

## Advancing Our Understanding of Intergenerational Continuity in Antisocial Behavior

Daniel S. Shaw<sup>1,2</sup>

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This commentary reviews the major findings of this set of 4 papers on intergenerational continuity in antisocial behavior; it identifies strengths and remaining challenges, and discusses potential policy implications of the research. As a group, these researchers have raised the methodological bar for future work in this area, using prospective designs with multiple informants and methods to test the influences of G2 parenting and adolescent antisocial behavior in mediating continuity between G1 parenting and G3 early disruptive behavior. The pattern of findings is discussed with respect to gender of G2 and social context. The inherent challenges of conducting intergenerational research are also highlighted, within the context of offering recommendations for improving future intergenerational investigations and their feasibility.

**KEY WORDS:** intergenerational studies; antisocial behavior; aggression; parenting.

These four papers span three generations to examine models of cross-generational transmission of parenting and child behavior. As a group they represent an unprecedented collection of independent studies in the uniformity of their goals and measurement of similar constructs. The aims of this commentary are to review the studies' major findings, identify strengths and remaining challenges, and discuss potential policy implications of the research. Before doing so, the authors need to be commended for their commitment to intergenerational research. It takes an inordinate amount of investment in developmental models to carry out longitudinal research, and a special commitment to the study of life-course development to pursue intergenerational research. In addition to the sheer amount of time involved, there are idiosyncratic methodological complexities in following families across three generations that make the challenges of conducting two-generational research pale in comparison. Some of these challenges are noted later, but it is sufficient to state here that they are unusually difficult to meet within the scope of one study.

Thus, the authors wisely chose to join forces in the spirit of nonsummativity—clearly this is a case where the whole is greater than the sum of its parts. Despite differences in how they conceptualizing transmission of intergenerational continuity, the authors recognized that they had sufficient overlap in design and measurement of parenting and children's behavior to aggregate findings. When viewed as a group, it is clear that these papers provide great methodological advances over existing research. In addition, collectively the studies include significant variation in the level of sociodemographic risk, participants from both rural and urban locations, and ethnically diverse sample that range from primarily European American to primarily African American and Hispanic.

These papers primarily reflect methodological rather than conceptual advances. As a group, they were guided by existing theoretical models of parenting (e.g., Belsky, 1984; Conger, Ge, Elder, Lorenz, & Simons, 1994; Patterson, Reid, & Dishion, 1992), particularly social learning theory, and life-course perspectives on human development (Caspi & Elder, 1988; Elder, 1985; Thornberry, 1987). From these frameworks, hypotheses were formulated about the relative influence of Generation 1 (G1) parenting on G2's antisocial/aggressive behavior and/or parenting on G3's early behavior. To a large degree, these hypotheses were confirmed. However, it is from a

<sup>1</sup>Department of Psychology, University of Pittsburgh, Pittsburgh, Pennsylvania.

<sup>2</sup>Address all correspondence to Daniel S. Shaw, Department of Psychology, University of Pittsburgh, 4401 Sennott Square, 210 South Bouquet Street, Pittsburgh, Pennsylvania 15260; e-mail: casey@pitt.edu.

methodological perspective that these papers break new ground, thereby providing a degree of confidence unmatched by previous work. Unlike many of the individual intergenerational efforts of the past (for critical review, see Kaufman & Zigler, 1992), all four studies were *prospective*, initiated when G2s were in late school age or adolescence. All four studies also utilized multiple informants, with three using observational data to measure parenting of G1 and other constructs, including G2 parenting/antisocial behavior and G3 disruptive behavior. Unlike some previous intergenerational studies, measures of variables of interest (e.g., antisocial or aggressive behavior of G2 and/or G3) reflected actual behavior of G2 or G3, assessed via questionnaire and/or observations. Sample sizes of individual studies varied, ranging from 39 to 220, but tended to be larger than those used in previous work. Comparatively, the age range of G3 children was also relatively narrow. Thornberry's sample of 220 G3s is particularly noteworthy, and included an ample number of male and female G2s to explore gender-specific effects of G1 parenting on G2 antisocial behavior and parenting.

#### SIGNIFICANCE OF FINDINGS

The findings from these papers substantiate the contribution of these advances in methodology. Earlier findings on the intergenerational continuity of parenting and behavior of G2s and behavior of G3s have been mixed (Brook, Tseng, Whiteman, & Cohen, 1998; Cairns, Cairns, Xie, Leung, & Hearne, 1998; Elder, Caspi, & Downey, 1986; Huesmann, Eron, Lefkowitz, & Walder, 1984; Serbin et al., 1998), which is not surprising given the variability in the quality of methodology employed. It is reminiscent of early work conducted on divorce and children's adjustment, which also showed an inconsistent pattern of findings *and* pervasive methodological weaknesses (Gibson, 1969; Glueck & Glueck, 1950; Gregory, 1965). These issues included placing all kinds of single-parent families in one group (e.g., because of divorce, death of a parent, employment that kept fathers literally at sea), relying on one informant to report on parental conflict, child behavior, and occasionally the behavior of the other divorced parent, and retrospective reporting of the child's behavior prior to the divorce. Our understanding of the divorce process was significantly enhanced by improvements in methods (e.g., multiple informants, observational data) and a substantive focus on family process (Emery, 1988; Hess & Camera, 1979; Hetherington, Cox, & Cox, 1978; Kurdek, 1981; Simons, Whitbeck, Beaman, & Conger, 1994). Further advance came from prospective studies initiated in early childhood for other purposes,

but including significant minorities of families that would eventually divorce (e.g., Block, Block, & Gjerde, 1986; Cherlin et al., 1991; Shaw, Emery, & Tuer, 1993). Prospective studies have shown that issues initially attributed to the aftermath of the parental separation actually predated parental separation (e.g., parental conflict, early child problem behavior). Improvements in methods have resulted in more consistent patterns of findings and ultimately, a greater consensus about factors and underlying mechanisms that contribute to children's adjustment in divorcing families. The present group of papers has raised the "methodological bar" in a similar manner, providing the potential for increasing understanding of mechanisms by which processes in the G1 and G2 relationship set the stage for early disruptive behavior among G3 children. Although these papers only represent a beginning, the uniformity of their methodological advances, coupled with the similarity of findings, is promising.

As to the similarity of findings, in all four studies relationships were established between G1 parenting and G2 adolescent or school-age antisocial behavior, and between G1 parenting and G2 parenting, with the exception of relations between G1 maternal parenting and G2 male parenting in the Thornberry study. Similar levels of continuity were established between G2 parenting and G3 early outcomes of aggression or activity/anger. Relations between parenting and child behavior were expected and consistent with a large body of literature documenting linkages between parenting and children's antisocial behavior, spanning infancy to adolescence (Campbell, Pierce, Moore, Marakovitz, & Newby, 1996; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; Patterson et al., 1992; Pettit, Bates, & Dodge, 1997; Shaw, Keenan, & Vondra, 1994). The novelty of the present set of papers is that they provide *prospective* windows into the processes linking G1 parenting to G2 parenting, and linking G1 parenting to G3 early disruptive behavior.

In all four investigations, continuity between G1 and G2 parenting was the rule rather than the exception. This is a critical finding as very few studies had previously established this relation using a prospective design (Chassin, Presson, Todd, Rose, & Sherman, 1998). However, variability among studies was evident in the relative importance of G2's adolescent antisocial behavior versus G2's parenting behavior in mediating the relation between G1 parenting and G3 adjustment. Part of this difference may be related to gender. In the two studies in which parenting was shown to mediate the link between G1 parenting and G3 early behavior, findings were more robust for female G2s, as indicated from Thornberry's validation of this result for only female G2s and Conger's predominantly female sample of G2s (i.e., 65%). Thornberry did

not find a link between G1 maternal parenting and G2 male parenting, making tests of mediation untenable, and Hops did not formally test the mediating role of G2 parenting on relations between G1 parenting and G3 disruptive behavior. In contrast, for predominantly male G2 samples (i.e., Capaldi, Thornberry's males) and Hops' predominantly female G2 sample, G2's antisocial behavior during adolescence was a more salient link to G3's early behavioral adjustment. As Thornberry notes, continuity of parenting in general, and parenting by the opposite-sex parent in particular, may be less influential for males than for females. In the Thornberry study, relations between mother-daughter parenting were significant but mother-son were not, consistent with this hypothesis. Parenting of G1 and G2 was limited to maternal report of caregiving in the Thornberry study, but derived from observations in the other two, using both parents (Capaldi) or the same-sex parent (Hops), perhaps accounting for the discrepant findings among studies.

Another influential factor in the pattern of results may have been variation in the timing of G2's parenthood. The magnitude of associations found between G2 parenting and antisocial behavior and G3 early disruptive behavior may have been amplified in three of the four studies because of this timing. That is, in the Capaldi, Thornberry, and Conger studies, G2 parents tended to be quite young when having their offspring, often in their late teens. For example, in the Capaldi and Conger studies, the approximate mean age of G2 parents at G3's birth was 21 and 20 years, respectively, and most likely comparable in the Thornberry study (i.e., data not presented in paper). Although Capaldi argues that the relatively high-risk status of their sample may have attenuated the strength of the findings due to restriction of range on the measures, a more plausible interpretation is that associations between G2 parenting and G3 disruptive behavior were amplified because of the greater variability in young parent's caregiving and G3's disruptive behavior compared to G2 parents who delay childbearing until older ages. Parents who have children during the teen years are less likely to be prepared to assume a mature caregiving role and more likely to have both social and economic challenges meeting the demands of provider. In contrast, older first-time parents will likely be more educated, more affluent, and more mature emotionally at the onset of parenthood.

At a broader level, the pattern of findings also raises the issue of social context; G2 aggressive behavior appeared to be an especially more important link to G3's early disruptive behavior in lower risk samples or when G2's may have had limited contact with offspring (i.e., male G2 parents). This overall pattern is consistent with a "social push" hypothesis, as postulated by Raine,

Bronfenbrenner, and others (Bronfenbrenner & Ceci, 1994; Mednick, 1977; Raine & Venables, 1981), which suggests biological risk factors are more likely to lead to antisocial behavior in lower risk environments whereas those from adverse caregiving contexts are more likely to have a more diverse range of pathways, particularly socially influenced causes. One implication of the social push hypothesis is that the effects of biological risk (i.e., antisocial behavior) may be more clearly viewed in lower risk environments (Raine, 2002). Although consistent patterns of continuity in G1 and G2 parenting were found among studies, this relation was mediated by G2's antisocial behavior in Hops' study, the sample with the lowest environmental risk. In contrast, in both the Conger and Thornberry studies, involving female or predominantly female G2 parents and marked by greater sociodemographic adversity, the direct link between G1 and G2 parenting was more robust. This pattern was not consistent with the results of the Capaldi study, which could be viewed as having comparable socioeconomic adversity to the Conger study and greater risk than the Hops study (e.g., predominantly first-born children to relatively young parents who came from lower to working-class families); however, the Capaldi study was limited to male G2s. Thus, continuity in G1-to-G2 parenting and the potential mediating effects of parenting on G3 early antisocial behavior may be more likely in higher risk environments, and particularly when G2s are female and likely have more direct contact with offspring. The behavior of G2s during adolescence may be a more telling marker of continuity in G3's behavior when G2 is a male. Despite the diversity in socioeconomic risk among the four studies, none included a predominantly male-G2 sample where socioeconomic adversity was low, from which the validity of the social push hypothesis could be further tested. Nevertheless, from the four present samples, it appears that male G2's antisocial behavior in adolescence in relatively-high to high-risk samples is more critical to G3's early disruptive behavior than parenting, at least in the early childhood of G3s.

#### **IDIOSYNCRATIC CHALLENGES OF CONDUCTING INTERGENERATIONAL RESEARCH**

Before describing future directions for the field, it is important to underscore a few of the inherent challenges of conducting intergenerational research. The most pressing issue is time. Carrying out intergenerational research requires at the bare minimum, 15–20 years. Even this kind of commitment does not ensure success, as there is also the waiting and hoping for G2 offspring to have

children of their own. If G2 offspring happen to be predominantly male, the issue becomes even more complicated, on the basis of challenges in establishing and verifying paternity, variability in the amount of time fathers spend with offspring, and accounting for the influence of the child's mother, who is likely to have more frequent contact with the child than the G2 father (Doherty, Kouneski, & Erickson, 1998; Parke, 1981).

Even with all of these complexities, there is another issue that makes conducting research on G3s most challenging, particularly within the framework of 5-year funding cycles: the timing of the birth of G3 offspring. In most cases, the G2 cohorts are recruited during a relatively brief duration (i.e., 1–2 years) using children or adolescents of a similar age. Unfortunately, aspiring G2 parents are not bound to have children in a predictable manner. As alluded to in the Method section of each of the papers, this wait to have a sufficient number of similar-age G3 offspring can take more than a decade, eventually requiring staffs of individual projects to have protocols and observational coding teams operating for offspring ranging in age from infancy to adolescence. To achieve the ultimate goal of intergenerational research, examining a sufficiently large cohort of G3s during the same developmental period as when G2s were initially evaluated (Cairns et al., 1998; Patterson, 1998), would require an even greater commitment of resources.

Finally, there is a practical issue related to the breadth of an investigative team's expertise. All four studies tended to view parenting as determining their child's later behavior, in their initial analyses of G1's parenting on G2's behavior in middle childhood or adolescence, and particularly when examining the effects of G2's parenting on the behavior of G3 during early childhood. The implication is that parenting occurs in a vacuum, rather than being constantly influenced by child behavior (Bell, 1968; Bell & Hertz, 1976). As noted by Conger in his discussion of limitations, but unaccounted for methodologically in all four studies, both G1 and G2 parenting were likely influenced by the ongoing and previous behavior of G2 and G3, respectively. Theoretical perspectives tended to be implicitly *transactional*, considering changes in parent and child behavior at one time point to influence the course of future parenting and child behavior (Sameroff, 1995). Yet the models were not reciprocal, failing to incorporate bidirectional effects of parent on child *and* child on parent in examining concurrent relations between parenting and child behavior. This omission was particularly noteworthy in considering the effect of G3 behavior on G2's parenting during early childhood, a developmental period when parents tend to be more reactive than proactive, particularly first-time parents, which many of the G2s were. This

raises a broader issue about conducting intergenerational research: the need to have expertise in nearly all phases of childhood. This may have been a possibility 20 years ago, but with the exponentially increasing knowledge base of each developmental period (i.e., witness the development of multiple specialty journals on adolescence and infancy), such expertise is unlikely to be achieved by the resources of one investigative team.

The potential knowledge from intergenerational designs is enormous both for furthering our understanding of continuity and discontinuity in behavior and for the strategic planning of prevention and intervention research; however, it also is important to have "informed consent" about the inherent challenges of carrying out such endeavors. After all, these four studies represent some of the most significant longitudinal studies of this generation, as exemplified by their prospective designs, the use of multiple informants, and in most cases, the use of observationally based data. The sizes of the original G1–G2 samples were also quite large in comparison to similar studies that use microsocial coding of parent–child interaction, ranging from 204 to 1,000 for G2s. Yet, with the exception of the Thornberry project, they have to date yielded samples of G3s that are modest. That the present group represents some of the best of the best longitudinal studies from which to launch intergenerational projects and still suffer from these challenges is not good news. What then are the prospects for the future of intergenerational research?

#### FUTURE STEPS

Given the number of conceptual, methodological, and practical obstacles to conducting intergenerational research, what kind of *realistic* improvements are possible in this field? One domain that is malleable is breadth of conceptualization. Those who carry out longitudinal research beyond the adjacent developmental period when the study was initiated (e.g., infancy to adolescence or G2 adolescence to G3 infancy) are likely to have their depth of expertise challenged. The good news is that collaborators are available, a model that has been adapted by the investigators of NICHD's longitudinal study of Child Care. As the children have grown from infants to preschoolers and now to adolescents, scholars with the relevant expertise have been recruited to ensure that developmentally significant issues are being considered and measured appropriately.

What about the overarching issue of time? Is it possible to plan an intergenerational study, and if so, what ongoing or yet-to-be initiated studies would be considered appropriate candidates? It is here that the logistical

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challenges of conducting intergenerational research take their toll. Without a prospective, two-generational longitudinal design that includes a sample well over 500 G2 participants (hopefully closer to 1,000 G2s), it may not be worth pursuing. Funding agencies such as NIMH and NICHD are unlikely to guarantee support over a 15–20-year period for any study, but especially one that is underpowered. On the bright side, there is strength in numbers. Multisite studies are clearly the wave of the past 15 years (e.g., NICHD Study of early Child Care and Youth Development, Fast Track, The Multimodal Treatment Study of ADHD) and are likely to continue to be the most productive way to advance our knowledge base despite their logistical challenges. In fact, the present set of papers represents a post hoc version of a multisite study. Yes, we probably could do better with an “a priori” intergenerational multisite study in terms of uniformity of measurement, recruitment of more geographically, sociodemographically, and culturally representative samples. However, the probability of funding such a large-scale project, knowing it would take 20 years to begin to achieve its aims, would not likely be appealing to funding agencies. A more realistic option might be to organize groups of ongoing longitudinal studies of childhood that have already followed children for a period of 5–10 years, whose G2 participants are now in adolescence. Despite methodological inconsistencies among studies, if organized before the birth of the first G3 offspring, these groups could be in an advantageous position compared to previous independent investigations.

Other steps for the future would be taking into account additional factors that could moderate continuity between parenting and antisocial behavior. At a distal level, one such factor would be poverty (i.e., examined in the Thornberry study), which at a more proximal level would include continuity in the quality of the family neighborhood and affiliations G2 and eventually G3 children have with deviant adults and peers in the neighborhood (Ingoldsby & Shaw, 2002). Another obvious factor would be the gender of G2, as demonstrated from the more salient role of parenting versus G2 adolescent antisocial behavior in relation to G3 disruptive behavior when G2s were predominantly female. The inclusion of markers of biological risk may also shed light on mechanisms underlying important constructs, such as parental reactivity, child impulsivity, and parent and child emotion regulation. While genetically informed designs would be optimal but even more complex to design and carry out (e.g., twin or adoption studies), measurement of heart rate and its variability, skin conductance, cortisol, and DNA are feasible options within the framework of developmentally oriented longitudinal projects (Campbell, Shaw, & Gilliom, 2000; Caspi

et al., 2002; Raine, 2002). Intervention studies are another underused commodity to inform researchers about the malleability of underlying processes. For example, intergenerational intervention research (e.g., follow-up of a parenting intervention for G1 teen parents who are now becoming grandparents) could provide novel data about the probability of breaking cycles of continuity across generations.

## IMPLICATIONS FOR SOCIAL POLICY

Cumulatively the present group of studies provides ample ammunition to indicate transgenerational continuity in antisocial behavior. Two mediating mechanisms were proposed across studies, which were related to the gender of G2s. For females, concurrent parenting appears to be more central than G2's level of antisocial behavior during adolescence. For males, antisocial behavior among G2s played a more prominent role in relation to G3's early disruptive behavior, perhaps because of male's less consistent involvement in parenting of G3s, particularly during early childhood.

From a social policy perspective, this consistent pattern of results suggests a few domains that could be critical to breaking intergenerational cycles of antisocial behavior. All in all, the papers suggest that intergenerational continuity in antisocial behavior is higher when socioeconomic adversity is elevated, particularly when challenges involve issues that reach beyond socioeconomic status. From a social policy perspective, this means targeting interventions for families high on socioeconomic adversity *and* additional risk factors, such as early parenthood. For example, Nagin and Tremblay have shown that age of initial childbearing is a key predictor of persistent antisocial behavior among sons whether the target child is first-born or later-born (Nagin & Tremblay, 1999, 2001). At a more proximal level, interventions that target parenting or factors that indirectly affect the quality of parenting (e.g., parental well-being, marital quality) in early childhood are also recommended. On the basis of the gender-related findings, it is also clear that interventions need to account for the more consistent influence of parenting on G3s among female G2s. Gender actually may represent a marker for the amount of direct contact G2s have with G3s. Consistent with this notion, Thornberry has recently shown that relations between male G2 parenting and G3 disruptive behavior are moderated by the amount of direct contact male G2s have with their young children (T. Thornberry, personal communication, October 17, 2002). Interventions that target the well-being and caregiving practices of parents and alternative caregivers

(e.g., grandmothers, significant others of G2s regardless of their biological relationship to G3) who are likely to play a significant role in the child's caregiving context are recommended.

An ongoing example of this type of intervention includes a project designed to prevent the exacerbation of conduct problems among toddlers, which includes screening for socioeconomic adversity and other family (e.g., maternal depression, childbearing during adolescence, substance use problems) and child (e.g., early disruptive behavior) risk factors (Shaw, Dishion, & Gardner, 2000). Similar types of studies have shown efficacious results with infants (Olds, 2002) and preschoolers (Webster-Stratton, 1998) at risk because of socioeconomic adversity and/or child conduct problems. How we successfully engage families who we think merit intervention is an even more complex issue; however, identification of G2s who are likely to replicate patterns of antisocial behavior from their own childhood would be an important step. The present group of papers suggests that many of these future parents could be identified prior to the birth of their first child, and if not then, when they begin experiencing distress in the early caregiving years, as reflected by the consistent associations between G2 parenting and G3 disruptive behavior in early childhood in all four studies.

In closing, these papers represent an important cumulative leap for the field, providing prospectively ascertained data on the processes by which intergenerational transmission of antisocial behavior passes from one generation to the next. As with all influential work, the papers generate as many questions as they answer. However, they have already demonstrated the feasibility of conducting methodologically rigorous transgenerational research and provided initial support of models that can be tested by others. We eagerly await the continued birth and development of their G3s and hope their methods will be modeled by future researchers of this generation.

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**Author's queries:**

Q1: Kindly provide enough information so as to locate the references.