Youth's conduct problems in contexts of neighborhood risk: The moderating role of youth's risk propensities

Amanda Sadri, MA
Department of Psychology
Spring 2023 Report

The physical and social features of neighborhoods (e.g., crime rates, single parent households, income levels, residential vacancy rates) can shape children's cognitive and behavioral functioning. Children living in neighborhoods with high levels of physical and social disorganization are more likely to engage in antisocial behavior, which, in turn, increases their likelihood of justice system involvement, and, ultimately, adult criminal behavior (Odgers et al., 2012). Consistent with life history theory (Ellis et al., 2012), children in risky neighborhoods may engage in more risk-taking and, by extension, more delinquency. These neighborhood effects may be especially pronounced among children with risk-taking propensities that engender a reward dominant decision-making style (Murray et al., 2021). Considering the extensive societal and monetary costs associated with criminal behavior, my research leveraged an ongoing longitudinal study of development in a community sample of child-caregiver dyads living in southern California to understand whether, how, and for whom neighborhood risk engenders youth delinquency.

Initially, I proposed to harness these longitudinal data to clarify prospective relations between objective neighborhood risk indicators and adolescents' offending behavior as explained by a laboratory measure of risk-taking. Additionally, I adopted a sociocultural lens to examine potential influences of family ethnic socialization and youth gender on these relations in a sizable sample of Latine families. During the first portion of the funding period, I coded children's exposure to neighborhood risks based on cities and zip codes of the family home address at ages 8 and 10. I obtained administrative data in the form of a) Uniform Crime Reports (UCR), which are reported annually to the Federal Bureau of Investigation (FBI, 2014), b) the American Community Survey (ACS, U.S. Census Bureau, 2014), and c) the decennial census data (U.S. Census Bureau, 2010). Percentiles of the city's physical and social features in relation to state levels were averaged to create a composite score of 5 dichotomized risk indicators capturing elevated levels of neighborhood crime (66.5%), poverty (73.8%), adults with no high school degree (80.2%), residential vacancy (48.5%), and single-parent households (84.1%).

My proposed study aimed to test the hypothesis that neighborhood risk at age 8 would be associated with increased youth offending behavior at age 17, and this relation would be mediated by increases in youth's risk-taking behavior at age 12. At the bivariate level, neighborhood risk was positively correlated with delinquency at age 17 (r = .107, p = .215). However, neighborhood risk was not correlated with risk-taking behavior (r = -.040, p = .610) measured in the lab at age 12 and risk-taking behavior was not correlated with later adolescent delinquency (r = -.075, p = .392). To my surprise, our laboratory measure of youth's risk-taking behavior during a computerized task at age 12 did not mediate the hypothesized relation between neighborhood risk and delinquency. These patterns did not vary by youth sex assigned at birth, nor by ethnicity/race. Given the lack of support for my original model, I did not proceed to the

second aim of the proposed study, which was to evaluate theoretically specified moderators (i.e., Latine cultural socialization) of the predicted mediation model within our Latine sample.

Given the lack of support for my initial hypothesis, I returned to the literature to develop a new analytic plan. Building on social ecological theories that posit neighborhoods effects on youth development (Sampson et al., 1997) and criminological theories that emphasize dispositional factors that may influence risk propensities, such as sensation seeking (Eklund et al., 2011) and inhibitory control (Gottfredson and Hirschi, 1990), I examined if and how relations between neighborhood risk and youth's conduct problems might be qualified by youth's risk-taking propensities as assessed by youth reports of sensation-seeking (i.e., one's need for varied, novel, and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experiences; Hoyle et al., 2002) and inhibitory control (i.e., one's ability to inhibit a dominant or prepotent response; Capaldi & Rothbart, 1992), as well as the aforementioned laboratory assessment of risk-taking behavior (i.e., youth's computer-assessed decision-making in a context of increasing risk; Lejuez et al., 2003).

During the second portion of the funding period, I tested 3 different moderation models in the prediction of changes in youth's conduct problems from ages 10 to 12 as predicted by neighborhood risk levels at age 10. I focused on sensation seeking, inhibitory control, and risk-taking behavior in the laboratory as three child factors that could influence this relation. Dyads (N = 183) who completed laboratory assessments at ages 10 (N = 170) and/or 12 (N = 167) were used in these analyses. Participants were diverse with regard to child sex assigned at birth (52% females, 48% males) and ethnicity/race (47.5% Latine, 24% multiracial, 16.9% Black, 11.5% white). Primary caregivers were mostly biological mothers (91.9%), followed by foster/adoptive mothers (3.4%), and extended kin (4.7%). At age 10, FBI (2014) total crime data comprised of violent and non-violent offenses indicated neighborhood risk. At age 10, children rated their sensation-seeking behavior using the Brief Sensation-Seeking Scale (BSSS; e.g., "I like to do things that scare me a little bit," "I am usually the first in a group to try new things," "I would like to go sky diving"; Hoyle et al., 2002) and inhibitory control using the Early Adolescent Temperament Questionnaire (EATQ; e.g., "when I'm having a really good time, I have a hard time leaving to go home when I'm supposed to," "the more I try to stop myself from doing something I shouldn't, the more likely I am to do it," "it's easy for me to keep a secret"; Capaldi & Rothbart, 1992), wherein higher values indicated more sensation-seeking and better inhibitory control. At age 10, children also completed the Balloon Analogue Risk Task (BART; Lejuez, 2002), wherein higher scores indicated the child's willingness to inflate balloons to earn more points despite the increasing risk of them exploding and reward loss. Approximately two years later, youth reported their conduct behavior problems (e.g., "I destroy things belonging to others," "I don't feel guilty after doing something I shouldn't," "I break rules at home, school, or elsewhere") using Achenbach's (1990) Youth Self-Report. Importantly, all analyses controlled for covariates with documented contributions to neighborhood risk and conduct problems, including prior levels of conduct problems (Shaw et al., 2003), child sex assigned at birth (Clampet-Lundquist et al., 2011), ethnicity/race (Nguyen et al., 2000), and family income status (Sharkey, 2013).

Descriptive statistics and bivariate relations are shown in Table 1. A MANOVA revealed a significant main effect of child ethnicity/race (Wilks' λ =.935; p = .039) for neighborhood risk (F

= 3.228; p = .025) and family SES (F = 3.760; p = .012), such that Black children were exposed to higher risk neighborhoods (M = 2.865) and white children experienced higher family socioeconomic status (M = 42.857) than other groups. There was no main effect of sex assigned at birth (Wilks' λ = .935; p = .176) and the interaction between ethnicity/race and child sex was not significant (Wilks' λ = .880; p = .515). Results of the three moderation analyses are shown in Table 2. The relation between neighborhood risk and youth-reported conduct problems was qualified by child reports of sensation-seeking (B = 4.879, SE = 2.088, p = .021) and inhibitory control (B = 3.936, SE = 1.977, p = .048).), but not child risk-taking behavior (B = -.141, SE = 1.245, p = .261). As shown in Figure 1A, neighborhood risk at age 10 predicted decreases in conduct problems from ages 10 to 12 for children who endorsed lower sensation-seeking (b = -4.724, p < .027), but not for children with higher sensation-seeking (b = 1.281, p = .431). Similarly, as shown in Figure 1B, neighborhood risk at age 10 predicted increases in conduct problems from ages 10 to 12 among children with poorer inhibitory control (b = 4.185, p = .002), but not among those with better inhibitory control (b = 1.353, p = .564).

Overall, these analyses clarify the nuance of neighborhood risk effects on youth delinquency. Youth who have a tendency to avoid danger and arousing experiences (i.e., low sensation-seeking) may show declines in conduct problems when neighborhood risk is high because they naturally turn away from risk situations. At the same time, children who have poorly developed capacities to control themselves (i.e., low inhibitory control) may show elevated conduct problems in the context of increasing neighborhood risk because they struggle to inhibit their attention and behavior in contexts that elicit a strong motivation to respond, such as in high risk neighborhoods where delinquent peers and limited prosocial opportunities are more common (Fosco, 2019; Moffitt et al., 2013). The absence of significant findings with youth's risk-taking behavior in the laboratory was somewhat surprising, but is consistent with prior data suggesting that the BART task may tap complex behaviors beyond risk-taking, such as social competence, low attention problems, and low depression levels (Gonzalez-Blanks, 2017). Indeed, this computerized risk-taking task may not fully capture risk-taking behavior that could be assessed outside a controlled laboratory environment.

The findings provide insight into the crucial role of youth's risk propensities within the context of their neighborhoods in the development of conduct problems in preadolescence. In addition to effective prevention and treatment efforts for children who may be at elevated risk for delinquency and later carceral outcomes (Huey Jr & Polo, 2008), targeting specific neighborhoods characterized by high levels of physical and social disorganization may be effective in promoting the development of healthy risk-taking decisions in children. For example, place-based federal initiatives (e.g., Harlem Children's Zone in New York City, Cure Violence, Strong Cities, Strong Communities) that concentrate long-term economic investment and high-quality accessible resources have shown promise for addressing the unique characteristics, assets, and challenges of specific neighborhoods.

Table 1. Descriptive statistics and correlations among study variables

Study Variable	***M*** **(*SD*)**	**1**	**2**	**3**	**4**	**5**	**6**
1. Family Socioeconomic Status (age 10)	36.14 (10.85)	---					
2. Neighborhood Risk (age 10)	1.09 (.23)	.071	---				
3. Sensation-seeking (age 10)	3.10 (.67)	.056	-.093	---			
4. Inhibitory Control (age 10)	3.50 (.61)	-.003	.008	-.132	---		
5. Risk-taking Behavior (age 10)	16.66 (9.98)	.028	.019	.102	.092	---	
6. Conduct Problems (age 10)	1.49 (2.42)	-.065	-.062	.010	-.206**	-.083	---
7. Conduct Problems (age 12)	1.98 (2.57)	.021	.026	.217**	-.260**	-.046	.152*

Note: *$p < .05$, **$p < .01$.

Table 2. *Youth's Conduct Problems on Neighborhood Risk as Moderated by Youth's Risk-taking Propensities*

	Sensation-seeking				**Inhibitory Control**				**Risk-taking Behavior**			
	B	**Boot-strapped SE**	***p***	**95% CI Bias Corrected LLCI, UCLI**	**B**	**Boot-strapped SE**	***p***	**95% CI Bias Corrected LLCI, UCLI**	**B**	**Boot-strapped SE**	***p***	**95% CI Bias Corrected LLCI, UCLI**
Covariates												
Family SES (age 10)	-.015	.030	.692	-.071, .045	.024	.229	.917	-.429, .476	-.001	.031	.966	-.063, .060
Child Sex (female = 1)	-.173	.657	.793	-1.469, 1.123	.127	.623	.838	-1.099, 1.353	-.548	.056	.044	-1.865, .769
Child Ethnicity/Race (Latine = 1)	.454	.674	.502	-.877, 1.785	.409	.634	.520	-.842, 1.659	.612	.686	.413	-.741, 1.965
Predictors												
Sensation-seeking (age 10)	1.472	.506	.004	.474, 2.470			--				--	
Inhibitory Control (age 10)			--		-1.654	.516	.016	-2.672, -.636			--	
Risk-taking Behavior (age 10)			--				--		.028	.033	.406	-.038, .094
Conduct Problems *t*-score (age 10)	.117	.054	.031	.011, .223	.079	.055	.159	-.030, .187	.113	.056	.043	.003, .223
Conduct Problems *t*-score (age 12)	-1.649	1.370	.231	-4.352, 1.055	-.199	1.343	.882	-2.847, .2.449	-.989	1.394	.479	-3.740, 1.763
Outcomes												
Neighbor. Risk*Sensation-seeking	4.879	2.088	.021	.759, 8.999			--				--	
Neighbor. Risk*Inhibitory Control			--		3.936	1.978	.048	.037, 7.834			--	
Neighbor. Risk*Risk-taking Behavior			--				--		-.141	.125	.261	-.387, .106
	R^2 = 0.111 F(7,175) = 3.115, *p* = .004				**R^2 = 0.087 F(7,204) = 2.769, *p* = .009**				**R^2 = 0.050 F(7,175) = 1.306, *p* = .250**			

Note: SES = Socioeconomic status. SE = Standard Error. LLCI = Lower limit confidence interval. ULCI = Upper limit confidence interval.
SE and confidence intervals are bias-corrected based on 5,000 samples.

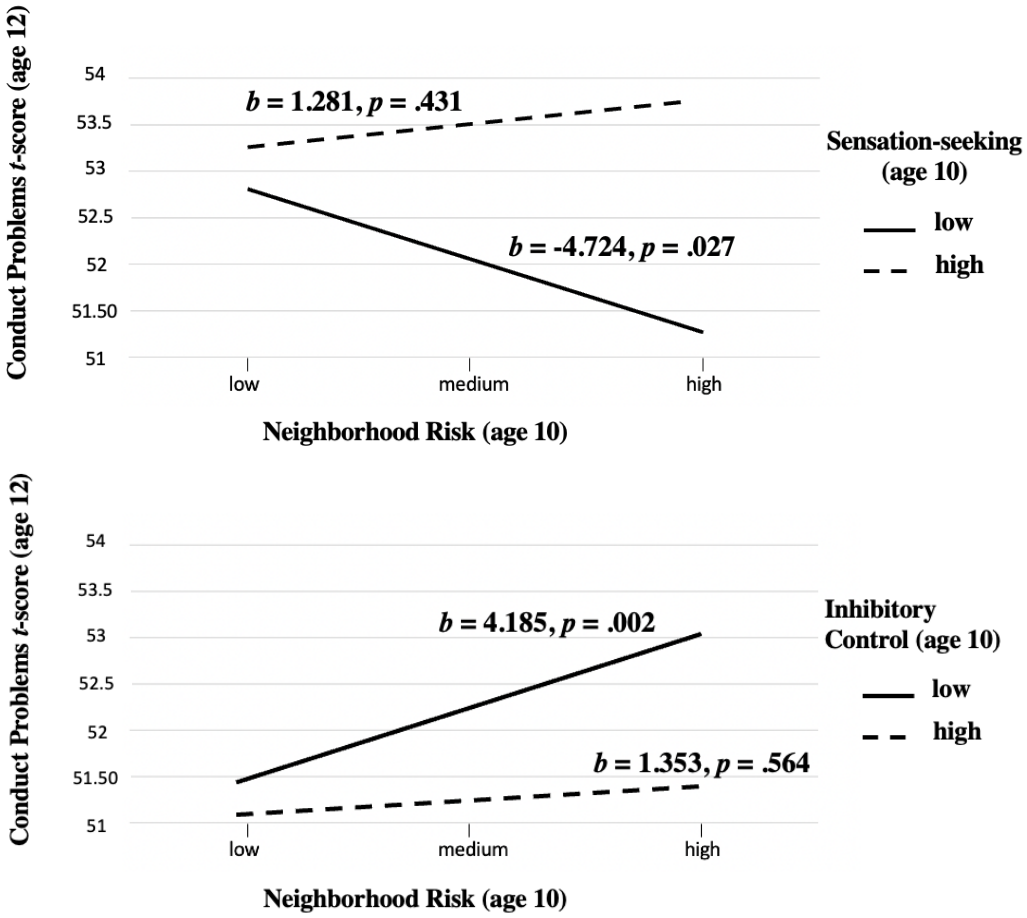

Figure 1. Youth's conduct problems on neighborhood risk as moderated by sensation-seeking and inhibitory control. Covariates (i.e., SES, Child Assigned Sex at Birth, Child Ethnicity/Race) not shown for clarity.