Published in final edited form as:

Dev Psychol. 2009 September ; 45(5): 1241–1256. doi:10.1037/a0014850.

Intergenerational Continuity in Parenting Behavior: Mediating Pathways and Child Effects

Tricia K. Neppl,

Institute for Social and Behavioral Research, Iowa State University

Rand D. Conger,

Family Research Group, Department of Human and Community Development, University of California – Davis

Laura V. Scaramella, and

Department of Psychology, University of New Orleans

Lenna L. Ontai

Family Research Group, Department of Human and Community Development, University of California – Davis

Abstract

This prospective, longitudinal investigation examined mechanisms proposed to explain continuities in parenting behavior across two generations (G1, G2). Data came from 187 G2 adults, their mothers (G1), and their children (G3). Prospective information regarding G2 was collected both during adolescence and early adulthood. G1 data were collected during G2's adolescence and G3 data were generated during the preschool years. Assessments included both observational and self-report measures. The results indicated a direct relationship between G1 and G2 harsh parenting and between G1 and G2 positive parenting. As predicted, specific mediators accounted for intergenerational continuity in particular types of parenting behavior. G2 externalizing behavior mediated the relationship between G1 and G2 harsh parenting, while G2 academic attainment mediated the relationship between G1 and G2 positive parenting. In addition, the hypothesized mediating pathways remained statistically significant after taking into account possible G2 effects on G1 parenting and G3 effects on G2 parenting.

Parenting behavior has been associated with both child competence and child maladjustment (see Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000). For example, supportive parenting practices have been linked to higher levels of psychosocial well-being during childhood (Baumrind, 1991; Jones, Forehand, Brody, & Armistead, 2002; Zhou et al., 2002), while harsh and inconsistent parenting has been associated with higher levels of children's externalizing problems (Forman & Davies, 2003; Ge, Brody, Conger, Simons, & Murry, 2002; Pettit, Laird, Dodge, Bates, & Criss, 2001; Shaw et al., 1998). Less is known about how parents come to behave in different ways toward their children. Recent evidence, however, suggests that an important influence on parenting may involve continuities in childrearing practices across generations (Belsky, Jaffee, Sligo, Woodward, & Silva, 2005; Conger, Neppl,

Correspondence regarding this manuscript should be addressed to Tricia K. Neppl, Institute for Social and Behavioral Research, Iowa State University, 2625 N. Loop Dr., Suite 500, Ames, IA 50014; tneppl@iastate.edu.

The following manuscript is the final accepted manuscript. It has not been subjected to the final copyediting, fact-checking, and proofreading required for formal publication. It is not the definitive, publisher-authenticated version. The American Psychological Association and its Council of Editors disclaim any responsibility or liabilities for errors or omissions of this manuscript version, any version derived from this manuscript by NIH, or other third parties. The published version is available at www.apa.org/journals/dev.

Kim, & Scaramella, 2003; Patterson, 1998; Putallaz, Constanzo, Grimes, & Sherman, 1998; Van IJzendoorn, 1992). Despite the growing evidence that the style of parenting in one generation influences parental behavior in the next, as yet there is little understanding of the specific mechanisms that may promote such continuities. Moreover, some researchers have proposed that evidence for continuity may be reduced if child effects on parenting are taken into account (Belsky et al., 2005). The current report addresses these important issues.

We begin with a review of the evidence for intergenerational continuities in harsh parenting and consider possible mediating mechanisms that may explain such continuities. We also consider the possibility that G2 behavior as a child or adolescent may actually exacerbate G1 harsh parenting and explain this parenting style in both the first and second generations. We next conduct a similar review of the evidence for intergenerational continuities in positive or supportive parenting. We then extend this analysis to the possible role of the G3 child in predicting G2 parenting. Finally, we describe the present investigation and the means by which it will address these issues and thus extend understanding of these developmental processes.

Intergenerational Continuities in Harsh Parenting Behavior

Intergenerational Transmission and Mediating Pathways

Many researchers have found that harsh parenting in the first generation is associated with harsh parenting practices by the next generation (e.g., Pears & Capaldi, 2001; Putallaz et al., 1998; Simons, Whitbeck, Conger, & Wu, 1991). While much of this research has been retrospective or based on self reports, Conger and his colleagues (2003) demonstrated a direct relationship between observed G1 aggressive parenting and observed G2 aggressive parenting five to seven years later. Thus, more recent evidence based on prospective, longitudinal research employing intensive measurement of observed parenting replicates earlier studies showing intergenerational continuity in harsh parenting.

One hypothesis for explaining the intergenerational transmission of parenting proposes that children develop childhood characteristics that foster intergenerational continuity in harsh childrearing practices. For example, Caspi and Elder (1988) reported that G1 hostile parenting predicted G2 aggressive behavior during childhood. In turn, higher levels of aggressive behavior during childhood were linked to higher levels of G2 hostile parenting 30 years later during interactions with their own children. In a study examining the intergenerational transmission of risk, Brook, Whiteman, and Zheng (2002) discovered that G1 adverse maternal behaviors when G2 was an adolescent predicted psychological problems when G2 was a young adult. These problems, in turn, were associated with G2 having a less warm relationship with their own G3 child. Simply put, there is suggestive evidence from prospective, longitudinal research that an important mechanism linking harsh parenting across two generations involves increased risk for emotional and behavioral problems by children raised in a hostile family environment. These markers of maladjustment appear to carry forward to disrupt parenting behavior in the second generation.

Child Effects

Although these studies provide support for the hypothesis that G1 harsh parenting predicts G2 aggressive or externalizing behavior which, in turn, predicts G2's later functioning in their own parent-child relationships, it may also be the case that childhood behavior influences the type of parenting received. In other words, the problem behaviors of a child may elicit parental harsh punishment. For example, Kerr and Stattin (2003) demonstrated that parents' behaviors were reactions to problem behaviors exhibited by their child. Similarly, both Fite, Colder, Lochman, and Wells (2006) and Huh, Tristan, Wade, and Stice (2006) observed that children scoring high in externalizing seemed to intensify poor parental monitoring, support, and discipline.

Finally, another study found that adolescent externalizing behaviors predicted low levels of parental responsiveness 1 year later, but parenting did not predict problem behavior (Reitz, Dekovic, Meijer, & Engels, 2006).

Taken together, these studies of child effects suggest the possibility that G2 externalizing behavior may be largely driven by the behavioral traits, personality or temperament of the child, which elicits G1 harsh parenting. It may also be the case that these G2 characteristics not only influence G1 parenting, but are stable, and ultimately shape the way they parent their own children. A number of studies have demonstrated the stability of externalizing behavior over time (e.g., Farrington, 1991; Huesmann & Eron, 1992) and the fact that earlier conduct problems can disrupt functioning in adult roles (Laub & Sampson, 1995). If these observations are correct, then G2 children with conduct problems may elicit G1 harsh parenting and also eventually become harsh parents themselves. Indeed, it may be the case that there is no intergenerational continuity in harsh parenting; rather, the association between G1 and G2 parenting may be spurious and be completely dependent on the relatively stable conduct problems of the G2 child grown to adulthood. We test this possibility in the following analyses and also examine evidence for G3 child effects on G2 harsh parenting. That is, we evaluate evidence for G3 effects on G2 similar to those that may exist from G2 to G1.

Intergenerational Continuities in Positive or Supportive Parenting

Intergenerational Transmission and Mediating Pathways

Very few studies have examined the intergenerational transmission of positive or supportive parenting. Two prospective, longitudinal studies across generations, however, have provided important findings related to this issue. Belsky et al., (2005) reported that mothers who experienced more supportive parenting throughout their own childhoods were more supportive during interactions with their children. Chen and Kaplan (2001) found evidence for intergenerational continuity in constructive parenting. Their study showed that adolescents who had a positive and supportive relationship with their parents were more likely to be constructive and supportive in parenting their own children.

In the same way that harsh parenting may be transmitted by increasing risk for G2 maladjustment, positive parenting may be transmitted by increasing the probability that G2 will be a generally competent child or adolescent. For example, Brody, Flor, and Gibson (1999) observed that competence-promoting parenting in G1 was indirectly linked with G2's academic and psychosocial competence. Similarly, Davis-Kean (2005) demonstrated an indirect relationship between G1 warm parenting and G2 academic achievement. Warm and supportive parenting also has been associated with higher educational aspirations (Lamborn, Mounts, Steinberg, & Dornbusch, 1991), better adolescent school performance, and stronger school engagement (Steinberg, Lamborn, Dornbusch, & Darling, 1992).

These findings suggest that children raised by supportive parents are more likely to demonstrate greater psychosocial and academic competence. We reason that academic achievement and attainment may be key elements in the process of intergenerational continuity. For example, earlier research demonstrates that better educated parents are more involved, supportive, and engaged in their children's lives and children of such parents have greater success in school (e.g., Conger & Donnellan, 2007). In turn, academic achievement during childhood and adolescence is highly predictive of eventual academic attainment. Thus, G1 supportive parenting may lead to educational achievements that promote more years of formal education by G2. And the evidence shows that more highly educated G2 parents should be more warm, supportive and positive in interactions with their children. Although all of the reasons for the association between education and parenting have not been identified, we expect that better

compared to less well educated parents likely bring greater knowledge, feelings of efficacy, and commitment to the parenting role.

The study by Chen and Kaplan (2001) provides initial support for the hypothesis that positive, supportive or constructive parenting will continue across generations in large part through its impact on the development of a generally competent child. They reported that G1 constructive parenting predicted two types of G2 competence as an adult: success in interpersonal relations and success in instrumental activities like educational attainment and civic participation. In turn, both of these dimensions of competent functioning predicted G2 constructive parenting and partially mediated the association between G1 and G2 parenting behaviors. Interestingly, a third marker of adult development, psychological disturbance (symptoms of depression, anxiety and self-rejection), did not mediate the connection between G1 and G2 parenting, consistent with our view that positive parenting will continue across generations primarily because of the competence it promotes in children grown to adulthood. Because of its well-established connection to the quality of parenting, in the present study we focus on educational attainment as our indicator of G2 successful development.

Child Effects

Just as children's conduct problems may lead to G1 harsh parenting, socially competent child behavior may have positive effects on G1 parents. Parents likely feel proud of their children's successes and more competent themselves as parents; such positive feelings likely spillover into their interactions with their children (Conger & Donnellan, 2007). Ambert (1992), for example, notes that the more a child deviates positively through school performance and achievement from the socially accepted average, the greater the positive influence the child has on parents. And as with G2 externalizing problems, these positive G2 child characteristics are expected not only to influence G1 parenting, but also to affect the way in which G2 parents raise their own children. That is, academic achievement and other forms of competence may persist and influence many aspects of life during childhood and the adult years.

In the same way that externalizing behavior is stable over time, there is evidence for stability in competent behavior in general and academic achievement in particular. In a longitudinal study examining the structure of competence from childhood to late adolescence, Masten et al. (1995) found evidence for continuity in academic achievement. They concluded that both job and academic competence during late adolescence and early adulthood are traceable to competence displayed in middle childhood. Obradovic, van Dulmen, Yates, Carlson, and Egeland (2006) assessed competence across four developmental time periods: early childhood, middle childhood, early adolescence, and late adolescence. They discovered high inter-individual stability across all four time points for both social and cognitive competence. They concluded that, "prior adaptations contributed to the quality of subsequent adaptations (i.e. stability) such that developmental pathways become increasingly robust over time as previous adaptations were systematically incorporated into subsequent patterns" (p. 874).

Just as with conduct problems and harsh parenting, then, it may be that dispositionally competent children elicit supportive behaviors from their parents and also go on to become supportive parents in their own right. Again, intergenerational continuity in parenting may represent a spurious relationship entirely dependent on the G2 child's characteristics that are relatively stable from childhood to adulthood. We test this possibility in the following analyses and also consider whether evidence exists for the beginning of a similar developmental process involving the G3 child and G2 parent.

The Present Investigation

The present report examines intergenerational continuity in parenting using data from a two-decade study of a cohort of adolescents grown to adulthood. It is designed to meet two overall objectives. First, we examine the degree to which G1 parenting of G2 during G2's adolescence predicts G2's parenting of G3 during G3's early childhood. As noted earlier, intergenerational continuity in both harsh and positive parenting will be examined. The hypothesis is that continuity will be specific to each type of parenting. That is, when both types of childrearing styles are considered together in a set of prediction equations, G1 positive parenting is expected to predict G2 positive parenting but not G2 harsh parenting and vice versa. In other words, we propose that intergenerational continuity in parenting style involves a social learning process and that the learning that occurs will be relatively specific to the type of parenting experienced as a child or adolescent. When both G1 positive and harsh parenting are considered together, it will be harsh parenting that will predict G2 harshness and positive parenting that will predict G2 being positive.

The first objective also considers developmental processes proposed to explain the connection between childrearing practices in the first and second generations. Following from our review of the literature, we propose that harsh parenting by G1 will increase risk for externalizing behaviors by G2 and these externalizing problems will extend to harsh parenting of G3. In a countervailing process, G1 positive parenting is expected to lead to a more competent G2 child and this generalized competence will extend to positive parenting of G3. The specific form of G2 competence we examine here is academic attainment which has been related to more effective parenting in many different studies (Conger & Donnellan, 2007). This set of intergenerational hypotheses is summarized in Figure 1.

The second major objective of this report is to evaluate whether evidence of intergenerational continuity is actually spurious and simply the result of stability in individual differences in the G2 generation. Based on our literature review and as illustrated in Figure 2, it may be the case that adolescents high on externalizing problems exacerbate harsh G1 parenting, tend to demonstrate similar problems during adulthood, and are harsh to their own children. Once this behavioral stability is taken into account, there may be no association between G1 and G2 harsh parenting (Figure 2). We evaluate the possibility of a similar process for positive parenting (Figure 2). Building on the study by Belsky and his colleagues (2005), and because it is possible that G3 behavior elicits specific forms of parenting from G2 just as we propose that G2 may affect G1 parenting, G3 behavior is included in model tests as a predictor of G2 parenting. We note, however, that using G3 behavior only as a predictor rather than as a consequence of G2 parenting provides a particularly stringent test of both the individual differences and intergenerational continuity hypotheses. Current child behavior should have a significant impact on parenting, but the reverse is true as well. The present strategy is to determine whether hypothesized social or individual continuities will relate as expected to G2 parenting even after this very conservative approach to the treatment of G3 behavior.

Also important, the current study employs a research design that overcomes some of the methodological limitations found in many earlier studies of continuity in parenting across generations. First, it uses a prospective, longitudinal research design, thus eliminating retrospective biases inherent in measures based on adult recall of childhood and adolescent experiences in the family of origin. The current investigation also used multiple informants, including ratings of parenting behavior by trained observers. This approach reduces method variance biases produced by reliance on a single informant. As part of this measurement strategy, G1 parenting to G2 as an adolescent was rated by different observers than those who rated G2 parenting behavior to their young child. This approach reduces biases based on ratings by a single informant, a bias that could inflate estimates of intergenerational continuity. In

addition to observational data, self report measures of G2 behavior as an adolescent and early adult were used.

Finally, in order to ascertain whether any of the relationships within the model were due to outside social or background characteristics, G1 and G2 per capita income, G2 relationship status, G2 and G3 age, and G2 and G3 gender were used as control variables in the analyses. Past evidence suggests that these characteristics may be related to both parenting behaviors and to the predictors of parenting examined in this study. For example, family income or socioeconomic status is related to positive parenting, harsh parenting, adolescent externalizing problems and children's educational attainment (Conger & Donnellan, 2007; Conger & Simons, 1997). In terms of G2 relationship status, single parents are at greater risk for ineffective parenting than those who are married, and their children are more likely to experience behavioral problems (e.g., Simons, Beaman, Conger, & Chao, 1993).

In addition to income and relationship status, G2 and G3 age as well as G2 and G3 gender are also related to parenting practices and child developmental outcomes. Children born to mothers who begin childbearing at a young age experience a variety of negative outcomes. For example, Pogarsky, Thornberry, and Lizotte (2006) demonstrated that boys born to mothers who began their childbearing before the age of 19 years had increased risk for externalizing problems, drug use, and early parenthood. Girls born to young mothers had increased risk for early parenthood. In terms of G3 age, Bank, Forgatch, Patterson, and Fetrow (1993) found that mothers with older compared to younger boys were more likely to demonstrate less effective parenting. These older sons also were at increased risk for antisocial behavior. Finally, in a study examining the mediating role of parenting style in the intergenerational continuity of antisocial behavior, Thornberry, Freeman-Gallant, Lizotte, Krohn, and Smith (2003) reported that adolescent delinquency played a larger role for G2 fathers, whereas parenting played a larger role in linking generations for G2 mothers. Moreover, daughters were more likely than sons to model the risky behavior of their mothers, which implies they are more involved with and influenced by the family (Thornberry, Krohn, & Freeman-Gallant, 2006).

We also evaluated whether G2 gender would moderate the relationship between G1 and G2 parenting. Two recent studies demonstrate the importance of testing for gender moderation in research on intergenerational continuity in parenting. First, Thornberry et al. (2003) observed that the relationship between G1's parenting of G2 and G2's parenting of G3 was statistically significant for the young women in their study but not for the young men, suggesting that intergenerational continuity may occur only for daughters. Belsky and his colleagues (2005) reported a similar finding, again suggesting that daughters may emulate the parenting behaviors they experience as children and adolescents but that sons may not. The first step in the present analyses was to determine whether or not this type of gender moderation occurred for the families in this study.

Method

Participants

Data come from the Family Transitions Project (FTP), a longitudinal study of 559 target youth and their families. The FTP represents an extension in time of two earlier studies: The Iowa Youth and Families Project (IYFP) and the Iowa Single Parent Project (ISPP). In the IYFP, data from the family of origin (N=451) were collected annually from 1989 through 1992. Participants included the target adolescent (G2), their parents (G1), and a sibling within 4 years of age of the target adolescent (217 females, 234 males). These 2-parent families (451 mothers, 451 fathers) were originally recruited for a study of family economic stress in the rural Midwest. When interviewed in 1989, the target adolescent was in seventh grade (M age = 12.7 years; 236 females, 215 males). Participants were recruited from both public and private schools in

eight rural Iowa counties. All schools in communities of 6,500 or less provided names and addresses of seventh grade students and their parents. Eligible families were sent a letter explaining the project and then were contacted via telephone and asked to participate. Families without telephones were contacted in person.

Due to the rural nature of the sample there were few minority families (approximately 1% of the population); therefore, all of the participants were Caucasian. Seventy-eight percent of the eligible families agreed to participate. The families were primarily lower middle- or middleclass. Thirty-four percent of the families resided on farms, 12% lived in nonfarm rural areas, and 54% lived in towns with fewer than 6,500 residents. In 1989, parents averaged 13 years of schooling and had a median family income of \$33, 700. Families ranged in size from 4 to 13 members, with an average size of 4.94 members. Fathers' average age was 40 years, while mothers' average age was 38.

The ISPP began in 1991 when the target adolescent for the present study was in 9th grade (M age = 14.8 years), the same year of school in 1991 for the IYFP cohort of target youth. Participants included the target adolescents (G2), their single-parent mothers (G1), and a sibling within 4 years of age of the target adolescent ($N=108$). Telephone screeners identified families headed by a mother who had experienced divorce within two years prior to the start of the study. All but three eligible families agreed to participate. The participants were Caucasian, primarily lower middle- or middle-class, one-parent families that lived in the same general geographic area as the IYFP families. Measures and procedures for the IYFP and ISPP studies were identical, with the exception that ISPP fathers did not participate in the in-home interviews. These families participated in three waves of data collection (1991, 1992, and 1993).

In 1994, the families from the ISPP were combined with the families from the IYFP to create the FTP. At that time the focal adolescents from both studies were in the 12th grade. In 1994, target youth participated in the study with their parents as they had during earlier years of adolescence. Beginning in 1995, the G2 target adolescent (1 year after completion of high school) participated in the study with a romantic partner or friend. In 1997, the study was expanded to include the first-born child of the target adolescent, now a young adult. The G3 child was at least 18 months of age. By 2003, G3 children in the FTP ranged in age from 18 months to 11 years old. Thus, the FTP has followed the G2 target youth from as early as 1989 through 2003 (M target age = 27.3 years), with a 90% retention rate.

The present report includes 187 target young adults (G2) who had an eligible child participating in the study by 2003. The data were analyzed from the first assessments of each child. Children averaged 2.3 years of age at first assessment, with 102 males and 55 females. There were 151 two-year-olds, 27 three-year-olds, 7 four-year-olds, and 2 five-year-old children. Age at first assessment varies somewhat because not all participants were available to be interviewed when the child first became eligible to participate at 18 months of age, and some children were already older than 18 months when G3 first were included in the study in 1997. The G2 parents averaged 24.3 years of age (71 males and 116 females) at the first assessment of their child. Of the 187 G2 parents, 79% were married ($N=123$) to or cohabiting ($N=26$) with a romantic partner at the time of the visit. All but three of these cohabitating partners were the other biological parent of the G3 child.

Only those G2 targets with an eligible child were included in the present report. Therefore, analyses were conducted to ascertain whether targets with children were different than targets without children in terms of their externalizing behavior and academic achievement during adolescence. No mean differences were found for externalizing behavior. However, targets without children had a significantly higher mean level of academic achievement than targets

with children. This finding is consistent with literature which shows that adolescents who do not do well in school are more likely to start families earlier in life (Jaffee, 2002; Xie, Cairns, & Cairns, 2001).

Procedures

During 1991 and 1992 when the G2 target youth were in the 9th and 10th grades and again in 1994 when the targets were in 12th grade, all of the families of origin were visited twice in their homes each year by a trained interviewer. Each visit lasted approximately 2 hours, with the second visit occurring within two weeks of the first visit. During the first visit, each family member (mother, father in the 2-parent families, target adolescent, and sibling closest in age to the target) completed questionnaires pertaining to subjects such as parenting, individual characteristics, and the quality of family interactions. During the second visit, family members participated in four structured interaction tasks that were videotaped. The first task, a family interaction task (25 minutes) involving all four study participants, was used for the present analyses. This task was chosen because it was designed to elicit a wide range of specific behaviors and emotions including negative and positive family interaction patterns and various parenting behaviors. Two of the other tasks (sibling, marital) did not involve parenting behaviors and the third task (problem solving) focused only on family conflict and not the wide array of parenting behaviors of interest in this report. Trained observers coded the quality of these interactions using the Iowa Family Interaction Rating Scales (Melby et al., 1998). These scales have been shown to demonstrate adequate reliability and validity (Melby & Conger, 2001).

From 1997 through 2003 the target youth (G2), now young adults, and their first-born children participated in data collection. Each target parent and his or her child were visited once each year in their home by trained interviewers. During that visit, these young adults completed a series of questionnaires, some of which addressed parenting behaviors and individual characteristics. In addition to questionnaires, the G2 participants and their G3 child participated in two separate videotaped interaction tasks. Observational codes derived from the puzzle completion task were used for this study. G2 parents and their G3 children were presented with a puzzle that was too difficult for children to complete alone. G2 parents were instructed that children must complete the puzzle alone, but parents could provide any assistance necessary. The task lasted 5 minutes. Puzzles varied by age group so that the puzzle slightly exceeded the child's skill level.

This interaction task created a stressful environment for both parent and child and the resulting behaviors indicated how well the parent handled the stress and how adaptive the child was to an environmental challenge. We expected that skillful, nurturing and involved parents would remain warm and supportive toward the child whereas less skillful parents were expected to become more irritable and short-tempered as the child struggled with the puzzle.

Trained observers rated the quality of interactions during this task using the Iowa Family Interaction Rating Scales (Melby et al., 1998). The observers used to code the puzzle task during the early adult years were different than the observers who coded the parent-child interactions during adolescence. Therefore, different informants generated the behavioral scores for G1 and G2 parenting. Additional details regarding each interaction task are provided in the following discussion of study measures.

Measures

G1 harsh parenting—Observer ratings were used to assess G1 parents' hostility, antisocial behavior, and angry coerciveness toward the target youth (G2) during the adolescent family interaction task. Each rating was scored on a 9-point scale, ranging from low (no evidence of

the behavior) to high (the behavior is highly characteristic of the parent). Each scale was used as a separate indicator for the latent construct. Hostility measures hostile, angry, critical, disapproving and/or rejecting behavior. Antisocial is the demonstration of socially irresponsible behavior, including resistance, defiance, and insensitivity. Angry coercion is the attempt to control or change the behavior of another in a hostile manner. It includes demands, hostile commands, refusals, and threats.

During the family interaction task, parents and their children discussed questions from a series of cards labeled specifically for either the parent or the teenager. Parents and children took turns reading questions related to subjects such as school activities, family rules, and parental discipline. The person reading the card was instructed to read each question out loud and give his or her answers first. The rest of the family members were instructed to give their individual answers next and then everyone talked together about the answers that were given. They were to go on to the next card once they felt as though they had said everything they wanted to about each question. This task was intended to elicit both negative and positive interactions between family members.

In order to compare the two-parent families with the single-mother families, only the G1 mothers' behaviors were used in the present analyses. Scores were averaged across data collected in 1991, 1992, and 1994. The observational ratings were internally consistent ($\alpha = .92$) and inter-rater reliability was acceptable (.94). The means, standard deviations, and minimum and maximum scores for these construct indicators, as well as all of the other study variables, are provided in the Appendix.

G2 harsh parenting—Direct observations assessed G2 harsh parenting behaviors to their child during the videotaped puzzle task. This task was designed to evaluate how parents interact with their child when the child is engaged in an effort likely to generate a great deal of difficulty and frustration for the child. Parents were asked to let the child independently solve the puzzle, but they could offer any help that they felt was necessary. Trained observers rated the same behaviors as for G1 harsh parenting. Hostility, antisocial, and angry coercion were rated by observers on a 9-point scale. Scores were analyzed in terms of the child's age at first assessment, which occurred in 1997, 1998, 1999, 2000, 2001, 2002, or 2003. That is, the measure is based on the interaction that occurred during the year that the child first entered the study. The scores for the G2 harsh parenting construct were internally consistent ($\alpha = .94$) and inter-rater reliability was substantial (.94).

G2 adolescent externalizing behavior—G2 adolescent externalizing behavior was assessed through self report in 1991 at an average age of 15 years. We used the 1991 score so that we could predict to later G1 parenting. Targets were asked whether or not they had engaged in a variety of delinquent activities during the past twelve months (adapted from Elliott, Huizinga, & Ageton, 1985, 1989). These activities were categorized into three broad areas, each of which was used as a separate indicator for the externalizing behavior construct. The first indicator involved reports of crimes against people and property (i.e. beating up on someone, cutting class or sneaking into a movie without paying, selling illegal drugs, and taking something of value). The second indicator included careless driving (i.e. getting a ticket for speeding or for drinking and driving). The above responses were on a five point scale, ranging from never to 6 or more times during the past year. For the third indicator, adolescents were asked how often during the past twelve months they engaged in substance use (i.e. drinking beer, smoking, and using marijuana). These responses were on a six point scale, ranging from never to 3–6 times per week. The scores were moderately internally consistent ($\alpha = .63$).

G2 adult externalizing behavior—G2 adults completed an index of delinquent behaviors assessed through self report in 1997 at an average age of 21 years. Targets were asked to provide

the number of times during the past twelve months they engaged in a variety of delinquent activities (adapted from Elliott, Huizinga, & Ageton, 1985, 1989). The delinquent activities were categorized into three broad areas consistent with the adolescent measure, each of which was used as a separate indicator for the adult externalizing behavior construct. The first indicator involved reports of crimes against people and property (i.e. attacking others, telling lies, selling stolen goods, and stealing). The second indicator included careless driving (i.e. driving recklessly or drinking and driving). For the third indicator, targets were asked how often during the past twelve months they engaged in substance use (i.e. use of marijuana, other illegal drugs, and prescription drugs in order to get “high”). The responses for drug use were on a zero to five point scale, ranging from never to 3–6 times per week. Some of the items from the adolescent externalizing measure are slightly different than those for the adult measure. This reflects a difference in the targets’ developmental age. In other words, delinquent activities performed in adolescence are often quite different than delinquent behavior conducted in adulthood. For example, drinking and smoking are legal for adults but not for adolescents but drug use is illegal at both time periods. Therefore, we use only illegal drug use as the substance indicator in adulthood. The scores were moderately internally consistent ($\alpha = .67$).

G3 harsh behavior—G3 harsh behavior was assessed through direct observation of the child’s behavior toward the target young adult (G2) during the same puzzle task. Observer ratings were used to assess G3 children’s hostility, antisocial, and angry coercive behavior toward the target adult (G2). Each rating was scored on a 9-point scale, ranging from low (no evidence of the behavior) to high (the behavior is highly characteristic of the child). Scores were analyzed in terms of the child’s age at first entry into the study in 1997, 1998, 1999, 2000, 2001, 2002, or 2003. Each scale was used as a separate indicator for the latent construct. The observational ratings were internally consistent ($\alpha = .89$) and inter-rater reliability was acceptable (.90).

G1 positive parenting—Observer ratings were used to assess G1 parents’ communication, listener responsiveness, and assertive behavior toward the target youth (G2) during the same family interaction task used to assess harsh parenting. Each rating was scored on a 9-point scale, ranging from low (no evidence of the behavior) to high (the behavior is highly characteristic of the parent). Each scale was used as a separate indicator for the latent construct. Communication entails the use of reason, explanation, and solicitation of the child’s point of view in a neutral or positive manner. Listener responsiveness involves attending to and validating the verbalizations of the child through the use of nonverbal and verbal assents. Assertiveness measures the manner and style of presentation in terms of expressing oneself confidently and positively, while exhibiting patience with the responses of the child. Scores were averaged across data collected in 1991, 1992, and 1994. The observational ratings were internally consistent ($\alpha = .88$) and demonstrated acceptable inter-rater reliability (.87).

G2 positive parenting—Direct observations assessed G2 positive parenting behaviors to their child during the same videotaped puzzle task. Trained observers rated the same behaviors as with G1 positive parenting. Communication, listener responsiveness, and assertiveness were rated by observers on a 9-point scale. Scores were analyzed in terms of the child’s age at first assessment, which occurred in 1997, 1998, 1999, 2000, 2001, 2002, or 2003. The three construct indicators were internally consistent ($\alpha = .80$) and inter-rater reliability was acceptable (.83).

G2 adolescent academic achievement—G2 adolescent academic achievement was assessed through target report in 1991. Targets were asked to indicate their most current grade point average. Possible answers ranged from 0 to 11, where 0 equals the letter grade F and 11 equals an A.

G2 adult academic attainment—G2 adult academic attainment was assessed through target report in 1997. Targets were asked to indicate the highest grade of schooling completed. Possible answers ranged from kindergarten (0) to education beyond a masters degree (20). In 1997 most G2s were 3 years beyond high school. On average they had completed about 1.5 years of college, reflecting the fact that many had already dropped out of school and others were continuing their education. For the G2 participants with children, only 23 (12%) were still enrolled in a college or university of some type. Thus, the academic attainment variable fairly accurately captures the variation in educational attainment for this group.

G3 positive behavior—Observer ratings assessed G3 positive behavior toward their G2 parent during the videotaped puzzle task. Trained observers rated the same behaviors as for both G1 and G2 positive parenting. Communication, listener responsiveness, and assertiveness were rated by observers on a 9-point scale. Scores were analyzed in terms of the child's age at first assessment, which occurred in 1997, 1998, 1999, 2000, 2001, 2002, or 2003. The three construct indicators were moderately internally consistent ($\alpha = .67$) and inter-rater reliability was acceptable (.79).

Control Variables—The control variables included per capita income for both the G1 and G2 parent, relationship status of G2 (1 = married or cohabitating at the time of the child's first assessment, 0 = not married or cohabitating), and age and gender for both G2 and G3 (0 = male, 1 = female).

Results

Structural equation models (SEMs) were used to test study hypotheses. SEMs and zero-order correlations among latent constructs were estimated using the AMOS software package and Full Information Maximum Likelihood (FIML) estimation (Arbuckle, 1997). Due to some overlap in some of the observer rating scale definitions, the residuals for these construct indicators were allowed to correlate. We used FIML because it is one of the most widely recommended approaches for dealing with missing data in longitudinal research (Allison, 2003; Arbuckle, 2003). Studies indicate that it provides better estimation of model parameters than ad hoc procedures, such as listwise or pairwise deletion.

Testing for Continuity in Harsh and Positive Parenting

Because we proposed that G1 harsh parenting would specifically predict G2 harsh parenting but not positive parenting and vice versa, an important first step in the analyses was to evaluate this hypothesis by using G1 harsh and positive parenting as separate predictors within the same model. The first SEM simultaneously tested the assumption that G1 observed harsh parenting would be significantly related to G2 observed harsh parenting, and that observed G1 positive parenting would be significantly related to observed G2 positive parenting. Before estimating this SEM, ordinary least squares regression equations were computed to test for possible interaction effects between G1 parenting and G2 gender in predicting G2 parenting. This analysis stems from the findings discussed earlier indicating that continuity in parenting occurs for daughters but not sons (Belsky et al., 2005; Thornberry et al., 2003). In addition, because this report combines two different types of family structures (i.e., two-parent and single-parent families), we also tested whether family type moderates intergenerational continuity in parenting. Interactions between G1 parenting and G2 gender and between G1 parenting and family type failed to significantly increase explained variance in either harsh or positive G2 parenting beyond the estimate for the main effects. For that reason, all of the following SEMs were estimated for the combined sample of G2s.

Figure 3 summarizes the results of the initial analysis of parenting continuity. Consistent with expectations, the path coefficient from G1 to G2 harsh parenting indicated that G1 harsh parenting toward G2 during G2's adolescence was significantly and positively related to G2's observed harsh parenting during interactions with the G3 children ($b = .17, t = 2.34$). In addition, G1 positive parenting was significantly and positively related to G2 positive parenting toward the G3 child several years later ($b = .20, t = 2.34$). Importantly, even though the correlations between G1 harsh parenting and G1 positive parenting and G2 harsh parenting and G2 positive parenting were quite high, the model still showed specific, independent effects for harsh and positive parenting across generations. The model provided a good fit with the data. The Root Mean Square Error of Approximation (RMSEA) was less than .05 (Browne & Cudeck, 1993), the comparative fit index (CFI) was .99, and the value of the chi-square was less than twice the degrees of freedom.

Next, cross lags were added to the model to test whether G1 positive parenting predicts G2 harsh parenting and if G1 harsh parenting predicts G2 positive parenting. The cross lag paths were first added one at a time and then both paths were added at the same time. Neither approach improved the overall fit of the model. Specifically, $\Delta \chi^2(1) = 2.59$ for adding the path from G1 harsh to G2 positive parenting and $\Delta \chi^2(1) = .472$ when the path from G1 positive parenting to G2 harsh parenting was added to the model. Finally, when both paths were added at the same time, $\Delta \chi^2(2) = 3.72$. Therefore, we rejected the cross lag model and accepted the more parsimonious one which suggests that G2 parents in part learn how to be positive by being raised with a positive G1 parent. Likewise, G2 harsh parents in part learn their parenting practices from growing up with G1 harsh parents. Based on these results, we proceeded with the analyses by examining harsh and positive parenting in separate models.

Intergenerational Continuity in Harsh parenting

Correlational analyses—Table 1 provides the correlation coefficients among the latent constructs evaluating harsh parenting. The control variables are also included in the correlational analyses. As already demonstrated, G1 harsh parenting was statistically and significantly related to G2 harsh parenting ($r = .21, p < .05$; see Table 1) during early adulthood. Consistent with the continuity and mediating variables hypotheses, G1 harsh parenting was also related to G2 adult externalizing behavior which was statistically and significantly related to levels of observed G2 harsh parenting to G3. Consistent with the individual differences and stability hypotheses, G2 adolescent externalizing behavior was significantly correlated with G1 harsh parenting and G2 adult externalizing behavior. G2 externalizing problems during both adolescence and adulthood predicted G2 harsh parenting. And, G3 hostile behavior to G2 parents was significantly correlated with G2 harsh parenting to G3 children. Finally, we show the importance of testing the control variables as many were related to either the predictor or outcome variables. For example, G2 age was negatively and significantly related to G1 harsh parenting to G2, while G2 per capita income was negatively and significantly related to G2 harsh parenting to G3.

Structural equation models—These correlations demonstrate many of the expected findings but do not allow us to determine whether stability in individual differences would eliminate any evidence of intergenerational continuity in harsh parenting. To answer that question we turn to the SEMs. The SEMs were estimated in two ways. First, models were estimated with the control variables in the analyses: G1 and G2 per capita income, G2 relationship status, G2 and G3 age, and G2 and G3 gender. Next, all models were re-estimated excluding these demographic characteristics. Both sets of models generated the same pattern of results and there were no changes above what would be expected by chance. Therefore, we review the detailed results without the inclusion of the control variables.

The analyses reported in Figure 4 simultaneously consider hypotheses related to intergenerational continuity and stability in individual differences. Consistent with the individual differences perspective, G2 externalizing problems during adolescence predicted G1 harsh parenting ($b = .22, t = 2.51$) and G2 adult externalizing behavior, which predicted G2 harsh parenting behavior to G3. Even after taking earlier G2 behavior problems into account, however, G1 harsh parenting predicted adult externalizing behavior. The results also showed that G2 adult externalizing behavior predicted G2 parenting net of the influence of G3 behavior. The RMSEA and CFI indicate a good fit of the model with the data.

In order to test whether there were any additional direct effects, the paths from G2 adolescent externalizing behavior to G2 harsh parenting and from G1 harsh parenting to G2 harsh parenting were added to the model one at a time. The paths from G1 parenting and G2 adult behavior to G3 were not added to the model because G3 behavior was treated as an exogenous variable. The results indicated that adding these paths did not improve the overall fit of the model (see Table 3 for change in chi-square tests). Therefore, after testing for these direct effects, we retained the more parsimonious model. These results are consistent with the mediational hypothesis that G1 harsh parenting will affect G2 harsh parenting indirectly through G2 externalizing behaviors. That is, the significant association between G1 and G2 harsh parenting observed in Figure 3 is no longer present with G2 adult externalizing behaviors in the prediction equation. The findings also suggest that G2 adolescent behavior only has an indirect effect on later G2 parenting.

Intergenerational Continuity in Positive Parenting

Correlational analyses—Table 2 provides the correlation coefficients among the latent constructs evaluating positive parenting. Control variables are also included in the correlational analyses. Consistent with study expectations, G1 positive parenting was significantly related to G2 positive parenting ($r = .17, p < .05$; see Table 2) to their G3 child several years later. Consistent with the continuity and mediating variables hypotheses, G1 positive parenting was related to G2 adult academic attainment which was statistically and significantly related to observed G2 positive parenting to G3. Consistent with the individual differences and stability hypotheses, G2 adolescent academic achievement was significantly correlated with G1 positive parenting and G2 adult academic attainment. Both G2 academic achievement and adult academic attainment predicted G2 positive parenting. G3 observed positive behavior to G2 parents was significantly correlated with G2 positive parenting to their G3 child. Finally, many of the control variables were associated with either the predictor or outcome variables. For example, G2 age was significantly related to both G2 adult academic attainment and G2 positive parenting to G3.

Structural equation models—Because these initial correlations were consistent with study expectations, the next step was to estimate the SEMs. Following the same procedure used with harsh parenting, demographic characteristics first were statistically controlled. The findings were the same with or without the control variables; therefore, the results are reported without the control variables in the equations.

As with harsh parenting, the analyses reported in Figure 5 simultaneously consider hypotheses related to intergenerational continuity as well as stability in individual differences. Consistent with the individual differences perspective, G2 adolescent academic achievement predicted G1 positive parenting and G2 academic attainment during adulthood, which predicted G2 positive parenting to G3. However, G1 positive parenting predicted adult academic attainment even after taking earlier G2 academic achievement into account. Finally, the results also showed that G2 academic attainment predicted G2 positive parenting even with G3 behavior

included in the model. The CFI and RMSEA indicated a reasonable fit between the model and the data; however, the fit was not as robust as for the harsh parenting analyses.

In the next step, the paths from G2 adolescent academic achievement to G2 positive parenting and G1 positive parenting to G2 positive parenting were added to the model one at a time. Again, because G3 behavior was treated as an exogenous variable, paths from G1 parenting and G2 adult behavior to G3 positive behavior were not added to the model. The results indicated that adding the path from G1 to G2 positive parenting did not improve the overall fit of the model (see Table 3 for change in chi-square tests), consistent with the prediction that G2 academic attainment will mediate the influence of G1 positive parenting on G2 positive parenting. However, the path from G2 adolescent academic achievement to G2 positive parenting did improve model fit. Therefore, we included this path in the positive parenting model.

Finally, the SEMS were re-estimated to ascertain whether the mediating variables had only the predicted, specific effects on the relationship between G1 and G2 parenting. Specifically, academic attainment replaced adult externalizing behaviors in the harsh parenting model and adult externalizing behavior replaced academic attainment in the positive parenting model. Consistent with study expectations, G2 adult academic attainment did not mediate the relationship between G1 and G2 harsh parenting. Similarly, G2 adult externalizing behavior did not mediate the relationship between G1 and G2 positive parenting.

Discussion

Although an increasing number of prospective, longitudinal studies have found evidence for intergenerational continuities in the quality of parenting behavior, fewer studies have identified mechanisms that help account for continuities between G1 and G2 parenting. Moreover, we have found no studies that have considered the possibility that intergenerational continuities in parenting may actually be explained by stability in G2 behavior across time (i.e., by child effects). Using a prospective, longitudinal research design, the present study had two overall hypotheses.

First, we proposed that we would find continuity between G1 parenting to G2 during G2's adolescence and G2 parenting to G3 during G3's early childhood (see Figure 1). An important corollary to this hypothesis was that learning of parenting behavior across generations would be relatively specific such that G1 harsh parenting would predict G2 harshness and G1 positive parenting would predict G2 positive parenting. The first hypothesis also considered developmental processes expected to explain intergenerational continuity in parenting. We proposed that G1 harsh parenting would increase risk for G2 externalizing behaviors which in turn would increase risk for G2 harsh parenting to G3. Alternatively, G1 positive parenting was expected to lead to a more competent G2 adolescent and this generalized competence in the form of educational attainment would lead to G2 positive parenting to the G3 child.

The second major hypothesis was that evidence of intergenerational continuity might actually be spurious and simply the result of stability in G2 individual differences (see Figure 2). For example, G2 adolescents high on externalizing problems were expected to exacerbate G1 harsh parenting and demonstrate similar externalizing problems during adulthood. The model proposed that adult externalizing behaviors would lead to harsh G2 parenting practices toward their G3 children. Once this behavioral stability is taken into account, we hypothesized there might be no support for the mediating model of G1 and G2 harsh parenting. We evaluated the possibility of a similar process for positive parenting. The following sections review the findings related to continuities in both harsh and positive parenting and their theoretical and substantive implications.

Continuities in Specific Parenting Behaviors

As expected, with both harsh and positive G1 parenting in the prediction equations, G1 harsh parenting predicted G2 harsh parenting and G1 positive parenting predicted G2 positive parenting. Also as expected, G1 harsh parenting did not predict G2 positive parenting and G1 positive parenting did not predict G2 harsh parenting. These findings suggest that parents may learn specific as well as related childrearing behaviors from their parents and emulate these practices in interactions with their own children.

Another important finding from these analyses was that there was no significant interaction between G2 gender and G1 parenting in predicting G2 parenting. Our results were inconsistent with earlier findings showing that intergenerational continuity in parenting behavior only occurs for daughters and not for sons (Belsky et al., 2005; Thornberry et al., 2003). There may be several reasons for this departure from earlier studies; however, we believe it primarily results from differences in measurement. Belsky and his colleagues (2005) used a variety of family report measures to evaluate G1 parenting but used observational measures to assess G2 parenting. Thornberry and his associates (2003) used family reports to evaluate both G1 and G2 parenting. In the present study we used the same observed behaviors to measure both G1 and G2 parenting. We expect that the consistency in measurement across time in the present investigation, plus the greater sensitivity of observer ratings to actual parental behaviors undistorted by the unique personalities or biases of family reporters, may account for our finding that both sons and daughters appear to emulate their parent's harsh and positive childrearing styles. Certainly additional research is needed to determine the robustness of this finding.

Harsh Parenting and Stability in Problem Behavior

For the model examining harsh parenting, G2 externalizing problems during adolescence predicted both G1 harsh parenting and G2 adult externalizing behavior. G2 externalizing behavior during adulthood predicted G2 harsh parenting to G3. These findings are consistent with the individual differences perspective (Figure 2). However, even after taking earlier G2 externalizing behavior into account, G1 harsh parenting continued to predict G2 adult externalizing behavior which mediated the connection between G1 and G2 harsh parenting, consistent with the continuity hypothesis (Figure 1). Thus, the results for harsh parenting demonstrate both intergenerational continuity in parenting as well as stability in problem behavior as additive influences on G2 childrearing practices.

Also important, G2 adult externalizing behavior predicted G2 harsh parenting even after including G3 harsh behavior as a predictor in the model. This control provides assurance that G2 parenting is not simply the result of current child effects (see Belsky et al., 2005). In addition, to the extent that the positive association between G3 and G2 harshness can be interpreted as a child effect, the findings suggest that G3 behavior may be a significant driver of G2 behavior just as we observed for G2 externalizing problems and G1 harshness. Most likely, these findings delineate a reciprocal process between parents and children that begins quite early in the child's life and continues through adolescence (see Kim, Conger, Lorenz, & Elder, 2001).

In terms of the intergenerational continuity hypothesis, these findings are quite consistent with the results reported by Caspi and Elder (1988) based on research conducted in the late 1920s and early 1930s. As in their report, we found that adult externalizing behaviors mediated the connection between problems in G1 and G2 parenting. It should be noted that in an earlier publication based on this same sample (Conger et al., 2003), we did not replicate the Caspi and Elder findings. However, the cohort of G3 children we are following has increased from 75 in that earlier report to a total of 187 for the present analyses. This increase in statistical power

and variability in parenting practices helps to explain this difference in the previous and current findings. In addition, in our earlier findings we used G2 problem behavior during adolescence as the proposed mediator between G1 and G2 parenting. In the current analyses we used G2 externalizing behaviors during adulthood, which is more consistent with the Caspi and Elder (1988) study. In order to determine whether the different ages at which externalizing problems were assessed and modeled might account for the differences in the findings, we empirically tested the earlier model using the larger sample size to see if it would yield the same results. We found that G2 adolescent problem behavior still did not mediate the relationship between G1 and G2 parenting. Thus, the primary conclusion appears to be that G2 externalizing problems do mediate the association between G1 and G2 harsh parenting; however, these externalizing problems need to extend beyond adolescence to have this mediating effect.

Positive Parenting and Stability in G2 Competence

For the model examining positive parenting, G2 adolescent academic achievement predicted both G1 positive parenting and G2 adult academic attainment. In turn, G2 adult academic attainment predicted G2 positive parenting to G3. These findings are consistent with the individual differences perspective (Figure 2). However, even after taking earlier G2 academic achievement into account, G1 positive parenting predicted G2 academic attainment which mediated the connection between G1 and G2 positive parenting, consistent with the continuity hypothesis (Figure 1). Thus, the results for positive parenting demonstrate both intergenerational continuity in parenting as well as stability in academic competence as additive influences on G2 childrearing practices. And as with harsh parenting, G3 behaviors were significantly related to G2 parenting but did not eliminate the association between G2 parenting and G2 academic attainment.

One unexpected finding was the significant relationship between G2 academic achievement during adolescence and G2 positive parenting several years later. We had predicted that any impact of earlier achievement on later parenting would only be indirect through G2's level of academic attainment during adulthood. There may be several reasons for this unexpected direct effect. First, there are several factors that contribute to academic attainment, including the availability of funds for pursuing an advanced education. It may be that many adolescents who achieve at an above average level during high school do not go on for additional education because of financial limitations or other environmental impediments. These relatively bright individuals may still function well as parents because the same ambitions and abilities that led them to do well in school as adolescents continue to influence their approach to parenting as a role that requires information and the investment of significant effort. Moreover, the level of educational attainment was estimated during the early adult years, prior to the time at which some of the study participants went on for graduate study or professional degrees. This truncation in the possible range of the measure may have reduced its predictive validity. Finally, the direct path from adolescent achievement to G2 positive parenting may result from a genetic effect, a possibility which we cannot evaluate with the present study design. These possibilities will need to be examined in future research.

From our perspective the most important message from the results for positive parenting is that continuity in positive parenting is fostered by the competencies it promotes for children and adolescents. Our findings significantly replicate the study by Chen and Kaplan (2001) which found that the social and instrumental competencies of children grown to adulthood helped explain the link between G1 and G2 positive or constructive parenting. Conversely, they reported that psychological or emotional problems did not mediate this connection, even though G1 positive parenting was negatively related to these types of symptoms. If our findings and those of Chen and Kaplan (2001) continue to hold up in future research, we will have good

evidence that positive parenting has very specific effects on child and adolescent development that tend to promote similar types of parenting in the next generation of parents.

Study Implications and Limitations

Taken together, the present results demonstrate that: 1) there are continuities in parenting behaviors across generations; 2) to a significant degree, these continuities tend to be specific by type of parenting; 3) the mechanisms that explain or mediate these continuities also are specific and emphasize maladjustment for problem parenting and competent development for positive parenting; 4) these continuities are not spurious or explained away by stability in G2 behavioral dispositions; and 5) these continuities are not explained away by the behavior of the G3 child. In a way the findings of the present study are rather remarkable inasmuch as we attempted to “stack the deck” against finding continuities, but they persisted in spite of our efforts.

Despite the evidence for socially mediated intergenerational continuity in parenting presented here, an important alternative explanation for the findings is that they result from genes shared between parents and children. For example, G1 and G2 positive parenting may be associated with one another only because of a common genetic history. Although we cannot entirely reject this possibility based on the current study design, the behavioral genetic evidence for a strong genetic influence on parenting is not great. For example, using a sample of adult twin parents, Spinath and O’Conner (2003) investigated the genetic and environmental influences on parenting behaviors. They found only a moderate genetic influence on only some dimensions of parenting. And while the Spinath and O’Conner (2003) findings involved family member reports of parenting, there is much less evidence of genetic influence when observed parenting is used in a behavioral genetic analysis. For example, in a study of adult twin mothers Neiderhiser et al. (2004) found little evidence of genetic influence on parenting when parenting behaviors were directly observed. Similarly, Fearon et al. (2006) discovered no evidence for a genetic contribution to observed maternal sensitivity.

Another possibility is that a child’s genetic characteristics may lead to child behaviors that elicit certain types of parenting. In a sample of twins, for example, Jaffe et al. (2004) reported that corporal punishment was, to a certain degree, provoked by child characteristics while maltreatment was not. Similarly, Forget-Dubois et al. (2006) examined whether children’s heritable traits evoked maternal negative responses during the period from infancy to toddlerhood. They found that at 5 and 30 months of age, toddler characteristics influenced hostile-reactive behavior from their mothers but those characteristics were not responsible for the stability of maternal behavior through the toddler years. Although such genetically mediated evocative effects may have played some role in the present findings, they are at least partially controlled by treating child or adolescent behavior as a predictor in the parenting SEMs. In balance, we don’t believe there is strong evidence for an alternative genetic explanation for the findings presented here. Additional genetically-informed studies will be required, however, to determine the validity of this view.

Another important conclusion from the present results, is that fact that the direct effect of G1 parenting on G2 parenting is modest. These findings suggest that an important next step in this line of research will be to identify specific processes or mechanisms that either increase the association between G1 and G2 positive parenting or reduce the association between G1 and G2 harsh parenting. Findings of this type will aid in the development of educational programs designed to promote more effective parenting practices in the general population. The applied significance in the current results centers primarily on taking steps to promote the kinds of competencies that foster positive parenting or inhibit the development of conduct problems.

There also are several limitations to this study that are worthy of comment. First, the data in this report are correlational. In order to provide a more adequate test of child effects, quasi-experimental or experimental data are needed. Second, the lack of racial, ethnic, and geographic sample diversity may limit the generalizability of the results. The results are encouraging, however, since they are largely consistent with results from studies using more diverse samples (Belsky et al., 2005; Caspi & Elder, 1988; Chen & Kaplan, 2001). A third limitation is that parenting was measured at different developmental periods for the G1 and G2 parents. Specifically, G1 parenting involved adolescents, while G2 parenting involved toddler aged children. This research strategy is inconsistent with Van IJzendoorn's (1992) view that the study of parenting continuities across generations should occur at the same point in parent's life spans. A number of practical issues make this ideal scenario difficult. That is, while the age of the parents may be the same, the age of the children may not.

Thus while not ideal, this is one of the first studies to use a prospective, longitudinal research design to help advance our understanding of how parenting in one generation may be related to parenting in the next. The results suggest that the study of intergenerational continuities in parenting continues to be a fruitful area of inquiry that can aid understanding of why parents behave the way they do to their children. Especially important, such understanding can assist in the development of more effective educational and preventive interventions aimed at improving parenting behavior in families and the life chances of children.

Acknowledgments

This research is currently supported by grants from the National Institute of Child Health and Human Development, the National Institute on Drug Abuse, and the National Institute of Mental Health (HD047573, HD051746, and MH051361). Support for earlier years of the study also came from multiple sources, including the National Institute of Mental Health (MH00567, MH19734, MH43270, MH59355, MH62989, and MH48165), the National Institute on Drug Abuse (DA05347), the National Institute of Child Health and Human Development (HD027724), the Bureau of Maternal and Child Health (MCJ-109572), and the MacArthur Foundation Research Network on Successful Adolescent Development Among Youth in High-Risk Settings.

References

- Allison PD. Missing data techniques for structural equation modeling. *Journal of Abnormal Psychology* 2003;112:545–557. [PubMed: 14674868]
- Ambert, AM. The effect of children on parents. New York: The Haworth Press; 1992.
- Arbuckle, JL. AMOS user's guide version 3.6. Chicago: Small Waters; 1997.
- Arbuckle, JL. AMOS 5.0 update to the AMOS user's guide. Chicago: Small Waters; 2003.
- Bank L, Forgatch M, Patterson G, Fetrow R. Parenting practices of single mothers: Mediators of negative contextual factors. *Journal of Marriage and Family* 1993;55:371–385.
- Baumrind D. The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescence* 1991;11:56–95.
- Belsky J, Jaffee SR, Sligo J, Woodward L, Silva PA. Intergenerational transmission of warm-sensitive-stimulating parenting: A prospective study of mothers and fathers of 3-year-olds. *Child Development* 2005;76:384–396. [PubMed: 15784089]
- Brody GH, Flor DL, Gibson NM. Linking maternal efficacy beliefs, developmental goals, parenting practices, and child competence in rural single-parent African American families. *Child Development* 1999;70:1197–1208. [PubMed: 10546340]
- Brook JS, Whiteman M, Zheng L. Intergenerational transmission of risks for problem behavior. *Journal of Abnormal Child Psychology* 2002;30:65–76. [PubMed: 11930973]
- Browne, MW.; Cudeck, R. Alternative ways of assessing model fit. In: Bollen, KA.; Long, JS., editors. *Testing structural equation models*. Newbury Park, California: Sage; 1993. p. 136-162.

- Caspi, A.; Elder, GH. Emergent family patterns: The intergenerational construction of problem behavior and relationships. In: Hinde, RA.; Stevenson-Hinde, J., editors. *Relationships within families: Mutual influences*. Oxford: Clarendon Press; 1988. p. 218-240.
- Chen Z, Kaplan HB. Intergenerational transmission of constructive parenting. *Journal of Marriage and Family* 2001;63:17-31.
- Collins WA, Maccoby EE, Steinberg L, Hetherington EM, Bornstein MH. Contemporary research on parenting: The case for nature and nurture. *American Psychologist* 2000;55:218-232. [PubMed: 10717969]
- Conger RD, Donnellan MB. An interactionist perspective on the socioeconomic context of human development. *Annual Review of Psychology* 2007;58:3.1-3.24.
- Conger RD, Neppl T, Kim K, Scaramella L. Angry and aggressive behavior across three generations: A prospective, longitudinal study of parents and children. *Journal of Abnormal Child Psychology* 2003;31:143-160. [PubMed: 12735397]
- Conger, RD.; Simons, R. Life-course contingencies in the development of adolescent antisocial behavior: A matching law approach. In: Thornberry, TP., editor. *Developmental theories of crime and delinquency. Advances in criminological theory*. Vol. Vol. 7. New Brunswick, NJ: Transaction Publishers; 1997. p. 55-99.
- Davis-Kean PE. The influence of parent education and family income on child achievement: The indirect role of parental expectations and the home environment. *Journal of Family Psychology* 2005;19:294-304. [PubMed: 15982107]
- Elliott, DS.; Huizinga, D.; Ageton, SS. *Explaining delinquency and drug use*. Beverly Hills, CA: Sage; 1985.
- Elliott, DS.; Huizinga, D.; Menard, SS. *Multiple problem youth: Delinquency, substance use, and mental health problems*. New York: Springer-Verlag; 1989.
- Farrington, DP. Childhood aggression and adult violence: Early precursors and later life outcomes. In: Rubin, KH., editor. *The development and treatment of childhood aggression*. Hillsdale, NJ: Lawrence J. Erlbaum Associates; 1991. p. 5-29.
- Fearon RM, Fonagy P, Schuengel C, Van IJendoorn MH, Bakermans-Kranenburg MJ, Bokhorst CL. In search of shared and nonshared environmental factors in security of attachment: A behavior-genetic study of the association between sensitivity and attachment security. *Developmental Psychology* 2006;42:1026-1040. [PubMed: 17087539]
- Fite PJ, Colder CR, Lochman JE, Wells KC. The mutual influence of parenting and boys' externalizing problems. *Applied Developmental Psychology* 2006;27:151-164.
- Forget-Dubois N, Boivin M, Dionne G, Pierce T, Tremblay RE, Perusse D. A longitudinal twin study of the genetic and environmental etiology of maternal hostile-reactive behavior during infancy and toddlerhood. *Infant Behavior & Development* 2007;30:453-465. [PubMed: 17683754]
- Forman EM, Davies PT. Family instability and young adolescent maladjustment: The mediating effects of parenting quality and adolescent appraisals of family security. *Journal of Clinical Child & Adolescent Psychology* 2003;32:94-105. [PubMed: 12573935]
- Ge X, Brody GH, Conger RD, Simons RL, Murray VM. Contextual amplification of pubertal transition effects on deviant peer affiliation and externalizing behavior among African American children. *Developmental Psychology* 2002;38:42-54. [PubMed: 11806701]
- Huesmann, LR.; Eron, LD. Childhood aggression and adult criminality. In: McCord, J., editor. *Facts, frameworks, and forecasts: Advances in criminological theory*. New Brunswick, NJ: Transaction Publishers; 1992. p. 137-156.
- Huh D, Tristan J, Wade E, Stice E. Does problem behavior elicit poor parenting?: A prospective study of adolescent girls. *Journal of Adolescent Research* 2006;21:185-204. [PubMed: 16528407]
- Jaffee SR. Pathways to adversity in young adulthood among early childbearers. *Journal of Family Psychology* 2002;16:38-49. [PubMed: 11915409]
- Jaffee SR, Caspi A, Moffitt TE, Polo-Tomas M, Price TS, Taylor A. The limits of child effects: Evidence for genetically mediated child effects on corporal punishment but not on physical maltreatment. *Developmental Psychology* 2004;40:1047-1059. [PubMed: 15535755]

- Jones DJ, Forehand R, Brody GH, Armistead L. Positive parenting and child psychosocial adjustment in inner-city single-parent African American families: The role of maternal optimism. *Behavior Modification* 2002;26:464–481. [PubMed: 12205822]
- Kerr, M.; Stattin, H. Parenting of adolescents: Action or reaction?. In: Crouter, AC.; Booth, A., editors. *Children's influence on family dynamic: The neglected side of family relationships*. Mahwah, NJ: Lawrence Erlbaum Associates; 2003. p. 121-151.
- Kim KJ, Conger RD, Lorenz FO, Elder GH. Parent-adolescent reciprocity in negative affect and its relation to early adult social development. *Developmental Psychology* 2001;37:775–790. [PubMed: 11699752]
- Lamborn SD, Mounts NS, Steinberg L, Dornbusch SM. Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development* 1991;62:1049–1065. [PubMed: 1756655]
- Laub, JH.; Sampson, RJ. The long-term effect of punitive discipline. In: McCord, J., editor. *Coercion and punishment in long-term perspectives*. New York, NY: Cambridge University Press; 1995. p. 247-258.
- Masten AS, Coatsworth JD, Neemann J, Gest SD, Tellegen A, Garmezy N. The structure and coherence of competence from childhood through adolescence. *Child Development* 1995;66:1635–1659. [PubMed: 8556890]
- Melby, JN.; Conger, RD. The Iowa family interaction rating scales: Instrument summary. In: Kerig, PK.; Lindahl, KM., editors. *Family observational coding systems: Resources for systematic research*. Mahwah, NJ: Erlbaum; 2001. p. 33-57.
- Melby, J.; Conger, R.; Book, R.; Rueter, M.; Lucy, L.; Repinski, D.; Rogers, S.; Rogers, B.; Scaramella, L. *The Iowa Family Interaction Rating Scales, Fifth Edition*. Iowa State University: Institute for Social and Behavioral Research; 1998.
- Neiderhiser JM, Reiss D, Lichtenstein P, Hansson K, Cederblad M, Elthammer O, Pedersen NL, Spotts EL. Genetic and environmental influences on mothering of adolescents: A comparison of two samples. *Developmental Psychology* 2004;40:335–351. [PubMed: 15122961]
- Obradovic J, van Dulmen MHM, Yates TM, Carlson EA, Egeland B. Developmental assessment of competence from early childhood to middle adolescence. *Journal of Adolescence* 2006;29:857–889. [PubMed: 16808971]
- Patterson GR. Continuities-A search for causal mechanisms: Comment on the special section. *Developmental Psychology* 1998;34:1263–1268. [PubMed: 9823510]
- Pears KC, Capaldi DM. Intergenerational transmission of abuse: A two generational prospective study of an at-risk sample. *Child Abuse and Neglect* 2001;25:1439–1461. [PubMed: 11766010]
- Pettit GS, Laird RD, Dodge KA, Bates JE, Criss MM. Antecedents and behavior-problem outcomes of parental monitoring and psychological control in early adolescence. *Child Development* 2001;72:583–598. [PubMed: 11333086]
- Pogarsky G, Thornberry T, Lizotte A. Developmental outcomes for children of young mothers. *Journal of Marriage and Family* 2006;68:332–344.
- Putallaz M, Constanzo PR, Grimes CL, Sherman DM. Intergenerational continuities and their influences on children's social development. *Social Development* 1998;7:389–427.
- Reitz E, Dekovic M, Meijer AM, Engels RC. Longitudinal relations among parenting, best friends, and early adolescent problem behavior. *Journal of Early Adolescence* 2006;26:272–295.
- Shaw DS, Winslow EB, Owens EB, Vondra JI, Cohen JF, Bell RQ. The development of early externalizing problems among children from low-income families: A transformational perspective. *Journal of Abnormal Child Psychology* 1998;26:95–107. [PubMed: 9634132]
- Simons RL, Beaman J, Conger R, Chao W. Stress, support, and antisocial behavior trait as determinants of emotional well-being and parenting practices among single mothers. *Journal of Marriage and Family* 1993;55:385–399.
- Simons RL, Whitbeck LB, Conger RD, Wu C. Intergenerational transmission of harsh parenting. *Developmental Psychology* 1991;27:159–171.
- Spinath FM, O'Connor TG. A behavioral genetic study of the overlap between personality and parenting. *Journal of Personality* 2003;71:785–808. [PubMed: 12932210]

- Steinberg L, Lamborn SD, Dornbusch SM, Darling N. Impact of parenting practices on adolescent achievement: Authoritative parenting, school involvement, and encouragement to succeed. *Child Development* 1992;63:1266–1281. [PubMed: 1446552]
- Thornberry T, Freeman-Gallant A, Lizotte A, Krohn M, Smith C. Linked lives: The intergenerational transmission of antisocial behavior. *Journal of Abnormal Child Psychology* 2003;31:171–184. [PubMed: 12735399]
- Thornberry T, Krohn M, Freeman-Gallant A. Intergenerational roots of early onset substance use. *Journal of Drug Issues* 2006;36:1–28.
- Van IJzendoorn MH. Intergenerational transmission of parenting: A review of studies in nonclinical populations. *Developmental Review* 1992;12:76–99.
- Xie H, Cairns BD, Cairns RB. Predicting teen motherhood and teen fatherhood: Individual characteristics and peer affiliation. *Social Development* 2001;10:488–511.
- Zhou Q, Eisenberg N, Losoya SH, Fabes RA, Reiser M, Guthrie IK, Murphy BC, Cumberland AJ, Shepard SA. The relations of parental warmth and positive expressiveness to children's empathy-related responding and social functioning: A longitudinal study. *Child Development* 2002;73:893–915. [PubMed: 12038559]

A. Intergenerational Continuity in Harsh Parenting

B. Intergenerational Continuity in Positive Parenting

Figure 1.
The Intergenerational Continuity Hypotheses.

A. Stability of Individual Differences in Externalizing Behavior

B. Stability of Individual Differences in Academic Accomplishments

Figure 2.
The Individual Differences Hypotheses.

Figure 3.

G1 harsh parenting to G2 harsh parenting, G1 positive parenting to G2 positive parenting. Standardized regression coefficients; t-values in parentheses; $N=187$; $\chi^2(51) = 69.12$; $p = .05$; CFI = .99; RMSEA = .04; pclose = .64; * $p < .05$; ** $p < .01$, *** $p < .000$.

Figure 4.

SEM for the harsh parenting model. Standardized regression coefficients; t-values in parentheses; $N=187$; $\chi^2(84) = 128.90$; $p = .001$; CFI = .98; RMSEA = .05; $p_{close} = .36$; * $p < .05$; ** $p < .01$, *** $p < .000$.

Figure 5.

SEM for the positive parenting model. Standardized regression coefficients; t-values in parentheses; $N=187$; $\chi^2(39) = 92.15$; $p = .000$; CFI = .93; RMSEA = .08; $p_{close} = .01$; * $p < .05$; ** $p < .01$, *** $p < .000$.

Table 1
Correlations among latent constructs for G1 harsh parenting to G2, N = 187

Study Constructs	Study Constructs													
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1. G1 harsh parenting to G2	1.00													
2. G2 adolescent externalizing behavior	.22*	1.00												
3. G2 adult externalizing behavior	.21*	.29**	1.00											
4. G2 harsh parenting to G3	.21*	.24*	.42***	1.00										
5. G2 positive parenting to	-.24**	-.09	-.11	-.41***	1.00									
6. G3 harsh behavior to G2	.04	.18*	.17	.44***	-.33***	1.00								
7. G1 per capita income	-.07	-.14	-.02	-.14	.13	.12	1.00							
8. G2 per capita income	-.16*	.05	-.02	-.18*	.08	.18*	.11	1.00						
9. G2 relationship status	-.17*	-.11	.01	.17*	.06	.07	.07	.10	1.00					
10. G1 age	.01	.03	-.06	-.01	-.12	-.02	.08	.03	-.15*	1.00				
11. G2 age	-.17*	-.23**	.13	-.15*	.41***	.05	.12	.24**	.25**	-.06	1.00			
12. G2 gender	.15*	-.01	-.35***	-.05	-.27**	.14	.10	-.05	-.20**	-.02	-.12	1.00		
13. G3 age	.02	.20*	-.02	.03	-.08	-.15*	-.13	-.07	-.18*	.08	-.14	-.16*	1.00	
14. G3 gender	-.04	-.06	.22*	-.14	.06	.09	.00	-.02	.03	.10	.10	.05	-.16*	1.00

*
p < .05

**
p < .01

p < .000

Table 2
Correlations among latent constructs for G1 positive parenting to G2, N = 187

Study Constructs	Study Constructs													
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1. G1 positive parenting to G2	1.00													
2. G2 adolescent academic achievement	.23*	1.00												
3. G2 adult academic attainment	.33***	.53***	1.00											
4. G2 positive parenting to G3	.17*	.33**	.30**	1.00										
5. G2 harsh parenting to G3	-.05	-.20**	-.10	-.41***	1.00									
6. G3 positive behavior to G2	.03	.09	.01	.62***	-.22**	1.00								
7. G1 per capita income	.07	.15*	.03	.13	-.14	-.06	1.00							
8. G2 per capita income	-.01	.04	.16*	.08	-.18*	-.05	.11	1.00						
9. G2 relationship status	.18*	-.17*	.13	.06	.17*	-.20*	.07	.10	1.00					
10. G1 age	-.01	-.03	.04	-.12	-.01	.09	.08	.03	-.15*	1.00				
11. G2 age	.07	.07	.45***	.41***	-.15	.14	.12	.24**	.25**	-.06	1.00			
12. G2 gender	-.11	.10	.17*	-.27**	-.05	.18*	.10	-.05	-.20**	-.02	-.12	1.00		
13. G3 age	.13	-.04	-.40***	-.08	.03	.42***	-.13	-.07	-.18*	.08	-.14	-.16*	1.00	
14. G3 gender	.00	.05	-.06	.06	-.14	.06	.00	-.02	.03	.10	.10	.05	-.16*	1.00

*
p < .05

**
p < .01

p < .000

Dev Psychol. Author manuscript; available in PMC 2010 September 1.

Table 3
Change in Chi Square for the Theoretical Model and Other Direct Effects, N = 187

	χ^2	df	$\Delta \chi^2$ (df)	RMSEA	CFI
Harsh Parenting					
(1) Theoretical	128.90	84	–	.05	.98
(2) G2 adolescent behavior to G2 harsh parenting	128.44	83	.46 (1)	.05	.98
(3) G1 harsh parenting to G2 harsh parenting	126.31	83	2.58 (1)	.05	.98
Positive Parenting					
(1) Theoretical	96.29	40	–	.08	.92
(2) G2 adolescent academic achievement to G2 positive parenting	92.14	39	4.14 (1)	.08	.93
(3) G1 positive parenting to G2 positive parenting	95.78	39	.51 (1)	.08	.92

Appendix**Minimum and Maximum Scores, Means, and Standard Deviations for Study Variables**

Study Variables	Minimum	Maximum	Mean	Standard Deviation
G1 Harsh Parenting to G2				
Hostility	1.00	9.00	4.49	1.90
Antisocial	1.00	9.00	4.80	1.64
Angry Coercion	1.00	9.00	2.91	1.84
G2 Harsh Parenting to G3				
Hostility	1.00	9.00	2.28	1.77
Antisocial	1.00	9.00	3.01	1.68
Angry Coercion	1.00	8.00	2.13	1.78
G2 Adolescent Externalizing Behavior				
Crimes Against Property/People	.00	2.40	.24	.43
Careless Driving	.00	2.00	.04	.22
Substance Use	.00	4.00	.59	.92
G2 Adult Externalizing Behavior				
Crimes Against Property/People	.00	35.20	1.41	4.19
Careless Driving	.00	59.00	2.87	7.70
Substance Use	.00	4.67	.23	.68
G3 Harsh Behavior to G2				
Hostility	1.00	9.00	2.14	1.97
Antisocial	1.00	9.00	4.42	2.54
Angry Coercion	1.00	9.00	2.03	1.91
G1 Positive Parenting to G2				
Communication	1.00	9.00	6.23	1.26
Listener Responsiveness	1.00	9.00	6.03	1.45
Assertiveness	1.50	9.00	5.74	1.31
G2 Positive Parenting to G3				
Communication	2.00	8.00	5.12	1.25
Listener Responsiveness	1.00	8.00	4.55	1.64
Assertiveness	1.00	8.00	5.32	1.39
G2 Adolescent Academic Achievement	1.00 (D-)	11.00 (A)	7.10	2.23
G2 Adult Academic Attainment	8.00	16.00	13.44	1.37
G3 Positive Behavior to G2				

Study Variables	Minimum	Maximum	Mean	Standard Deviation
Communication	1.00	8.00	2.76	1.60
Listener Responsiveness	1.00	6.00	2.27	1.25
Assertiveness	1.00	7.00	2.97	1.49
Control Variables				
G1 Per Capita Income	1003.65	74358.33	9352.42	7328.52
G2 Per Capita Income	.00	303250.00	17257.44	25567.21
G2 Relationship Status	.00	1.00	.79	.41
G1 Age	32.33	71.00	41.47	5.98
G2 Age	20.00	28.00	24.26	1.96
G3 Age	2.00	5.00	2.25	.57