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Paternal Autonomy Restriction, Neighborhood Safety, and Child Anxiety Trajectory in Community Youth

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Abstract

Intrusive parenting, primarily examined among middle to upper-middle class mothers, has been positively associated with the presence and severity of anxiety in children. This study employed cross-sectional linear regression and longitudinal latent growth curve analyses to evaluate the main and interactive effects of early childhood paternal autonomy restriction (AR) and neighborhood safety (NS) on the trajectory of child anxiety in a sample of 596 community children and fathers from the NICHD SECYD. Longitudinal analyses revealed that greater paternal AR at age 6 was actually associated with greater *decreases* in child anxiety in later childhood. Cross-sectional analyses revealed main effects for NS across childhood, and interactive effects of paternal AR and NS that were present only in early childhood, whereby children living in safer neighborhoods demonstrated increased anxiety when experiencing lower levels of paternal AR. Findings further clarify for *whom* and *when* paternal AR impacts child anxiety in community youth.

Keywords

child anxiety; father; autonomy; neighborhood safety; latent growth modeling

Anxiety disorders are among the most prevalent mental disorders experienced by youth, affecting up to 32% of individuals by adolescence (Merikangas et al., 2010; Merikangas, Nakamura, & Kessler, 2009). Anxiety disorders in childhood can seriously disrupt the course of children's development, impairing school functioning and family and social relationships (Essau, Conradt, & Petermann, 2000; Ezpeleta, Keeler, Erkanli, Costello, & Angold, 2001; Strauss, Frame, & Forehand, 1987). Moreover, the presence of an anxiety disorder in childhood is associated with an increased risk for the development of additional

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anxiety disorders, depression, and substance abuse in adolescence and adulthood (Kim-Cohen et al., 2003; Kovacs, Gastsonis, Laulaskas, & Richards, 1989; Kushner, Sher, & Beitman, 1990). Left untreated, anxiety disorders persisting into adulthood are associated with considerably reduced health-related quality of life and serious occupational impairments (Comer et al., 2011; Merikangas et al., 2007). Accordingly, elucidating factors associated with the onset and maintenance of child anxiety across development is critical.

Research suggests parenting behaviors may be associated with some of the variance in the development and maintenance of child anxiety. In particular, intrusive/overinvolved parental behavior has been associated with excessive anxiety across childhood (e.g., Bayer, Sanson, & Hemphill, 2006; Dumas, LaFreniere, & Serketich, 1995; Hudson & Rapee, 2002; Rubin, Cheah, & Fox, 2001; Siqueland, Kendall, & Steinberg, 1996; Wood, McLeod, Sigman, Kwang, & Chu, 2003). Such parenting behavior is characterized by preventing children from engaging in age-appropriate activities, discouraging children's autonomy and independence, encouraging children's dependence on parents, and instructing children how to think or feel (Barber, 1996; McLeod, Wood, & Weisz, 2007; Steinberg, Elmer, & Mounts, 1989). Observational measures of parenting behavior, such as coded parent-child interaction tasks, are found to most reliably identify the relationship between intrusive parenting and child anxiety (Wood et al., 2003). During observational tasks, intrusive parenting behavior is characterized as parenting that hinders the child from experiencing a developmentally appropriate degree of autonomy through traditional "trial and error" learning, and believed to prevent the development of feelings of control and self-efficacy in novel or feared situations, fostering a sense of hopelessness that is associated with increased anxiety (Bögels & Brechman-Toussaint, 2006; Chorpita & Barlow, 1998; Hudson, Comer, & Kendall, 2008; Wood, 2006; Wood et al., 2003). Such parenting may inadvertently further maintain anxiety by preventing the child from fully engaging in anxiety-provoking situations that would enable the child to test and alter maladaptive cognitions regarding fear-eliciting stimuli (Dadds & Barrett, 2001; Wood, Piacentini, Southam-Gerow, Chi, & Sigman, 2006). For this reason, supported family-based treatments for childhood anxiety often target the reduction of parental intrusiveness/overinvolvement as a core treatment aim (e.g., Barrett, Dadds, & Rapee, 1996; Comer et al., 2012; Kendall, Hudson, Gosch, Flannery-Schroeder, & Suveg, 2008).

While a growing body of literature supports a link between intrusive parenting behavior and the presence and severity of child anxiety, the majority of research in this area has focused exclusively on the mother's role and less on father-child relationships (Bögels & Phares, 2008). There is evidence that fathers play a unique role in child development. In the attachment literature, Paquette (2004) addressed the important role fathers may play in promoting children's openness to the world through their tendency to excite, surprise, and momentarily destabilize children through physical play. In contrast, mothers more often take a more prominent role in calming and comforting children during stress. As such, parental involvement/overinvolvement may take on distinct functions and relationships with the development and maintenance of anxiety across parents.

Recent cross-sectional work has begun to clarify the unique roles mothers and fathers may play in the development and maintenance of child anxiety. Among highly socially anxious

school-aged children, children have been found to place more weight on their father's confident behavior when rating their own anxiety in ambiguous social situations than their mother's, whereas their less socially anxious counterparts relied more on their mother's behavior (Bogels, Stevens, & Majdandzic, 2011). Bogels et al. (2011) hypothesize that this differential function of parent behavior may be evolutionarily based, as women—who tend to be more risk-averse—may be the parent best-suited to teach adaptive wariness to their children with low anxiety and who may need models of such wariness. Similarly, they propose men more often take on risk-taker and competitor roles, which may make them stronger models of confidence, leading highly anxious children in need of such models to rely more heavily on father displays of confidence when rating their own anxiety. In further cross-sectional work exploring effects of parenting across childhood, within middle-childhood, child age has moderated the effects of parent behavior. Particularly, Verhoeven and colleagues (2012) found greater paternal and maternal autonomy granting to be associated with higher child anxiety in children under the age of 10, but not in children over age 10. Further, among adolescents, the effects of over-controlling parenting on increased anxiety were greater among adolescents over age 15 than among younger adolescents.

Findings from longitudinal studies also provide initial evidence for the distinct role fathers may play in the etiology of child anxiety. Although some studies have shown that adolescents' perceived lack of closeness with their father predicted internalizing symptoms in young adulthood (Summers, Forehand, Armistand, & Tannenbaum, 1998; Thomas & Forehand, 1993), Belsky and colleagues (1998) found parenting composites comprised in part by *less* intrusive fathering of infant boys predicted *more* inhibition at age 3, possibly indicating that fathers play a separate and unique role in the development of anxious temperament. Similarly, among 4 year-old boys and girls, fathers' challenging parenting—characterized by playfully challenging the child to push his/her limits—was associated with reductions in child anxiety 6 months later, while the use of challenging parenting by mothers was associated with increases in child anxiety (Majdandzic, Moller, de Vente, Bogels, & van den Boom, 2013). Research is needed to examine longer-term trajectories, and how the development and maintenance of anxiety from early childhood through adolescence is influenced by paternal parenting behavior, and to clarify the directionality of this relationship to inform our understanding of *how* childhood anxiety changes over time. Given observed moderating effects of age within middle childhood and adolescence on parent and child anxiety in cross-sectional work (Verhoeven, Bogels, & van der Bruggen, 2012), as well as the growing recognition of peer relationships in psychological functioning in adolescence (Prinstein & La Greca, 2002; Siegel, La Greca, & Harrison, 2009), it is particularly important to investigate both the effects of early parenting on the trajectory of anxiety across childhood and cross-sectional relationships between paternal behavior and child anxiety in a cohort followed through middle childhood. Specifically, the investigation of these relationships at key developmental time points, including the initiation of full-time schooling (age 6) and later in the elementary years, will also serve to inform parent-directed content of child anxiety interventions targeted in early childhood populations (e.g., Comer et al., 2012; Hirshfeld-Becker et al., 2010), as well as those designed to treat children age 7 through age 17 (e.g., Kendall et al., 2008).

Additionally, the majority of the empirical work to date investigating the relationship between parental intrusiveness and child anxiety has not considered the broader social ecology in which parenting behavior occurs, including the family's socioeconomic status (SES) and neighborhood environment (e.g., Bayer et al., 2006; Hudson & Rapee, 2002; Rubin et al., 2001; Siqueland et al., 1996; see Cooper-Vince, Pincus, & Comer, 2014). Although some investigations that have included more economically diverse samples, they have been limited by the evaluation of samples from geographically restricted regions (e.g., Edison et al., 2011; Gray, Carter, & Silverman, 2010). Failure to consider the broader context in which parenting behavior, including autonomy restriction, occurs has important implications for the generalizability of findings.

The integration of family systems theory and developmental psychopathology emphasize the notion of parent-child relationships as open systems of interplay in which child and family functioning operate as transactional processes unfolding within an ongoing dynamic context (Davies & Cicchetti, 2004). When considering the context of neighborhood safety, evidence suggests that parenting is reactive to the context of neighborhood violence, as adaptive parents may proactively increase their monitoring of and control over their children to shield them from neighborhood dangers (Horowitz, McKay, & Marshall, 2005; Spano, Rivera, Vazsonyi, & Bolland, 2012). Among children living in low-income families higher rates of anxiety along with other emotional and behavioral difficulties are found, and these children more often reside in neighborhoods in which they can witness or become victims of violent crime, drug use, and other illegal activities (Elliott, Wilson, Huizinga, Sampson, Elliott, & Rankin, 1996; Essex et al., 2006; Johnson, Cohen, Dohrenwend, Link, & Brook, 1999; McLoyd, 1998). Exposure to neighborhood violence is not only associated with present trauma and internalizing symptoms as early as age 3, but is also predictive of greater internalizing symptomatology several years later at age 6 (Briggs-Gowan, Carter, & Ford, 2012). Further, exposure to neighborhood violence continues to place children at risk for greater internalizing problems in adolescence, including generalized anxiety disorder and major depression (Slopen, Fitzmaurice, Williams, & Gilman, 2012). Importantly, insufficient parental involvement (i.e., poor parental monitoring) in families living in dangerous neighborhoods is associated with even *higher* internalizing symptoms (Bacchini, Miranda, & Affuso, 2011; Buckner, Mezzacappa, & Beardslee, 2003; Grant et al., 2003; Nibbett & Lambert, 2009; Whittaker, Harden, See, Meisch, & Westbrook, 2011), suggesting that greater parental involvement may serve as a protective factor in the development of anxiety among children residing in more dangerous neighborhoods. Accordingly, it is crucial to elucidate how neighborhood safety may impact the relationship between paternal involvement and child anxiety. Indeed, paternal involvement and autonomy restriction may serve a very different function with very different outcomes when considered in the context of low neighborhood safety.

Given the protective effect of greater paternal monitoring within the context of dangerous neighborhoods, it is possible that behavior typically classified as intrusive and over-protective and associated with increased child anxiety in higher SES samples (Hudson & Rapee, 2002; Rubin, Cheah, & Fox, 2001; Siqueland, Kendall, & Steinberg, 1996; Wood, McLeod, Sigman, Kwang, & Chu, 2003), may offer a protective function with respect to the

development of anxiety when studied in the context of dangerous neighborhoods. Such work is critical in order to optimally inform treatment services for the full range of families in need. Specifically, it remains unclear whether supported family-based interventions that encourage greater paternal autonomy granting, would be as beneficial for families in less safe neighborhoods, if greater global parental involvement with one's child buffers the deleterious effects of neighborhood violence on children's emotional functioning.

The relationship between overinvolved parenting that restricts child autonomy and the development of child anxiety has yet to be evaluated as a function of neighborhood context within the context of the father-child relationship. As current early interventions for child anxiety emphasize the importance of reducing intrusive parenting behaviors (Comer et al., 2012; Pincus, Ehrenreich, Santucci, & Eyberg, 2008; Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2010), it is critical to establish whether findings linking negative parental behaviors (e.g. intrusiveness/autonomy restriction) to child anxiety is robust across families of varying socio-demographic circumstance. To optimally inform indicated and preventive interventions to be disseminated to families living in a range of socio-demographic circumstances, the present study examined neighborhood safety as a potential moderator of the relationship between paternal autonomy restriction and child anxiety across childhood in a large multiphase sample of U.S. community youth. Specifically, we examined the contemporaneous relationships between paternal autonomy restriction and child anxiety at age 6, 8 and 10. We hypothesized that neighborhood safety would moderate the relationship between paternal autonomy restriction and child anxiety. In addition to these cross-sectional analyses, we also explored the trajectory of child anxiety from age 6 to age 15, evaluated whether this trajectory was influenced by paternal autonomy restriction and neighborhood safety at age 6, and explored the interaction of these two variables.

Method

Participants

Participants included 596 children and their fathers who participated in phases II–IV of the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (NICHD SECCYD; a large, national multiphase study of parenting, early experiences, and child outcomes). Children and their parents were recruited into the first phase of this study in 1991 when the participating child was one month of age. Data were collected at 10 sites across the United States: Arkansas, California, Kansas, Massachusetts, Pennsylvania (Pittsburgh and Philadelphia), Virginia, Washington, North Carolina, and Wisconsin. Children were excluded from the study if the mother was younger than 18 years old when the child was born or did not have conversational English language abilities, or if the child had obvious disabilities at birth, remained in the hospital for more than 7 days after birth, or if the family did not plan to remain within the catchment area for at least 3 years. Study procedures were approved by the institutional review boards at the 10 NICHD-SECCYD study sites and informed consent was obtained from all participating families, as reported elsewhere (Duckworth, Quinn, & Tsukayama, 2012). Participants were included in the present analyses if they completed the observational parent-child interaction task at age 6. Among the 596 children included in the present analyses, 50.7% were boys.

On average, children were 6.09 years old ($SD = 0.50$) at the time of their age 6 assessment. The sample of children identified as 92.6% Anglo-American, 3.7% African-American, 1.0% Asian/Pacific Islander-American, and 2.5% “other,” while their fathers identified as 93.4% Anglo-American, 4.2% African-American, 1.0% Asian/Pacific Islander-American, and 1.2% “other.” Children and fathers predominantly identified as Non-Hispanic, 95.0% and 97.3%, respectively. Among these families, 2.3% were characterized as living below the poverty line, 11.8% were living near poverty/working poor, 54.9% were low-middle to middle class, and 31.0% were characterized as relatively affluent (NICHD, 2009). Further detail regarding the SECCYD sample can be found elsewhere (see Allhusen et al., 2001).

Measures

Child anxiety—Child anxiety was assessed through paternal reports on the Anxiety Problems Scale of the Child Behavior Checklist (CBCL; Achenbach, 1991) at six time points across childhood (age 6, age 8, age 9, age 10, age 11, and age 15). The CBCL is an extensively used 113-item parent-report assessment of a broad range of child behavioral and emotional functioning that yields six “DSM-IV Oriented Scales,” including the Anxiety Problems Scale. The 6-item Anxiety Problems DSM-IV Oriented Scale has been shown to be a reliable and valid measure of anxiety in children and adolescents (Nakamura, Ebesutani, Bernstein, & Chorpita, 2009). The Anxiety Problems Scale also more effectively discriminates between children with anxiety and depressive disorders and children with and without anxiety disorders than the empirically derived anxious/depressed scale of the CBCL (Ebesutani et al., 2010). In the present sample, the DSM-IV Anxiety Problems Scale of the CBCL demonstrated adequate internal consistencies across all time points: age 6 ($\alpha = .61$), age 8 ($\alpha = .64$), age 9 ($\alpha = .66$), age 10 ($\alpha = .69$), and age 11 ($\alpha = .66$), and at age 15 ($\alpha = .69$).

Neighborhood safety—Neighborhood safety was measured at three time points (i.e., age 6, 8, and 10) through the Neighborhood Safety subscale of the Neighborhood Questionnaire, a 16-item parent-report questionnaire yielding three subscales: neighborhood safety, neighborhood social involvement, and public resources. For use in the NICHD SECCYD, several additional items were added to the Neighborhood Questionnaire developed by Greenberg, Lengua, Coie and Pinderhughes (1999), however the 5 items that comprise the neighborhood safety subscale remained unchanged. The neighborhood safety subscale is comprised of questions such as “How often are there problems with muggings, burglaries, assaults, etc.?” and “How much of a problem is the selling and using of drugs around here?” (Greenberg et al., 1999, p. 407). In accordance with NICHD SECCYD procedures, all parent responses were converted to a 10-point likert scale rating prior to analysis. The neighborhood safety subscale was found to have adequate internal consistency among fathers who participated in the NICHD SECCYD across all time points; age 6 ($\alpha = .74$), age 8 ($\alpha = .73$), and grade 5 ($\alpha = .67$).

Paternal autonomy restriction—Paternal autonomy restriction was measured observationally through a 15-minute parent-child interaction task completed by fathers and their child in the home when the child was age 6, 8 and 10. During the age 6 assessment, the task was comprised of three semi-structured play activities. These activities included: (a)

drawing a sailboat using an Etch-A-Sketch—a challenging task that required the father and child to collaborate to create the drawing (as the father and child each controlled a knob on the toy); (b) a building block activity during which the child was asked to replicate designs; and (c) an interactive father-child card game, “Slap Jack”, designed to elicit excitement and frustration. During the age 8 assessment, the father-child interaction task consisted of a discussion task regarding rules and a card sorting problem-solving game. During the age 10 assessment, the father-child interaction task consisted of a discussion task in which fathers and children attempted to resolve family issues and a tower building activity requiring the use of problem solving. All father-child interaction tasks were video recorded and independently rated by trained coders blind to neighborhood safety ratings and child anxiety status on a 7-point rating scale ranging from “1-very low” to “7-very high” to reflect the degree to which fathers respected the child’s autonomy during the interactions. Low scores indicated greater restriction of the child autonomy during play, denying the child’s individuality and being physically intrusive and forceful in controlling the child. High scores indicated that the father recognized and respected the child’s individuality, motives, and perspectives and encouraged the child to recognize his/her own individuality, even when modeling the father’s own individuality. Responses on this scale were reverse scored for the present analyses, so that higher scores reflected greater paternal autonomy restriction. Acceptable inter-rater reliability was established for a composite of paternal sensitivity, on which the respect for autonomy ratings loaded in a sub-sample of 156 age 6 children and adult caregivers (pearson correlation = 0.77, NICHD n.d.).

Data Analysis

Longitudinal analyses using latent growth models (LGM) were employed to investigate the prospective relationship between paternal autonomy restriction and change in child anxiety, and the potential moderating function of neighborhood safety. LGM were evaluated with *Mplus* 6.0 (Muthén & Muthén, 1998–2010). A maximum likelihood (ML) estimator was used to fit the unconditional LGM containing a piecewise linear slopes to the data to evaluate growth in child anxiety. This LGM evaluated linear changes in child anxiety from age 6 to age 9 and from age 9 to age 15. Model fit was assessed by several indices, including χ^2 , SRMR, RMSEA, CFI, TLI, and the examination of modification indices to identify any localized area of strain in the model. Paternal autonomy restriction, neighborhood safety, and their interaction, were then entered into the model and the data were fit to the conditional LGM to evaluate the longitudinal relationship between these factors and changes in anxiety across childhood, as well as the cross sectional relationship between these factors and child anxiety at age 6.

Cross-sectional analyses at each major assessment point were conducted using multiple regression examining whether neighborhood safety moderated contemporaneous relationships between paternal autonomy restriction and child anxiety at age 8 and 10. These analyses were conducted in 2 steps: first paternal autonomy restriction and neighborhood safety were regressed onto child anxiety, then the mean centered product term of paternal autonomy restriction and neighborhood safety was added to the multiple regression in a second step as a third predictor of child anxiety.

Results

Latent Growth Models

Among the 596 children who completed the age 6 assessment, paternal-report of child anxiety was not available for all children across all time points; age 8 ($n = 501$), age 9 ($n = 451$), age 10 ($n = 474$), age 11 ($n = 445$), and age 15 ($n = 430$). Data analyses revealed that children for whom no age 15 data were available did not differ from those with complete data with respect to age 6 anxiety ($t(249.35) = 1.56, p = .12$) or paternal autonomy restriction ($t(594) = 1.44, p = .15$), but did live in significantly less safe neighborhoods at age 6, $t(594) = -2.71, p = .01$, such that children without data at age 15 lived in more dangerous neighborhoods at age 6. To account for this relationship between missing longitudinal data and early childhood neighborhood safety, maximum likelihood estimation was used when estimating latent growth models. Additionally, the child's sex was also examined with respect to mean difference in all age 6 variables. No mean sex differences were observed with respect to child anxiety, $t(590) = -1.73, p > .05$, paternal intrusiveness, $t(594) = 0.96, p > .05$, and neighborhood safety, $t(580.02) = -1.87, p > .05$.

To examine the prospective relationship between paternal autonomy restriction in the age 6 and the development of *subsequent* child anxiety, and whether this relationship is moderated by neighborhood safety, an unconditional latent growth model was first fit to the child anxiety data from age 6 through age 15 (See Table 1 for means of all observed variables). A piecewise slope, including distinct pre-age 9 and post-age 9 trajectories, demonstrated good fit to the data ($\chi^2 = 14.377, p = .277$, SRMR = 0.016, RMSEA = 0.018, CFI = 0.998, TLI = 0.998; see Table 2 for unstandardized parameter estimates). Slope means indicated that, overall, children on average experienced significant decreases in anxiety from age 6 to age 15, with more rapid decline before age 9 ($p = .000$) and slower decline in child anxiety from age 9 to age 15 ($p = .003$). The random effects for slopes pre- and post-age 9 (i.e., Slope 1 and Slope 2) were statistically significant (Slope 1, $p = .002$; Slope 2, $p = .000$), meaning that there was significant individual variability in the rate of change in anxiety from age 6 to age 15.

As the unconditional model demonstrated good fit and significant individual variability in slope of anxiety across childhood, the model was then fit as a conditional model, in which the growth factors were regressed onto paternal autonomy restriction in age 6 (AR_6) and neighborhood safety in age 6 (NS_6). The conditional model fit the data well ($\chi^2 = 17.805, p = .469$; SRMR = 0.015; RMSEA = 0.000; CFI = 1.000, TLI = 1.000). The $AR_6 \times NS_6$ interaction term was then included into the conditional LGM and the model demonstrated good fit to the data ($\chi^2 = 25.188, p = .239$; SRMR = 0.017; RMSEA = 0.018; CFI = 0.997, TLI = 0.995; see Figure 1 for LGM and standardized parameter estimates). The model accounted for 1.9% ($p = .360$) of the variance in anxiety slope from age 6 to age 9, and 3.9% ($p = .138$) of the variance in anxiety slope from age 9 to age 15. The effects of AR_6 , NS_6 , and $AR_6 \times NS_6$ on changes in child anxiety from age 6 to age 9 were not significant. However, the effect of AR_6 on later changes in child anxiety was significant, meaning that from age 9 to age 15, holding neighborhood safety constant, children experienced greater reduction in anxiety symptoms as a function of higher paternal autonomy restriction at age 6

($p = .009$). See Figure 2 for a depiction of slope differences related to paternal autonomy restriction.

The intercept values of the latent growth model were also examined with regard to the main and interactive effects of paternal autonomy restriction and neighborhood safety on child anxiety at age 6. A main effect was supported for neighborhood safety, such that across all levels of paternal autonomy restriction, children living in more dangerous neighborhoods experienced higher anxiety than those living in safer neighborhoods. The interaction effect of neighborhood safety and paternal autonomy restriction, displayed in Figure 3, indicates that children living in more dangerous neighborhood experience consistently higher anxiety regardless of paternal autonomy restriction, but children living in safer neighborhoods experience even lower anxiety under conditions of higher paternal autonomy restriction (i.e., 0.5 SD above the autonomy restriction mean).

Cross-Sectional Relationships at Ages 8 and 10

Age 8—Table 3 presents the results of linear regression analyses of the main and interactive effects of paternal autonomy restriction and neighborhood safety at age 8. At this developmental time point, a significant main effect for neighborhood safety was again observed, such that greater neighborhood safety was associated with decreased child anxiety. There was no main effect for paternal autonomy restriction. Additionally, the inclusion of the interaction between autonomy restriction and neighborhood safety was not significant and did not enhance the prediction of child anxiety.

Age 10—Linear regression analyses on the age 10 time point data similarly found a significant main effect for neighborhood safety, such that living in safer neighborhoods was associated with lower anxiety among age 10 (see Table 3). No main effect for paternal autonomy restriction or interactive effects were observed at the age 10 assessment.

Discussion

The current study provides unique insight into the understudied relationships between paternal parenting behavior, child anxiety, and the broader environmental context in which child development unfolds. In earlier childhood, a significant interaction was found between paternal autonomy restriction and neighborhood safety, such that children living in safer neighborhoods demonstrated increased anxiety when experiencing lower levels of paternal autonomy restriction. Although this significant interaction did not persist at later developmental time points, early experiences of paternal autonomy restriction were found to impact the rate of decrease in anxiety later in childhood in a similar fashion. While on average these community children experienced more rapid decreases in anxiety from age 6 to age 9, followed by slower decreases in anxiety until age 15, higher levels of paternal autonomy restriction in age 6 were associated with greater reductions in child anxiety after age 9.

The direction of this finding is inconsistent with established relationships between parental autonomy restriction and child anxiety in clinical samples (particularly in mother-child relationships), but not unprecedented in community samples (Belsky, Hsieh, & Crnic, 1998;

Siqueland et al., 1996; McLeod et al., 2007; Wood et al., 2003). Indeed, in this community sample the highest levels of early paternal autonomy restriction appeared to have a somewhat protective function with regards to the development of child anxiety, particularly among youth in relatively safer neighborhoods. Differences across samples may be due, in part, to the relatively lower levels of autonomy restriction observed in this community sample, relative to clinic samples. The higher levels of paternal autonomy restriction in this sample may actually correspond to relatively low levels of autonomy restriction in clinical samples. Therefore, the varying levels of early childhood paternal autonomy restriction observed during a play task in this sample may actually represent developmentally appropriate paternal involvement and guidance during play, rather than excessive restriction of the child's autonomy. This is consistent with previous cross-sectional work illustrating the protective role of parental involvement in the development of child psychopathology (Bacchini et al., 2011; Buckner et al., 2003; Grant et al., 2003; Nibbett & Lambert, 2009; Wittaker et al., 2011). Further, the current findings are in line with theoretical work positing that father's parenting behavior serves the unique parental function of challenging the child in play and encouraging the child's own age-appropriate risk-taking and development of independence (Bogels & Phares, 2008). As such, fathers who somewhat restricted their child's autonomy by challenging the child and pushing them to play in new ways, may represent fathers who display non-excessive guidance and physical challenging during play activities and encourage their children to engage in developmentally appropriate risk-taking. Consequently, as the children who experienced this greater paternal autonomy restriction in early childhood face increasing developmental demands for autonomy in later childhood (i.e., after age 9), they were better prepared to navigate these demands and were able to respond to these demands with decreased anxiety, relative to peers with less involved fathers. Therefore, these findings may highlight the importance of encouraging more frequent challenging play between fathers and their children, to enhance further decreases in anxiety when developmental demands call for greater child independence later in childhood. Importantly, within the same sample, when the child's mother engaged in comparable levels of autonomy restriction, children were observed to experience higher levels of anxiety (Cooper-Vince, Pincus, & Comer, 2014). This discrepancy not only suggests differential functions of autonomy granting in father-child versus mother-child interactions with respect to child anxiety, but also suggests that the optimal level of involvement and directive guidance during interactions may vary between mothers and fathers. Whereas increased autonomy granting by mothers may enhance children's emotional functioning, the present findings suggest that among fathers autonomy *restriction* may in fact confer improved child outcomes.

In addition to elucidating the role of paternal autonomy restriction in the trajectory of anxiety across childhood, the present study also speaks to the importance of environmental context in the prediction of anxiety across childhood. Across all major developmental time points assessed (ages 6, 8 and 10), neighborhood safety was inversely associated with child anxiety, such that children living in more dangerous neighborhoods experienced higher anxiety across all levels of paternal autonomy restriction. This finding is consistent with previous work identifying neighborhood safety and low socioeconomic status (SES) as risk factors for higher levels of psychopathology, including anxiety (Essex et al., 2006; Grant et

al., 2003; Johnson et al., 1999; Simning, van Wijngaarden, & Conwell, 2012; Slopen, Fitzmaurice, Williams, & Gilman, 2012). These findings may be best explained by research finding that low self-efficacy indirectly links neighborhood safety and internalizing problems among youth (Dupéré, Leventhal, & Vitaro, 2012). Although excessive autonomy restriction by parents may facilitate decreased self-efficacy when faced with anxiety provoking situations, for children living in unsafe neighborhoods, the daily threat they experience and lack of control over their environment may be a more salient predictor of their anxiety than their parent's behavior. Therefore, to optimally and most comprehensively address elevated anxiety in childhood, the present findings underscore the need for social interventions to improve neighborhood safety, in addition to individual-level psychological interventions.

As paternal autonomy restriction was found to moderate the relationship between neighborhood safety and child anxiety only at age 6, these findings not only illustrate the importance of neighborhood environment across the lifespan, but also fit well within Bronfenbrenner's ecological model of child development (1986) which highlights the shifting external influences linked with children's functioning that provide the contexts within which child development unfolds. In this model contextual influences are thought to be nested within one another and vary in degree of proximity to the child. Additionally, these contexts are thought to influence one another over time to influence child development. The present findings suggest that earlier in childhood, parenting environments in the child's microsystem interact with somewhat more distal environments (i.e., exosystems such as neighborhood safety), but that as the child ages, this contemporaneous interaction becomes less salient. With increasing development, other contexts (e.g., peer relationships) and their interactions with embedded contexts of development likely demonstrate increased salience in the onset and maintenance of child anxiety. Indeed research with adolescents supports powerful links between peer relations and child anxiety (e.g., Prinstein & La Greca, 2002; Siegel, La Greca, & Harrison, 2009; Van Zalk, Van Zalk, & Kerr, 2011).

The current findings must be considered with respect to several limitations. First, child anxiety was assessed through parent report. Despite strong support for the validity of parent reports of child anxiety (Brown-Jacobsen, Wallace & Whiteside, 2011; Manassis, Tannock, & Monga, 2009), it is possible that parental insight into unobservable symptoms of child anxiety may be limited (Comer & Kendall, 2004). Second, families included in the present analyses were drawn from a community sample demonstrating low levels of paternal autonomy restriction and child anxiety relative to clinic-referred samples. As such, the generalizability of this large-scale multiphase survey can be called into question. Recent work investigating genetic and environmental factors in relation to parenting and child anxiety suggests that high levels of parental intrusiveness are likely elicited by high levels of child anxiety (Aschenbrand & Kendall, 2012; Hudson et al., 2008; Eley, Napolitano, Lau, & Gregory, 2010), which may account for the lower levels of autonomy restriction observed in this nonclinical sample.

Despite these limitations, the present findings provide key insights into the understudied longitudinal relationships among paternal parenting behavior, neighborhood safety, and

child anxiety. These findings highlight the need to address child anxiety through comprehensive community-based interventions that enhance neighborhood safety and stress the importance of early parenting behavior on reductions in child anxiety later in childhood. Future work is needed to explore the longitudinal relationship between high levels of paternal autonomy restriction and child anxiety to more fully inform comprehensive interventions for anxiety disorders in childhood.

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Highlights

- LGM was used to evaluate the effect of AR and NS on child anxiety trajectory.
- Early paternal AR was associated with later decreases in child anxiety.
- Regressions tested the cross-sectional effects of AR and NS on child anxiety.
- Children in less safe neighborhoods experienced greater anxiety across childhood.
- Only in early childhood did paternal AR and NS interact to predict child anxiety.

Figure 1.

Conditional LGM for neighborhood safety and paternal autonomy restriction.

* = $p < .05$, ** = $p < .01$, *** = $p < .001$

AR = paternal autonomy restriction; NS = neighborhood safety

Figure 2.
Development of child anxiety from age 6 to age 15 as a function of paternal autonomy restriction.

Figure 3.
Mean child anxiety at age 6 as a function of neighborhood safety and paternal autonomy restriction.

Table 1

Means and standard deviations for observed variables across assessment time points

Variable	Age 6	Age 8	Age 9	Age 10	Age 11	Age 15
Child Anxiety	1.44 (1.57)	1.23 (1.48)	1.03 (1.46)	1.03 (1.47)	.998 (1.47)	.830 (1.38)
Paternal Autonomy Restriction	2.77 (1.06)	2.66 (0.96)	---	2.76 (0.93)	---	---
Neighborhood Safety	8.17 (1.45)	8.38 (1.37)	---	8.35 (1.30)	---	---

Note: Standard deviations are presented in parentheses

Table 2

Unconditional Latent Growth Model of Child Anxiety

Variable	Intercept	Intercept-Slope 1	Intercept-Slope 2	Slope 1	Slope 2	Slope 1-Slope2
Mean	1.458***	---	---	-.129***	-.031**	---
Variance	1.371***	---	---	.079**	.029***	---
Covariance	---	-.092	-.012	---	---	-.018**

Note.

** = $p < .01$

*** = $p < .001$

Table 3

Multiple regression analysis predicting child anxiety

Variable Entered	B	SE (B)	β	t
<i>Age 8</i>				
AR ₈	.063	.072	.041	.875
NS ₈	-.161	.050	-.151	-3.212**
AR ₈ × NS ₈	-.037	.054	-.032	-.692
$R^2 = .029, R^2 = .001, F(3, 457) = 4.513, p = .004$				
<i>Age 10</i>				
AR ₁₀	.013	.074	.009	.178
NS ₁₀	-.146	.054	-.130	-2.720**
AR ₁₀ × NS ₁₀	.036	.061	.028	.591
$R^2 = .018, R^2 = .001, F(3, 433) = 2.636, p = .049$				

Note. AR = paternal autonomy restriction; NS = neighborhood safety

**
= $p < .01$,