

Locus of Control Orientation: Parents, Peers, and Place

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Abstract An internal locus of control contributes to positive youth outcomes such as a general well-being and academic success, while also serving as a protective factor against exposure to community violence and reducing negative behaviors like violence. Despite these benefits, very little is known about antecedents of an internal locus of control orientation. Without an understanding of what factors contribute to the development of an internal locus of control, it is not clear how to best encourage its formation. This study uses data from the Project on Human Development in Chicago Neighborhoods to examine whether various mesosystem variables (family management strategies, peer interactions, neighborhood context, and individual-level characteristics) are associated with an internal locus of control orientation among 1,076 youth ages 9–19 living in 78 Chicago neighborhoods. Study participants were Hispanic (46 %), African American (34 %), and White (15 %), and 50 % were female. The findings suggest that, while most levels of the mesosystem influence locus of control orientation, family management strategies are more prominent determinants of an internal locus of control than peers, neighborhood context, or individual characteristics. Parental supervision over the time a youth spends at home and family socioeconomic status are consistent predictors of an internal locus of control, while harsh discipline is associated with an external locus of control. The discussion examines the

import of various parenting techniques in shaping an internal locus of control and considers future avenues for research to further unpack how antecedents of locus of control can vary across youth.

Keywords Locus of control · Family management strategies · Peers · Neighborhood context · Prosocial behavior

Introduction

Having a sense of control over outcomes resulting from our behaviors suggests that we are the masters of our own fate. Persons with an internal locus of control feel that they are responsible for the consequences resulting from their behavior, while individuals with an external locus of control attribute outcomes to luck, fate, or circumstances beyond their control (see Crick and Dodge 1994; Ross and Mirowsky 2013; Rotter 1966). While locus of control is not merely an internal or external dichotomous indicator of personal feelings about control over outcomes resulting from behavior, individuals generally identify more with internal or external traits and exhibit tendencies towards one end of the continuum.

An internal locus of control is related to a number of positive behaviors while an external orientation is associated with negative outcomes. Research demonstrates that having an internal as opposed to an external locus of control is a protective factor against youth involvement in violent behavior (Ahlin 2014; Lobo Antunes and Ahlin 2014a) and exposure to community violence (Farver et al. 2000). These findings suggest that having an internal locus of control can protect youth from destructive behavior and environments. Further, people with an internal locus of

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control tend to have other prosocial personality traits such as responsibility, tolerance, a general sense of well-being (Hersch and Scheibe 1967; Meier et al. 2008), express greater resilience (Efta-Breitbach and Freeman 2004) and self-control (see Gierowski and Rajtar 2003), and are better equipped to handle stressful situations (Reitzel and Harju 2000). An internal locus of control orientation has also been shown to positively influence school achievement and success (Au 2014; Bursik and Martin 2006; Lynch et al. 2002; Strayhorn 2010).

Experiences related to an external locus of control orientation are at the opposite end of the spectrum. An external locus of control increases the likelihood that youth will exhibit aggression (Bhatia and Golin 1978; Wallace et al. 2012) or engage in delinquent acts (Kelley 1996; Lau and Leung 1992). Unlike internals, externals also have lower self-control (Karabenick and Srull 1978; Mischel et al. 1974), are less able to successfully cope with stressful situations (Asberg and Renk 2014; Krause and Stryker 1984; Sandler and Lakey 1982), and are less likely to have a general sense of well-being (Larson 1989). Externals are also more likely to experience anxiety (Arslan et al. 2009; Kilpatrick et al. 1974; Morelli et al. 1979) and depression (Mirowsky and Ross 1990; Yu and Fan 2014), while also feeling a general sense of learned helplessness (Peterson et al. 1993).

Much of the literature outlines the beneficial properties of an internal locus of control and underscores how an internal orientation can promote better outcomes for both youth and adults. Interestingly, little scholarly work addresses what factors influence the establishment of an internal versus an external locus of control. Without this knowledge, it is difficult to identify or encourage practices that support the development of an internal locus of control orientation. Locus of control is not an innate personality trait (Rotter 1966), meaning its development can be shaped. The formation of locus of control orientation involves learning what we have control over and what we do not, as well as learning what choices are available to us. While locus of control orientation is generally stable over time (Ahlin 2013; Ross and Mirowsky 2013; Rotter 1966), it can change through the accumulation of experiences related to expectancies and reinforcements over time (Lefcourt 1982; Nowicki and Strickland 1973).

Similar to how human agency is shaped and informs choices (see Bandura 2001; Benson 2013; Emirbayer and Mische 1998; Moore 2011), the environment in which individuals find themselves influences their locus of control orientation, actions, and perceptions about the results of those actions. Rotter (1966) suggests that an internal locus of control is established if the following circumstances are present: (1) reinforcements of behavior are plentiful and consistent and (2) expectancies that a behavior will result

in a particular outcome are developed. These conditions may be present in the environmental systems, or meso-system (see Bronfenbrenner 1979, 1989), in which a youth develops, particularly the family, peer relationships, and neighborhood context. Furthermore, a youth's own individual differences may also influence the direction of locus of control orientation. Therefore, identifying family, peer, neighborhood, and youth factors that help shape an internal locus of control orientation is a critical step for determining what mesosystem variables should be promoted or avoided to encourage youths' formation of an internal locus of control.

Research on antecedents of locus of control remains relatively sparse compared to other investigations of the construct (see Carton and Nowicki 1994). Although there is some literature on antecedents of locus of control orientation, results of previous investigations have been inconclusive and do not paint a clear picture of how various mesosystem levels influence locus of control. Given the lack of direction in prior research, there is a distinct need in the literature to extend the current body of knowledge on predictors of locus of control orientation. In essence, it is important to examine how multiple mesosystem variables surrounding youth, such as family management strategies (both within the home and outside of the home), peer interactions, and neighborhood characteristics, as well as individual-level factors, influence internal locus of control orientation. Some of these variables have been explored in prior research, although scholars have yet to examine them simultaneously to determine their relative salience.

Predicting Locus of Control

Family Management

The family unit, particularly parents and their family management strategies, has a strong influence over socialization and locus of control orientation (see Chance 1965; García-Cadena et al. 2013; Lefcourt 1982). Several strategies can influence a child's locus of control and whether it gravitates toward the internal or external end of the spectrum (Lynch et al. 2002; Moilanen and Shen 2014). For example, close parental monitoring (Ahlin 2014) and high parental warmth (Crandall and Crandall 1983) are significant predictors of an internal orientation, while overprotective parenting styles (Chorpita et al. 1998; Spokas and Heimberg 2009), low parental warmth (Spokas and Heimberg 2009), and a harsh and rejecting family environment can promote the formation of an external locus of control through inconsistent reinforcements (Phares 1976; see also Enger et al. 1994; Moilanen and Shen 2014). Family management techniques enacted within the home are important, but do not address

how parents may organize the time children are not at home. Family management strategies extend beyond the walls of the home to include parenting techniques for when the children are out in the community and away from direct parental supervision (see Furstenberg et al. 1999). These specific practices, such as involving youth in community activities, restricting unsupervised access to the neighborhood, and knowing their child's peers, can enhance parental oversight outside of the home. Also, opportunities for pro-social engagement in after school activities can foster positive youth development and outcomes, like improved academic competence and prosocial relationships (Fauth et al. 2007; Huang et al. 2000). Exactly how such management practices exercised outside the home can shape locus of control orientation has not been fully explored by the research, and is a gap worth bridging.

Peers

Locus of control orientation is associated with peer acceptance, and an internal locus of control, in particular, is positively related to perceptions of one's status among their peers (Kang et al. 2013). On the other hand, having an external locus of control can lead to poor coping mechanisms in social situations, including aggressive behavior (Osterman et al. 1999), intimate partner violence (Schmidt et al. 2014), and bullying (Slee 1993). Studies illustrate how locus of control orientation influences relationships with one's peers, although less is known about how exchanges with peers might shape locus of control orientation. Recent research demonstrates that being victimized in general (van Reemst et al. 2014), and specifically experiencing victimization by one's peers (Catterson and Hunter 2010; Fredstrom et al. 2011), is predictive of an external locus of control, suggesting that peer interactions are important contributors to feelings of control over situations.

Peer interactions provide opportunities for youth to experience behavior reinforcements and expectations for outcomes favorable to either an internal or external locus of control. Specifically, peer situational factors, like unstructured socializing and peer deviance, may especially influence orientation in different ways. Unstructured socializing—interactions with peers that are not supervised and lack clear goals—has been associated with youth violence (Maimon and Browning 2010), exposure to violence (Zimmerman et al. 2014), and other deviant behaviors. Group activities where there is no set agenda and no prosocial monitoring provide the optimal conditions for attributing the negative consequences of behavior to others while receiving reinforcements supportive of an external locus of control. The same is true of peer deviance. The deviance of one's peers may impact a youth's own locus of

control orientation as they are exposed to various reinforcements and expectancies of deviant behavior through their affiliation with others engaged in deviance. Witnessing or learning about the behavior of deviant peers can solidify an external locus of control orientation as youth hold others culpable for events that could be precipitated by these toxic relationships.

Neighborhood Context

People are shaped not only by their family and peers but by the surrounding community with which they interact most—their neighborhood (see Bronfenbrenner 1979, 1989). Youth are exposed to their neighborhood and the contextual influences therein, especially as they grow and seek independence and autonomy from their parents and spend more time away from home. In a recent study examining the influence of neighborhood context on locus of control orientation, Ahlin (2014) found that factors such as high levels of collective efficacy and high socioeconomic status of residents are supportive of a youth's internal locus of control orientation. Such neighborhood contextual variables are believed to influence locus of control orientation through the availability of prosocial resources. Adults living in neighborhoods with more resources may have increased opportunities to influence youth due to fewer constraints on their free time to provide reinforcements and expectancies supportive of an internal locus of control.

Similarly, stressful environments and situations can also influence locus of control orientation (see Carton and Nowicki 1994; Rotter 1966). Just as higher levels of prosocial environmental factors influence an internal locus of control, lower exposure to harmful elements, such as physical or social disorder, may also have an impact on the formation of an internal locus of control. There is a dearth of research, however, examining in detail the relationship between indicators of the social and economic welfare of a neighborhood, such as immigrant concentration and residential stability, and locus of control orientation. Much of the literature does not extend beyond the family level mesosystem, and, therefore, scholars have not yet examined neighborhood context simultaneously with other levels of the mesosystem to determine relative salience of such factors on locus of control in a multilevel model.

Individual Characteristics

Individual characteristics such as race/ethnicity, age, and gender have been shown to predict locus of control orientation. In their study on fear of crime, Houts and Kassab (1997) identify racial and ethnic minorities as being more

likely than Whites to have an external locus of control. Ahlin (2014) found that, compared to Whites and African Americans, Hispanic youth had a more external orientation, while Johnson (1992) failed to find differences between African American youth and youth of other races and ethnicities in the effects locus of control orientation had on behavior. In terms of age, a review by Reynolds (1976) suggests that there is relative stability in locus of control orientation (see also Ahlin 2013), although Lefcourt (1982) and Nowicki and Strickland (1973) purport a gradual shift toward the internal end of the spectrum as people mature and grow familiar with expectancies and reinforcements supportive of an internal locus of control (see Sherman 1984) or when their current behavior is not producing desired results (Mirowsky and Ross 2013). Given that prior research suggests parenting, peers, and neighborhood effects are likely experienced differently for youth in various developmental periods, a cohort approach may be more informative than examining age as a continuous variable.

There are also discrepancies in the literature on the predictive value of gender on locus of control orientation. Whether males or females are more likely to embrace an internal or external orientation is not conclusive, and most scholars fail to uncover a significant difference between the sexes (Moilanen and Shen 2014; Sherman 1984; for a review see Reynolds 1976). However, other studies suggest that males are more external (Ahlin 2014), females are more external (Christiansen and Evans 2005), or there is a difference in magnitude between males and females at either end of the locus of control scale (see Lau and Leung 1992). Locus of control orientation should vary across males and females because of the different impact mesosystem variables have on shaping youth behavior and the differential importance of such interactions (see Miller 1986).

Family socioeconomic status (SES) is another individual-level variable that contributes to youth development. Research demonstrates that familial resources, including a higher SES, provide the necessary environmental supports that foster an internal locus of control orientation among youth (see Conger et al. 2009; Moilanen and Shen 2014). Higher family SES is a strong contributor to youth perceptions of control, while lower family SES has the opposite effect by reducing feelings of control (Mirowsky and Ross 1986). A positive relationship between internality and socioeconomic status has been identified (Maqsd and Rouhani 1991), and persists even when youth are exposed to difficult environmental factors such as family disruption (see Acock and Kiecolt 1989). It is, thus, critical to control for SES in the analyses.

The Current Study

Our research was informed by the literature and guided by the overarching question of whether there are various mesosystem predictors of an internal locus of control and the relative salience of the mesosystem levels. The current study examines the roles that various mesosystem variables have in shaping an internal locus of control orientation by testing nine hypotheses. We propose that family management strategies used within the home and outside of the home will shape locus of control orientation among youth. First, we expect that most of the family management strategies employed within the home (developmental stimulation, supervision, and parental warmth), with the exception of harsh discipline, will be supportive of an internal locus of control orientation (Hypothesis 1). Second, we anticipate that harsh discipline will be negatively related to an internal locus of control (Hypothesis 2). With respect to strategies focused on family management outside of the home, we hypothesize that youth's activity involvement, restrictiveness, and knowing youth's peers will support an internal locus of control orientation (Hypothesis 3). Specifically, the opportunity to engage in prosocial, organized activities with other youth, being protected from exposure to the neighborhood environment and having parents familiar with friends whom youth hang out with will have a beneficial effect on the development of an internal locus of control. Next we examine whether youth peer factors have a mediating effect on the relationship between family management strategies and an internal locus of control. We hypothesize that youth who engage in unstructured socializing with their friends (Hypothesis 4) and have deviant peers (Hypothesis 5) will be less likely to have an internal locus of control. Moreover, we contend that the inclusion of these factors will reduce the magnitude of the family management coefficients (i.e., mediate) and curtail the direct influence that family management strategies have over the development of an internal locus of control.

We next examine the relative salience of parents, peers, or youth demographic characteristics as predictors of an internal locus of control. Although we argue that family management strategies will have a stronger influence over locus of control orientation than individual factors, we recognize that individual characteristics will influence locus of control orientation to some degree. As demonstrated by the literature, there is an ambiguous relationship between individual-level characteristics and locus of control orientation inhibiting the selection of clear hypotheses. There is some evidence to suggest that minorities, younger youth, and males will be less likely to have an internal locus of control than whites, older youth, and females (Hypothesis 6). We further hypothesize that a youth's

family socioeconomic status (SES) will be positively related to an internal locus of control (Hypothesis 7).

Finally, we incorporate neighborhood level predictors and structural characteristics to extend the current literature and explore the role they have in youth development of an internal locus of control. There is scant literature on the influence neighborhood context plays in the development of locus of control orientation among youth, perhaps because of the mixed evidence regarding the direct versus indirect influences neighborhoods impart on youth development and behavior (Beale-Spencer et al. 1997; Elliott et al. 2006; Kupersmidt et al. 1995). However, evidence suggests that neighborhood conditions such as collective efficacy and neighborhood structural characteristics can have an effect on individual-level behaviors (Silbereisen and Eyferth 1986; Wikström 2006; Wikström and Loeber 2000) and locus of control orientation (Ahlin 2014). With this in mind, we argue that collective efficacy and residential stability will be predictive of an internal locus of control (Hypothesis 8), while a negative relationship will emerge between an internal locus of control orientation and deleterious conditions such as disorder, concentrated disadvantage, and immigrant concentration (Hypothesis 9).

Data and Methods

Data

The data employed by this study are from the Project on Human Development in Chicago Neighborhoods (PHDCN). The PHDCN brings together a neighborhood level survey (Community Survey) and a longitudinal individual-level survey of children, youth, and their primary caregivers living in Chicago in 1994 (Longitudinal Cohort Survey). The Community Survey was conducted in 1994–1995. Neighborhood sampling units were created by collapsing Chicago's 847 census tracts into 343 Chicago neighborhood clusters. The neighborhood clusters were designed to be "ecologically meaningful" and were constructed using geographically relevant boundaries and first-hand knowledge about the neighborhoods (see Sampson et al. 2002). The participants in the Community Survey, over 8,000 Chicago adult residents, were selected from the 343 neighborhood clusters. The sample of the Community Survey is distinct from the Longitudinal Cohort Survey and serves as an independent measure of community context.

The Longitudinal Cohort Study is a three wave, multi-cohort, prospective accelerated longitudinal study of childhood and adolescent development. The youth participating in the study and their primary caregivers were sampled from 80 of the 343 neighborhood clusters identified for the Community Survey. Children and their families

were identified through interviews conducted of over 40,000 Chicago residences. Of the 8,000 who were eligible to take part in the Longitudinal Cohort Study, more than 6,000 participated in the study at Wave 1, begun in 1994. The data collection took place at two additional time periods beginning in 1997 and 2000. Data were collected on seven cohorts (birth, 3, 6, 9, 12, 15, and 18). For the purposes of the current investigation we use data on cohorts 9 and 12, to capture the relationship between the four meso-system level variables and locus of control orientation. We identified 1,076 children and youth (Table 1) who participated in all three waves of data collection and who have a high percentage of completed surveys. The sample is 46 % Hispanic, 34 % African American and 15 % White, with an equal distribution between girls and boys.

Measures

We derive measures from Wave 1 and 2 to predict locus of control orientation at Wave 3. The sample characteristics are presented in Table 2.

Internal Locus of Control

The outcome variable of interest is internal locus of control. The locus of control data were collected at Wave 3 using the *Things I Can Do If I Try* questionnaire. Statements were read to respondents and scored on a Likert-type scale ranging from 1 to 4. The statements offered two perspectives (e.g., "some kids feel like they can become a successful person if they work at it," BUT "other kids feel like they shouldn't bother trying because they will NOT be successful") and measured whether youth believe outcomes are attributable to behavior. Youths were asked to choose which perspective more closely reflected their beliefs about themselves. The locus of control measures included 23 positively and negatively worded statements. Negatively worded statements were recoded such that a value of 4 is equal to high internal locus of control and a value of 1 is equal to high external locus of control. Responses across the questions were summed, yielding a scale with high reliability ($\alpha = .86$).

Family Management Variables

The family management variables examined in this study are measured at the individual respondent level and provide information on primary caregivers' use of seven parenting strategies within and outside of the home. The sources for the family management variables are Wave 1 and Wave 2 of the Longitudinal Cohort Study. Five of the seven family management variables were derived using the *Home Observation Survey*. These include developmental stimulation,

Table 1 Sample characteristics

	Cohort 9		Cohort 12	
	N	%	N	%
Gender				
Male	296	53.24	253	52.66
Female	260	46.76	285	47.34
Ethnicity				
Hispanic	265	47.7	242	45.0
Black	185	33.3	191	35.5
White	79	14.2	86	16.0
Other	27	4.9	19	3.5
	Mean	SD	Mean	SD
Age				
Wave 1	7.8	.33	9.1	.58
Wave 2	10.8	.32	12.9	.56
Wave 3	13.7	.31	15.6	.63

supervision, restrictiveness, knows peers, and parental warmth. The data on harsh discipline and youth activity involvement were obtained from other survey instruments.

Developmental Stimulation The developmental stimulation variable was constructed from the “Developmental Advance” section of the *Home Observation Survey*. Parents and caregivers were asked (*yes/no*) if they provided youth with CDs, musical instruments, books, board games, and reference books. The responses to 11 questions were tabulated, creating a summative scale of developmental stimulation, that was slightly skewed and yielded an acceptable reliability coefficient ($\alpha = .65$). The mean developmental stimulation score is 8.79 (SD = 1.99).

Harsh Discipline We employ a mean-based method in the computation of the harsh discipline variable. Questions from the *Conflict Tactics Scale* (Straus 1979) at Wave 1 were used whereby parents and caregivers were asked “in the past year when there was a problem with ****...how

Table 2 Descriptive statistics

Variable	N	Mean	SD	Min	Max
Internal locus of control	1,076	75.98	9.60	35.00	92.00
Family management					
Developmental stimulation	1,081	8.79	1.99	.00	11.00
Harsh discipline	1,094	6.30	5.58	.00	22.00
Supervision	1,088	14.30	1.78	7.00	16.00
Parental warmth	1,067	10.16	2.43	.00	13.00
Youth activity involvement	1,075	2.12	1.34	.00	5.00
Restrictiveness	1,036	.71	.45	.00	1.00
Knows peers	1,011	.64	.48	.00	1.00
Peers					
Unstructured socializing	1,075	12.41	4.71	.00	25.00
Deviant peers	1,014	2.49	2.03	.00	15.00
Individual-level variables					
Hispanic	1,093	.46	.50	.00	1.00
African American	1,093	.34	.48	.00	1.00
White	1,093	.15	.36	.00	1.00
Cohort 12	1,094	.49	.50	.00	1.00
Male	1,094	.50	.50	.00	1.00
Family SES	1,091	.00	1.00	-1.87	2.50
Neighborhood level predictors					
Collective efficacy	78	3.43	.29	2.90	4.17
Disorder	78	1.83	.35	1.19	2.44
Neighborhood structural characteristics					
Concentrated disadvantage	78	-.00	1.00	-1.90	3.47
Immigrant concentration	78	.00	1.00	-1.75	2.66
Residential stability	78	.00	1.00	-1.89	2.33

many times did you...” The options ranged from insult or swear at, to beat up. Data from the seven response categories (0 = never, 1 = once, 2 = 2 times, 3 = 3–5 times, 4 = 6–10 times, 5 = 11–20 times, and 6 = more than 20 times) were recoded to 0 = never, 1 = once or twice, 2 = 3–5 times, 3 = 6–10 times, and 4 = 11 + times, so that the final variable was less skewed. The harsh discipline measure is an adjusted mean scale with good internal consistency ($\alpha = .78$).

Supervision The supervision scale is derived using the “Supervision” section of the *Home Observation Survey* (Browning et al. 2004). Several questions were posed of parents and caregivers regarding youth schedule, homework support, supervision, and monitoring within the home. The responses to a total of 16 questions were added creating a summative scale of acceptable internal consistency ($\alpha = .63$). The mean of 14.30 and standard deviation of 1.78 indicate the distribution of the final measure is skewed, suggesting that the use of robust standard errors during analysis may be appropriate.

Parental Warmth The measure of parental warmth was constructed from the *Home Observation Survey* at Wave 1. Interviewers were required to assess parent/caregiver interactions with the children and youth, as these occurred during the administration of the instrument. Interviewers evaluated the levels of affection and how parents addressed their children, in terms of encouragement, caresses and kisses, praise and negative behaviors like spanking, scolding, and shouting. The responses to 13 dichotomous questions were summed yielding a scale ranging between 0 and 13, with a mean of 10.16 ($\alpha = .75$).

Youth Activity Involvement The data from the *School Interview* (see Fauth et al. 2007; Gardner et al. 2009) at Wave 2 were used to create a measure of youth activity involvement. Questions regarding several school and other extracurricular activities including cheerleading, sports, student government, and church volunteering, were posed of youth. The responses were summed and a variety score ($\alpha = .64$) depicting the number of different activities each youth engaged in was derived. On average, children and youth participated in two activities, with some taking part in as many as five.

Restrictiveness Restrictiveness is a simple binary variable (0/1) illustrating whether parents and caregivers allow their children to spend time in the neighborhood without adult supervision or monitoring. This information was collected at Wave 2 as part of the *Home Observation Survey*. The original variable was recoded so that 1 indicated restrictiveness, meaning that parents do *not* permit children

unsupervised time in the neighborhood. Over 70 % of parents reported restricting their children.

Knows Peers Knowing who your children spend time with is one of the many protective management practices parents can adopt. As part of the *Home Observation Survey* at Wave 2, parents and caregivers were asked whether they knew their child’s friends by name and sight. Since the distribution of responses was skewed we collapsed the “all or most” category which was coded as 1 and the “about half”, “few”, and “none” categories which were recoded as 0. Over three-fifths of the parents and caregivers reported knowing all or most of their children’s friends.

Peer Predictors

We examine two youth variables believed to contribute to locus of control orientation: unstructured socializing and deviant peers.

Unstructured Socializing A measure of youth unstructured socializing was derived using the *Routine Activities* survey administered at Wave 2 (see Maimon and Browning 2010). Children and youth were asked a series of questions regarding their unsupervised interactions with peers. The responses were summed and a scale calculated whereby higher values denote a greater engagement in unstructured socializing ($\alpha = .67$).

Deviant Peers The information from the *Deviance of Peers* survey administered at Wave 1 was used to construct a measure of peer deviance. Youth were asked whether the people they spend time with engaged in deviant behaviors like smoking, drinking, sexual relations, delinquency, and drug use. An additive scale was calculated from the responses to eight questions. The resulting scale has excellent internal consistency ($\alpha = .85$) and is approximately normally distributed.

Neighborhood Level Predictors

The measures of neighborhood context examined here are collective efficacy, disorder, and three neighborhood structural characteristics: concentrated disadvantage, immigrant concentration, and residential stability. The variables were obtained from data contained in the Community Survey and 1990 U.S. Census.

Collective Efficacy Collective efficacy is a combined variable of informal social control and social cohesion (see Sampson et al. 1997). Informal social control is the sum of responses to questions about whether respondents thought their

neighbors could be counted on to “intervene” in a series of situations (i.e., truancy, vandalism, fights between children). Social cohesion assesses how strongly respondents agreed with a series of statements like “people around here are willing to help their neighbors” and “this is a close-knit neighborhood”. The scales were merged and the resulting collective efficacy variable has a mean of 3.43 and standard deviation of .29.

Disorder During the Community Survey, the respondents were asked to evaluate several situations and behaviors in terms of how much of a problem (on a three-point scale) they were for residents. These included panhandling, dilapidated buildings, unruly teens, evidence of drug use, and prostitution. The answers to 7 questions were recoded, summed, and an adjusted mean scale was created for each of the more than 8,000 respondents ($\alpha = .83$). The individual scales were aggregated to the neighborhood cluster level resulting in a measure of neighborhood-level disorder with a mean of 1.83.

Neighborhood Structural Characteristics

The measures of neighborhood structural characteristics included are—concentrated disadvantage, immigrant concentration, and residential stability. These variables were created using ten measures from the 1990 Census (Sampson et al. 1997) and were derived using factor analysis.

Concentrated Disadvantage This variable is composed of the following variables: percentage of residents who were: below the poverty line, on public assistance, unemployed, less than 18 years of age, and African American.

Immigrant Concentration The immigrant concentration variable represents the percentage of Latino and foreign-born residents in the neighborhood.

Residential Stability Residential stability is defined as the percentage of residents who lived in the same house since 1985 and percentage of owner-occupied homes.

Individual-Level Variables

The measures of individual characteristics are obtained from the *Master File* and *Demographic File* of the Longitudinal Cohort Study.

Hispanic The *Hispanic* variable represents all youth who were of Latino/Latina ethnicity.

African American This variable represents individuals who self-identified their race as *African American*, and non-Hispanic ethnicity.

White This variable represents youth who self-identified as *White*, and non-Hispanic ethnicity. White is the referent group in the analyses.

Cohort 12 We use cohort as a proxy for age because the PHDCN employs a cohort-based accelerated longitudinal research design (see Sullivan 2012; Tonry et al. 1991) which supports the investigation of potential cohort effects. Cohort membership is dichotomized as 0 = Cohort 9 and 1 = Cohort 12, where Cohort 9 is the referent group in the analyses.

Male Gender is also a dichotomous variable where 0 = female and 1 = male, and female is the referent group in the analyses.

Family SES We use a principal components measure of primary caregiver’s maximum education level, salary, and description of most recent job to create a measure of family SES.

Data Analysis and Models

The current study uses information on 1,076 youth and their primary caregivers living in 78 neighborhood clusters. The PHDCN data are nested and it is believed that individuals residing within the same neighborhood cluster will share characteristics and traits. As such, we employ multilevel modeling as the analytic procedure to assess the research questions. Multilevel modeling is appropriate because it controls for the nesting of observations within the level-2 units (Raudenbush and Bryk 2002). Moreover, multilevel modeling allows for the estimation of variance between individuals within the same neighborhood cluster, and variance between neighborhood clusters. This analytic method also provides for the estimation of effects at each level and across levels. The first step in determining whether a multilevel analysis is warranted is to run a fully unconditional model, which indicates whether the dependent variable of interest varies across level-2 units. Our results demonstrate that locus of control orientation differs by neighborhood (data not shown); necessitating the use of multilevel modeling.

Employing a series of multilevel models, we test the relationship of family management strategies, peer influences, neighborhood context, and individual-level variables as predictors of an internal locus of control. Model 1 examines the relationship of the seven family management strategies on an internal locus of control orientation. The analysis then builds on this base model to investigate the mediating effects of peer interactions on the relationship

between family management strategies and the outcome variable. Model 3 incorporates individual-level factors, including youth demographics and family SES. We conclude with Model 4 to examine the role of neighborhood characteristics on internal locus of control orientation.

Results

We begin by examining the role of family management strategies on an internal locus of control orientation in Model 1. Table 3 shows that family management strategies shape locus of control orientation, lending partial support for Hypothesis 1. Supervision, a within the home strategy, was significantly related to the development of an internal locus of control. Experiencing greater levels of supervision in the home ($b = .696, p < .001$) is supportive of an internal locus of control orientation. The negative relationship between harsh discipline and internal locus of control is clear from the effects illustrated in Table 3. These findings demonstrate that the use of harsh discipline decreases the likelihood of an internal locus of control ($b = -.132; p < .05$) and support Hypothesis 2. Turning now to outside of the home family management strategies, no significant support for Hypothesis 3 is established; although whether the parent knows their child’s friends was moderately associated with an internal locus of control ($b = 1.106, p < .10$).

Model 2 assesses the mediation effects of peer factors on the relationship between family management strategies and locus of control orientation. While there is no statistically significant effect of unstructured socializing on locus of control orientation (Hypothesis 4), the deviance of one’s peers is a robust predictor of an internal orientation (Hypothesis 5). A unit increase in peer deviance decreases an internal locus of control orientation by .498 ($b = -.498, p < .01$) (Table 3). Interestingly, there are notable changes

in significance of three family management strategies once the peer variables are added to the analyses. With regard to within the home family management practices, harsh discipline and supervision retain their significance, although the magnitude of the coefficient decreases and parental warmth no longer exerts a statistically significant influence on locus of control orientation. We know from analyses, not included here, that family management practices significantly influence youth association with deviant peers and unstructured socializing. Indeed, supervision and parental warmth negatively impacts deviant peer relationships and unstructured socializing activities whereas harsh discipline presents the opposite effect on these same variables. Once we have established these relationships, if the influence of these family management practices on locus of control is mediated through the peer variables, then the coefficients are likely to be reduced after these have been included in the model (Cui and Conger 2008; Klebanov et al. 1997: 119). The results presented demonstrate such a decrease, suggesting a mediating influence of the peer variables.

Although developmental stimulation was not significant in the previous model, it becomes significant ($b = .403, p < .05$) once the peer variables are incorporated into the analyses. Developmental stimulation’s effect on youth locus of control orientation may, in fact, be a function of whether the youth has deviant peers. A similar change is found for outside of the home parenting strategies.

The impact of individual-level factors on locus of control orientation is assessed in Model 3. The most striking observation from Table 4 is that only two of the demographic characteristics, African American and family SES, were statistically significant. Being African American is the only significant individual characteristic related to an internal locus of control. African Americans are less likely to develop an internal locus of control, although the effects are moderate ($b = -1.400, p < .10$), offering limited

Table 3 Influence of family management strategies and peers on internal locus of control orientation

	Model 1		Model 2	
	β	St. error	β	St. error
Intercept	75.878***	.289	75.794***	.298
Developmental stimulation	.282	.177	.403*	.183
Harsh discipline	-.132*	.054	-.119*	.053
Supervision	.696***	.189	.645***	.197
Parental warmth	.225	.134	.198	.153
Youth activity involvement	.332	.227	.460	.243
Restrictiveness	.323	.541	.064	.632
Knows peers	1.106	.614	1.169	.672
Unstructured socializing	–	–	-.097	.078
Deviant peers	–	–	-.498**	.182

* $p < .05$; ** $p < .01$;
*** $p < .001$

Table 4 Influence of individual characteristics and community factors on internal locus of control orientation

	Model 3		Model 4	
	β	St. error	β	St. error
Intercept	75.772***	.282	75.888***	.291
Developmental stimulation	.196	.208	.183	.216
Harsh discipline	-.106*	.054	-.112*	.054
Supervision	.699***	.197	.710***	.197
Parental warmth	.142	.150	.141	.153
Youth activity involvement	.417	.247	.432	.246
Restrictiveness	.223	.649	.220	.657
Knows peers	.892	.695	.891	.680
Unstructured socializing	-.106	.082	-.109	.072
Deviant peers	-.416*	.187	-.394*	.188
Hispanic	-.449	.910	-.102	.944
African American	-1.400	.847	-.687	.999
Cohort 12	.058	.713	.023	.711
Male	-.299	.609	-.262	.608
Family SES	1.000***	.313	.889**	.331
Collective efficacy	–	–	-.030	1.959
Disorder	–	–	-2.433	1.636
Concentrated disadvantage	–	–	.128	.601
Immigrant concentration	–	–	.046	.455
Residential stability	–	–	-.655	.386

* $p < .05$; ** $p < .01$;*** $p < .001$

support for Hypothesis 6. The main effects of Model 3 illustrate the importance of family SES in locus of control orientation, providing support for Hypothesis 7. As expected, family SES positively influences the development of an internal locus of control ($b = 1.000$, $p < .001$). Interestingly, developmental stimulation is again insignificant as it was in Model 1 suggesting that family SES may be driving its relationship to locus of control orientation. Harsh discipline, supervision, youth activity involvement, and deviant peers remain predictive of locus of control orientation in Model 3.

Finally, we examine the role of neighborhood context in the formation of locus of control in Model 4. Residential stability is the only variable of marginal significance ($b = -.655$, $p < .10$), although it is negatively related to an internal locus of control—contrary to Hypothesis 8. As shown in Table 4, there is no support for Hypothesis 9; community disorder, concentrated disadvantage, and immigrant concentration are not shown to influence locus of control orientation among youth.

Discussion

There is a paucity of research examining the mechanisms predictive of locus of control orientation. An internal locus of control, that is, one's ability to take ownership of

behavior and consequences of such behavior, is associated with better youth outcomes. Specifically, the literature suggests that having an internal versus external locus of control protects youth against engaging in violence (Ahlin 2014; Lobo Antunes and Ahlin 2014a), aggression (Bhatia and Golin 1978; Osterman et al. 1999), and even bullying (Slee 1993). Moreover, those with an internal locus of control orientation tend to be well-adjusted (April et al. 2012; Hersch and Scheibe 1967), are able to deal with stress in a more effective manner (Reitzel and Harju 2000), and are exposed to less community violence (Farver et al. 2000).

This study provides a new understanding about specific family management practices, beyond supervision and monitoring occurring within the home, and documents how various family management strategies can shape locus of control orientation. By focusing on within and outside of the home family management strategies and peer situational factors, we extend our knowledge of the role that parenting practices have in the establishment of an internal locus of control and identify important processes that can and should be targeted by future research and youth development programs. Specifically, these programs should train parents to use practices supportive of an internal locus of control, such as increased in home supervision and youth involvement in activities, to help shape autonomy and independence, important components

of an internal locus of control (Carton and Nowicki 1994). Further, programs should emphasize the important of establishing a warm parenting style, and promoting socializing with prosocial peers, while also encouraging parents to decrease their use of management strategies that foster an external locus of control such as harsh discipline. Multisystemic therapy (MST) is one family and youth based program that incorporates multiple mesosystem contexts with positive results by teaching parents how to successfully manage their children's lives through rule enforcement and the promotion of healthy friendships (Schaeffer and Borduin 2005). While most parenting programs focus on teaching parents to engage in within the home strategies without also considering family management techniques for times when youths are not at home, parenting programs that focus on parenting practices that extend beyond the home have also been successful (Bodenmann et al. 2008; Sanders 2003, 2008). For example, Group Triple P positive parenting provides parents with techniques to prevent and address problem behaviors both within and outside of the home available through group and self-directed programs (De Graaf et al. 2008).

Through parenting programs, families can learn to provide an environment that encourages the formation of an internal locus of control. Parents and caregivers are the primary sources of child socialization. Our research demonstrates that parenting, particularly the use of within the home family management strategies, fosters youth's development of an internal locus of control more consistently than other mesosystem influences and as such should be the primary target of programming. Both supervision and parental warmth have a robust effect on youth's locus of control orientation, suggesting that the manner in which parents provide supervision matters. Establishing rules and curfews, routines for completing homework, and making sure someone is available to greet youth as they return home from school, all help provide a strong foundation upon which an internal locus of control can be built. This study's findings also reinforce the relevance of parental warmth in giving children the ability to recognize that they are masters of their own fate. These within the home parenting strategies foster the development of an internal locus of control, a trait that has long ranging implications outside of the home.

Harsh disciplining, on the other hand, forecasts an external locus of control in youth. Just as inconsistent rule enforcement and punishing lead to lower levels of self-control, excessive and harsh discipline can promote the development of an external locus of control. The effect is direct, in that disciplining methods shape youth's locus of control orientation. Also, the decrease in the magnitude of the coefficient, upon incorporating peer variables into the analyses, suggests that harsh discipline operates indirectly

through the peer relationships. Hanging out with friends who engage in deviance and delinquency may provide youth with opportunities to transfer control over their behavior, blaming others for the consequences of their actions due to repeated exposure to reinforcements and expectancies consistent with an external locus of control.

Once the peer variables were added to the analyses, both developmental stimulation and youth activity involvement became significant. This finding may simply be spurious or instead denote interactions that warrant further investigation. Parents who are able to provide enriching activities and resources may also be more likely to limit youth's association with deviant peers. Interestingly, past studies have found that youth's activity involvement can have a criminogenic effect, particularly for youth already involved in delinquency (e.g., Gifford-Smith et al. 2005). Perhaps the missing link rests with locus of control and the protective effect an internal locus of control can have against deviant and delinquent behaviors, regardless of whether opportunities to commit crime exist.

Contrary to predicted hypotheses, the majority of the neighborhood variables were not significant and the coefficient of the only marginally significant predictor (residential stability) was in the opposite direction than expected. Locus of control is an individual-level trait and these findings indicate that it is formed by more proximal family, peer, and youth oriented mechanisms. The weak, yet negative association between residential stability and locus of control may represent a spurious relationship or support arguments contending that youth living in more stable neighborhoods are subjected to more relaxed parental supervision (see Seidman et al. 1998) and, therefore, granted more opportunities to associate with delinquent friends. This, in turn, influences the development of an external locus of control.

Limitations and Future Directions

The contributions and findings of the current study should be assessed by taking note of its limitations. One limitation is the focus on youth between the ages of 9 and 19. The data from which the locus of control variable was derived is restricted to specific age cohorts. Determining the age at which locus of control forms and stabilizes was not possible. But, our focus on the role of parents, peers, and place necessitates data on older youth who are more likely to experience multiple forms of within and outside of the home family management strategies, be influenced by peers, and exposed to neighborhood conditions. Consequently, we were able to identify which parenting, peer, and to a lesser extent, community factors impacted the development of an internal locus of control, although additional work is needed to determine if these antecedents are applicable for youth of other ages.

Another limitation is the inability to assess change in locus of control. The current article assumes that locus of control is a general concept rather than being domain specific, and is relatively stable across situations and time (see Ahlin 2013; Ross and Mirowsky 2013; Rotter 1966). In essence, the models here assume that locus of control will not vary across relationships, situations, and contexts. This conception of a general locus of control contends that youth will have the same locus of control orientation whether they experience academic difficulties, engagement in violence, or personal strife, and that their locus of control orientation will not significantly change from one age to the next. Ideally, examining variability of locus of control across contexts and time could help clarify some of the connections between family management strategies and the development of an internal locus of control.

While four of the seven family management practices influence locus of control orientation, the analyses also revealed that individual-level factors also matter. While a higher family SES predicts an internal locus of control, being African American decreases the likelihood that a youth will form a tendency towards the internal side of the locus of control continuum. The significance of these variables suggests that more research is needed to understand how parents decide which family management strategies to employ with their children. We know from prior research that family management strategies vary by race and ethnicity (Lobo Antunes and Ahlin 2014b), and that different family management practices can explain, to an extent, differences in youth deviance and association with delinquent friends (Furstenberg et al. 1999; Lobo Antunes and Ahlin 2014a). Further, the role that locus of control plays in the relationships that youth have with their friends varies by race and ethnicity (see Kang et al. 2013). While the results of this study do not suggest gender differences in locus of control orientation, previous studies have reported that different parenting strategies are employed for boys versus girls with parents being more restrictive of girls than boys (Cernkovich and Giordano 1987; Elliott et al. 2006; Heimer 1996; Perez and Fox 2008), and we identify parenting strategies as antecedents of locus of control orientation. Considerably more work needs to be done to establish whether to assess whether the intersections between race/ethnicity, gender and parenting strategies influence locus of control orientation.

Another possible area of future research would be to investigate whether these racial and ethnic differences are mediated by family SES. Effective or even adequate supervision is not only a function of parental choice but of family economic resources. Parents and caregivers with a healthier economic status are more likely to be able to provide both protective and promotive opportunities for their children, which in turn can influence the formation of

an internal locus of control. Indeed, the shift in magnitude and significance observed for some of the family management variables, namely developmental stimulation and youth activity involvement, implies an intricacy of relationships evaluated in the current article that require additional inquiry. Given the complexity of the relationships uncovered here, a developmental approach to studying locus of control would certainly enhance our findings, although this is not possible with the PHDCN data set. Understanding when locus of control stabilizes or even when it begins to be formed would help to refine policies and programs aimed at increasing youth ownership over outcomes associated with their behavior. Additionally, future investigations could examine situational determinants of locus of control such as school and work experiences. Furthermore, research may also test the findings presented here with a less urban sample, which would increase the generalizability of the results.

Data Limitations

One limitation of the PHDCN data used in this study is its age. Data collection for the longitudinal cohort study began in 1994 and ended in 2002, while the community survey was limited to the period between 1994 and 1995. Although there are inevitable disadvantages to using historical data (e.g., period effects less relevant to today's youth), there are ample benefits to this particular data set. Foremost, the PHDCN is an accelerated longitudinal study design that incorporates information on neighborhood level context data collected independently from the longitudinal cohort study. The longitudinal cohort study is a large-scale, three-wave data collection of primary caregivers and youth providing prospective information on youth development over time and as they age through adolescence. This rare combination of both neighborhood context and individual-level data representative of an entire city provide scholars with the opportunity to examine multiple layers of a youth's mesosystem—family, peers, neighborhood, and individual characteristics—simultaneously using rigorous modeling techniques. The richness and breadth of topics covered by the data set has contributed to its extensive use by researchers since its inception and it continues to be a prominent resource for scholars interested in interdisciplinary explanations of a variety of youth outcomes, including crime, delinquency, drug and alcohol use, age at sexual initiation, and violence (see Sampson et al. 2002). Although a more contemporary data set would be ideal for the current study and other research questions addressed using the PHDCN, federal and private foundation budgets for large scale research projects are limited and data collection for prospective longitudinal developmental data takes time. While making a distinct contribution to the

literature, the current study confirmed or refuted historical findings on antecedents of locus of control, many reported over 20 years ago, to further the state of knowledge by applying a more recent data set to a concept that retains its importance after many decades. Future examinations of antecedents of locus of control orientation would benefit from further improving our knowledge on this topic with current data.

Conclusion

This study brings together four mesosystem levels in an explanation of antecedents of an internal locus of control, adding to the literature a multilevel examination of family, peers, neighborhood, and individual factors that shape youth development. This research extends Ahlin's (2014) preliminary investigation into the role that neighborhood characteristics have in youth's locus of control orientation. That study, using zero-order regression models, identified high levels of neighborhood collective efficacy and increased socioeconomic status of residents as supportive of youth development of an internal locus of control. However, after employing a fully specified model incorporating relevant family, peer, neighborhood, and individual characteristics in the current study, neighborhood factors are no longer significant. The current study identifies family management strategies, particularly those employed within the home, as the most robust predictors of an internal locus of control orientation. Our work adds a substantive contribution to the literature on adolescence by untangling the role of various family management strategies to investigate the individual contributions of within and outside of the home techniques used by parents. Recently, scholars have more often focused on within the home strategies (see Moilanen and Shen 2014), leaving outside of the home strategies insufficiently examined. Because development is age-graded and youth require different parenting mechanisms as they progress through adolescence and spend more time away from direct parental control, it is important to assess whether parenting practices employed for times when youth are outside of the home contribute to youth development, including locus of control orientation. This is particularly important given research that identifies an internal locus of control as a protective factor against youth's involvement in violence (Ahlin 2014) and exposure to community violence (Lobo Antunes and Ahlin 2014a) among older youth.

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Author Contributions EA conceived of the study, conducted statistical analyses, and participated in drafting the manuscript. JLA interpreted data, conducted statistical analyses, and participated in drafting the manuscript. Both authors contributed equally to the study design, and read and approved the final manuscript.

References

- Acock, A. C., & Kiecolt, K. J. (1989). Is it family structure or socioeconomic status? Family structure during adolescence and adult adjustment. *Social Forces*, 68(2), 553–571.
- Ahlin, E. M. (2013). *Youth involvement in crime: The importance of locus of control and collective efficacy*. El Paso, TX: LFB Scholarly Publishing.
- Ahlin, E. M. (2014). Locus of control redux: Adolescents' choice to refrain from violence. *Journal of Interpersonal Violence*, 29(14), 2695–2717.
- April, K. A., Dharani, B., & Peters, K. (2012). Impact of locus of control expectancy on level of well-being. *Review of European Studies*, 4(2), 124–137.
- Arslan, C., Dilmac, B., & Hamarta, E. (2009). Coping with stress and trait anxiety in terms of locus of control: A study with Turkish university students. *Social Behavior and Personality*, 37(6), 791–800.
- Asberg, K., & Renk, K. (2014). Perceived stress, external locus of control, and social support as predictors of psychological adjustment among female inmates with or without a history of sexual abuse. *Journal of Offender Therapy and Comparative Criminology*, 58(1), 59–84.
- Au, E. W. M. (2014). Locus of control, self-efficacy, and the mediating effect of outcome control: Predicting course-level and global outcomes in an academic context. *Anxiety, Stress, & Coping: An International Journal*. doi:10.1080/10615806.2014.976761.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1–26.
- Beale-Spencer, M., Cole, S. P., Jones, S. M., & Swanson, D. P. (1997). Neighborhood and family influences on young urban adolescents' behavior problems: A multisample, multisite analysis. In J. Brooks-Gunn, G. J. Duncan, & J. L. Aber (Eds.), *Neighborhood poverty: Context and consequences for children* (Vol. 1, pp. 200–218). New York: Russell Sage Foundation.
- Benson, M. (2013). *Crime and the life course. An introduction* (2nd ed.). New York, NY: Routledge.
- Bhatia, K., & Golin, S. (1978). Role of locus of control in frustration-produced aggression. *Journal of Consulting and Clinical Psychology*, 46(2), 364–365.
- Bodenmann, G., Cina, A., Ledermann, T., & Sanders, M. R. (2008). The efficacy of the Triple P-Positive Parenting Program in improving parenting and child behavior: A comparison with two other treatment conditions. *Behaviour Research and Therapy*, 46(4), 411–427.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University.
- Bronfenbrenner, U. (1989). Ecological systems theory. In R. Vasta (Ed.), *Six theories of child development: Revised formulations and current issues* (Vol. 6, pp. 187–249). Philadelphia, PA: Jessica Kingsley Publishers.

- Browning, C. R., Leventhal, T., & Brooks-Gunn, J. (2004). Neighborhood context and racial differences in early adolescent sexual activity. *Demography*, *41*(4), 697–720.
- Bursik, K., & Martin, T. A. (2006). Ego development and adolescent academic achievement. *Journal of Research on Adolescence*, *16*(1), 1–18.
- Carton, J. S., & Nowicki, S. (1994). Antecedents of individual differences in locus of control of reinforcement: A critical review. *Genetic, Social, and General Psychology Monographs*, *120*(1), 31–81.
- Catterson, J., & Hunter, S. C. (2010). Cognitive indicators of the effect of peer victimization on loneliness. *British Journal of Educational Psychology*, *80*(3), 403–416.
- Cernkovich, S. A., & Giordano, P. C. (1987). Family relationships and delinquency. *Criminology*, *25*(2), 295–319.
- Chance, J. E. (1965). *Internal control of reinforcements and the school learning process*. Minneapolis, MN: Paper Presented at the Society for Research in Child Development Convention.
- Chorpita, B. F., Brown, T. A., & Barlow, D. H. (1998). Perceived control as a mediator of family environment in etiological models of childhood anxiety. *Behavior Therapy*, *29*(3), 457–476.
- Christiansen, E. J., & Evans, W. P. (2005). Adolescent victimization: Testing models of resiliency by gender. *The Journal of Early Adolescence*, *25*(3), 298–316.
- Conger, K. J., Williams, S. T., Little, W. M., Masyn, K. E., & Shebloski, B. (2009). Development of mastery during adolescence: The role of family problem-solving. *Journal of Health and Social Behavior*, *50*(1), 99–114.
- Crandall, V. C., & Crandall, B. W. (1983). Maternal and childhood behaviors as antecedents of internal-external control perceptions in young adulthood. In H. M. Lefcourt (Ed.), *Research with the locus of control construct: Developments and social problems* (Vol. 2, pp. 53–103). New York: Academic Press.
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanism in children's social adjustment. *Psychological Bulletin*, *115*(1), 74–101.
- De Graaf, I., Speetjens, P., Smit, F., De Wolff, M., & Tavecchio, L. (2008). Effectiveness of the Triple P Positive Parenting Program on behavioral problems in children: A meta-analysis. *Behavior Modification*, *32*(5), 714–735.
- Efta-Breitbach, J., & Freeman, K. A. (2004). Recidivism, resilience, and treatment effectiveness for youth who sexually offend. *Journal of Child Sexual Abuse*, *13*(3), 257–279.
- Elliott, D. S., Menard, S., Elliott, A., Wilson, W. J., & Huizinga, D. (2006). *Good kids from bad neighborhoods: Successful development in social context*. New York, NY: Cambridge University Press.
- Emirbayer, M., & Mische, A. (1998). What is agency? *American Journal of Sociology*, *103*(4), 962–1023.
- Enger, J. M., Howerton, D. L., & Cobbs, C. R. (1994). Internal/external locus of control, self-esteem, and parental verbal interaction of at-risk black male adolescents. *Journal of Social Psychology*, *134*(3), 269–274.
- Farver, J. M., Ghosh, C., & Garcia, C. (2000). Children's perceptions of their neighborhoods. *Journal of Applied Developmental Psychology*, *21*(2), 139–163.
- Fauth, R. C., Roth, J. L., & Brooks-Gunn, J. (2007). Does the neighborhood context alter the link between youth's after-school time activities and developmental outcomes? A multilevel analysis. *Developmental Psychology*, *43*(3), 760–777.
- Fredstrom, B. K., Adams, R. E., & Gilman, R. (2011). Electronic and school-based victimization: Unique contexts for adjustment difficulties during adolescence. *Journal of Youth and Adolescence*, *40*(4), 405–415.
- Furstenberg, F. F., Jr, Cook, T. D., Eccles, J., Elder, G. H., Jr, & Sameroff, A. (1999). *Managing to make it: Urban families and adolescent success*. Chicago: University of Chicago Press.
- García-Cadena, C. H., Moral de la Rubia, J., Díaz-Díaz, H. L., Martínez-Rodríguez, J., Sánchez-Reyes, L., & López-Rosales, F. (2013). Effect of family strength over the psychological well-being and internal locus of control. *Journal of Behavior, Health & Social Issues*, *5*(2), 33–46.
- Gardner, M., Roth, J. L., & Brooks-Gunn, J. (2009). Sports participation and juvenile delinquency: The role of peer context among adolescent boys and girls with varied histories of problem behavior. *Developmental Psychology*, *45*(2), 341–353.
- Gierowski, J. K., & Rajtar, T. (2003). *Chosen factors influencing the locus of control in perpetrators of criminal acts* (pp. 129–138). LIII: Problems of Forensic Science.
- Gifford-Smith, M., Dodge, K. A., Dishion, T. J., & McCord, J. (2005). Peer influence in children and adolescents: Crossing the bridge from developmental to intervention science. *Journal of Abnormal Child Psychology*, *33*(3), 255–265.
- Heimer, K. (1996). Gender, interaction, and delinquency: Testing a theory of differential social control. *Social Psychology Quarterly*, *59*(1), 39–361.
- Hersch, P. D., & Scheibe, K. E. (1967). Reliability and validity of internal-external control as a personality dimension. *Journal of Consulting Psychology*, *31*(6), 609–613.
- Houts, S., & Kassab, C. (1997). Rotter's social learning theory and fear of crime: Differences by race and ethnicity. *Social Science Quarterly*, *78*(1), 122–136.
- Huang, D., Gribbons, B., Kim, K. S., Lee, C., & Baker, E. L. (2000). *A decade of results: The impact of the LA's BEST after school enrichment program on subsequent student achievement and performance*. Los Angeles, CA: UCLA Center for the Study of Evaluation.
- Johnson, S. T. (1992). Extra-school factors in achievement, attainment, and aspiration among junior and senior high school-age African American youth. *The Journal of Negro Education*, *61*(1), 99–119.
- Kang, H. S., Chang, K. E., Chen, C., & Greenberger, E. (2013). Locus of control and peer relationships among Caucasian, Hispanic, Asian, and African American adolescents. *Journal of Youth and Adolescence*, *44*(1), 184–194.
- Karabenick, S. A., & Srull, T. K. (1978). Effects of personality and situational variation in locus of control on cheating: Determinants of the "congruence effect". *Journal of Personality*, *46*(1), 72–95.
- Kelley, T. M. (1996). At-risk youth and locus of control: Do they really see a choice? *Juvenile & Family Court Journal*, *47*(4), 39–53.
- Kilpatrick, D. G., Dubin, W. R., & Marcotte, D. B. (1974). Personality, stress and the medication education process, and changes in affective mood state. *Psychological Reports*, *34*(3), 1215–1223.
- Krause, N., & Stryker, S. (1984). Stress and well-being: The buffering role of locus of control beliefs. *Social Science and Medicine*, *18*(9), 783–790.
- Kupersmidt, J. B., Griesler, P. C., DeRosier, M. E., Patterson, C. J., & Davis, P. W. (1995). Childhood aggression and peer relations in the context of family and neighborhood factors. *Child Development*, *66*(2), 360–375.
- Larson, R. (1989). Is feeling "in control" related to happiness in daily life? *Psychological Reports*, *64*(3), 775–784.
- Lau, S., & Leung, K. (1992). Self-concept, delinquency, relations with parents and school and Chinese adolescents' perception of personal control. *Personality and Individual Differences*, *13*(5), 615–622.
- Lefcourt, H. M. (1982). *Locus of control: Current trends in theory and research* (2nd ed.). Hillsdale, NJ: Lawrence-Erlbaum.
- Lobo Antunes, M. J., & Ahlin, E. M. (2014a). Family management and youth violence: Are parents or community more salient? *Journal of Community Psychology*, *42*(3), 316–337.

- Lobo Antunes, M. J., & Ahlin, E. M. (2014b). Protecting youth against exposure to violence: Intersections of race/ethnicity, neighborhood, family and friends. *Race & Justice: An International Journal*. doi:10.1177/2153368714550879.
- Lynch, S., Hurford, D. P., & Cole, A. (2002). Parental enabling attitudes and locus of control of at-risk and honors students. *Adolescence*, 37(147), 527–549.
- Maimon, D., & Browning, C. R. (2010). Unstructured socializing, collective efficacy and youth violent behavior among urban youth. *Criminology*, 48(2), 443–473.
- Maqsud, M., & Rouhani, S. (1991). Relationships between socioeconomic status, locus of control, self-concept, and academic achievement of Batswana adolescents. *Journal of Youth and Adolescence*, 20(1), 107–114.
- Meier, L. L., Semmer, N. K., Elfering, A., & Jacobshagen, N. (2008). The double meaning of control: Three-way interactions between internal resources, job control, and stressors at work. *Journal of Occupational Health Psychology*, 13(3), 244–258.
- Miller, J. B. (1986). *Toward a new psychology of women* (2nd ed.). Boston: Beacon Press.
- Mirowsky, J., & Ross, C. E. (1986). Social patterns of distress. *Annual Review of Sociology*, 12, 23–45.
- Mirowsky, J., & Ross, C. E. (1990). Control or defense? Depression and the sense of control over good and bad outcomes. *Journal of Health and Social Behavior*, 31(1), 71–86.
- Mischel, W., Zeiss, R., & Zeiss, A. (1974). An internal-external control test for young children. *Journal of Personality and Social Psychology*, 29(2), 265–278.
- Moilanen, K. L., & Shen, Y.-L. (2014). Mastery in middle adolescence: The contributions of socioeconomic status, maternal mastery and supportive-involved mothering. *Journal of Youth and Adolescence*, 43(2), 298–310.
- Moore, M. (2011). Psychological theories of crime and delinquency. *Journal of Human Behavior in the Social Environment*, 21(3), 226–239.
- Morelli, G., Krottinger, H., & Moore, S. (1979). Neuroticism and Levenson's locus of control scale. *Psychological Reports*, 44(1), 153–154.
- Nowicki, S., & Strickland, B. R. (1973). A locus of control scale for children. *Journal of Consulting and Clinical Psychology*, 40(1), 148–154.
- Osterman, K., Kaj, B., Lagerspetz, K. M. J., Charpentier, S., Caprara, G. V., & Pastorelli, C. (1999). Locus of control and three types of aggression. *Aggressive Behavior*, 25(1), 61–65.
- Perez, M. E., & Fox, R. A. (2008). Parenting Latino toddlers and preschoolers: Clinical and nonclinical samples. *Hispanic Journal of Behavioral Sciences*, 30(4), 481–499.
- Peterson, C., Maier, S. F., & Seligman, M. E. P. (1993). *Learned helplessness*. New York: Oxford University.
- Phares, E. J. (1976). *Locus of control in personality*. Morristown, NJ: General Learning Press.
- Raudenbush, S., & Bryk, A. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Reitzel, L. R., & Harju, B. (2000). Influence of locus of control and custody level on intake and prison-adjustment depression. *Criminal Justice and Behavior*, 27(5), 625–644.
- Reynolds, C. H. (1976). Correlational findings, educational implications, and criticisms of locus of control research. *Journal of Black Studies*, 6(3), 221–256.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80(1), 1–28.
- Sampson, R. J., Morenoff, J. D., & Gannon-Rowley, T. (2002). Assessing “neighborhood effects”: Social processes and new directions in research. *Annual Review of Sociology*, 28, 443–478.
- Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A Multilevel study of collective efficacy. *Science*, 277(5328), 918–924.
- Sanders, M. R. (2003). Triple P—Positive parenting program: A population approach to promoting competent parenting. *Australian e-Journal for the Advancement of Mental Health*, 2(3), 127–143.
- Sanders, M. R. (2008). Triple P-Positive parenting program as a public health approach to strengthening parenting. *Journal of Family Psychology*, 22(4), 506–517.
- Sandler, I. N., & Lakey, B. (1982). Locus of control as a stress moderator: The role of control perception and social support. *American Journal of Community Psychology*, 10(1), 65–80.
- Schaeffer, C. M., & Borduin, C. M. (2005). Long-term follow-up to a randomized clinical trial of multisystemic therapy with serious and violent juvenile offenders. *Journal of Consulting and Clinical Psychology*, 73(3), 445–453.
- Schmidt, M. R., Lisco, C. G., Parrott, D. J., & Tharp, A. T. (2014). Moderating effect of negative peer group climate on the relation between men's locus of control and aggression toward intimate partners. *Journal of Interpersonal Violence*. doi:10.1177/0886260514556761.
- Seidman, E., Yoshikawa, H., Roberts, A., Chesir-Teran, D., Allen, L., Friedman, J. L., & Aber, J. L. (1998). Structural and experiential neighborhood contexts, developmental stage and antisocial behavior among urban adolescents in poverty. *Developmental and Psychopathology*, 10(2), 259–281.
- Sherman, L. W. (1984). Development of children's perceptions of internal locus of control: A cross-sectional and longitudinal analysis. *Journal of Personality*, 52(4), 338–354.
- Silbereisen, R. K., & Eyferth, K. (1986). Development as action in context. In R. K. Silbereisen, K. Eyferth, & G. Rudinger (Eds.), *Development as action in context* (pp. 3–16). New York: Springer-Verlag.
- Slee, P. T. (1993). Bullying: A preliminary investigation of its nature and the effects of social cognition. *Early Child Development and Care*, 87(1), 47–57.
- Spokas, M., & Heimberg, R. G. (2009). Overprotective parenting, social anxiety, and external locus of control: Cross-sectional and longitudinal relationships. *Cognitive Therapy and Research*, 33(6), 543–551.
- Straus, M. A. (1979). Measuring intrafamily conflict and violence: The conflict tactics (CT) scales. *Journal of Marriage and the Family*, 41(1), 75–88.
- Strayhorn, T. L. (2010). When race and gender collide: Social and cultural capital's influence on the academic achievement of African American and Latino males. *The Review of Higher Education*, 33(3), 307–332.
- Sullivan, C. J. (2012). *A comprehensive investigation of the role of the individuals, the immediate social environment, and neighborhoods in trajectories of adolescent antisocial behavior. Final technical report*. Washington, DC: National Institute of Justice.
- Tonry, M., Ohlin, L. E., & Farrington, D. P. (1991). *Human development and criminal behavior*. New York: Springer.
- van Reemst, L., Fischer, T. F. C., & Zwirs, B. W. C. (2014). Social information processing mechanisms and victimization: A literature review. *Trauma, Violence, & Abuse*. doi:10.1177/1524838014557286.
- Wallace, M. T., Barry, C. T., Zeigler, H. V., & Green, B. A. (2012). Locus of control as a contributing factor in the relation between self-perception and adolescent aggression. *Aggressive Behavior*, 38(3), 213–221.
- Wikström, P.-O. H. (2006). Individuals, settings, and acts of crime: Situational mechanisms and the explanation of crime. In P.-O. H. Wikström & R. J. Sampson (Eds.), *the explanation of crime* (pp. 61–107). Cambridge: Cambridge University.

- Wikström, P.-O. H., & Loeber, R. (2000). Do disadvantaged neighborhoods cause well-adjusted children to become adolescent delinquents? A study of male juvenile serious offending, individual risk and protective factors, and neighborhood context. *Criminology*, 38(4), 1109–1142.
- Yu, X., & Fan, G. (2014). Direct and indirect relationship between locus of control and depression. *Journal of Health Psychology*. doi:10.1177/1359105314551624.
- Zimmerman, G. M., Messner, S. F., & Rees, C. (2014). Incorporating unstructured socializing into the study of secondary exposure to community violence. *Journal of Interpersonal Violence*, 29(10), 1802–1833.

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