Given known associations between adolescent and adult relationship dynamics (Cui et al., 2013; Raley et al., 2007), it is also possible that the higher levels of instability, violence, and poor general relationship quality observed in adolescence among children exposed to low-quality parental relationships serve as mechanisms linking parental relationship quality and the relationship quality of adult offspring. Following Crosnoe and Johnson's recommendation to look both "back to childhood and forward to adulthood" (2011, p. 450), future empirical work might aim to test these propositions by incorporating additional measures of relationship quality in adulthood.

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Table 1. *Descriptive Statistics for Independent and Dependent Variables*

Variable	Mean *or* %	*SD*
Adolescent relationship outcomes		
Currently in relationship	24.4	
Number people dated		
0	33.0	
1-2	29.9	
3+	37.0	
Among adolescents in relationships at year-15 interview (*n*=849):		
Physical IPV perpetration in current relationship	4.7	
Physical IPV victimization in current relationship	3.0	
Overall current relationship quality excellent or very good	81.5	
Mother relationship instability		
No co-residential partnership changes age 3-9	59.5	
Age 3-5 co-residential partnership changes only	9.8	
Age 5-9 co-residential partnership changes only	16.7	
Early and later co-residential partnership changes	14.0	
Mother general relationship quality		
No poor-quality relationships age 3-9	62.0	
Age 3 or age 5 poor-quality relationship only	19.9	
Age 9 poor-quality relationship only	7.4	
Early and later poor-quality relationship	10.7	
Mother physical intimate partner violence (IPV) victimization		
Any physical IPV victimization age 3-9	12.9	
Controls		
Mean adolescent age (years) at year-15 interview (14-18)	15.4	0.5
Mother harsh parenting toward focal child		
Psychological aggression age 3	20.5	
Psychological aggression age 5	23.4	
Psychological aggression age 9	23.1	
Physical aggression age 3	19.9	
Physical aggression age 5	20.1	
Physical aggression age 9	17.0	
Adolescent female	43.8	
Mother's education at baseline		
Less than high school	29.9	
HS diploma, < BA/BS	49.9	
BA/BS or graduate school	20.2	
Mother's poverty ratio at baseline		
0-49% of FPL	14.3	
50-99% of FPL	13.3	
100-199% of FPL	24.4	
200-299% of FPL	13.8	
300% plus of FPL	34.2	
Mother's race/ethnicity		
Non-Hispanic White	28.1	
Non-Hispanic Black	35.1	
Hispanic	30.6	
Other	6.2	
Mother US-born	74.1	
Mother not in relationship at age 3	15.7	
Mother not in relationship at age 5	16.1	
Mother not in relationship at age 9	16.8	
Mother's marital status at child's birth		
Not married or cohabiting	25.3	
Married	52.1	
Cohabiting	22.6	

Mean mother's age at child's birth (14-47)	27.2	6.3
N respondents	3,162	

Source: Fragile Families and Child Wellbeing Study, Birth to Year-15 Waves
Notes: Ranges for continuous variables are given in parentheses. Results are weighted using Year-15 city sampling weights.

Table 2. *Multinomial Logistic Regression Models Predicting Adolescent Relationship Instability (Reference: 3+ relationships)*

	No Relationships by Year-15 Interview			1-2 Relationships by Year-15 Interview		
	RRR		SE	RRR		SE
Mother relationship instability *(ref: no transitions)*						
Age 3-5 co-residential partnership changes only	0.87		(0.15)	0.95		(0.15)
Age 5-9 co-residential partnership changes only	0.75	*	(0.11)	0.88		(0.11)
Early and later co-residential partnership changes	0.60	**	(0.09)	0.76	*	(0.10)
Mother relationship quality *(ref: no poor-quality relationships)*						
Age 3 or age 5 poor-quality relationship only	0.99		(0.13)	0.77		(0.10)
Age 9 poor-quality relationship only	1.07		(0.22)	0.90		(0.17)
Early and later poor-quality relationship	0.87		(0.16)	0.67	*	(0.12)
Controls						
Adolescent age (months) at year-15 interview	0.97	** *	(0.01)	1.00		(0.01)
Mother harsh parenting toward focal child						
Psychological aggression age 3	0.86		(0.13)	1.12		(0.15)
Psychological aggression age 5	0.84		(0.14)	1.10		(0.18)
Psychological aggression age 9	0.72	*	(0.10)	0.75	*	(0.10)
Physical aggression age 3	0.87		(0.13)	0.82		(0.12)
Physical aggression age 5	1.32		(0.20)	0.97		(0.14)
Physical aggression age 9	1.05		(0.16)	1.02		(0.14)
Adolescent female	2.73	** *	(0.27)	3.24	** *	(0.30)
Mother's education at baseline (*ref: < high school*)						
HS diploma, < BA/BS	0.96		(0.12)	1.20		(0.13)
BA/BS or graduate school	1.48		(0.32)	1.38		(0.29)
Mother's poverty ratio at baseline (*ref: 0-49%* of FPL)						
50-99% of FPL	0.84		(0.15)	0.98		(0.15)
100-199% of FPL	0.98		(0.16)	1.02		(0.14)
200-299% of FPL	1.05		(0.19)	0.86		(0.14)
300% plus of FPL	1.50	*	(0.28)	1.33		(0.23)
Mother's race/ethnicity (*ref: Non-Hispanic White)*						
Non-Hispanic Black	1.18		(0.17)	0.88		(0.12)
Hispanic	1.55	**	(0.26)	1.26		(0.19)
Other	2.35	**	(0.69)	1.78	*	(0.52)
Mother US-born	0.64	**	(0.11)	0.81		(0.13)

Mother not in relationship age 3	0.95		(0.13)	0.81	(0.10)
Mother not in relationship age 5	0.79		(0.11)	1.04	(0.12)
Mother not in relationship age 9	1.09		(0.14)	0.85	(0.10)
Mother marital status at child's birth (*ref: Not married or cohabiting)*					
Married	1.49	*	(0.24)	1.05	(0.16)
Cohabiting	1.01		(0.12)	0.84	(0.09)
Mother's age at child's birth	1.03	**	(0.01)	1.01	(0.01)
N	2,984				

Source: Fragile Families and Child Wellbeing Study, Birth to Year-15 Waves
* p<0.05; ** p<0.01; *** p<0.001 (two-tailed)
Notes: *n*=719 in “no relationships” category, *n*=891 in “1-2 relationships” category, and *n*=1,374 in “3+ relationships” category of dependent variable.

Table 3. *Multinomial Logistic Regression Models Predicting Adolescent Relationship Quality (Reference: In poor, fair, or good relationship)*

	Never in Relationship by Year-15 Interview			Not in Relationship at Time of Year-15 Interview			In Very Good/ Excellent Relationship		
	RRR		SE	RRR		SE	RRR		SE
Mother relationship instability *(ref: no transitions)*									
Age 3-5 co-residential partnership changes only	0.74		(0.23)	0.80		(0.23)	0.89		(0.27)
Age 5-9 co-residential partnership changes only	0.71		(0.19)	0.92		(0.23)	0.88		(0.23)
Early and later co-residential partnership changes	0.65		(0.18)	0.94		(0.24)	1.16		(0.31)
Mother relationship quality *(ref: no poor-quality relationships)*									
Age 3 or age 5 poor-quality relationship only	0.88		(0.24)	0.80		(0.21)	0.81		(0.22)
Age 9 poor-quality relationship only	0.58		(0.19)	0.54	*	(0.17)	0.40	**	(0.14)
Early and later poor-quality relationship	0.93		(0.34)	0.90		(0.32)	0.88		(0.32)
Controls									
Adolescent age (months) at year-15 interview	0.97	*	(0.01)	1.00		(0.01)	1.01		(0.01)
Mother harsh parenting toward focal child									
Psychological aggression age 3	0.69		(0.20)	0.83		(0.22)	0.91		(0.25)
Psychological aggression age 5	0.67		(0.19)	0.81		(0.21)	0.77		(0.21)
Psychological aggression age 9	0.66		(0.17)	0.84		(0.20)	0.76		(0.18)
Physical aggression age 3	1.32		(0.39)	1.45		(0.41)	1.37		(0.39)
Physical aggression age 5	1.67		(0.49)	1.29		(0.38)	1.20		(0.34)
Physical aggression age 9	0.89		(0.24)	0.79		(0.20)	0.96		(0.25)
Adolescent female	1.54	*	(0.29)	0.87		(0.16)	0.98		(0.18)
Mother's education at baseline (*ref: < high school*)									
HS diploma, < BA/BS	1.48		(0.32)	1.83	**	(0.36)	1.61	*	(0.33)
BA/BS or graduate school	1.25		(0.61)	1.03		(0.49)	0.82		(0.41)
Mother's poverty ratio at baseline (*ref: 0-49%* of FPL)									
50-99% of FPL	0.56	*	(0.16)	0.65		(0.17)	0.63		(0.18)
100-199% of FPL	0.80		(0.23)	0.85		(0.22)	0.72		(0.20)
200-299% of FPL	0.83		(0.27)	0.77		(0.24)	0.61		(0.20)
300% plus of FPL	1.83		(0.76)	1.50		(0.60)	1.14		(0.47)
Mother’s race/ethnicity (*ref: Non-Hispanic White)*									

Non-Hispanic Black	0.51		(0.18)	0.42	*	(0.14)	0.38	** (0.13)
Hispanic	0.78		(0.31)	0.59		(0.23)	0.44	* (0.17)
Other	0.77		(0.49)	0.47		(0.29)	0.35	(0.23)
Mother US-born	0.68		(0.23)	0.97		(0.33)	0.96	(0.34)
Mother not in relationship age 3	0.79		(0.19)	0.79		(0.17)	0.67	(0.15)
Mother not in relationship age 5	1.06		(0.25)	1.32		(0.29)	1.44	(0.33)
Mother not in relationship age 9	1.18		(0.28)	1.06		(0.23)	0.94	(0.22)
Mother marital status at child's birth (*ref: Not married or cohabiting)*								
Married	2.09	*	(0.72)	1.49		(0.50)	1.40	(0.49)
Cohabiting	1.49		(0.33)	1.40		(0.29)	1.42	(0.31)
Mother's age at child's birth	1.03		(0.02)	1.01		(0.02)	1.00	(0.02)
N	3,135							

Source: Fragile Families and Child Wellbeing Study, Birth to Year-15 Waves
* p<0.05; ** p<0.01; *** p<0.001 (two-tailed)
Notes: *n*=719 in “never in relationship” category, *n*=1,547 in “not in relationship at time of year-15 interview” category, *n*=726 in “in very good/excellent relationship” category, and *n*=143 in “in poor, fair, or good relationship” category of dependent variable.

Table 4. *Multinomial Logistic Regression Models Predicting Adolescent Physical IPV Perpetration and Victimization (Reference: In relationship with physical IPV perpetration/victimization)*

	Never in Relationship by Year-15 Interview		Not in Relationship at Time of Year-15 Interview		In Relationship with no IPV	
	RRR	SE	RRR	SE	RRR	SE
PANEL A. IPV PERPETRATION						
# mother co-residential partnership transitions age 3-9	0.77 *	(0.09)	0.85	(0.09)	0.87	(0.09)
Any poor-quality mother relationship age 3-9	1.66	(0.65)	1.51	(0.59)	1.48	(0.58)
Any mother physical IPV victimization age 3-9	0.29 **	(0.11)	0.35 **	(0.13)	0.42 *	(0.16)
PANEL B. IPV VICTIMIZATION						
# mother co-residential partnership transitions age 3-9	0.86	(0.10)	0.95	(0.11)	0.97	(0.11)
Any poor-quality mother relationship age 3-9	1.03	(0.37)	0.94	(0.34)	0.90	(0.32)
Any mother physical IPV victimization age 3-9	0.50	(0.22)	0.60	(0.25)	0.76	(0.32)
N	3,136					

Source: Fragile Families and Child Wellbeing Study, Birth to Year-15 Waves
* p<0.05; ** p<0.01; *** p<0.001 (two-tailed)
Notes: Both models also include the same control variables as in Tables 2 and 3 (not shown);
For the adolescent IPV perpetration categorical outcome variable, *n*=719 in “never in relationship” category, *n*=1,547 in “not in relationship at time of year 15” category, *n*=817 in “in relationship with no IPV perpetration” category, and *n*=53 in “in relationship with IPV perpetration” category.
For the adolescent IPV victimization categorical outcome variable, *n*=719 in “never in relationship” category, *n*=1,547 in “not in relationship at time of year 15” category, *n*=819 in “in relationship with no IPV victimization” category, and *n*=51 in “in relationship with IPV victimization” category.