

## How Parenting Modifies Neighborhood Risks Related to Low-Income Children's Health Final Report

### I. INTRODUCTION

#### *Nature of Research Problem*

This study's objective was to explore the extent to which positive parenting behaviors may help buffer children from the consequences of detrimental neighborhood structural and social conditions (beyond poverty) and foster optimal health outcomes among children from low-income, urban families. We proposed the following specific aims:

**Aim 1—To examine positive parenting practices that interact with neighborhood risks to promote children's health and health-related behaviors.**

**Aim 2—To explore variation in parental and neighborhood associations with children's health and health-related behaviors in two developmental periods.**

Understanding the protective role of parenting within high-risk settings is important to the design of effective interventions aimed at improving health among this vulnerable population.

#### *Purpose, Scope and Methods of Investigation*

To address the aims, we used three waves of data, collected over six years, from the Three-City Study (of Boston, Chicago, and San Antonio). This study provided a random sample of 2,400 low-income children from low-income neighborhoods, half of them aged 0-4 and half aged 10-14.

#### *Nature of Findings*

### II. REVIEW OF LITERATURE

A handful of studies have examined neighborhood and parenting interactive impacts on child and adolescent well-being, with most of this work on adolescents (see Leventhal, Dupere, & Brooks-Gunn, 2009, for review). Conceptual work on the "disadvantages of disadvantaged neighborhoods" by Jencks and Mayer (1990) and (Simons et al., 2005) suggests the possibility of four qualitatively distinct patterns of interaction: (a) amplified disadvantages, (b) amplified advantages, (c) family compensatory effects, and (e) evaporation. Most study findings support *amplified disadvantages* where harmful impacts of ineffective parenting practices on youths' risk behaviors are magnified in the presence of higher neighborhood disorder. Lower levels of parents' inductive reasoning, monitoring, and parent-youth closeness, and more permissive and disengaged parenting have been associated with increased adolescent sexual risk, delinquency, and depressive symptoms more strongly in socioeconomically disadvantaged and socially disorganized neighborhoods (Cleveland & Gilson, 2004; Natsuaki et al., 2007; Rankin & Quane, 2002). Problem behaviors which emerge when parents do little to effectively manage and

regulate youths' behaviors may thus be amplified in threatening neighborhoods with few opportunities. The next two models describe variability in impacts of "effective" parenting. In the *amplified advantages model*, effective family management practices are especially beneficial in more advantaged settings. Simons and colleagues (2005) find that greater parental involvement and behavioral regulation are more strongly associated with less early sex and delinquency in socioeconomically advantaged, as compared to disadvantaged, neighborhoods. The *family compensatory effects* model, in contrast, suggests that more regulating and involved parenting is more strongly linked to less youth problem behavior in the presence of greater neighborhood disadvantage (Brody et al., 2001). This model aligns with studies of resilience showing that protective factors are most apparent when experienced within a context of risk (Brody et al., 2001). A final model, *evaporation*, points to neighborhood conditions overwhelming any benefits to children and youth associated with "effective" parenting. For example, in one study the deterrent effects of parental control on young adolescents' conduct problems were less effective in communities marked by danger and disorder (Simons et al., 2002).

Together, the four models served to guide our expectations and interpretations of how positive parenting behaviors interact with detrimental neighborhood structural and social conditions to influence child and adolescent health and well-being.

### III. STUDY DESIGN AND METHODS

#### *Study design and Sample*

This study is a secondary analysis of data from the Three-City Study, a longitudinal study designed to examine the well-being of children and their families in low-income neighborhoods in Boston, Chicago, and San Antonio. Door-to-door screening of households within low-income neighborhoods (93% of selected block groups poverty rates  $\geq 20\%$ ) of the 3 cities was conducted to identify families who met the following eligibility criteria: a resident child age 0-4 or 10-14 years; a female primary caregiver; racial/ethnic background identified as European American, African American, or Latina; and an income below 200% of poverty (Winston et al., 1999).

*Main Survey.* Within selected households, interviewers randomly selected 1 child and conducted in-person interviews with the child's primary caregiver. Children in the 10-14 year-old age group also were interviewed. Interviews were first conducted in 1999 with 2,402 families; the response rate was 74%. Retention was 88% at wave 2 (2000-2001) and 84% at wave 3 (2005-2006).

In the survey sample, 43% of primary caregivers were African American, 48% were Latina (14% Dominican, 50% Mexican, 26% Puerto Rican, and 10% other), and 9% were European American. At wave 1, caregivers were, on average, 33 years of age. Almost 70% of caregivers were not married or cohabitating.<sup>1</sup> Over 90% of caregivers were children's biological mother (hereafter referred to as "mothers"). Children were divided equally by gender. On average, children in the 0-4 age group were 2 years-old and

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<sup>1</sup> Mothers with more children were more likely to be sampled; consequently we will use weights to adjust for this factor as well as for the sampling design (Cherlin, Fomby, & Moffitt, 2002)

children in the 10-14 age group were 12 years-old. Although not a nationally representative sample of low-income families, the sample largely reflects families from the 1999 Current Population Survey with comparable age children, family incomes, household compositions, and racial/ethnic backgrounds living in metropolitan areas (Fomby, Estacion, & Moffitt, 2003) and is representative of low-income families in low-income neighborhoods in Boston, Chicago, and San Antonio.

Because of the sampling strategy, families were clustered within 266 neighborhoods, defined as census tracts for purposes of this proposal. On average, there are 10 families per tract ( $SD = 14$ ), adequate for conducting multilevel modeling.

*Embedded Developmental Study (EDS).* The EDS was a more intensive investigation of families with young children. Conducted in conjunction with the Main Surveys, the EDS entailed an additional home visit with the subset of families with children 2-4 years-old ( $N = 724$ ). With the exception of maternal ( $M$  age = 27 years) and child ( $M$  age = 3 years) age, the demographic profile of families in the EDS sample is comparable to the larger survey sample.

#### *Instruments Used*

This study focused on the following child health outcomes as dependent variables: behavior problems (internalizing and externalizing) and achievement test scores (for children aged 3 and over); delinquency, depression, and sexual onset (among children 11 years and older). Independent variables pertaining to parenting included multi-method assessments of maternal warmth/support, harshness/discipline, family routines, provision of stimulation, and parental knowledge and control. Independent variables on neighborhoods were drawn from the 2000 US Census (e.g., poverty) and aggregated respondent reports of collective efficacy and disorder.

#### *Statistical Techniques Employed*

We used a variety of analytic techniques. Given the hierarchical data structure (children nested within neighborhoods), when possible, a multilevel modeling approach was employed using Hierarchical Linear Models (HLM) statistical software (Raudenbush & Bryk, 2002). For Study 1, we used two waves of data only (based on data availability). Here, the level-1 units were individuals, and the level-2 units were neighborhoods (census tract); 2-level hierarchical regression models account for individual variation within neighborhoods and variation between neighborhoods. In Study 2, when three waves of data were available, we expanded models to include a third level which accounts for time in modeling growth curves (time estimated at level-1; individual characteristics estimated at level-2; and neighborhood characteristics estimated at level-3). Additional analyses entailed longitudinal Structural Equation Modeling (SEM) to test for contextual variability in the reciprocity between parenting and adolescent outcomes over time. All analyses control for a host of background child, maternal, and family characteristics.

#### IV. DETAILED FINDINGS

##### *Study 1*

The goal of this study was to examine how neighborhood disorder modified associations between family management practices (parental knowledge, family routines, and punitive discipline) and youth transitions to sex. We ran three multilevel logistic regression models examining cross-level interactions between family management variables and neighborhood disorder. Two of three interactions were significant. A parental knowledge X neighborhood disorder interaction indicated that greater parental knowledge was associated with a lower probability of youth transitioning to sex as neighborhood disorder increased. A one SD unit increase in neighborhood disorder was associated with a 42% reduction in the odds of early sexual onset as parental knowledge increased from one SD below the mean to one standard deviation above the mean. Although parenting effects at lower levels of disorder were not of central interest, it is notable that greater parental knowledge was related to increased sexual onset at lower levels of disorder.

There was also a significant interaction between family routines and neighborhood disorder. As with parental knowledge, higher levels of family routines were associated with declines in the probability of a youth sexual onset as neighborhood disorder increased. A one SD-unit increase in neighborhood disorder resulted in a 35% reduction in the odds of sexual onset as family routines went from one SD below to one SD above the mean. Similar to findings for parental knowledge was the unexpected result that more family routines were associated with increases in sex at lower levels of neighborhood disorder. The family management-by-neighborhood disorder interactions did not differ by youths' gender, age, or race/ethnicity.

##### *Study 2*

The goal of this study is to expand upon the results of Study 1 to consider developmental differences in associations among neighborhood disorder and parenting practices with children's and adolescents' behavior problems and achievement. This study is still in preparation and results are not yet complete.

##### *Study 3*

The goals of this study were twofold: (1) to explore the extent to which associations between maternal punitive discipline and adolescent adjustment (depression and delinquency) reflect parent- versus child-driven effects; and (2) to investigate whether neighborhood disorder modified impacts of punitive discipline on youth adjustment from early through late adolescence. Coefficients for the bidirectional paths linking punitive discipline and youths' adjustment from Time 1 (T1; early adolescence) to Time 2 (T2; late adolescence) suggested that child effects on punitive discipline dominated during this phase of adolescence. T1 depressive symptoms and T1 delinquency were each associated with significant increases in T2 punitive discipline. Although reciprocity was not examined as youth transitioned into late adolescence (Time 3; T3), there were no

significant paths from T2 punitive discipline to youths' depressive symptoms or delinquency at T3.

In terms of the modifying role of neighborhood disorder, tests of two-way interactions suggested that higher levels of neighborhood disorder mitigated effects of punitive discipline on youths' poor adjustment during middle and late adolescence (T2 and T3). These interactive effects, however, were unique to youths' gender and domain of adjustment. The T2 neighborhood disorder-by-punitive discipline interaction was significantly associated with adolescent females' T3 depressive symptoms and with adolescent males' T3 delinquent behaviors. Results of these interactions revealed that punitive discipline was more strongly associated with increases in females' depressive symptoms as mothers reported less neighborhood disorder. Similarly, punitive discipline was more strongly associated with increases in males' delinquency when mothers reported less neighborhood disorder.

## V. DISCUSSION AND INTERPRETATION OF FINDINGS

### *Study 1*

Consistent with ecological-transactional models of human development (Cicchetti & Rizley, 1981), results demonstrated important youth effects on mothers' use of punitive discipline during early and middle adolescence and suggested that effects of punitive parenting on youth adjustment were conditioned upon levels of neighborhood disorder. Reflecting the complexity of parents' socialization influences, punitive discipline was differentially related to youth adjustment from early to late adolescence as a function of both the domain of adjustment and adolescent gender.

Our results validate longstanding theory and research recognizing youths' contributions to parenting behaviors (Bell, 1979; Collins et al., 2000). Generalized child effects during early adolescence suggest that both internalizing and externalizing symptoms may cause mothers to experience similar emotional processes and perceptions motivating the use of punitive discipline. The mechanisms linking youth depressive symptoms to maternal psychological processes may differ, however, from those for delinquent behavior. For example, youth depressive symptoms may elicit maternal feelings of anger, frustration and perceived parental inefficacy based on perceptions of the youth being lazy, uninterested in life, and/or not contributing to family life in productive ways. Consistent with this speculation, researchers have shown that depressed youth experience increasingly negative attribution styles during adolescence (Garber, Keiley, & Martin, 2002) and that depression elicits negative social reactions and rejection that, in turn, further escalate the depression (Sacco, 1999). In a different way, mothers of delinquent youth also may harbor negative emotions and perceptions. For them, the psychological response may be due to delinquent youth being uncooperative at home, experiencing run-ins with police, affiliating with undesirable peers, and/or being sanctioned by school personnel. In both scenarios, the result is the same: perceiving inefficacy in previous parenting efforts and feeling frustrated and angry regarding current youth behaviors, mothers may resort to the increased use of threats, scolding, and physical punishments to curtail undesirable youth behaviors. Future research assessing

parents' experiences, perceptions, and appraisals of their child's depressive symptomology and delinquent behavior will help elucidate the processes relating different kinds of youth adjustment to elevated punitive parenting.

Our results did not provide evidence for reciprocity between youth problem behaviors and punitive discipline (Hipwell et al., 2008; Laird, Pettit, Bates & Dodge, 2003; Vuchinich et al., 1992). The findings support some scholars' contention that child effects on parenting are more powerful than are the reverse (Huh et al., 2006; Kerr & Stattin, 2003). As parent-child relationships begin to include more mutual interactions, with less domination by parents, youth behaviors may play a stronger role in shaping parenting behaviors during adolescence than is the case in earlier stages of development (Thornberry, 1987). The lack of direct parenting effects also support the notion that punitive discipline may not be detrimental to low-income African American and Latino youths' adjustment (Dodge et al., 2005). Previous research suggests that low-income, urban youth of color ascribe less negative meanings to punitive discipline than do other youth. Jackson-Newsom, Buchanan and McDonald (2008), for example, found that adolescent perceptions of mothers using harsher discipline were more strongly aligned with perceptions of low maternal warmth for European American, compared to African American youth. It is possible that the current study's findings for direct parenting effects may have been stronger if we had examined aspects of parenting and the parent-youth relationship other than punitive discipline. Finally, we acknowledge that the 18-month lag between the administration of Time 1 and Time 2 surveys was possibly too long to capture reciprocity between parenting (as a direct effect or as part of an interaction with neighborhood disorder) and youth adjustment (Rueter & Conger, 1998).

Our second research question addressed how neighborhood disorder modified associations between punitive discipline and youth adjustment. Punitive discipline practices were more strongly tied to late adolescents' poor adjustment when mothers perceived that their neighborhoods had fewer problems with disorder and, hence, were safer environments for raising youth. Importantly, neighborhood-by-parenting interactions were significant in models of depressive symptoms only among adolescent females and in models of delinquency only among adolescent males. The fact that interactions were unique to adolescents' gender and specific domain of adjustment likely reflects that girls tend to suffer disproportionately from internalizing symptomology, whereas, boys are more engaged in externalizing behaviors (Galambos, Berenbaum, & McHale, 2009).

That neighborhood disorder mitigated punitive discipline's harmful impacts on youth adjustment is highly consistent with models of amplified disadvantages—that is, a laissez-faire approach to parenting is especially harmful to adolescent adjustment in a context of greater neighborhood disadvantage (Rankin & Quane, 2002; Roche et al., 2007). The presence of tangible threats to safety, such as those posed by gangs, drug dealing, assaults, and unsupervised and undesirable youth, may alter the value that adolescents place on autonomy and the perceptions that youth have regarding the legitimacy of punitive discipline as a form of parental authority. For example, in less disordered neighborhoods, higher levels of punitive discipline may cause youth to feel unnecessarily over regulated and, result in increased youth externalizing and internalizing behaviors. In contrast, greater neighborhood disorder may cause youth to interpret their

mothers' use of punitive discipline as justified and necessary for ensuring adolescent safety.

There are important limitations to this study. Measurement intervals between surveys limited our examination of child effects on parenting at Time 3 (due to the questionable meaning of punitive discipline in late adolescence) and the 18-month lag between T1 and T2 surveys may have been too long to capture reciprocity between parenting and early adolescent adjustment. We were also limited because adolescents reported on both maternal discipline and youth adjustment, thereby, risking inflated results due to shared method variance. Results from correlated uniqueness models (Conway, 2004), however, did not suggest correlated method bias, and supports the validity of findings for structural paths linking youth adjustment and punitive discipline. Finally, sample size limitations necessitated that we combine different Latino populations into a single ethnic group and did not allow for comparisons of White, non-Hispanics with other racial/ethnic groups in multi-group analyses.

Although we examined impacts of mothers' punitive discipline on youth adjustment (the Three City Study did not assess paternal punitive discipline), future research would benefit from a focus on fathers' punitive discipline. Fathers appear to contribute to a substantial proportion of harsh parenting (Straus, Gelles & Steinmetz, 1980; Sunday et al., 2008), and fathers' harsh discipline has been linked to the same negative impacts on youth aggression (for boys and girls) as has mothers' harsh discipline (Prinz, Onghena, & Hellinckz, 2006). We speculate that paternal punitive discipline may be especially salient to the emotional and behavioral adjustment of boys, compared to girls, due to fathers' more active role in the parenting of adolescent males than females (Simons, Whitbeck, Conger & Chyi-In, 1991). Although most studies examining no-nonsense parenting focus on single mothers (Brody & Flor, 1998), research by Coley and Mederios (2007) suggests the potential utility of considering even non-resident fathers' parenting practices for youth adjustment.

Our results suggest that, at least for low-income, urban youth, the costs of punitive discipline to adolescents' emotional and behavioral well being are best understood by considering the dynamic, transactional, and contextual nature of youth development.

### *Study 3*

Results were most consistent with the family compensatory effects model of interaction. Thus, youth were less likely to experience sexual onset when perceiving greater maternal knowledge or experiencing more family routines and, simultaneously, living in more disordered neighborhoods. Interactions between neighborhood-level disorder and family management practices emerged regardless of an array of socioeconomic indicators including neighborhood- and family-level poverty, parent education, immigrant status, maternal distress, family structure, and maternal age at first birth.

Despite deviating from the dominant model of amplified disadvantages supported by other research (Rankin & Quane, 2002; Roche, Ensminger & Cherlin, 2007), the idea that parental behavioral control and family routines have pronounced benefits in the face of neighborhood threats is consistent with national research. Among Add Health participants, youth were less likely to transition to sex as parents made more decisions

(about who the youth hangs out with, what they watch on TV, and what time they come home) in more socioeconomically disadvantaged neighborhoods. As with Add Health results, our findings revealed two unexpected findings: (a) no significant neighborhood main effects and (b) slightly increased probabilities of early sex transitions at higher levels family routines and parental knowledge as neighborhood disorder declined (Roche et al., 2005).

The concept of resilience—individuals' experience of positive adjustment in the face of adversity—offers insight into potential mechanisms underlying our contextual interactions (Brody et al., 2001). As suggested by Luthar, Cicchetti and Becker (2000), youth in neighborhoods beset with gangs, drug dealing, crime, and dilapidated buildings may experience pronounced benefits of parents' knowledge and family routines due to these youth having few positive socializing experiences outside a family context. Thus, adolescents may be more responsive to family routines and especially appreciative of their mother's awareness and knowledge when faced with negative socializing experiences in the neighborhood. Conversely, less parental engagement in the form of routines or knowledge may provide youth with behavioral autonomy and exposure to peer influences. In neighborhoods where gangs, unsupervised youth, and other illicit activities are more prevalent, youths' autonomy and time with peers are not likely to provide experiences discouraging of early sex. Neighborhood threats and dangers, coupled with less parental engagement, also may cause youth to feel hopeless about their future. Such hopelessness provides little incentive for a young person to avoid problem behavior such as early sex, as adolescents might find that sexual intercourse, at least in the short-term, mitigates feelings of hopelessness (South, Haynie & Bose, 2005).

The plausibility that positive family social processes have a greater salience to youth in the context of adversity is strengthened by the fact that the enhanced "effectiveness" of family management did not extend to punitive discipline. Whereas greater parental knowledge and family routines connote proactive, positive family management practices and relationships, less punitive discipline does not necessarily imply the presence of positive family social processes.

The purpose of this study was to investigate how increases in neighborhood disorder modified impacts of family management practices on adolescent transitions to sex. However, it was surprising and indeed perplexing to find that higher levels of parental knowledge and family routines were associated with increases in the likelihood of early sex transitions at lower levels of neighborhood disorder. We are cautious in concluding that parents' awareness of youths' whereabouts, friends and activities and/or families' maintenance of regularity and routine actually lead to early sexual onset. Rather, we presume that our findings likely have emerged due to parental responses to early signs of youths' transitions toward sex. More nuanced measures of adolescent sexual behavior and bidirectional changes in the parent-youth relationship are important for investigating the meaning of this phenomenon. In response to adolescents' starting to hang out with opposite sex peers in the context of living in a community where norms run contrary to early sexual onset (i.e., low disordered neighborhoods), parents may more eagerly establish routines and attempt to learn about youths' whereabouts and activities. In other words, mothers may perceive that sex among young adolescents is less acceptable in communities with fewer gangs, unsupervised youth, and drug dealers and, as a result, may become more vigilant at the first indication of their youth's sexual transition. Effects

of family management on increased sexual risk in this case would be reflecting parental responses to anticipated adolescent sexual onset.

There are limits to the knowledge gained from this study. Although our focus on sexual onset as a form of sexual risk was necessary due to the relatively young age of the study sample, we acknowledge that these study findings may not extend to potentially riskier sexual outcomes such as multiple sex partners, unprotected sex, and/or sexually transmitted infections. Further, we cannot assume that our findings would extend to resilience in domains such as youths' schooling, aggressive and delinquent behavior, and psychological well being. It is also important to bear in mind that parental knowledge in this study may reflect an adolescent's own willingness to self-disclose information to his or her parent (Stattin & Kerr, 2000), parents' behavioral control, or parental solicitation (Smetana, 2008; Fletcher, Steinberg, & Williams-Wheeler, 2004). Unmeasured factors related to adolescent self-disclosure, such as the adolescent's personality or the quality of the parent-child affective bond, may therefore account for adolescents' lower sexual risk in more disordered neighborhoods. Future research would benefit from an exploration of how culture-specific family processes (e.g., obligation to family, respect for elders) may impact youths' sexual onset in varying ways depending upon levels of neighborhood disorder. Finally, it is also impossible to completely account for selection effects. For example, characteristics (other than those included in this study) which may result in a family living in a disordered neighborhood may be the same as those placing youth at risk of early sex.

Although parenting impacts on adolescent adjustment appear to be contextually specific, context has many meanings and can occur at multiple levels. This study highlights the importance of neighborhood variability among populations traditionally considered uniformly at-risk of poor developmental outcomes. Future research on vulnerable populations would be well served to consider how effects of family protective factors on adolescent adjustment depend upon the larger context in which they unfold.

Together, these studies point to disparities in health outcomes among a vulnerable population of low-income, predominately racial/ethnic minority children and youth. Our findings point to the protective role of parenting within high-risk settings and should aid in the design of effective health-promoting interventions among this vulnerable population.

## VI. LIST OF PRODCUTS

### *Peer-Reviewed Articles*

Roche, K.M. & Leventhal, T. (2009, under re-review). Beyond neighborhood poverty: Family management, neighborhood disorder, and early transitions to sex. *Journal Family Psychology*.

Leventhal, T. & Roche, K. M. (2008, in preparation). *Developmental differences in the joint influence of parenting and neighborhood conditions on low-income, urban children's health and development*.

Roche, K., Ghazarian, S., Little, T., & Leventhal, T. (2008, under re-review). Understanding links between punitive parenting and adolescent adjustment: The relevance of context and reciprocity. *Journal of Research on Adolescence*.

#### *Book Chapters*

Leventhal, T., Dupere, V., & Brooks-Gunn, J. (2009). Neighborhood influences on adolescent development. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (3rd ed.) (pp. 411-443). New York: John Wiley and Sons.

#### *Presentations*

Leventhal, T. (2007, May). *Neighborhood context and health risk taking behaviors of children and youth*. Paper presented at Groupe de Recherche sur l'Inadaptation Psychosociale chez l'enfant (GRIP) Université de Montréal - Hôpital Ste-Justine. Montreal, Canada.

Roche, K. M. & Leventhal, T. (2007, April). *Neighborhood disorder and family management practices: Influences on early sex initiation*. Paper presented at the Department of Population, Family and Reproductive Health Research Day, Johns Hopkins University, Baltimore, MD. April 20, 2007.

Roche, K. M. & Leventhal, T. (2007, November). *Parenting and early adolescent sex: Why neighborhood risk matters*. Paper presented in symposium, "Vulnerable Families: Parenting Adolescents and Neighborhood Risk," National Council on Family Relations Annual Conference, Pittsburgh, PA. November 7-10, 2007.

Roche, K. M. & Leventhal, T. (2008, March). *Parenting in the face of neighborhood risk: Impacts on adolescent problem behavior*. Paper presented in symposium, "How and When Neighborhoods Matter: Toward an Understanding of Adolescent Problem Behavior (Leventhal as chair)" at the Biennial Meeting of the Society for Research on Adolescence, Chicago, IL. March 6-9, 2008.

Leventhal, T. (2008, June). *Neighborhood influences on adolescent development: Timing, gender, and processes*. Paper presented at William T. Grant Scholars Retreat, Puerto Rico, June 26-28, 2008.

Leventhal, T. (2009, May). *Neighborhoods and adolescent development*. Paper presented at the Board on Children, Youth, and Families, Committee on the Science of Adolescence workshop, "Social and Environmental Influences and Adolescent Risk Behavior," Washington, DC, May 28, 2009.